Accepted Manuscript

A Renewable Energy System for a nearly Zero Greenhouse City: case study of a small city in southern Italy

G. De Luca, S. Fabozzi, N. Massarotti, L. Vanoli

PII: S0360-5442(17)31178-7

DOI: 10.1016/j.energy.2017.07.004

Reference: EGY 11191

To appear in: Energy

Received Date: 27 November 2016

Revised Date: 28 June 2017

Accepted Date: 01 July 2017

Please cite this article as: G. De Luca, S. Fabozzi, N. Massarotti, L. Vanoli, A Renewable Energy System for a nearly Zero Greenhouse City: case study of a small city in southern Italy, *Energy* (2017), doi: 10.1016/j.energy.2017.07.004

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.



ACCEPTED MANUSCRIPT

1	A Renewable Energy System for a nearly Zero Greenhouse City: case study of a
2	small city in southern Italy
3	
4	G. De Luca, S. Fabozzi, N. Massarotti, L. Vanoli*1
5	Engineering Department
6	University of Naples "Parthenope", Isola C4, Centro Direzionale, 80143 Naples, Italy
7	e-mail: giusi.deluca@uniparthenope.it
8	salvatore.fabozzi@uniparthenope.it
9	massarotti@uniparthenope.it
10	laura.vanoli@uniparthenope.it*
11	

12 ABSTRACT

This paper presents an economic and energy feasibility analysis of a renewable energy system 13 for a small city in southern Italy to convert it to zero greenhouse gas city by 2030. The 14 15 proposed energy infrastructure utilises different technologies: wind turbine, photovoltaic 16 panels and biogas cogeneration plants to produce electric energy, and thermal solar panels, 17 cogeneration and heat pumps to meet the thermal energy demand of the city. The electrification of transport sector is also considered. The whole city energy system is analysed 18 by the EnergyPLAN software to evaluate streams combination and potential synergies 19 20 between the different sectors. In order to improve the analysis, PhotoVoltaic technology has 21 been simulated in TRNSYS environment, to obtain detailed prediction of this component of 22 the energy infrastructure. The system behaviour was analysed considering different time 23 bases: daily, weekly and yearly. The EnergyPLAN outputs include the aggregated yearly

¹ *Corresponding Author: laura.vanoli@uniparthenope.it

Download English Version:

https://daneshyari.com/en/article/8072547

Download Persian Version:

https://daneshyari.com/article/8072547

Daneshyari.com