

"AESS is a non-profit association for the sustainable energy development of the territory."

- ✓ AESS was established in 1999 as a territorial energy agency
- ✓ It is composed of 20 energy experts;
- ✓ 101 public bodies are members of the association;
- ✓ The main area of activity is the Emilia Romagna Region, but it also operates at national and international level;
- ✓ AESS provides technical assistance to its members to implement climate mitigation and adaptation investment programs.

Mobilizing large energy efficiency investment in the public sector

- **ELENA Modena Project:** (2013-2015) 41 EPC tenders for the retrofit of buildings, renewable energy and public lighting (third party investment equal to 30.4 M€)
- **MARTE Project (MLEI PDA):** (2015-2017), retrofit of 5 hospitals in the Marche Region (15 M€), first EPC tender with the new procurement code published in August 2016;
- **Lemon Project (Horizon 2020-PDA):** retrofit of 622 social housing units owned by ACER Reggio and Parma (10 M€);
- **EEEF (European Energy Efficiency Fund) project:** energy retrofit of public lighting and buildings in Ferrara (35 M€ of EE investment) and for the Ministry of Defense (Military Academy of Modena - 10 M€);
- **Project STEPPING (MED):** adapt the EPC model to the MED area, which are not always comparable to those of the northern and central EU countries. EPC tender for the Union of Municipalities in Forlì (5M€ of EE investment).

The LEMON project, using EPC in Social Housing

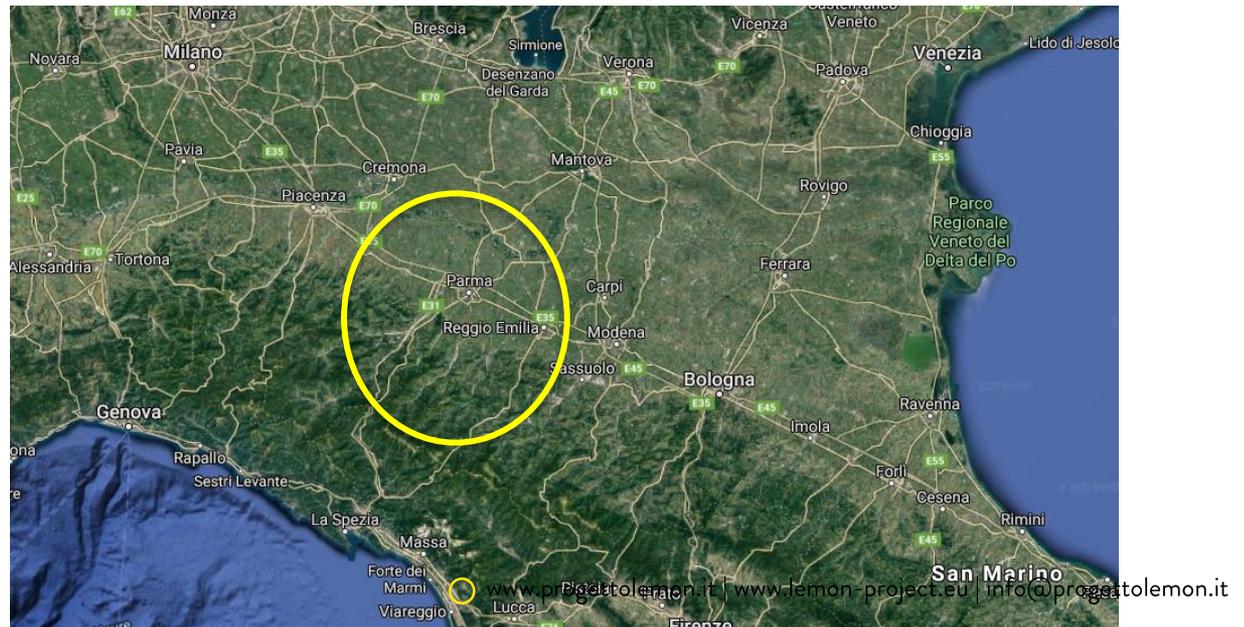
LEMON



Less
Energy
More
Opportunities

LEMON project

- LEMON is a project funded as part of the European Horizon 2020 program (call-EE-20-2015: Project development assistance for innovative bankable and aggregated sustainable energy investment schemes and projects)
- Partners of the LEMON project are Agenzia per l'Energia e lo Sviluppo Sostenibile di Modena (AESS), the project coordinator, ACER Reggio Emilia, ACER Parma and ARTER, the Consortium for the Innovation and the technology transfer of the Emilia-Romagna Region.



LEMON objectives

LEMON has the purpose of providing technical assistance to **accelerate the investment in the energy retrofitting of 626 social housing units, integrating different form of funding** available, including regional and national loans and incentives, and apply forms of contract to govern the relations between Local Authorities, dwelling owners, tenants, ACERs (Social Housing Companies), ESCOs (Energy Service Companies) and financing institutions as to ensure a return on investment within 15 years from the retrofitting.

Administrative Barriers

In Emilia Romagna region the **Municipalities have the property ownership** of the dwellings **the social housing companies ACERs have the management** of the social housing assets in each province.

This affected the LEMON project with the following barriers:

- **Each municipality had to approve the retrofit programme** managed by ACER. In some case the initial interest in the project was not confirmed due to the lack of resources to co-fund the project, change of policies after the elections and change in the cities priorities investment;

Administrative Barriers

- The retrofit programme payback period for ACER is 15 years, but the **management contract** between the Municipalities and the ACERs is in many cases **renovated every 5 years**. This required in each case and extension of the contract.

The social housing companies, that do not have the ownership of the building's property, have low capacity to aggregate investment.

Financial Barriers

LEMON main challenge was to build a business plan that **integrated different forms of financial tools**, mixing them in the best way to maximize the investment sustainability and replicability:

- L.80/2018: national grant, delivered by the region, for social housing companies to implement retrofit projects;
- ERDF (DGR 610/2016 and DGR 873/2015): regional grant to support energy efficiency investment in the public buildings, including social housing;
- Urban regeneration programme: regional grant to support energy efficiency investment in the regeneration programme of the cities;

Financial Barriers

- Ecobonus: tax incentive available for private owners and also for Social Housing Companies and consists in the possibility to deduct the investment incurred in the tax for energy efficiency intervention in building;
- Conto termico: national incentive for public administrations, including Social Housing Companies, that incentives interventions for energy efficiency improvements and thermal energy production from renewable sources;
- Third part financing through the Energy Performance Contract;
- Co-funding from Municipalities and private landlords owners of the dwellings;
- Co-funding from the tenants (**EPTA**).

Most of the incentives can be obtained after the interventions are realized delivering invoices and often have different deadline. A mechanism to anticipate the investment to the ACER has been set up. In this way the ACER can pay the ESCO and apply for incentives reimbursement.

Financial Barriers

The introduction of the Energy Performance Tenancy Agreement (EPTA) as Regulation approved by the Municipalities of Parma and Reggio Emilia and by the Union of Tenants on July 14, 2017. With the formal approval the agreement has been transformed into a scheme for tenants that set out the energy efficiency sharing saving (70% ACER and 30% tenants) approach. This provides the possibility to increase the tenants renting fee in the retrofitted dwellings according with the EPTA fee identified in LEMON business plan.

ESCOs Barriers

- LEMON foreseen a **deep retrofit** of the buildings and therefore most of the investment (about 90%) are related to the envelop (insulation and windows) and few investments are addressed to the heating systems substitution, since most of the heating systems are autonomous boilers. The ESCOs are installers/facilities/utilities and their core business are heating systems substitution and energy supply, therefore in the LEMON case they have to **subcontract most of the works** with low profit for the ESCo;
- The ESCo **do not consider** 'Conto termico' **incentive a secure budget entry**, which is assigned to the ESCo to recover the investment undertaken. Conto termico can be requested to GSE after the energy efficiency investment are realised, but some ESCo do not have internally the expertise to apply for the incentive and most of the time they externalise the preparation of the application and they fail in receiving the incentive.

ESCOs Barriers

- The presence in the building of **private owners (9%) increase the risk** for the ESCo and for those the ACERs could not guarantee the fee to the ESCo.

In order to attract investor/ESCOs it is important to reduce the risks:

- *Obtaining of uncertain incentives must be allocated on the ACER;*
- *Guarantee the landlord co-funding, ACER Reggio Emilia set-up a social fund fed with the provision coming from the work tender discount offered by the bidder. The social fund can support the investment of the private owners, that demonstrate they inability to contribute to the building energy efficiency investment. The loan will be provided by ACER and the landlord will repay the investment through a monthly fee to ACER;*
- *High equity has been ensured.*

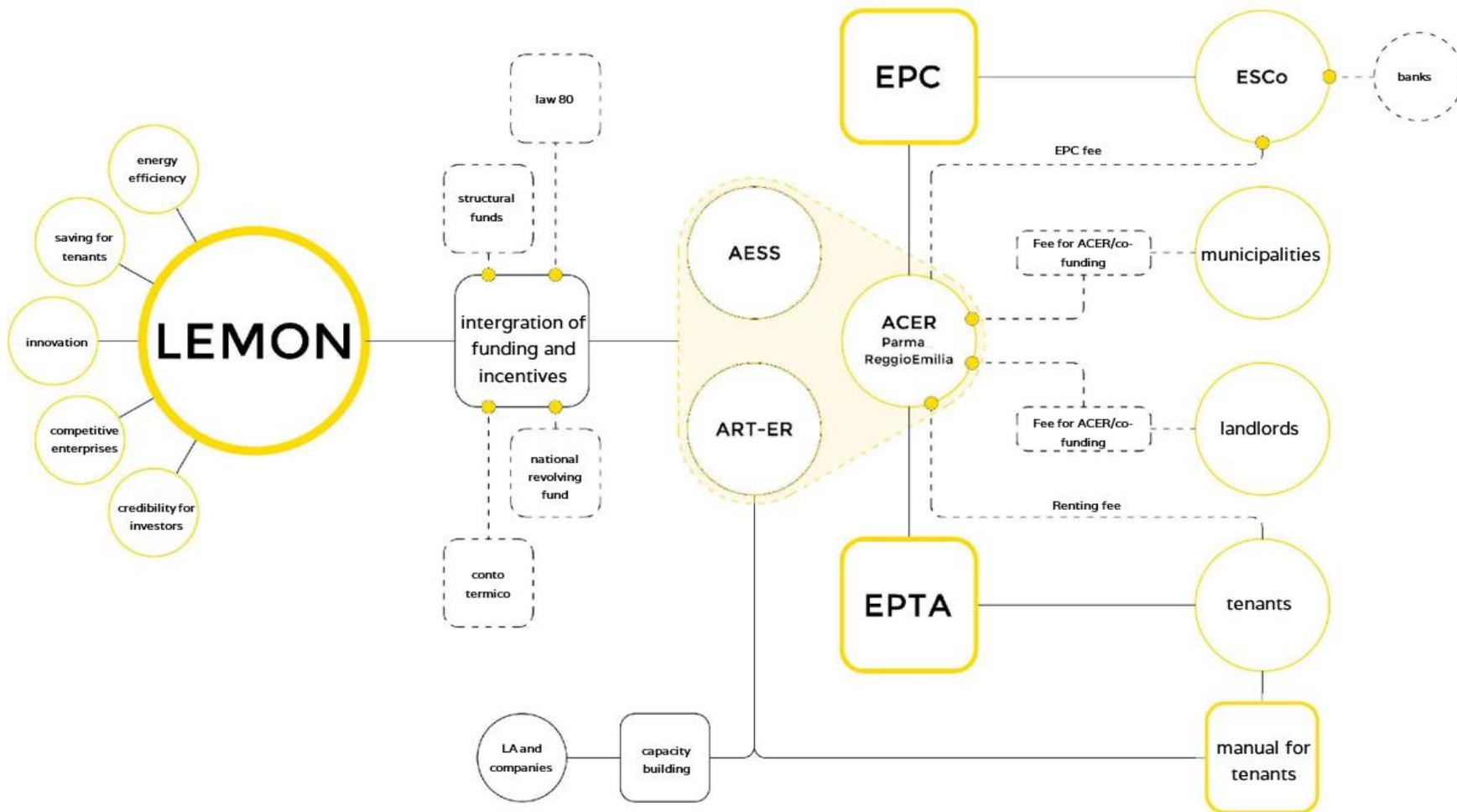
Banks Barriers

- The capacity for the social housing companies that do not have the ownership of the property to provide a **guarantee** to financing organizations and banks is low.
- Despite the European Commission support large buildings stock investment programme, **local banks** are reluctant to finance large investment and request a fragmentation of the **loan at building scale to reduce the risk of the investment**.
- In LEMON the **bank loan** was addressed **to advance the invoices payment** to be reported in order to obtain the incentives (Conto termico, ERDF, L.80, Bando rigenerazione urbana).

The search for a financing institution was not successful!

Therefore it has been introduced in the EPC tender the responsibility for the ESCO to 'identify the financing bodies, given the need to liquidate the works during their execution, making available to the Contracting Station the amounts corresponding to the work carried out and/or reported, either directly or through a third party, excluding any charge or guarantee to be borne by the Contracting Authority'.

LEMON concept



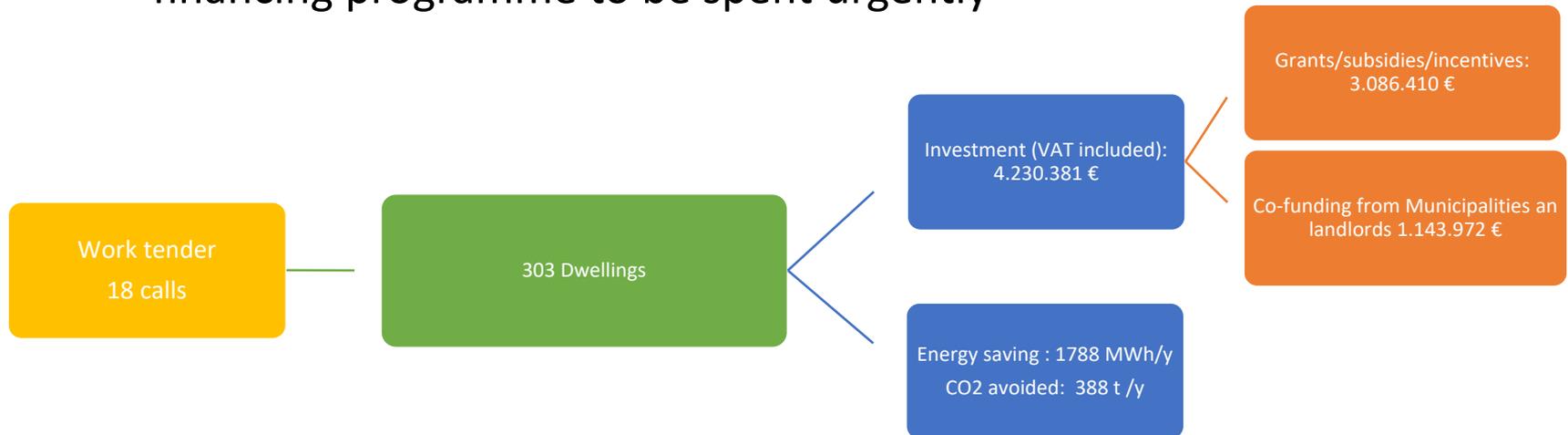
LEMON activities

The work performed in LEMON include:

- The scouting of **innovative solutions** provided by local small enterprises to be implemented in the social housing retrofit;
- The **dwelling energy retrofit programme development** (energy audit, feasibility studies and the business plan of the energy investment) **for 850 dwellings**, engaging **27 Municipalities**.
- The development of the economic and financial plan and the **approval** of the retrofit programme by **16 City Councils** and **59 landlords**.
- The engagement of regional stakeholder in 4 meetings to share the project outcome and the investment scheme, and to receive support to overcome the barriers and replicate the initiative in other contexts.

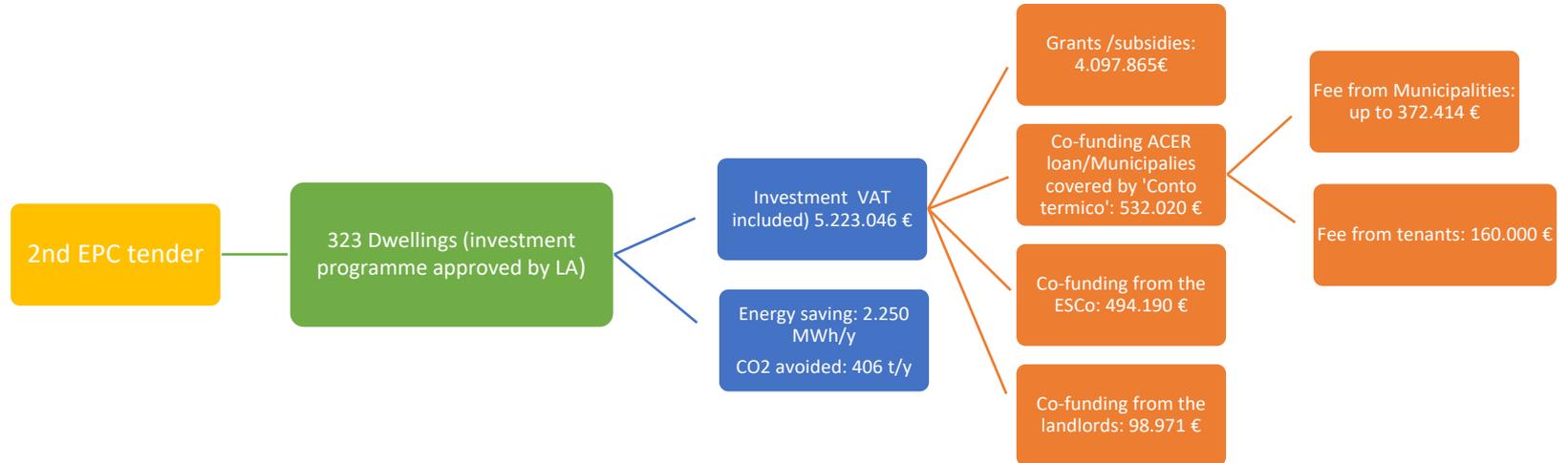
LEMON activities

- The development of two different tenders:
 - **18 works tenders** in buildings mostly with autonomous boilers managed by the ACER to achieve the energy performance objective (303 Dwellings) that received grants from structural funds or national financing programme to be spent urgently



LEMON activities

- The development of two different tenders:
 - **1 EPC tender** that include investment in buildings with mainly centralized heating system. Through the EPC tender the ACERs are therefore selecting an ESCO that support them in co-finance and achieve the energy saving included in the energy saving programme agreed between the Local Authorities, dwelling owners and the ACERs.



LEMON EPC tender

LEMON EPC contract is a mixed contract for services and works, according with the art. 28 of Legislative Decree 50/2016 and, in particular, are required the supply of energy, the annual consumption control, the maintenance and operation of heating systems, and hot water production in order to maintain the comfort conditions in the buildings in compliance with the current regulations related to the rational use of energy, safety and environmental protection.

Fuel supply service fee (Qen)	€ 280,129.05
Management-maintenance service fee (Qman)	€ 166,719.26
Total cost for initial operations (Qriqu)	€ 4,555,209.33
Safety costs on operation-maintenance (not subject to auction discounts) (sman)	€ 5.001,58
Security costs on initial interventions (not subject to auction discounts) (s)	€ 204,832.23
TOTAL	€ 5,211,891.45
VAT	€ 642,995.66
TOTAL, VAT included	€ 5,854,887

LEMON EPC contract



BUILDING IDENTIFICATION

Municipality owner	Reggio Emilia 2
Address	Via G.Bergonzi 6 8 10 2 4, Via Fenulli 7 9 1 3 5 - Reggio Emilia (RE)
Managing subject of the intervention	ACER_Reggio Emilia
n. dwellings TOTAL	176
n. dwellings social housing	150
year of construction	1980
Number of floors	5 + cellar floor + attic floor
Construction features	Masonry structure, Latero-cement floor slab , Wooden frames with single glass
Intervention	<ul style="list-style-type: none"> - Insulation of perimeter walls; - Insulation of the first floor; - Attic floor insulation; - Boilers substitution - Windows substitutions
Total EE investment (VAT included)	2.909.488 €
Funding- National L.80	2.661.866 €
Funding- Regional POR FESR	0
Incentive – Conto Termico	185.000 €
Energy saving	39%

ESCo	Public funding	Landlords
1%	98%	0%



BUILDING IDENTIFICATION

Municipality owner	Casalgrande
Address	Via Europa 3
Managing subject of the intervention	ACER_Reggio Emilia
n. dwellings TOTAL	9
n. dwellings social housing	5
year of construction	1975
Number of floors	3+ cellar floor + attic floor
Construction features	CEMENT structure with reinforced concrete with buffering, Clay cement roofing, Wooden frames with single glass

Intervention	<ul style="list-style-type: none"> - replacement of existing oil-fired generator with gas-fired boiler - Removal of "autonomous" electric boilers and construction of a centralized production plant of the hot water; - Installation of a separate heat metering system (with "centralised" data collection) - Installation of an automatic management and control system of the plants (thermostatic heads and central management unit) - First floor insulation; - Attic floor insulation towards attic; - Replacement of windows in public dwellings
Total EE investment (VAT included)	75.134 €
Funding- National L.80	38.265 €
Funding- Regional POR FESR	0
Incentive – Conto Termico	15.000 €
Landlord co-funding	21.869 €
Energy saving	20%



LEMON material

The LEMON Dwelling Energy Management Manual is available in Italian

(https://drive.google.com/file/d/1MAMb9pp0uBr_0-ZwiFPOPGcneYAEvVvV/view) and English

(<https://drive.google.com/file/d/1NjnOGKyljttD1O4IMa2scuB5Ts9XUFq0/view>)

