

The MARIE project consortium:

9 Mediterranean countries

23 partners

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Housing Agency of Catalonia, *Spain*

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Region Provence-Alpes-Côte d'Azur, *France*

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Piedmont Region, *Italy*

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IREC (Catalan Institute for Energy
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EPSA (Public Land Agency of
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MARIE

MEDITERRANEAN BUILDING RETHINKING FOR ENERGY EFFICIENCY IMPROVEMENT



Projet cofinancé par le Fonds Européen
de Développement Régional (FEDER)
Project cofinanced by the European Regional
Development Fund (ERDF)

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MARIE 2nd BROCHURE

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www.marie-medstrategic.eu

WHY MUST WE IMPROVE ENERGY EFFICIENCY IN BUILDINGS NOW?

Energy consumption in MED regions buildings is rising above EU average figures establishing a trend that is contrary to the EU2020 energy efficiency objectives. Achievement of the EU2020 target in EU Mediterranean countries is therefore a considerable challenge requiring coordinated and strategic institutional action and effective investment of European funds, such as the European Regional Development Fund (ERDF), in Med space.

In this context, the 22 MARIE partners (www.marie-medstrategic.eu) are committed to work together to co-construct the Mediterranean Building Energy Efficiency Improvement Strategy (MEDBEES) in order to intensify, motivate and facilitate progress, in both the public and private sectors, towards achieving the objectives. ■

POTENTIAL IMPACTS

ENVIRONMENTAL

Save Energy + Reduce greenhouse gas emissions + Protect biodiversity

SOCIAL

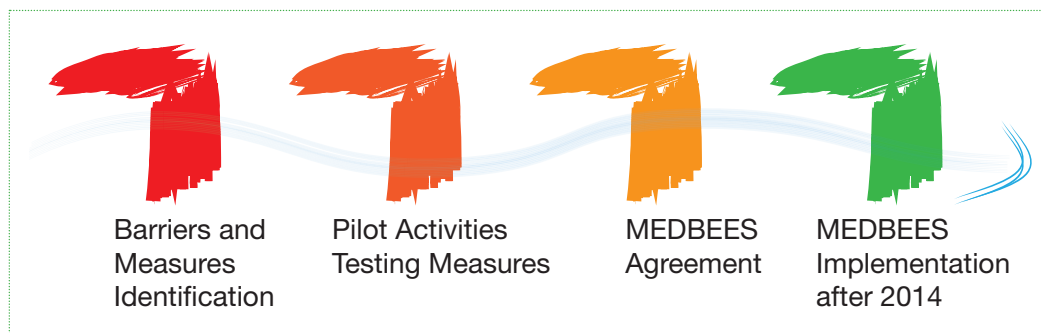
Create jobs+ Increase comfort and health + Rise cohesion

ECONOMIC

Save public and private money + Sustainable activity + Develop energy independence

Building energy efficiency improvement policies produce not only impacts in terms of energy efficiency, but also produce multiple effects that contribute to more sustainable development.

HOW IS THE MEDBEE STRATEGY BEING BUILT?



The process to build MEDBEES has started with the diagnosis; determining the main barriers and outlining a first scheme of more promising lines of intervention and measures. The MARIE pilot activities will allow this scheme to be tested: reviewing and refining the definition of barriers and measures.

During 2013 and 2014 the MEDBEES Intervention Programs will be defined and assessed in environmental, social and economic terms. These programs will cover:

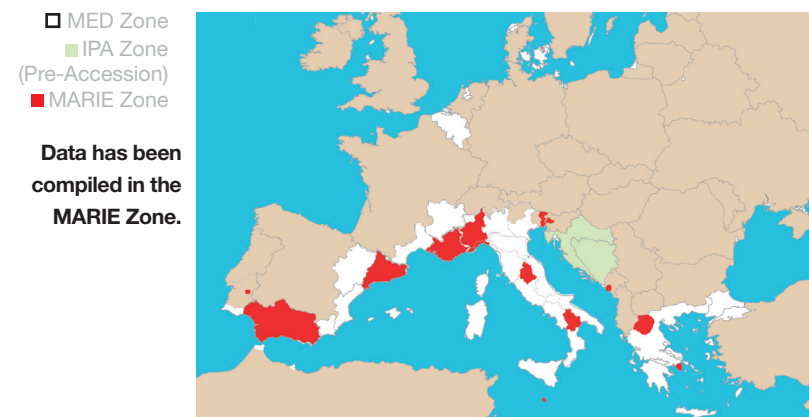
- new regulatory requirements and institutional tools
- new financial mechanisms
- innovation in small and medium enterprises (SMEs)
- communication and training.

Consensus, commitment and coordination are essential aspects of the MEDBEES construction process, in this sense MEDBEES should involve the majority of representative public and private agents in this market.

The MEDBEES construction process is conceived as interactive, with continuous feedback in order to reach a consolidated and useful strategy. For this reason the data collection and analysis, the methodological development, the testing, the programs and the interactions will all be open to review and refinement right until the end of the project in December 2014.

After completion of the MARIE project, in the period 2014 to 2020, MEDBEES will be implemented and the MARIE results will be measured and evaluated. ■

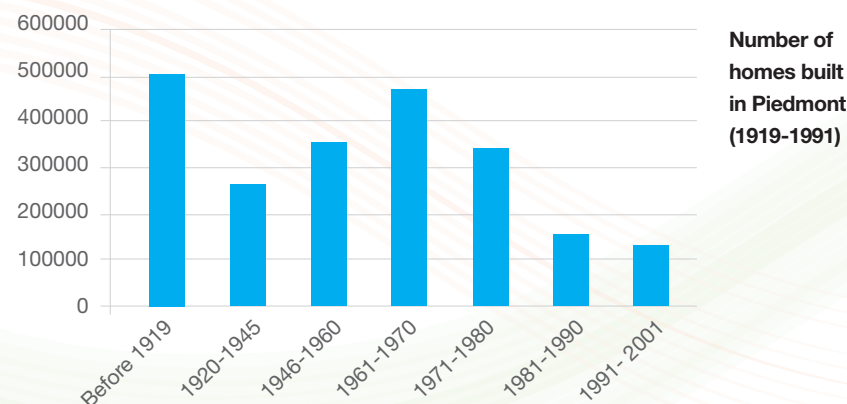
WHAT ARE THE CONCLUSIONS FROM DATA COMPILED?



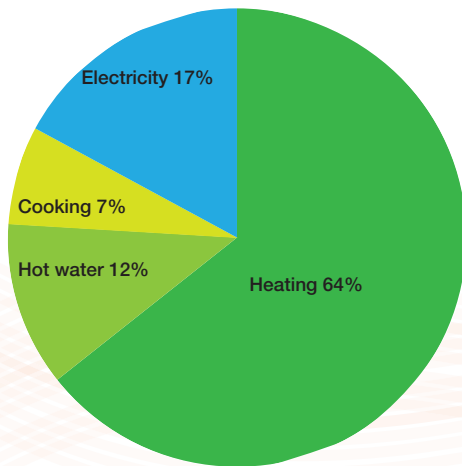
Despite the difficulties encountered with the census (availability of actualized data), we can make the following 4 conclusions:

1. The MARIE Zone building stock is large. There are more than 10 million buildings and more than 30 million homes.
2. The building stock is ancient and energy inefficient. The majority of buildings were constructed before 1980, without insulation, and prior to inclusion of effective energy efficiency criteria in building regulations.

Example: Building stock



3. In residential buildings, final energy consumption varies from 90 kWh/m² to 150 kWh/m² (useful area) and space heating is always the most significant energy requirement varying from 40% to 65% of total consumption.

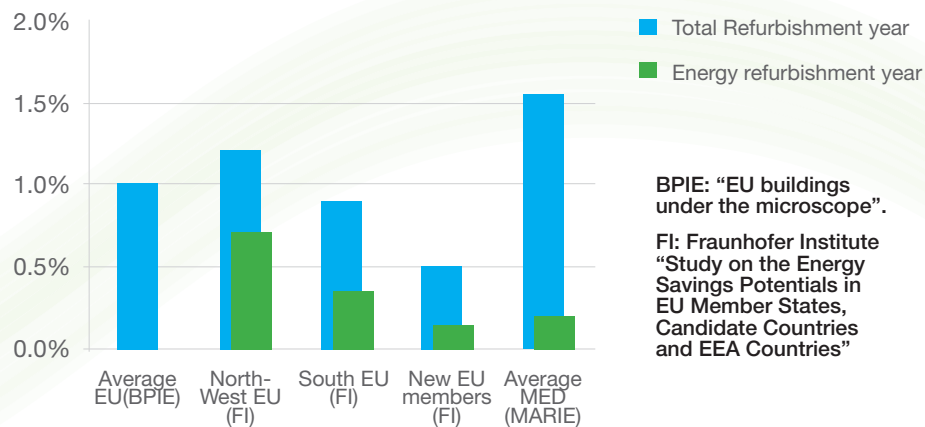


	PACA
Heating	91 kWh/m ²
Hot water (excluding solar energy)	17 kWh/m ²
Cooking	10 kWh/m ²
Electricity (including cooling)	26 kWh/m ²
	144 kWh/m ²

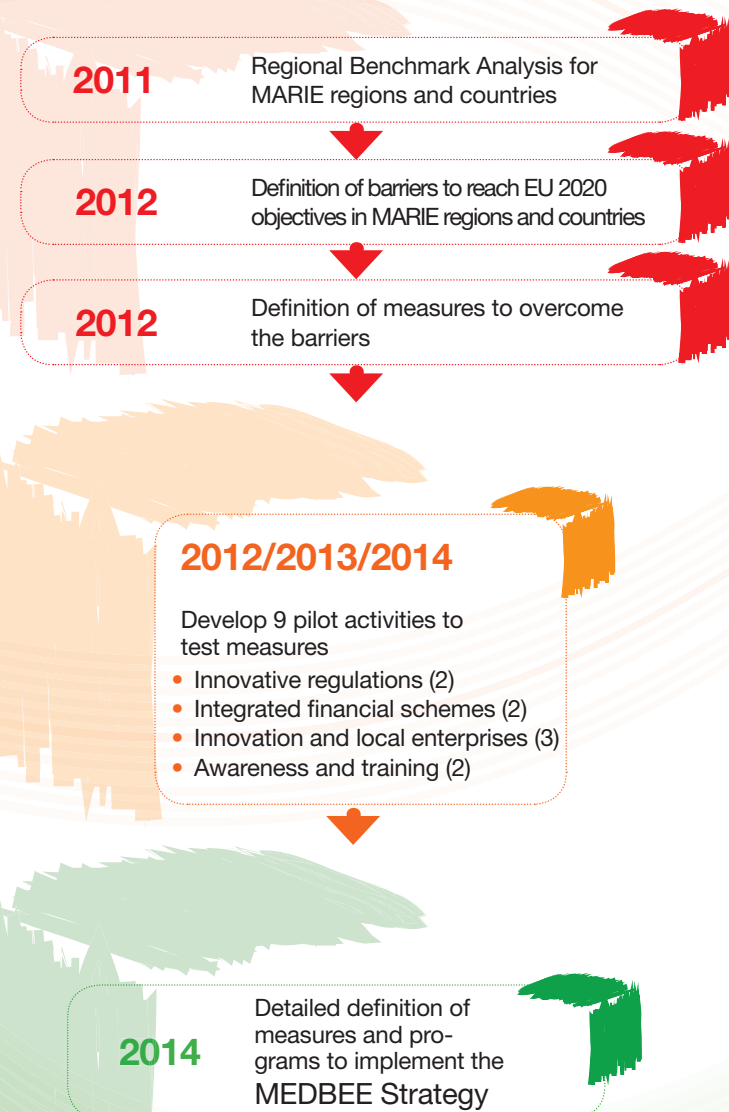
PACA annual household energy consumption by use.

4. The current energy efficiency refurbishment rates in the MARIE regions compiled within this project range from 0.12% to 0.26%. This rate is 2-3 times lower than the average energy refurbishment rate in north-western EU countries. This very slow natural refurbishment rate in the MED area further demonstrates the need for urgent policy action.

Example: Provence-Alpes-Côte d'Azur data from 2010



WHAT IS THE TIMETABLE FOR THE MEDBEE STRATEGY?



WHICH ARE THE MAIN BARRIERS IDENTIFIED?

MARIE partners have identified 33 barriers. In the next table the ten most significant barriers are organised in terms of strategic lines of action.

- Incomplete, unshared, spread or asymmetric information regarding energy efficiency (EE) issues, the best available methodologies and solutions, providers of available services.
- Lack of detailed information on the characteristics of the building stock at the regional level.
- Lack of end user motivation for EE improvement. The issues of aesthetics, bigger space, fashion and updating, well-being, reducing noise are the most important motivations for refurbishment. As a consequence, there is a distortion between public policies (EE focus only) and building owners, tenants and users behaviour patterns.
- Lack of technical skills and know-how at all levels of the supply side.
- Lack of awareness among users on the benefits of EE investments in the long run.
- Low level of technical innovation in building sector (creation and dissemination of new processes and techniques).
- Lack of technical skills and know-how at all levels of the supply side.
- Fragmented structure of the supply side at all levels of the value chain acting as a barrier to the efficient stimulation of both supply and demand sides.
- Unclear, unstable and short-term oriented legislative framework for both offer and demand.
- Poor integration of european, national, regional and local policies, and of the related administrative bodies, regarding EE and renewable energy sources.
- The incapacity of conventional financial instruments to accomodate feasible EE renovation schemes
- Inability to account for the external, environmental and social, costs of the current situation and inactivity, rendering EE less profitable.

WHICH CONCRETE MEASURES SHOULD BE CONSIDERED AND TESTED?

MARIE pilot activities are grouped in 5 strategic lines, each containing measures listed below. These measures will all be tested by MARIE pilot activities.

DEVISING TOOLS FOR ENERGY RENOVATION OF BUILDINGS

- 1.1. Develop a shared information system.
- 1.2. Establish a common protocol for organizing Energy Renovation of Buildings (ERB) in urban areas.

MARKET ACTIVATION FOR ERB

- 2.1. Activate ERB Demand through communication plans.
- 2.2. Activate ERB Supply and professional skills development.
- 2.3. Promote Business Cooperation.

COMPETITIVENESS AND INNOVATION IN BUILDING ENERGY EFFICIENCY

- 3.1. Promote and support local and renewable materials.
- 3.2. Enforce the use of LCA models and green public procurement.
- 3.3. Integrate energy services supply.
- 3.4 New research initiatives.

BUILDINGS' ENERGY EFFICIENCY PUBLIC GOVERNANCE

- 4.1. Align regional legislation and policies to EU 2020 objectives.
- 4.2. Integrate Local management.
- 4.3. Share experiences and policy.

ECONOMIC RESOURCES FOR ERB

- 5.1. Assign resources.
- 5.2. Mobilise resources.

HOW WILL THE BARRIERS BE OVERCOME?

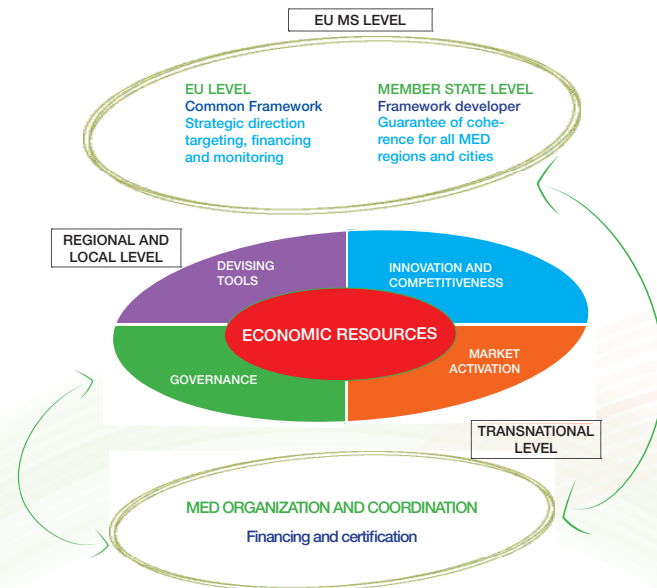
WHICH STRATEGY IS MOST EFFECTIVE IN MED SPACE?

Important changes, affecting traditional forms of work, urgently need to be made and implemented rapidly in order to achieve the EU2020 objectives. Two words summarize the MARIE partners' approach to achieving this: **coordinate and concentrate**.

Coordinating Public Administrations to make sure that everyone works together, in the same direction at the same time, is essential in order to remove the "big barriers stones". The scheme below shows

so that they operate as a single body gaining force through economies of scale, critical mass and exploitation of synergies. In the scheme below, the 5 strategic lines correspond to a regional level because at this level it is possible to create synergies and positive impacts.

The results of the Potential Impact Evaluation (PIE) of the first draft of the MEDBEES policy measures indicate that larger energy savings would be achieved by these measures than by an equally



the three main levels of decision making that need to work together coherently.

Concentrating Public Funds is fundamental in order to maximize their effectiveness. Five strategic lines of work need to become very well-articulated

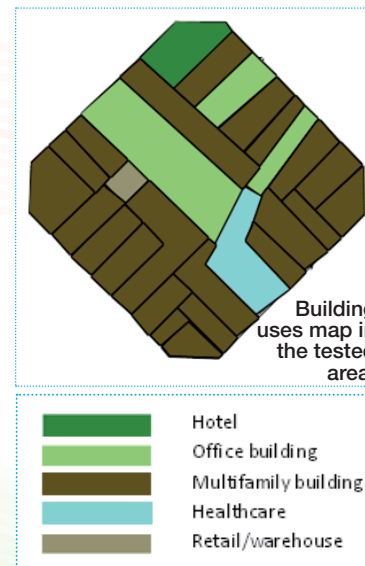
ambitious strategy based on trend policy measures (Rapid Results). The benefits of the MEDBEES arrive slowly, but accumulate steadily with time. The study has been made by IREC and is available from the MARIE web site (<http://www.marie-medstrategic.eu>). ■

HOW WILL THE IMPACT OF MEDBEES BE CONSIDERED?

Each tested measure will have a fact sheet and an associated calculation file in order to determine its impact and possible funding mechanism.

ACTIONS 1.1. Develop a common information system allowing the EU-MED to characterize and to compare the energy consumption in buildings by end use typology and energy sources.	RESPONSIBLE FOR ACTION DEVELOPMENT Regional and/or State-owned Statistics offices, regional organizations/ agencies competent on building, regional energy organizations/ agencies.
RELATION WITH OTHER ACTIONS 1.2. Define and implement a framework for the planning of the energy renovation of buildings in the EU-MED area. 5.1. Define and implement an investment program at EU-MED in the period 2014-2019 for the ERB	FUNDING SOURCES Intelligent Energy Europe III - in Horizon 2020 (2014-2020) Regional and municipal funding Eurostat (SECH project and similar)
BARRIER TO OVERCOME K5. Need of detailed information about the building park at a regional level	BENEFICIARY MED regions and cities.
PRIORITY / IMPORTANCE High	EVALUATION INDICATORS Number of integrated regional systems.
IMPLEMENTATION PERIOD Short term	PILOT TESTS Description: 1-2 Building catalogue Duration: June 2012- July 2013
DESCRIPTION AND OBJECTIVES To develop a common information system at the EU-MED that allows characterizing and comparing energy consumption in buildings by final use and energy source.	NEED OF RESOURCES Development: between 100 000€ and 300 000€ per region depending on the building park. Maintenance: 20 000€ per year, per region.
TOOLS / METHODS <ul style="list-style-type: none"> Existing systems analysis and available information. Identification and definition of the main data and indicators. Development of a common methodology for data gathering. Prepare a tool for data management and treatment. 	IMPACT High impact in a midterm.
	REFERENCES Survey on energy consumption in Catalan households. (ICAEN 1997-2005)

Example fact sheet template for measure 1.1 Information and energy consumption.



One of the 4 urban areas to test energy information measures, located in Barcelona.



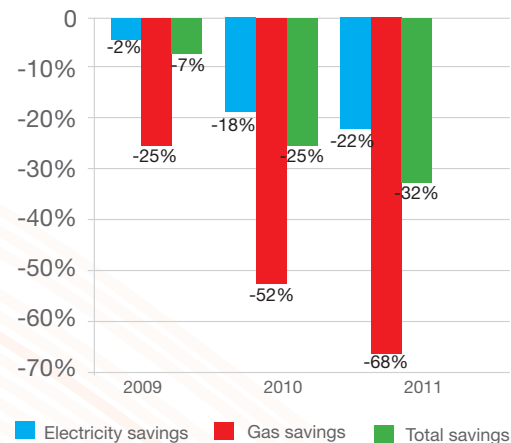
FROM THEORY TO PRACTICE

FINANCIAL MECHANISMS: A CENTRAL OUTPUT OF MEDBEES.

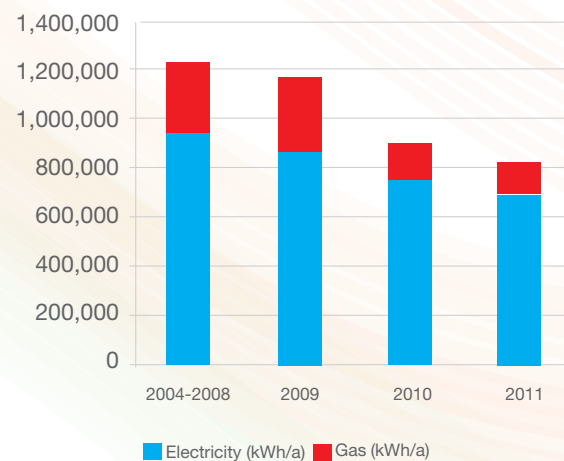
From a demand side approach is clear that boosting public and private financial investment in EE refurbishment is crucial to improving energy efficiency in MED buildings. However, improving energy management in buildings also has an enormous saving potential and a significant role to play regardless of the investment capability. By way of example, one of the MARIE pilot buildings (Diagonal 525, Barcelona owned by Department of Territory and Sustainability). During last three years the Ministry has reduced energy use by over 20% and saved more than 30 000 Euros per year by applying an internal management system focused on optimising use of the cooling and heating system. This improvement has been achieved with no investment other than dedication of staff time.

In conclusion, developing financial mechanisms are critical to the MEDBEES but do not replace energy management improvement. On the contrary, they only make sense in a context of investments of integrated energy management improvement programmes that focus on human requirements and habits as well as technological efficiency. ■

Annual energy savings
(in relation to 2004-2008 average)



Final energy consumption, Diagonal 525 building



CAN INNOVATION IN THE SUPPLY SIDE ALSO BE A CENTRAL OUTPUT OF MEDBEES?

It is also important to act on the supply side. MARIE is developing three pilot actions in this field. These actions aim to boost the availability of quality materials, products and solutions designed for more sustainable renovation of buildings and promote this to local building SMEs. The strategic objective is to provoke a change in their purchasing choices; persuading them to adopt innovative, more sustainable solutions. All three pilot actions involve the whole supply chain (Materials -> Products -> Services) and include institutional side action to support local SMEs. The results of these actions will be transferable and adaptable at both MED and EU level.

One pilot action involves the development and test of building materials based on locally sourced, natural and sustainable renewable resources.

The second is focused linking public administrations and private companies in order to create a new potential driver of innovation in the EE field and to improve the competitiveness and qualified technology of local SMEs.

And the third is centred on the development of energy business services for local SMEs to push and pull the energy renovation market in MED regions. ■

Use of cellulose scraps from paper mills.



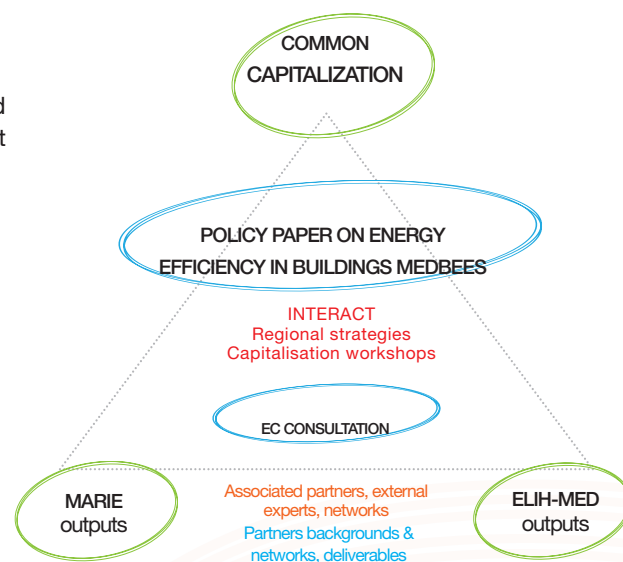
Area Science Park is testing an innovative product for the building sector under real conditions: an active external building envelope involving the use of heat pumps and a thermal distribution system, integrated in the envelope, combining thermal and acoustic insulation and heating and cooling plants.

WHAT ABOUT CAPITALIZATION?

In order to ensure optimal exploitation of the opportunities presented by MED programme support, and considering the MED Programme Committee recommendations, the MARIE and ELIH-Med (for Energy Efficiency in Low-Income Housing) strategic projects have joined forces in order to drive a common message towards politicians and decision makers. Since the beginning of each project, MARIE and ELIH-Med have been working together on capitalization of outputs and end results.

In general terms, capitalization is the strategy and process that will ensure that the concrete outputs of the projects' activities will produce a long term, deep and significant impact on public policies at the local, regional, national and european level. Specifically, the capitalization process aims to create a cumulative effect, not only through the aggregation of project results but also at a program level through the convergence of indicators, strategic objectives and proposals. In this way, the process will ultimately strengthen institutional cooperation and sectorial innovation in the MED zone within the mainstream framework of European Building Energy Efficiency policies.

It is therefore in ELIH-Med and MARIE's best interest to share and convey a common vision of the barriers to be overcome and investment targets as well as a coherent convergent range of solutions to achieve EU2020 objectives. These policy related solutions will be included in a policy paper on MED building energy efficiency improvement that both projects are elaborating together. The paper will present consensus-based recommendations to the



Managing Authority of the MED programme, aiming to contribute to the preparation of the next cooperation programming period (2014-2020) in its aspects related to energy efficiency in buildings. ■

WHAT WILL HAPPEN AFTER MARIE?

MARIE will conclude with the completion of the MEDBEES in December 2014. However, the most important objective of the project is to reach real effects beyond the end of the project. For this reason, two essential tools to guarantee an important and significant impact after the end of the project have been in development right from the start of the project.

The MARIE Business Network (MBN) was constituted in May 2012 in Turin both to ensure private companies involvement through clusters and agreement around the MEDBEES and also with the objective of facilitating the building energy renovation market development after MARIE.

The MARIE Associated Partners Platform (APP) was created in March 2012 in

order to facilitate the communication and consensus between public and private organizations related to energy efficiency of buildings. The benefits of APP for associated partners will be:

- exposure of their profile and activities on a Mediterranean wide platform
- the ability to search and receive information on projects related to EE in MED countries
- exchange of experiences & information related to Energy Efficiency of Buildings (EEB)
- participation in a platform to discuss and contribute to the MEDBEES development

The APP has been constructed to be a permanent platform (beyond the end of the project MARIE) to facilitate the implementation of MEDBEES between 2014 and 2020. ■



Constitution of MARIE Business Network.