



*Una manera de hacer Europa*



# BUENAS PRÁCTICAS Actuaciones Cofinanciadas

RIS3CAT Energy Community and REFER Project  
Catalonia Institute for Energy Research (IREC)

**Programa Operativo  
de Catalunya**

Año 2019

**Fondo Europeo de Desarrollo Regional**



## Presentation of RIS3CAT Energy Community and REFER Project as Good Practice

This document sets out the REFER Project for Energy Reduction and Flexibility in Building Renovations, which is part of the RIS3CAT Energy Community (Research and Innovation Community for the Smart Specialization of Catalonia). This Community has defined three priority lines of action: promoting energy efficiency, fostering low carbon emission technologies and boosting the smart grid.

The Energy Community, which is coordinated by the Catalonia Institute for Energy Research (IREC), aims to strengthen the Catalan industrial network by creating easily reproducible models to improve the energy efficiency of a range of sectors, promote the internationalization of companies, attract and retain talent, promote qualified technical training, and encourage young professionals to work in industry.

The Community's Action Plan comprises a total of seven projects, including the REFER Project, which is being undertaken in the field of major R&D projects and is the subject of the good practice being presented here. This project involves 13 complementary companies and organizations, which work together with the aim of improving energy efficiency and generating renewable alternatives in buildings. The following companies and organizations are involved in the project:

Project leader	
Participating companies	     
Technology centres	    
Universities	
Public bodies	

In the case of REFER, the project represents a total eligible cost of 3,496,088 euros and an ERDF grant of 1,351,181 euros. It involves the close collaboration of 13 companies.

This operation is being presented as a good practice because it meets the following criteria:

1. High dissemination among the beneficiaries, potential beneficiaries and the general public.

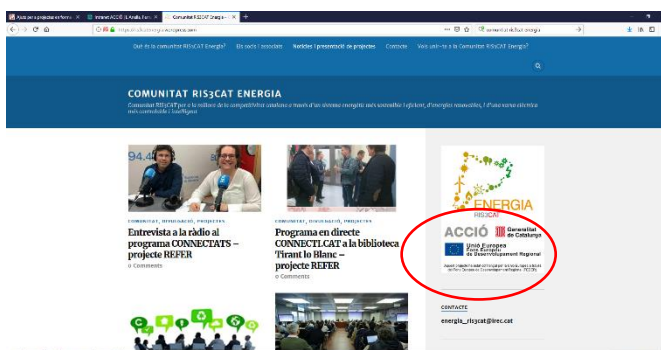
The following actions are particularly noteworthy:

*Poster: advertising poster showing the different beneficiaries involved in the co-financed project*



*Presence on websites:*

The consortium of companies and entities that make up the **RIS3CAT Energy Community** has developed its own website, which outlines important information about the project, the participants, new developments and the results achieved: <https://ris3catenergia.wordpress.com/>



The REFER Project also has its own website (<https://refer.upc.edu/ca/projecte>):



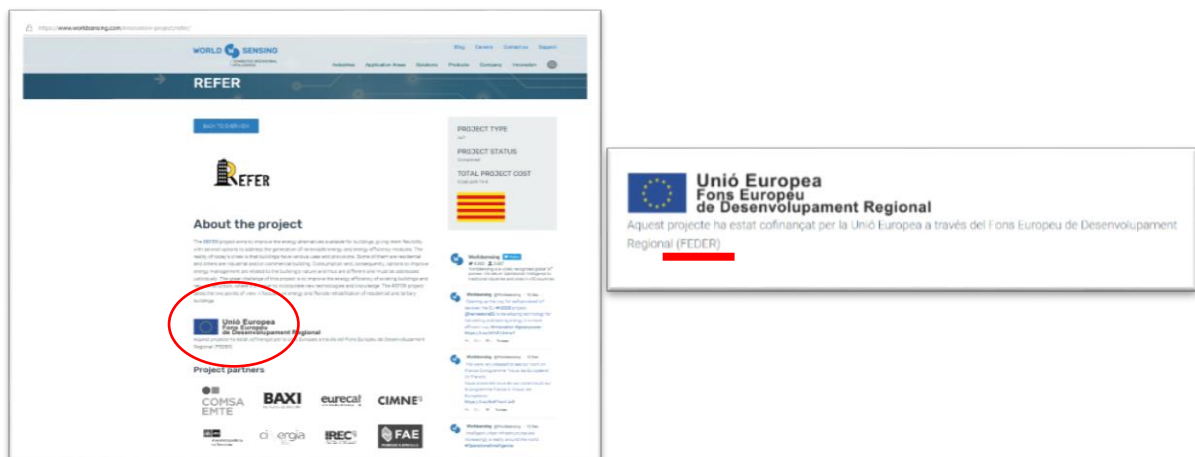
Aquest projecte compta amb el suport i està cofinançat per la Unió Europea a través del Fons Europeu de Desenvolupament Regional (FEDER) i ACCIÓ.

Moreover, all participants in the initiative have publicized the project on their respective corporate websites, including the following:

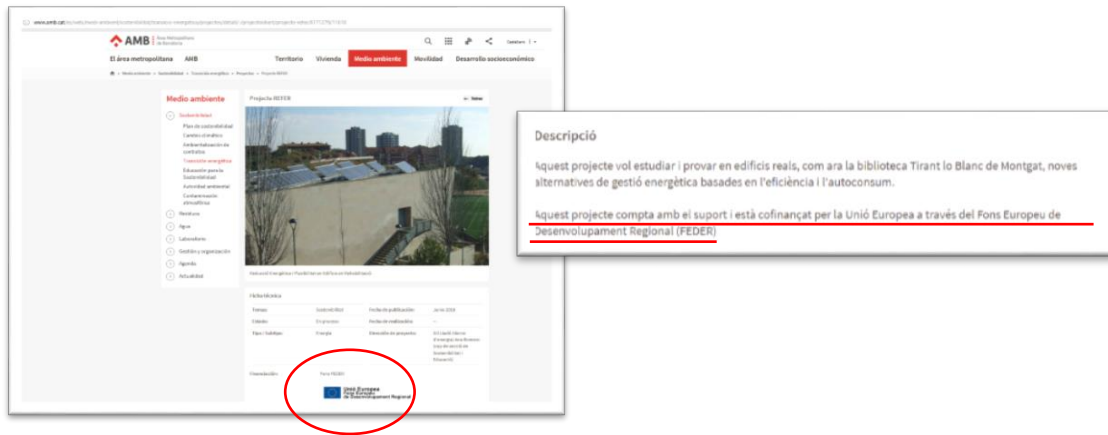
**COMSA:** <http://prensa.comsa.com/el-proyecto-refer-reutiliza-la-bateria-de-un-coche-electrico-para-regular-el-consumo-energetico-de-la-biblioteca-de-montgat-barcelona/>



**WORLDSENSING:** <https://www.worldsensing.com/innovation-project/refer/>



**BARCELONA METROPOLITAN REGION (AMB):** <http://www.amb.cat/es/web/medio-ambiente/sostenibilitat/transicio-energetica/projectes/detall/-/projecteobert/projecte-refer/6171279/11818>



## 2. Inclusion of innovative elements.

The REFER Project has led to the development of an integrated energy management system for buildings through the creation of a gateway that allows multiple systems to be integrated into a single connectivity solution. It has also resulted in the development of innovative software to manage and optimize the energy consumption and generation of buildings.

As examples, by managing and capturing a considerable volume of data from climate control equipment and boilers in a variety of homes, it has been possible to optimize energy consumption through the management platform developed. Moreover, in the service sector, a system to harness the energy generated by solar panels to provide air conditioning in spaces during times without sunlight has also been developed. This energy is stored in a disused electric car battery connected to a computer, which decides what to do with the energy based on demand, the weather forecast, market prices and the charge of the battery itself. This energy flexibility initiative was carried out in the facilities of the Tirant lo Blanc Library in Montgat, Barcelona.

## 3. Relevance of the results to the objectives pursued.

The RIS3CAT Energy Community, especially the project presented here, aims to boost the energy sector in Catalonia through a cooperation process to achieve proper knowledge transfer and coordination between the different components of the Community, of which the REFER Project is part.

The Catalonia Institute for Energy Research (IREC), which is responsible for coordination, plays a key role in the achievement of these objectives. In addition, the proper functioning of both the software and hardware developed as part of this project has led to an improvement in energy efficiency through the management of a smart micro-network.

Likewise, an integrated energy management system for multiple buildings has been deployed; this has made it possible to manage energy flows in a comprehensive manner by combining renewable power generation with storage.

#### **4. Contribution to the resolution of a regional problem or weakness.**

The problem with the Catalan energy sector is that it presents a fragmented structure and a lack of cooperation between agents, to the extent that important entities such as large service companies, SMEs, technology centres and universities are not accustomed to working together on R&D&I projects.

The Energy Community and the projects included in its Action Plan have boosted this cooperation and fostered the implementation of major projects and pilot programmes that benefit the region, such as the pilot project for an energy-efficient library in Montgat. In addition, technology centres and universities have had the opportunity to collaborate with companies through technology transfer and joint pilot projects.

#### **5. High degree of target population coverage.**

The Community's target audience is the Catalan energy sector, which encompasses companies based in Catalonia and the innovation system.

The REFER Project is designed to benefit both the housing renovation sector by optimizing energy consumption and the service sector through energy efficient buildings. As part of this project, a range of actions are being carried out in both sectors that may be transferred to the rest of Catalan society in the future, given that these models can be replicated in other buildings to make better use of energy and reduce electricity costs. Since the energy sector is universal, the advances made through the REFER Project are expected to achieve a high degree of coverage.

#### **6. Inclusion of horizontal principles (sustainable development, equality between men and women, and non-discrimination) and of environmental regulations.**

The REFER Project complies with the principles of sustainable development and environmental regulations, since it includes energy efficiency and smart grid initiatives.

It also aims to promote equality between men and women in technology, a field that still presents gender imbalance. In fact, all activities have a significant female presence. In addition, all project members agree to comply with the duty to respect equal treatment and opportunities in the workplace and the principle of non-discrimination and accessibility for people with disabilities, and adopt measures designed to avoid all types of workplace discrimination.

## **7. Synergies with other policies or public intervention tools.**

This project is part of a wider effort by the Energy Community, which carries out other projects such as COSIN, NAENCAT, ESTORELOT, FLEXEDINET, LCA ENERBOOST and MICRO IT that are complemented by cross-cutting and support activities.

The RIS3CAT Energy Community was originally conceived as an extra tool to promote the energy sector in the R&D ecosystem and qualify for more financing through other instruments. In the case of projects that fell outside the framework of REFER due to the constraints of the call for proposals, the solution was to seek better-matched alternatives to carry out the actions, either locally, with ACCIÓ's technology R&D nuclei funding scheme, or nationally, with tools created by the Centre for the Development of Industrial Technology (CDTI).

Likewise, opportunities offered by the European programmes H2020 and Interreg (European interregional cooperation programme) have been exploited, such that several partners are already participating in European projects with technologies or lines of work that complement those developed within the framework of the RIS3CAT Energy Community.



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