



NEWSLETTER N.3

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ESMES NEWS

Introduction to the project

The energy trends in the Mediterranean region are characterized by the **growing demand for energy, fossil fuels dependence, high CO2 emissions**. Buildings are responsible for a significant part of the total energy consumption, causing 36% of CO2 emissions. In this context, increasing the energy performance of the building stock has a key role to play in the transition to a smarter, renewable-intensive and decarbonized energy system and, in the longer term, to a climate-neutral economy.

ESMES project will specifically focus on the **optimization of energy consumption in public schools** through innovative, monitoring-based renewable energy and energy efficiency (REEE) pilot actions. At the same time, the project will **improve the capacity of 5 public institutions** in order to implement innovative energy rehabilitations.

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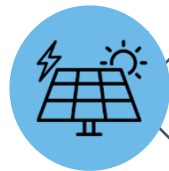
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Key activities

www.enicbcmmed.eu/projects/esmes



A school contest among 34 public schools of target areas in order to raise students' awareness on the importance of adopting sustainable energy behaviors and reduce schools' energy consumption.



The REEE rehabilitation plans of 5 public vocational schools' buildings with non-linear energy loads including the installation of photovoltaic energy plants.



The REEE rehabilitation plans for 5 public schools funded by project sub-grants, one per participating country in the project. The sub-grants will allow third parties to take part of the project

Non-linear rehabilitation

ESMES project promotes the rehabilitation of non-linear energy load schools at Med area. At la Ribera region, IES Bernat Guinovart (Algemesi) was selected as the pilot case.

Based on the building's energy audit, a school REEE rehabilitation plan was agreed by Consorci de la Ribera (CRIB) and the school, identifying the following investment goals:

1. To reduce the energy consumption of the school;
2. To cover the school electricity demand with renewable energy sources (also considering the roof surface availability) and;
3. To improve the comfort of building users.

Following those guidelines, refurbishment works finished in February 23, consisting on:

- A 20-kW photovoltaic self-consumption plant + 15 kWh storage capacity lithium batteries (LFP), with a public display providing live solar production data.
- Energy efficiency improvement of school lighting system consisting on installation of different LED lamps & tubes and installation of motion detectors.
- Improvement of domestic hot water system consisting on the replacement of existing electric boilers by DHW aerothermal system.

With a total investment of 64.759,83 €, ESMES renovation actions are expected to cover 60% of the total electricity demand (avoiding 3,28 T CO₂/year) and to reduce initial energy demand by a 16% (avoiding 1,94 T CO₂/year).



Standard energy rehabilitation

- CEE Miquel Burguera, city of Sueca proposal, was awarded by CRIB with an energy rehabilitation ESMES.
- Proposals evaluation criteria were: i. kWh of RES produced; ii. Higher energy savings induced; iii. Alignment with project objectives; iv. Permits, and; v. Covenant of Mayors adhesion
- Rehabilitation plan consisted on:
 - a. A 51,52 kWp self-consumption solar photovoltaic plant expected to produce 84827,4 kWh/y.
 - b. School lighting system renovation with the replacement of all existing fluorescent lamp tubes by LED equipment and installation of 20 motion sensors in common areas. 6000 kWh/year energy saving.
- CEE Miquel Burguera total rehabilitation investment of 58.725,93 €.



CARBON NEUTRAL STRATEGY

On the 4th June, Consorci de la Ribera formally adopted the Carbon Neutral Schools' Strategy at Med Area, developed at ESMES project activities framework.

This strategy is aiming to guide future rehabilitations of buildings, through appropriate combinations of REEE solutions and funding sources and respecting existing legal frameworks on public buildings.