

Event:  
Date:  
Place:

**ENERGY in BUILDINGS 2018**  
Saturday November 3, 2018  
Athens, Hellas



<b>#</b>	<b>Theoni I. Oikonomou</b> Energy and Environment Physicist, M.Sc.	
Title:	Scientific member of the Solar Thermal Systems' Department of the Centre for Renewable Energy Sources and Saving (CRES), Pikermi, Greece	
email:	thoikonomou@cres.gr	•
Presentation title:	<b>Solar Thermal Systems' Innovative Concepts for Residential Buildings</b>	
<p>Solar thermal technology is a widespread renewable energy technology, converting solar energy into useful thermal energy. This thermal energy may be used directly or be converted to other kinds of energy, such as mechanical, electrical, chemical. Solar thermal systems include equipment and devices, producing fluid of low (<math>T &lt; 100\text{ }^{\circ}\text{C}</math>), medium (<math>100^{\circ} &lt; T &lt; 400\text{ }^{\circ}\text{C}</math>) or high (<math>T &gt; 400\text{ }^{\circ}\text{C}</math>) temperatures, depending on the system application.</p> <p>This presentation outlines the available solar thermal systems and analyses the solar thermal technology for residential buildings, including up to date developments and innovative concepts for solar thermal collectors, energy storage and applications. Discussion is focused on solar collectors and systems for low temperature applications (domestic hot water production, space heating, space cooling), since this is the technology in the scope of TESSe2b project.</p> <p>The technology aspects for a typical forced-circulation solar thermal system for low temperatures applications in the residential sector are presented. Furthermore, solar collectors, storage system, circulation-hydraulic system, control system and back-up system are elaborated. Moreover, guideline is also given for choosing the suitable technology of solar collector for the required application in order to achieve higher efficiency of the system. Configurations, up to date information and case studies for the solar thermal applications for residential buildings -domestic hot water, space heating and space cooling- are also presented.</p> <p>Finally, the objective of TESSe2b project to optimize the solar thermal system by using Phase Change Materials (PCM) products in the thermal storages of the system is discussed.</p>		

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CV:

Mrs Theoni OIKONOMOU is Energy and Environment Physicist, holding a University degree from the Physics Department of the University of Patras, in Greece and a Master of Science degree from the National Technical University of Athens and the University of Piraeus, in "Energy Management Systems and Environmental Protection". She has also studied applied economics and holds a University degree awarded by the "Home Economics and Ecology" Department of the Harokopio University of Athens. During her 15-year experience, she has been specialized in studies and implementation of Renewable Energy Sources and Energy Saving projects. Her work experience includes several fields, such as Energy Inspections of office buildings, Bioclimatic, Environmental and Energy Saving Studies, Implementation and Project Management of European Programmes on renewable sources, energy saving, oversight and verification of co-financed energy projects. She has published over 10 papers in scientific magazines and made presentations in several conferences.

Since July 2011, Ms Oikonomou is a member of the scientific personnel of the Center for Renewable Energy Sources and Saving (CRES), in the Division of Renewable Energy Sources and in particular in the Solar Thermal Systems' Department, in which she is focused on the implementation of European and National programmes in the solar thermal technology sector.