

Energy efficiency in public residential buildings in Liguria and innovative financial instruments

Final publication of the EnerSHIFT project







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Preface

The current public housing stock of Liguria Region was mainly built in the second half of the last century, particularly between the 1960s and 1980s, when the attention to energy savings and the commitment to reducing air pollution were not yet alive.

Given the era of construction and the use of cheap materials, these buildings now suffer from substantial inefficiencies and inadequacies in terms of energy consumption, maintenance and operating costs.

Today, talking about sustainability means wondering about the ability of architecture to meet the expectations of our modern society, characterized by deep transformations in its habitat.

This is the reason why the government of the Liguria Region is particularly conscious and active on the front of sustainability in the building sector, with a specific focus on the public residential sector, which requires deep energy retrofit interventions.

Through the EnerSHIFT project the Liguria Region, supported by a local partnership including all the actors of the governance of social housing, has taken in charge the task of reforming housing policies, promoting the quality of living in compliance with high technical and environmental standards and the needs of residents.

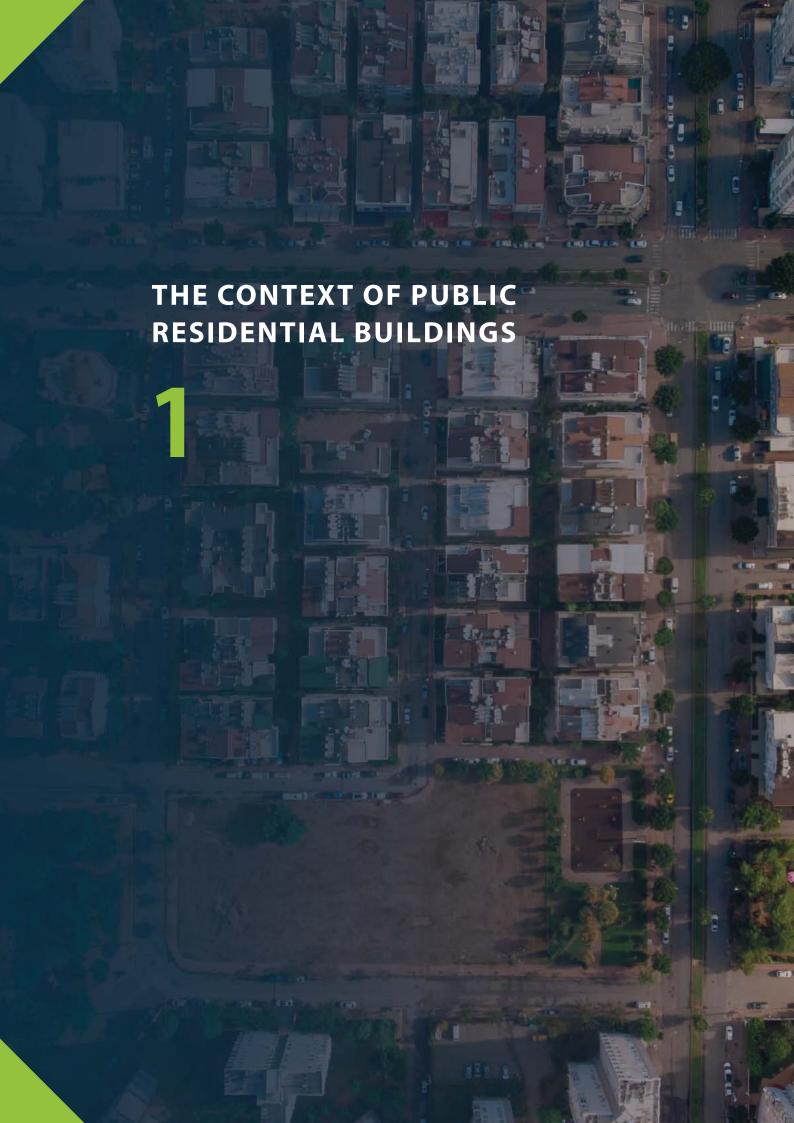
This has been possible thanks to the implementation of an innovative financial model based on the Energy Performance Contract (EPC), which compensates for the shortfalls in public funding for building redevelopment through the use of private investments, and then repays them with the energy savings over an agreed period of time.

All of this for the benefit of the tenants, the owners and managers of the buildings and the local entrepreneurs of the green economy.

Hence, EnerSHIFT has been a great opportunity for our territory, enabling the Liguria Region to access the resources for the implementation of a challenging, innovative and competitive project; indeed, its final outcomes could by no means have been taken for granted since in Italy the use of EPC contracts in the public residential sector presents remarkable difficulties from technical, legal and economic points of view.

For all these reasons in 2018 EnerSHIFT received the national "Sustainable Public Administration Award" and in 2019 the prestigious "European Energy Service Award" from the European Commission, as best initiative at EU level in the field of energy savings applied to buildings: a great satisfaction, in recognition of the commitment and the work done, as well as an incentive to continue our journey towards the refurbishment of our public real estate assets.

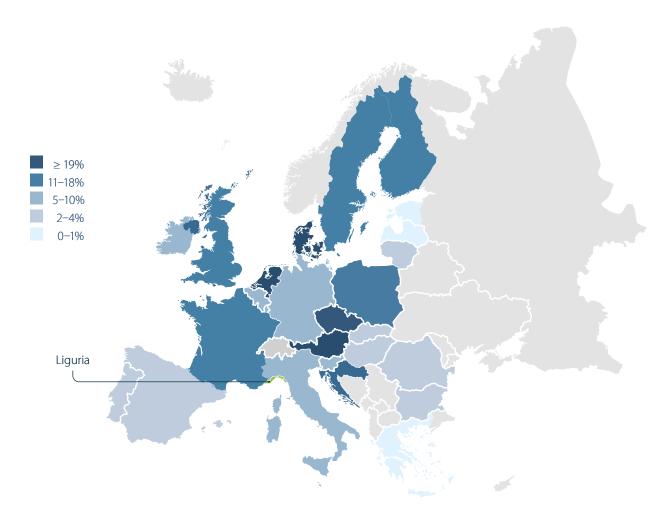






At European level residential buildings account for 40% of final primary energy consumption, equal to 38% of CO2 emissions of the EU.

Among these, the buildings used for public housing are the most energy-intensive: a building stock of about 25 million properties, equal to 12% of the total number of homes, as detailed in the map, responsible for more than 18% of European greenhouse gas emissions.



In particular, Italy has a stock of about 1 million Social Housing Buildings (SHBs), equal to 5% of total residential buildings, representing a much smaller share than for the rest of the European countries. In Liguria there are about 20,000 SHB housing units, representing 3% of residential homes, a share that is clearly insufficient with respect to current needs. Moreover, there is also a high number of unoccupied dwellings, which remain vacant due to a lack of resources for their renovation.

Usually the energy performance of PRB buildings is below average due to their construction characteristics, which were similar throughout Europe in the 1970s and 1980s, and to their generally deteriorated conditions but, not least, to the lack of public funds necessary for their retrofit.

Moreover, another frequent problem is the energy poverty faced by the tenants of PRBs, who lack the resources to pay the rent and the utilities consumptions.

Hence, increasing the SHBs renovation rate, currently below 1.2% per year, can provide a significant contribution to the achievement of the European energy efficiency targets.

Here it is the context of EnerSHIFT which, this provided, aims to stimulate investments for the refurbishment of public buildings through private capitals and innovative financial instruments.



■ The use of energy performance contracts in SHBs

The use of energy performance contracts in SHBs is hampered both by the complexity of the financing operation in relation to potential results (energy bills are influenced by tenants' behaviours) and by the rigidity of the existing EPC models, which are not suitable for the needs of public bodies (where housing owners and users are separate subjects).

To overcome these problems, EnerSHIFT has developed a flexible financial model based on a "triple win" approach, aimed to provide an equal sharing of benefits among tenants, building owners and energy service companies.







In 2015, EnerSHIFT was selected as one of the winning projects of the Horizon 2020 Call for Proposals EE20-Project Development Assistance dedicated to the energy refurbishment of social housing buildings to be financed by the European Community through the European Agency for Small and Medium Enterprises (EASME).

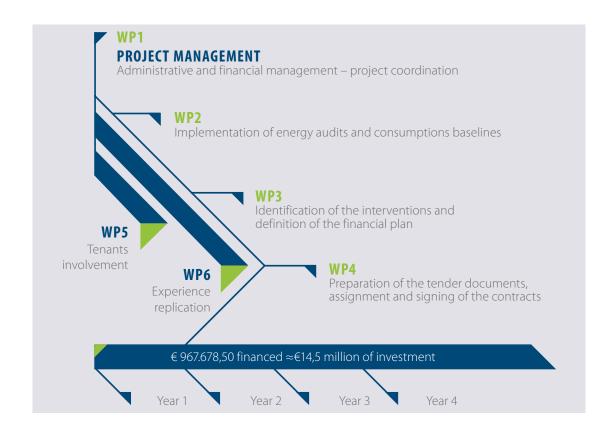
The project represents the first Italian experience in using innovative Energy Performance Contract (EPC) instruments in PRBs, and foresees the involvement of Energy Service Companies (ESCos) for the reduction of the energy consumption of buildings and related bills without relying on the economic resources of the building owners/managers for the implementation of the retrofitting works.

Housing conditions are improved, CO2 emissions are reduced and, at the same time, economic benefits for the local entrepreneurs are provided.

Activities

EnerSHIFT started in February 2016 and will end in January 2020, with the signature of the EPC contracts for the selected buildings.

In view of the contribution received for the development of the project and its activities, the partners committed to the European Union for the generation of at least €14.5 million of investments in energy efficiency.





Partners

The project involves a series of public and private partners, each with specific skills and responsibilities:

- The Liguria Region, with the department Urban Development Project Office in the role of coordinator, supported by the Regional Single Contracting Station (SUAR)
- The Regional Agency for Infrastructures, building Renovation and Energy of Liguria (IRE SpA), in particular the Energy Division, as experts in energy efficiency
- The Social Housing Agencies (ARTE) of the provinces of Genoa, La Spezia, Savona and Imperia, as property owners and/or managers.
- The SUNIA, SICET and UNIAT tenant unions, representing the housing tenants.









Objectives

- Overcome the technical, economic and legal barriers to the use of energy performance contracting in public housing;
- Promote the development of the ESCo market and the cooperation with the credit sector in Italy, favouring the bankability of energy re-qualification projects;
- Develop innovative financing schemes through Public Private Partnership and the use of flexible contractual models, able to offer advanced energy services to the public administrations and stimulate their replication at national level;
- Apply the triple win approach to provide an equal sharing of benefits, coming from energy savings, among tenants, building owners and ESCos, without financial burden on end users;
- Improve the quality of life of tenants and stimulate their involvement in training and information initiatives to fight energy poverty.



EnerSHIFT



Financing the interventions

Most of the retrofit interventions are implemented through the self-financing mechanism typical of the EPC contracts; the contracts have been assigned to market operators of energy efficiency sector through the implementation of public tenders, in accordance with the Italian Law on Public Contracts.

These tenders, the first of their kind in Italy, used the legal form of the Services Concession and were reserved exclusively for qualitatively certified ESCos.

The first call, published in August 2017, provided for the award of services for energy retrofit, management and energy-carrier supply for the thermal systems of 67 public residential buildings owned and/or managed by the local Social Housing Agencies (ARTE), divided into three lots in order to encourage the participation of small and medium enterprises (SMEs).

This EPC tender, which was launched by the Liguria Regional Single Contracting Station (SUAR), featured first-ever experiments in several procedures in the field of public-private partnerships, and in the application of new regulations introduced by the recent Amendment Law on Public Contracts (Legislative Decree no. 50/2016) and the amendment of Regional Law no. 10/2004, which governs the PRBs sector in Liguria.

To facilitate the success of the project, Liguria Region also added a financial allocation of €3.5 million coming from the 2014-2020 ROP ERDF funds which, together with the cofinancing provided by the ARTE, ensured investments of more than €5 million. These resources were used to finance several call for tenders aimed to the energy retrofit of further 10 PRBs.

EnerSHIFT has thus promoted the refurbishment of 76 Public Residential Buildings, for the benefit of tenants of more than 3,000 dwellings located in the four Ligurian provinces.







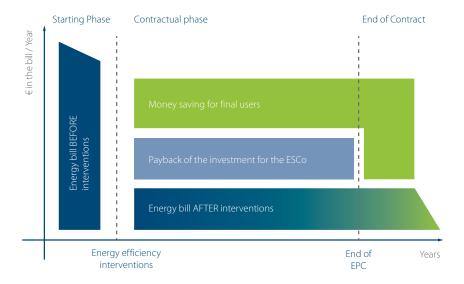
■ What is an EPC contract?

The aim of the energy performance contract is to implement efficiency interventions on buildings without the need to draw on financial investments by the owners. In fact, the costs are in charge to the subject who carries out the interventions, usually an energy service company.

The economic resources needed for the work can be those of the ESCo, or can be provided by a third-party lender, usually a bank.

The cost of the interventions is back-paid by the savings in consumption generated by energy efficiency: the greater the savings, the shorter the payback time of the investment, and consequently the duration of the EPC contract.

More specifically, the energy bill is determined on the basis of the consumption of the previous years and remains constant. At the end of the contract the owners/tenants of the dwellings benefit from all the savings generated by the interventions carried out..



Among the potential contractual forms for regulating the distribution of savings under EPCs, the EnerSHIFT model applies the following guarantees:

- **Shared saving** the ESCo and the customer share the savings in established proportions from the outset. The contract duration is quite long (5-10 years).
- Guaranteed saving the ESCo must guarantee energy and economic savings, otherwise the customer is entitled to compensation.

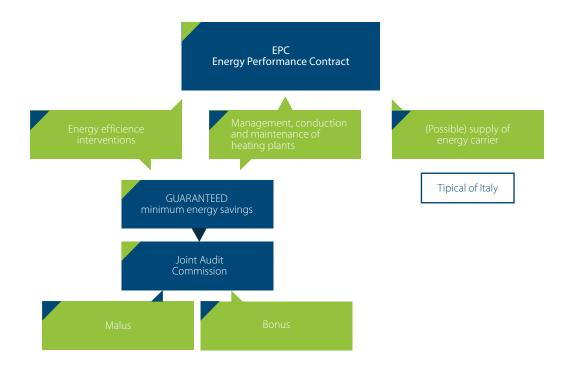


How an EPC works

The energy performance contract is divided into operational phases:

- Energy diagnosis and definition of the efficiency project
- · Raising capital for investment
- Award of the contract
- · Execution of the works
- Management and maintenance of the systems
- Constant assessment and monitoring of results

The EnerSHIFT contracts establish that the performance assessment will be carried out by a Monitoring Commission, which uses the International Performance Measurement and Verification Protocol (IPMVP®) to determine the amount of the fee to be paid to the ESCo and the possible application of the bonus/malus. To facilitate the performance assessment, the ESCo must provide separate accounting for the energy-carrier costs, the maintenance fees and the investment depreciation costs.





Regulatory framework

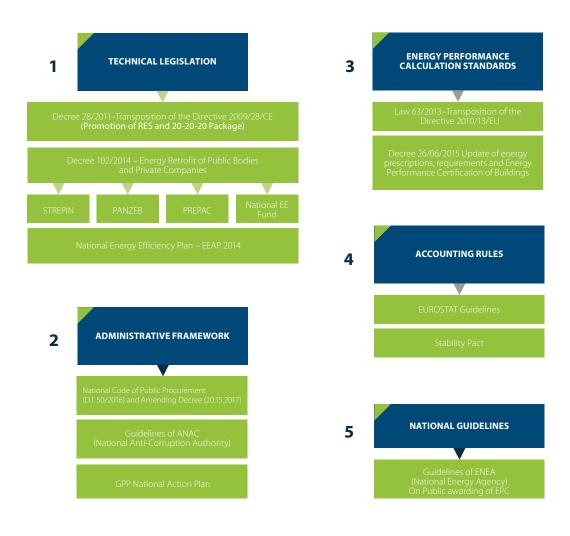
In the Italian legal framework, the Legislative Decree 115/2008 provides the definition of an ESCo as: "a natural or legal person that provides energy services and/or other energy efficiency improvement measures in the user's facilities or premises and, by doing so, accepts a certain margin of financial risk".

In 2011, Italy became the first European country to introduce a technical accreditation standard for ESCos, implemented on a voluntary basis in accordance with UNI CEI 11352, which defines the minimum requirements to achieve the qualification and the conditions to maintain it over time, all of this for the protection of the end customers.

The EPC contract was regulated, later on, by the Legislative Decree 102/2014, Article 2(1)(n), which defines the contents and the methods for its implementation at a legal level.

However, as far as the public sector is concerned, the EPC remains an atypical contract since it does not dispose of specific regulation under the National Law on Public Contracts (Legislative Decree 50/2016).

Although on one hand this allows substantial freedom to a public administration, which can entrust an EPC through a tender, a concession or other form of public-private partnership, on the other hand the regulatory uncertainty discourages authorities to implement this instrument, due to the fear of potential judicial appeals.



THE EPC TENDER DESIGN

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Energy audits and the consumption baseline

A correct planning of the efficiency interventions to implement on a building requires precise data on the energy consumption over previous years.

The best way to collect this data is to carry out an energy audit: a systematic, documented, periodic observation of the energy flows used by the building. The audit serves as an updated "snapshot" of fuel and electricity consumption, and is essential for identifying the kinds and type of interventions to be carried out (on the envelope, on the technologies, in the management...) for the reduction of energy requirements and the improvement of the inhabitants' comfort and safety.

Once the most suitable interventions have been identified, the auditor evaluates their technical feasibility and economic sustainability and issues the user with a report describing the best proposals.



Work phases

The energy audits needed for EnerSHIFT were carried out by the technicians of the four Ligurian ARTEs. After receiving specialised training from IRE Spa, the technicians carried out more than 100 audits on their local PRB assets.

EnerSHIFT provided for added value in the working methods used by the 4 ARTEs and IRE Spa, such as through developing joint system of collecting and processing the energy data of all the buildings concerned. This system has become a regional benchmark.

With these data, IRE created an energy inventory for each building, including a database for consumption monitoring, a record of historic energy-carrier costs, and a system of performance indicators.

Later, the consumption baseline of the buildings was identified and used, at joint level, to elaborate different intervention proposals. At the same time, assessments were made of the financial sustainability of the proposals, applying specific simulations for the payback time of the investment.

The outcome of this laborious analysis was the definition, for each building, of an optimal set of possible energy re-qualification interventions, which was then used for fine tuning the requirements of the call for tenders addressed to the ESCos.



■ Call for tenders for Energy Service Concessions

The call for the awarding of EPC contracts, to be stipulated between the 4 Ligurian ARTEs and the ESCos, was published on 14 August 2017. The specifications were:

Object

Energy efficiency service, energy management and supply of carriers for 67 SH buildings located in the 4 provinces of the Liguria Region

Division into lots

Lot 1 GENOA, Lot 2 LA SPEZIA, Lot 3 SAVONA and IMPERIA

Minimum energy savings for bidding

Minimum 45%, part of which immediately available for tenants (EPC Shared Savings model)

Estimated value of the concession

€20.5 million, VAT excluded

Awarding criteria

MEAT - Most Economically Advantageous Tender

Contract duration

PHASE I: max 14 months for the implementation of retrofitting interventions and testing. PHASE II: duration between 12 and 13 years for the management, conduction and maintenance of the heating plants.

Further innovative aspects

Implementation of the technical standard "ICP - Investor Confidence Project Europe", aimed at guaranteeing the quality of the EPC contracts.

Definition of the tender scheme

The EnerSHIFT EPC tender was developed to meet specific requirements: public-private partnership where the remuneration of the is

- **Technical**—Provide for the energy refurbishment of buildings and obtain significant and immediate reductions in consumption and costs for tenants.
- **Economic**—Publish a tender in line with the ESCo market, both bankable and attractive to private investors.
- **Legal**—Transfer the operational risk of the initiative to the ESCos, in compliance with national (Law on Contracts) and European (Eurostat guidelines on public finance) legislation.

Responding to these requirements within a single operation was highly complex. In fact, the inconsistency between the different national rules governing EPC contracts resulted in further critical issues in drafting the tender documents, concerning the legal form of the tender, the level of technical design required in bidding, the duration of the contract, and the financial plan.

Given these challenges, the design of the tender documentation was supported by several experts: SUAR, for the administrative aspects, the Liguria Regional Agency for Economic Development (FiLSE Spa) for the financial aspects, and for the legal aspects an external legal advisor in public EPC was hired.

After the examination of numerous possibilities, while also considering the potential market



response, the model selected for the EPC tender was that of the Service Concession, a legal form of PPP where the remuneration of the contract is based on the energy performance achieved and the allocation of responsibilities for the project's financial risks remains with the implementing party.

Difference between Public Procurement and Concession

Public Procurement: the contract is remunerated directly by the Purchasing Authority, which grants the contractor a fixed amount for the implementation of specific works, services or supplies

Concession: The contract is remunerated by the user against a service managed and provided by the concession holder. The amount of the remuneration depends on the level of performance provided for the implementation of the service

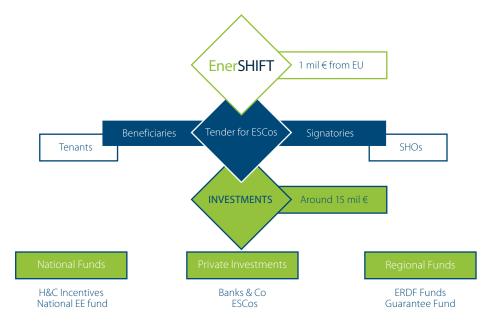
Innovative aspects of the call for tenders

In addition to being the first tender call in Italy on an EPC contract for public housing, the documentation was highly innovative in other respects. The design of the call:

- Aims solely at ESCos certified under UNI 11352 accreditation standards, with a favor partecipationis for small and medium enterprises
- Leaves tender participants the choice of the kinds of interventions to carry out for achieving the target savings, without imposing a minimum investment threshold
- Facilitates participation in the tender by assigning the drawing up of the final project and the asseveration of the Financial Plan only to the ESCo ultimately awarded the concession

■ The economic and financial plan (EFP)

Originally, the development of the economic model for the sustainability of the EPC contract was aimed at reducing the level of financial risk of the operation through synergies between different sources of financing: private investments, national public contributions and regional and structural funds.



However, the activation of these financial synergies was not always possible, and therefore the final version of the EnerSHIFT tender was defined as a pure concession, i.e. without public participation.





Given the innovative nature of EnerSHIFT, the project team had to deal with and overcome an high number of obstacles to define a contractual model that could be used in PRBs.

This brought about numerous changes in the tender model initially envisaged by the partners.

■ 2014 – 2020 ROP – ERDF funds

In 2016, the EnerSHIFT project obtained an allocation of €3.5 million from the Liguria Regional Operative Plan (ROP) for ERDF funds, to be used for energy efficiency measures.

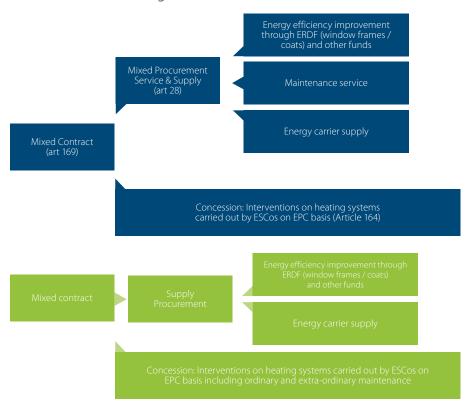
Given the aim of achieving effective reduction of financial risks for the overall operation, the intention was to use these funds within the same tender procedure of the EPC concession, in order to allocate them for financing some complementary interventions (i.e. replacement of windows, doors and/or insulation) which, otherwise, have very long payback times and, hence, are difficult to include in the logic of an EPC contract.

However, this model was found to be inconsistent with the rules for the eligibility of an ERDF expenditure, which do not allow the reporting of expenditures in the form of periodic fees, as foreseen by Concessions, but only in the context of progress reports for the works typical of Procurement Contracts.

This regulatory block precluded the possibility of implementing a mixed contract (part Service Concession, part Procurement Contract) and forced the project team to proceed with separate tenders, meaning: on one side the joint Energy Service Concession for 67 buildings, on the other side the Procurement Contracts, which used the ERDF funds to cofinance the retrofit of a further 9 SHBs.

In spite of this missed opportunity, the mixed type contract model, developed by EnerSHIFT in compliance with the Contracts Code, provides an innovative and interesting example of a flexible tendering procedure that can be used by other public bodies.

Mixed Contract Configurations and Code of Public Contracts Articles





National funds

In addition to the ROP-ERDF funding, the project team attempted to access other national sources for energy efficiency measures, including the so-called Thermal Account and the National Fund for Energy Efficiency, but these proved unsuccessful and it was not possible to include them in the EPC tender.

For the Thermal Account, the procedural deadlines to obtain the funds were too short compared with the times necessary for the implementation of the tender procedure, this preventing the ARTEs from being entrusted the incentive.

In the case of the National Fund for Energy Efficiency, which was established by Legislative decree 102/2014 with the aim to create a specific guarantee fund for ESCos, the reason of the failure was that the activation of the fund was delayed until May 2019, preventing its use in the EnerSHIFT tender.

Once the technical-legal model had been defined, the project team drew up the tender documentation concerning the Service Concession, which includes the tender notice, the technical specifications, the EPC contract outline and the technical annexes.

All documentation is available on the project website www.enershift.eu





Main challenges and solutions developed by the partners

	Critical issue	Solved?	Solution identified		
Administrative	Respect the EUROSTAT guidelines on off- balance expenses without burdening the Stability Pact	YES	Identification of a suitable contract form (EPC) and of a public contractor not subject to the Stability Pact (ARTE)		
Administrative	Standardize, aggregate and streamline tender procedures	YES	Publication of the tender through a joint procedure managed by the regional Purchasing Authority (SUAR)		
Technical	Respect the Ministerial Decree 26.06.2015 - Minimum Requirements for energy re- qualification	YES	Technical design and compliance with the regulations in charge to the ESCos		
	Entrust the design of the retrofitting measures to the ESCos, allowing them to assume the risks / benefits of the EPC contract, while respecting the provisions of the national Code of Contracts about project design (art. 24)	YES	Awarding of the contract through the form of a Concession of Services and not by Procurement		
Legal	Boost the participation in the call for tenders relieving ESCos of the cost of definitive planning during the offer while respecting the provisions of the national Code of Contracts on Concessions (art.165)	YES	Drafting of the final project after the awarding of the tender but before the signature of the EPC contract		
	Obtain preventive consent from tenants for the implementation of EPC contracts	YES	Amendment to the regional law 10/2004 governing the assignment and management of SH assets		
	Guarantee immediate economic savings for tenants	YES	Amendment to the regional law 10/2004 governing the assignment and management of SH assets		
Financial	Perform synergies between ERDF funds and EPC contracts, to stimulate wider participation to the tender	NO	Publication of calls financed through ERFD funds in the form of Public Procurement and separately from the EPC tender		
	Exploit national/regional energy efficiency incentives, to make the investment plan financially sustainable and bankable for ESCos (especially if SMEs)	NO	Activation of a Memorandum of Understanding between the regional Agency for economic development (FILSE) and banks to support ESCos in accessing credit		







EnerSHIFT



Outcomes of the calls for tenders

The call for tenders on EPC contracts was published in August 2017, with the aim of awarding service concessions for the efficiency retrofit, management, and energy-carrier supply of the thermal systems of 67 social housing buildings owned and/or managed by the four Ligurian ARTEs.

Considering the peculiarities of the Italian ESCo market, which is formed on one side by large companies in the energy-carrier sector and on the other side by SMEs of the engineering sector specialised in building refurbishment, the project team decided to split the procedure into three separate lots.

The response to the call for tender was interesting, even though the main feedback came from the large energy market operators, who grouped into temporary business associations; probably, this outcome was favoured by the decision to include the supply of fuel within the contract (so as to make it easier for tenants to read the bills).

The largest lot, concerning the province of Genoa and worthing approximately €16.7 million, received bids from three groupings of companies, and was awarded in October 2018.

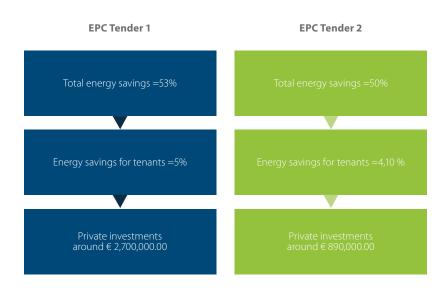
The lots concerning the provinces of La Spezia and Savona-Imperia, with concession amounts of about €3.3 million and €0.7 million respectively, received no bids despite having been sized to stimulate the participation of local companies. The tender was probably too complex and unsustainable for small businesses, and at the same time the economic size of the lots was insufficient to attract large business groups.

These considerations, which emerged during meetings with the ESCo trade associations in April 2018, led to the publication of a new call, which was drafted in the form of a single lot for the three provinces still requiring contracts and introduced some changes to the financial plan, making it more advantageous to participants.

Despite the interest shown by several SMEs, the tendering procedure ended in September 2019 with the awarding of a major market player.

The following table summarises the data of the two winning project proposals.

Outcomes of the EPC tenders





Contents of the proposals

The winning proposals of the two calls for tender are quite similar from an energy point of view, since both specify extensive use of renewable biomass, a solution not initially foreseen in the project but which turned out to be very interesting, provided that in Liguria the local supply chain for wood is currently underused compared to its potential development.

In addition, the use of the renewable sources provided to the ESCos a bonus in terms of energy efficiency (see Ministerial Decree 26/06/2015) which allowed them to limit the overall economic investment compared to what was initially assumed by the project partners.

The proposals are quite similar also from a technical point of view: both provide for a mix of energy efficiency interventions addressing the thermal systems more than the building envelopes.

Nowadays in Italy, to carry out deep energy renovations with EPC contracts it is necessary to integrate private investments with public resources, like those available through structural funds and/or energy policy programmes.

In Genoa, thanks to a synergy with the funds provided by the national Law no. 80/2014 "Urgent measures for the housing emergency", approximately 3.7 mil/€ were used for supplementary EE interventions to those provided by the ESCo through the EPC contract

Signature of the contracts

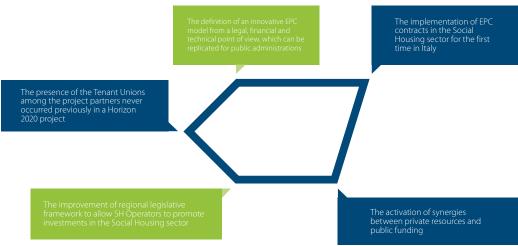
The initial plans were delayed somewhat, both because of the need to republish the call for tenders for the provinces of La Spezia, Savona and Imperia, and because of the complexity of the administrative procedures involved in awarding an EPC.

At the request of the partners, EASME granted a 12-month extension to the project completion date (to 31st January 2020), allowing for the signature of the contracts.

The European Community has thus recognised that the publication of the EnerSHIFT EPC calls represents, in itself, an achievement in terms of research and innovation, as required by the Horizon 2020 programme.

Moreover, the awarding of all the lots put to tender has confirmed the validity of all the choices made by the project partners.

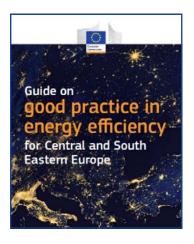
Key elements for the success of EnerSHIFT





Awards and prizes

By virtue of the results achieved, EnerSHIFT has been recognised as a good practice at a European level and is cited in the Guide on good practice in energy efficiency, published by the DG Energy and EASME in 2018.



EnerSHIFT also won the Sustainable Public Administration Award 2018 as best Italian project in the Environment, Energy & Natural Capital sector and the prestigious European Energy Efficiency Award 2019 as Best European Energy Service Promoter.













The calls for tenders co-financed by ROP-ERDF and ARTE funds were published in the autumn 2018, and concerned the energy retrofit of 9 social housing complexes alongside the four provinces: 2 in La Spezia, 2 in Savona, 1 in Imperia, and 4 in Genoa.

The calls for tenders were drawn up in the form of Procurement Contracts and were managed directly by the ARTEs, which prepared also the executive plans for the energy efficiency measures.

The table below shows a summary of the interventions carried out.

As visible, these were different than the ones under the EPCs, acting more extensively on the building envelopes to obtain greater energy savings, up to as much as about 70% compared to previous consumption.

The high quantity of building interventions was possible thanks to an increase in the total investment of the social housing operators, shifting the total budget from the €5 million initially planned to about €6.5 million: from one side the ARTEs increased their co-financing shares and, from the other, they exploited the synergies with the contributions allocated under Law no. 80/2014. All of this allowed to considerably increase the leverage factor the ROP-ERDF financing.

Moreover, the savings in resources gained from the auction discounts have been reinvested to finance further works, integrating the initial projects.

All the retrofitting works started in 2019, with completion expected in late 2019 to early 2020.

The tender documentation is available on the websites of the four ARTEs.

■ Site		■ Building envelope			Energy Generation & Distribution		Consumption and savings				
ARTE	Place	Building coat	Insulation vs external	Insufflation	Windows	Gas boiler	Heat accounting	PV panel	before (kWh/a)	after (kWh/a)	Energy savings
LA SPEZIA	La Spezia								250400	138400	45%
	Levanto								163200	86400	47%
SAVONA	Millesimo								306390	159550	48%
	Quiliano								83108	22458	73%
IMPERIA	Imperia								333720	129740	61%
GENOVA	Ge- Bolzaneto								145810	59420	59%
									200610	72810	64%
	Ge-Prà								135797	54024	60%
									124457	67271	46%





In September 2016, the EnerSHIFT partners established a National Stakeholders' Platform, a working group of public bodies, government agencies, national and regional trade associations and research centres aimed to support the implementation of the project activities, as well as their dissemination and replication.

Participants

- Italian Federation for Social Housing and Building (FEDERCASA)
- National associations of ESCos: ASSOESCo and FEDERESCO
- Liguria Regional Economic Development Agency (FiLSE SpA)
- Liguria section of the National Association of Building Contractors (ANCE)
- Liguria section of the National Association of Traders and SMEs (CNA)
- Liguria section of the National Association of Credit Institutions (ABI)
- Ministry of the Environment: Directorate-General for Climate and Energy
- National Energy Services Manager (GSE SpA)
- National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA): Energy Efficiency Technology Unit
- Presidency of the Council of Ministers and Ministry for Programming and Economic Policy: Consultancy Unit for Public Private Partnerships in the Regulation of Public Utilities
- National Agency for the Management of European Structural and Investment Funds
- Italian Federation for Energy Efficiency (FIRE)
- Other European projects with similar objectives: LEMON, 2020TOGETHER, PadovaFIT





The Platform provides opportunities for constructive dialogue and discussion among the direct stakeholders, who meet to:

- Analyse the status of the energy market development and evaluate the results achieved by national policies for energy savings
- Identify the critical issues in the national context that hinder the growth of the ESCo market and the application of EPC contacts in the public sector.

Between 2016 and 2019 the Platform members met four times in Genoa, providing continuous and valuable support to the project partners during the preparation of the EPC calls for tenders, thanks to the multidisciplinary nature of its members.

Main issues addressed by the Stakeholder Platform

Legal aspects	Technical aspects	Financial aspects		
The legal form of EPC contracts: opportunities and limits of current legislation	The minimum requirements in the tender technical specifications	The requirements for the sustainability of the economic-financial plan in the calls for tenders for EPC contracts		
Flexibility and replicability of EPC contracts	Access to national incentives from "Thermal account": compatibility with the public awarding of the EPC	Financial synergy between ERDF funds and EPC contracts		
Eurostat guidelines and EPC accounting for public bodies	The size of the ESCOs in relation to the national energy market	Credit access for EPC contracts		

Once EnerSHIFT will come to an end, the Liguria Region will continue to support the activities of the Stakeholders' Platform within the Regional Task Force on Innovative Finance, a permanent working group created thanks to the project which aims to support the replication of energy efficiency interventions in further contexts.

Energy Efficiency for Public Residential Buildings of Liguria









In addition to being a forerunner in the technical-legal sector, EnerSHIFT is also the first Horizon 2020 project to involve the tenant unions within its partnership. In fact, in addition to being a partner, SUNIA Liguria is the coordinator of an *ad hoc* working group along with SICET Liguria and UNIAT Liguria.

This is a very important aspect for the European Commission, which is constantly attentive to issues of social hardship and energy poverty; that's why the involvement of the Tenants' Unions was considered an innovative aspect of EnerSHIFT, given their role in representing tenants coming from vulnerable social groups.

The Unions involved the resident families by organising informative meetings in each province, and by implementing training campaigns on energy efficiency issues.

This way EnerSHIFT was able to reach the tenants directly: indeed they are the real recipients of the project's activities and its benefits, both in terms of living comfort and energy savings.

The Unions also supported the Liguria Region in approving an important amendment to Regional Law no. 10/2004, regulating the allocation and management of SHB assets, and thus facilitating the use of EPC contracts in public housing.

This amendment was the keystone that enabled the ARTEs to finance the efficiency measures using part of the savings obtained, but still ensuring that a share of those was assigned to the tenants.

Emilia Romagna is the only other region in Italy having a law with similar contents and aims.

Tenants' meetings

In the first months of the project the Tenants' Unions produced an informative brochure on EnerSHIFT, which was distributed to the more than 3,000 families living in the SHB buildings beneficiaries of the retrofitting measures.





The tenant meetings, organized in 2017, served to collect the thoughts, needs and expectations of the tenants, in particular through questionnaires on the state of maintenance and repair of their homes.

Initially tenants were generally distrustful of the initiative, however as the meetings progressed a constructive and engaged involvement developed.

After the conclusion of the EPC and ERDF tenders in 2019, further meetings were organised, where the tenants and the ESCos carrying out the interventions had the opportunity to talk about the works and the time scheduling planned for each building.

Energy poverty

In Europe, around 1 every 10 citizens suffers under energy poverty, meaning that they are unable to pay the bill for a primary energy consumption that would ensure a decent standard of living within their own homes.

Especially with low incomes, the heating and lighting costs of a poorly energy-efficient home are not always sustainable for SHB users.

To help fighting this social emergency, the Tenants' Unions took part in a training programme organised by the European project ASSIST aimed to provide social operators with integrated skills against energy poverty.





■ The site visit and the energy guide for tenants

In October 2018 a group of about 50 tenants, representing the families involved by EnerSHIFT, took part in a site visit to some social housing properties in the province of Reggio Emilia that had recently been retrofitted through EPC contracts, so that they could directly assess the results of a similar experience.

The participants visited the refurbished buildings and met with the residents, to discuss the savings and the benefits generated by the energy retrofit interventions.

The Tenants 'Unions also provided for the preparation of a smart guide promoting good practices among families, containing practical suggestions for improved energy management in the houses, and information on accessing national systems of economic support for paying bills.

The online version of the publication is available on the EnerSHIFT website.







In addition to EPC contracts and third-party financing, there are several other funding opportunities, both at national and European level, to support administrations in carrying out energy efficiency projects.

European funds

The European Union supports public bodies with various financial instruments, usually managed by the European Investment Bank (EIB) or directly by the European Commission through specific calls for proposals:

- European Local Energy Assistance (ELENA) supports the public administration in providing technical assistance and covers up to 90% of the costs incurred for design of interventions and preparation of tender procedures. The programme is designed for large projects, over €30 million, with a leverage of at least 1:20, under penalty of repayment of the entire contribution.
- European Energy Efficiency Fund (EEEF) a fund managed in partnership with the EIB, Cassa Depositi e Prestiti, Deutsche Bank AG and the European Commission, which finances investments between €5 and €25 million at market rates, with the possibility of combining other national or European financing systems.
- **Private Finance for Energy Efficiency (PF4EE)** an instrument launched in 2015 by the EIB and the European Commission to facilitate access to credit, provided through accredited national banks and financing operations between €40,000 and €5 million.
- **Horizon 2020** the main programme for European Union financing the research in the period 2014-2020, operating through calls for proposals on many fields, including energy efficiency. The participation procedures have been simplified compared to previous programmes, so that they can also be exploited by small and poorly structured entities; the programme allows contributions of up to 100% of the incurred costs.
- **Structural Funds** are managed by the regions through Regional Operational Plans (ROPs) or at national level through National Operational Plans (NOPs) and are financed by the European Regional Development Fund (ERDF) and the European Social Fund (ESF).

National funds

In Italy there are currently two types of financial support for energy efficiency measures, which are quite different in nature:

- Thermal Account 2.0 a fund managed by the National Energy Services Manager (Gestore dei Servizi Energetici, GSE SpA) which allocates €900 million per year, €700 million of which for individuals and businesses and €200 million for public administrations, and provides contributions between 40% and 65% of the costs incurred for building and plant engineering works. Public administrations can request the funding front loaded or through the ESCos.
- National Energy Efficiency Fund Legislative Decree 102/2014 established a revolving fund that supports public-private partnerships with a special allocation reserved for ESCos, which came into force in 2019 under the management of the National Agency for Enterprise Investments and Development (Invitalia SpA). The resources initially allocated amount to €150 million and are provided in the form of direct and/or indirect financing or in the form of credit guarantees.

THE ENERSHIFT PARTNERS

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The Urban Development Project Office of Liguria Region, project manager, deals with urban regeneration and social housing programmes, develops laws and regulations for public buildings and defines criteria for the management of PRB assets. The Liguria Regional Single Contracting Station (SUAR), also participating in EnerSHIFT, since 2012 is the central contractor for the authority and for the broader regional administrative sector.



Founded in 2014 by the merger of three regional technical companies, Ire SpA operates in the areas of infrastructure, construction, urban renewal and energy. In particular, the Energy Division draws up energy plans, manages the Liguria Energy Consortium and oversees the regional energy certification system for buildings. IRE SpA currently serves in the role of vice-president of the National Network of Energy Agencies (RENAEL) and of FEDARENE, the European equivalent.



The ARTEs are public bodies of an economic nature which own and/or manage most of the public housing stock in Liguria, often on behalf of the municipalities.

They operate in the area of territorial use and development and as a structure for the local administrations in the realisation of complex works.

The ARTEs are members of FEDERCASA, the national network of 114 Italian public operators in social housing construction and management.



SUNIA, SICET and UNIAT are the main national unions representing tenants of both private and public housing.

Their social purpose is the recognition of the right to housing for every citizen, under conditions compatible with the needs of the families. They also pursue the objective of safety and quality of living in an appropriate urban environment.

Notes

EnerSHIFT—Social Housing Innovative Financial Tender for Energy - is a project financed by the Horizon 2020 programme aimed at the energy requalification of Public Residential Buildings in Liguria through innovative and replicable financial instruments, which allow to overcome the lack of public funds for the renovation of buildings.

Coordinator of the initiative is the Liguria Region - Urban Development Project Office, the partners are the Regional Energy Agency - IRE Spa, the four Regional Territorial Building Companies - A.R.T.E. Liguri (Social Housing Operators and building managers) and the Tenants' Unions Sunia, Uniat and Sicet.

The key to EnerSHIFT's success is its financial model, which for the first time in Italy uses EPCs (Energy Performance Contracts) to carry out the energy retrofit of the public residential buildings through ESCo (Energy Service Company) and private investment capital.

In total, EnerSHIFT promoted the energy requalification of 76 public residential buildings, housing about 3,000 Ligurian families.

The interventions, financed through two EPC service concession tenders and four procurement contracts for energy efficiency co-funded by the regional ROP-ERDF, provide for the reduction of energy consumptions, and related bills, and the improvement of housing conditions for tenants.

This publication illustrates EnerSHIFT's main activities, analyses the obstacles (at regulatory and market level) encountered faced by partners in awarding the EPC contracts and, in light of the results obtained, sets out the solutions adopted to ensure the success of the initiative.

In addition, it provides an in-depth analysis of the EPC models and of the financial instruments available to implement the retrofit interventions in the public building sector.



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