



LEMON project - reducing greenhouse gas emissions through the energy conversion of social housing

Reggio Emilia, Italy

IN A NUTSHELL

Funded under the Horizon 2020 programme, the LEMON Project provides technical assistance to public and private organisations for the energy retrofitting of 622 social housing units in the provinces of Reggio Emilia and Parma.

Context

Within the European Union, the social housing sector manages about 11% of existing dwellings (over 26 million homes). In the Emilia-Romagna region in northern Italy, the social Housing Companies (ACERs) manage around 78,000 dwellings.

In the Reggio Emilia province, almost half of the building stock was built before the 1960s, which has deep consequences on energy consumption. Thus, in order to reach the European objectives of energy consumption reduction, the renovation of social housing plays a key-role. It is in response to this observation that the project LEMON, standing for Less Energy More OpportuNities, was conceived.

How does it work?

The LEMON project was developed to reduce greenhouse gas emissions and fight energy poverty through the energy conversion of existing social housing. It focuses on increasing the energy efficiency of buildings while looking to improve housing quality. LEMON works on a portion of the social housing building stock of the Emilia-Romagna region, with the ambition to become a replicable best case for the entire region and other European countries.

As inequalities grow, public awareness about the environment, climate change, energy efficiency and sustainability is on the rise. Energy audits of the social building stock considered for the project revealed 622 houses currently highly inefficient (averaging a G rating according to the EU energy labelling scheme). LEMON aims to bring these dwellings up to a C rating by different actions: insulation, building automation and control, and integration between building and equipment.



One of the buildings of the ACER heritage before the restoration and a render of the building after the restoration

REGGIO EMILIA



Population:

170,000

Area

230.66 km²

Signatory to the Covenant of Mayors since:

2009

CO₂ emission reduction target:

22% by 2020

Setting a contractual framework managing stakeholders' interactions

Aware that homeowners do not have a sufficient incentive to invest in sustainable housing, LEMON provides technical assistance to public and private entities for the preparation of the tenders for the energy retrofitting of the social housing units.

One of the major innovations of this project was to get the different actors involved in the energy refurbishment of buildings to use special contractual tools. In order to encourage the retrofitting of buildings, the LEMON project developed and applied two innovative contractual instruments to govern the relations between tenants and owners of the residences, the energy supplier and the ESCOs (Energy Service Companies).

First, the Energy Performance Contract (EPC) is an agreement between beneficiary and supplier guaranteeing the latter to be repaid through the savings generated by increased energy efficiency of the housing. This contractual framework ensures investors a return on investment within 15 years from the retrofitting. The EPC is an already existing instrument, but hardly used due to the poor regulation and the difficulty of applying it for local authorities. LEMON helped it to spread through public events and workshops.

The second instrument, the Energy Performance Tenancy Agreement (EPTA) is a lease with the rent reflecting the improvements made to the housing and the consequent reduction in energy costs. This contract allows the tenant and owner to share the benefits from efficiency gains. While the tenant benefits from a cost reduction of 10% to 30%, the owner benefits from the additional savings generated by the retrofitting intervention.

Tenants play a crucial role in the sustainability and the results of the project. LEMON has provided training and awareness campaigns to help future tenants to understand their energy consumption. Great emphasis was put on teaching the residents how to reach better energy consumption in the long term.

Furthermore, a Tenant's manual has been produced as a guide to reducing energy consumption in some of the activities performed at home daily. The primary energy savings are expected to bring about a major social impact, since they will reduce energy bills for low-income families, which represent a significant financial charge.

The objectives of the contract are therefore the redevelopment of the existing building stock, the improvement of living comfort and the achievement of a guaranteed level of energy efficiency of the buildings of at least 40%.

Results

By the end of the project in January 2020, LEMON is expected to mobilise €15 million of investment in energy retrofitting and is aiming to reach 5.74 GWh/year primary energy savings, meaning a yearly reduction of 1,159 tons of CO₂ emissions. Between 2016 and 2019, the project already invested €2,912,083 to retrofit 193 dwellings, achieving a 247 ton CO₂/year emission reduction and 1,106 MWh/year energy savings so far.



KEY FIGURES

Between February 2016 and June 2019:

€2,912,083 of investments made

193 retrofitted dwellings in the provinces of Reggio Emilia and Parma

247 t CO₂/year emission reduction

1,106 MWh/year energy saving



FINANCING THE PROJECT

- + **Financing source(s):**
Horizon 2020 programme; European Regional Development Fund, regional funds for social housing, national financing, national incentive 'conto termico' and loans from local and large banks
- + **Total amount:**
€628,855 (Horizon 2020 grant); €15 million mobilised from the other entities
- + **Payback period:**
15 years for ESCOs

USEFUL LINKS

- ▶ <http://www.lemon-project.eu/>
- ▶ <https://bit.ly/2L2hH1I>
- ▶ <https://bit.ly/32auuER>



CONTACT

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