

Accepted Manuscript

Title: Design of large scale prosuming in Universities: The solar energy vision of the TUC campus

Authors: Dimitrios Hasapis, Nikolaos Savvakis, Theocharis Tsoutsos, Konstantinos Kalaitzakis, Spyridon Psychis, Nikolaos P. Nikolaidis



PII: S0378-7788(17)30272-4
DOI: <http://dx.doi.org/doi:10.1016/j.enbuild.2017.01.074>
Reference: ENB 7349

To appear in: *ENB*

Received date: 15-11-2015
Revised date: 22-1-2017
Accepted date: 24-1-2017

Please cite this article as: Dimitrios Hasapis, Nikolaos Savvakis, Theocharis Tsoutsos, Konstantinos Kalaitzakis, Spyridon Psychis, Nikolaos P.Nikolaidis, Design of large scale prosuming in Universities: The solar energy vision of the TUC campus, Energy and Buildings <http://dx.doi.org/10.1016/j.enbuild.2017.01.074>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Design of large scale prosuming in Universities

The solar energy vision of the TUC campus

Dimitrios Hasapis, Nikolaos Savvakis, Theocharis Tsoutsos¹, Konstantinos Kalaitzakis, Spyridon Psychis, Nikolaos P. Nikolaidis

Technical University of Crete (TUC), GR-73100 Chania

Abstract

The current paper presents the main steps in the design of large-scale photovoltaic (PV) power generation plants in University campuses towards their energy independence. As an example is used the campus of the Technical University of Crete as a base case to describe the design.

Today the insular power system of Crete is based on oil fuel by 75%. Solar electricity is designed and discussed in this report.

For this scope, the energy consumption figures of the buildings within the campus are analyzed. In parallel, a feasibility study of the PV energy generation is conducted revealing their potential contributions and applicability.

The resultant electrical energy generation design satisfies the project objective by utilizing alternative energy sources and reducing the greenhouse gas emissions of the campus. The results obtained are satisfactory being both technically and economically feasible.

To conclude, these designs proposed in this project can be the first steps towards a 100% green energy campus and get even more tempting with relevant technological improvements in the future.

Keywords: Sustainable energy; Photovoltaics; Self-consumption; Energy yield

¹ Corresponding author: Tel.: +30 2821037825

E-mail address: theocharis.tsoutsos@enveng.tuc.gr (T. Tsoutsos)

Download English Version:

<https://daneshyari.com/en/article/4919060>

Download Persian Version:

<https://daneshyari.com/article/4919060>

[Daneshyari.com](https://daneshyari.com)