

Introduction

Cyprus has excellent direct normal irradiance (DNI) resources of up to 2200 kWh/(m²a), which is perfectly suitable for the parabolic trough collector (PTC) technology to produce energy for the industrial sector.

Many industry sectors have a need for steam or hot water at higher temperatures and according to the current energy situation, the industrial sector is the second biggest fossil fuel consumer in Cyprus. A PTC system can exploit the solar potential of Cyprus to produce steam or hot water at the required temperature and can reduce the fuel consumption.

The KEAN factory

- One of the biggest manufacturer and exporter of fruit juices, concentrates, soft drinks and essential oils in Cyprus
- At KEAN the first PTC system for industrial process heat in Cyprus has been successfully installed and is in operation
- In combination with an implemented concrete thermal energy storage (C-TES), the system enables dispatchable steam supply and satisfies the thermal energy needs even in the winter period.



The Concentrated Solar Thermal

The CST (Concentrated Solar Thermal) plant consisting of the PTC collectors, the thermal oil handling unit, the steam boiler and the plants control system is designed and constructed by PROTARGET.

The main part is the CF100 collector where the incident rays are reflected on the vacuum absorber tube placed at the focal line of the collector. The concentrated rays falling on the absorber tube heat the working fluid which is circulated by a pump through the thermal energy storage (TES) and the steam boiler.

A new heat transfer fluid (HTF) is used which is silicone based and environmental friendly. It is a non-corrosive fluid with no hazard classification. It has an upper temperature limit of 425 °C which is about 30 °C higher than other conventional thermal oils.

Concrete Thermal Energy Storage

- The C-TES is constructed by CADE
- It consists of four concrete blocks with embedded tube bundles and can be operated with different operational targets
- The two main objectives is to cover a constant thermal demand and to deliver thermal energy during all the productive period according to work shifts.



Parabolic Trough Collector System

THE 1ST PTC SYSTEM FOR INDUSTRIAL PROCESS HEAT IN CYPRUS



Workshop
18/06/2019

EU Funded Project:
Evaluation of the Dispatchability of a Parabolic Trough Collector System with Concrete Storage
'EDITOR'

Workshop Scope

Presentation and demonstration of a cost-effective, high performance concentrating solar thermal system with concrete storage for process heat generation.

Inform the industrial community of Cyprus about:

- Engineering and operation of the first PTC system installed in Cyprus
- The potential of using PTC system in Cyprus industries.

Targeted industry sectors:

- ✓ Food and beverage factories
- ✓ Concrete and cement industries
- ✓ Plastic industries
- ✓ Laundry

Workshop Program

<u>Time</u>	<u>Topic</u>
14 ⁰⁰ -14 ¹⁵	Welcoming and introduction
14 ¹⁵ -15 ³⁰	Presentation of PTC system & concrete thermal energy storage
15 ³⁰ -16 ⁰⁰	Presentation of the experience with the solar plant and the benefits to KEAN
16 ⁰⁰ -16 ³⁰	Break (optional visit to poster stands)
16 ³⁰ -18 ⁰⁰	Tour of the solar system at KEAN
	End of workshop

Speakers

Martin Scheuerer | Protarget AG
Victor Ruiz | CADE
Prof. Soteris Kalogirou | CUT
Prof. Spiros Alexopoulos | SIJ - Aachen University of Applied Sciences

Workshop Registration

https://docs.google.com/forms/d/e/1FAIpQLSfmDMh0OVunOdRnEwoF_DaCUYWQkXkzicIw08gz4dwjEZixXw/vi_{ewform}

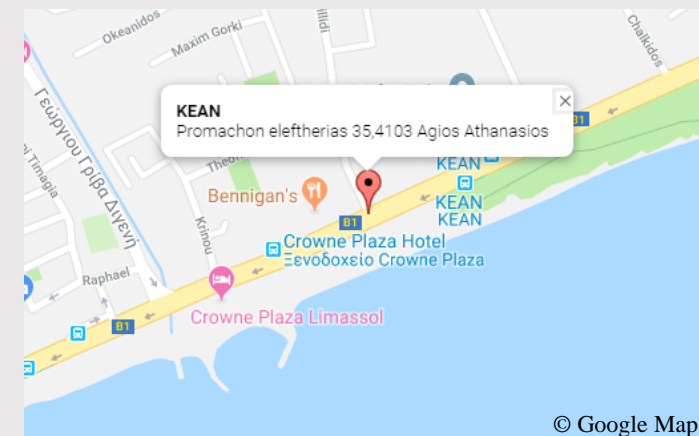
or

Email at: panayiotis.ktistis@cut.ac.cy

Registration deadline: 12 June 2019

Location

**KEAN Soft Drinks Ltd,
Promachon eleftherias 35,
4103 Agios Athanasios, Limassol, Cyprus**



Information

Contact Person: Prof. Soteris Kalogirou

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Project Websites

<https://protarget-ag.com/orange-juice-from-cyprus-produced-with-lots-of-sun-and-solar-generated-steam-using-protargets-concentrating-solar-thermal-cst-technology/>

<https://www.fh-aachen.de/en/research/solar-institut-juelich/editor/> (official website)



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project
partners |
Public funds:

