



INTEGRATION OF RENEWABLE ENERGY TECHNOLOGIES IN THE COMMUNITY OF THE AGRICULTURAL UNIVERSITY OF ATHENS

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Introduction

Increasing the share of renewable energy (RE) is an effective way to make energy supply more secure, sustainable, competitive, decarbonized and environmental friendly. In this context, Iceland, Liechtenstein and Norway support energy efficiency programs in Greece. The programs aim at increasing the share of RE and to meet EU targets on climate and energy. The project of the Agricultural University of Athens has been selected in order to demonstrate the application of RE at emblematic locations inside the AUA Campus. More specifically, four activities have been implemented; (a) An autonomous PV microgrid has been installed for the external lighting and also supply various electrical loads of the AUA library building, (b) Installation of efficient lighting systems in AUA's sport fields powered by an autonomous PV microgrid, (c) A biomass burner has been installed at the AUA library building for heating and (d) an autonomous solar-driven charging station have been installed for charging one electric mini-bus and ten electric bicycles.

100 kWp Autonomous Microgrid

A 100 kWp Autonomous Microgrid has been installed at the AUA library building in order to cover part of its electrical needs (lighting and auxiliary electrical needs such as computers etc.). The system provides energy autonomy to the library lighting at least for three days during the winter.



30 kW Biomass Burner

A 30 kW solid fuel boiler, with the ability to burn good quality pellets, has been connected with the existing heating system of the AUA library building.



Results

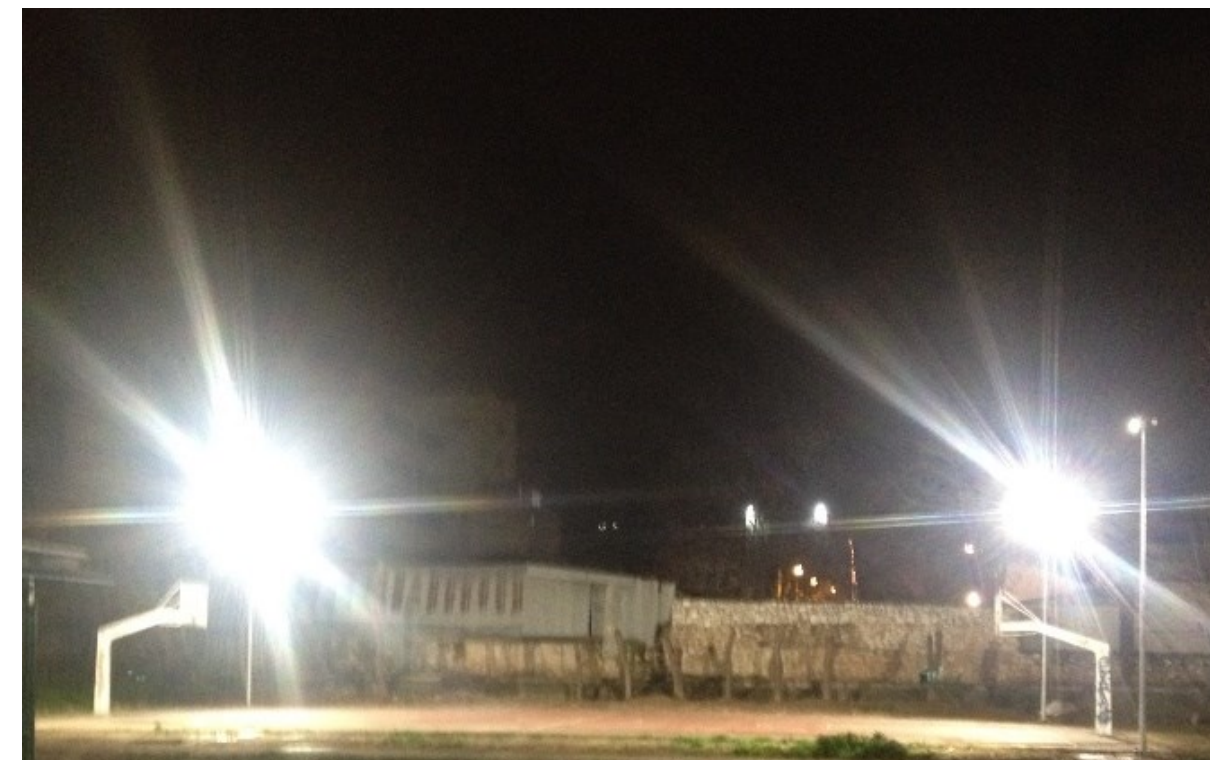
The project is expected to achieve an increase of renewable energy penetration at the AUA campus, strengthen awareness and education in renewable energy technologies, to decrease the carbon footprint of AUA and to become a reference for other activities in the nearest future.

- 176 MWh/year - PV produced energy
- 14 MWh/year - Thermal produced energy
- 1758 tnCO₂/year - Mitigation of AUA's carbon footprint

5 kWp PV Autonomous Microgrid for the lighting of the AUA's sports facilities

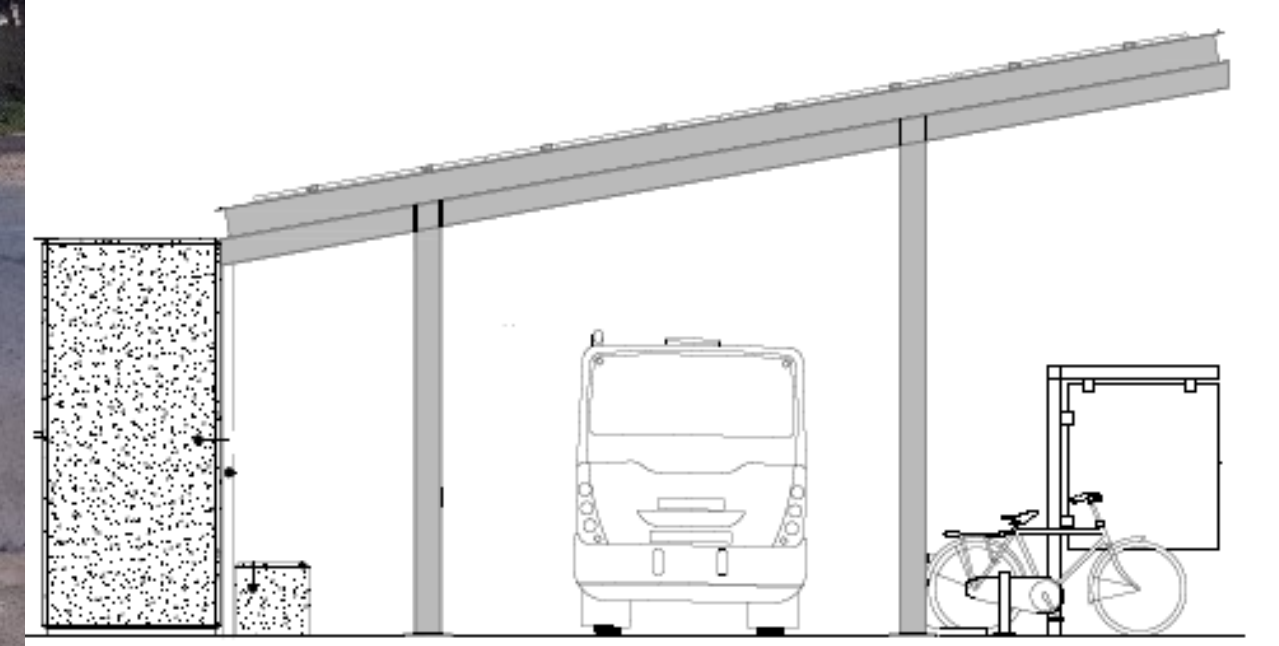
Led floodlight towers have been installed for the lighting of the four open field sport courts: (a) a volley court, (b) a basketball court and two tennis courts.

The power supply of the LED lights is handled by an Autonomous 5 kWp Photovoltaic Microgrid and the PV array have been installed on a specially designed shelter.



5 kWp PV Autonomous Microgrid for the supply of an Electric Vehicle Charging Station

An autonomous 5 kWp PV Microgrid has been installed in order to charge ten (10) electric bicycles and one (1) electric bus. A photovoltaic shelter has been installed in front of the station, as a ideal parking lot for the bus and the bicycles.



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