



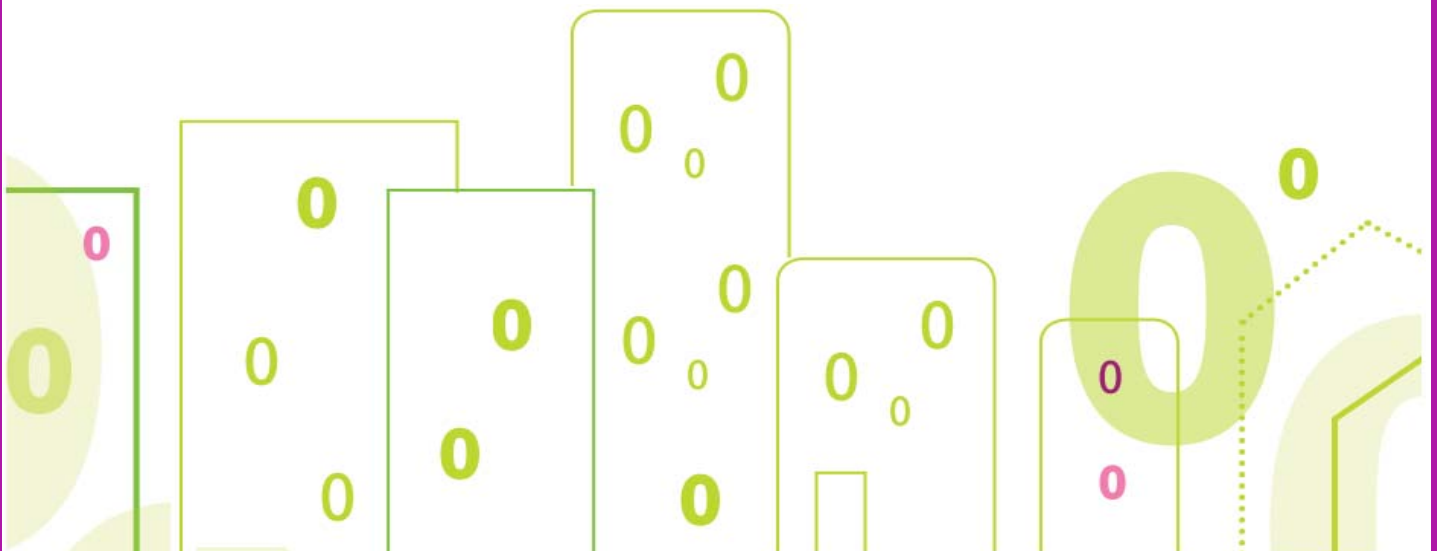
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## POWER HOUSE NEARLY-ZERO ENERGY HOUSING FOR WARM/MEDITERRANEAN CLIMATE ZONES

Report of the Workshop on “Financing  
opportunities for energy efficiency in housing”  
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## 1. Introduction

### 1.1 The POWER HOUSE Nearly-Zero Energy Challenge

Social, cooperative and public housing providers in Europe own and manage 12 per cent of housing stock.<sup>1</sup> The Power House Nearly-Zero Energy Challenge (NZEC), funded by Intelligent Energy Europe and led by CECODHAS Housing Europe, seeks to build capacity and confidence amongst these providers ahead of the requirement that in 2020, all new buildings should be nearly-zero in terms of their energy consumption and that any energy required is sourced from renewable sources. Providers have a key role to play in ensuring the actual delivery of the nearly zero energy building (nZEB) requirements, not only in terms of their new build but also in the retrofitting of their existing stock to reduce carbon emissions.

The Nearly-Zero Energy Challenge project is taking a close look at the practical experience of four thematic inter-European Taskforces:

- nearly-Zero energy housing experiences in cold, continental climates (nZEB Cold)
- nearly-Zero energy housing experiences in warm/Mediterranean climates (nZEB Med)
- nearly-Zero energy housing in regions characterised by divided/individual ownership (nZEB Divided Ownership)
- financing of nearly-Zero energy housing renovation and new-build (financing nZEB)

The Power House NZEC initiative will help organisations to identify avoidable mistakes and learn from each other with the aim of meeting the nearly-Zero 2020 obligations outlined in the Energy Performance of Building Directive<sup>2</sup>.

### 1.2. The nZEB Warm/Mediterranean Climate Taskforce

The nZEB Warm/Mediterranean Climate Taskforce is coordinated by Federcasa, the Italian Federation of Public Housing Companies and AVS, the Spanish Association of Public Social Housing and Land Providers. The overall aim of the Taskforce is to help local housing providers adapt nearly-Zero Energy principles to their climate conditions. The French Federation of Social Housing Providers, USH, also joined the Taskforce given the interest of its members based in southern France and is contributing to the exchange on very low-energy house technologies with a focus on construction and management costs, quality assurance, maintenance issues and monitoring energy consumption. Moreover, CECODHAS Portugal, the Portuguese Association of National and Regional

<sup>1</sup> Diacon, et al. Progress Report: Fair Energy Transition towards nearly-Zero Energy Buildings, 2013

<sup>2</sup> For further info, visit <http://www.epbd-ca.eu>.

Social Housing Umbrella Organisations is invited to all meetings and kept informed of the Taskforce's activities and findings.

Reaching nearly-Zero Energy standards in Mediterranean climates where energy needs are greater for summer cooling than for winter heating entails different technical and regulatory challenges from those faced in cold/continental climates. In addition, the global economic crisis has adversely affected the Mediterranean countries and brought financial challenges to the energy sector in the region. One of the main priorities of the Taskforce, therefore, is to look closely into financing innovations in order to overcome limited access to capital to finance energy efficiency. An additional priority involves finance-related solutions focused on tackling the landlord-tenant dilemma (or split incentive) which sees the landlord responsible for energy-saving capital investments while their ability to recover the benefits of those investments through lower energy costs are restricted.

### 1.3 The conference

Recent developments in European funding offer considerable possibilities for those in the housing sector who are investing in energy efficiency. The European Structural and Investment Funds (ESIF) for the new programming period 2014-2020 allot more than EUR €23 billion to supporting the shift towards a low-carbon economy – one of the thematic objectives and key actions derived from Europe's 2020 strategy – which includes energy efficiency and renewables. Additionally, the newly launched Horizon 2020 Energy Programme has a significantly increased €5.7 billion budget for the 'Secure, clean and efficient energy' programme between 2014 and 2020. These financial instruments present a wide range of opportunities for social housing providers especially as there is greater emphasis on energy efficiency, i.e. reduced energy consumption and decreased CO2 emissions, both in relation to new buildings and to the renovation of existing buildings.

In order to identify the opportunities offered by the new ESIF and other instruments available to finance energy efficiency activities in social housing, AVS and Federcasa jointly organised a conference on '**Financing opportunities for energy efficiency in housing**' with Power House nZEC members and experts on 13 February 2014 in Barcelona, Spain. During the introductory session of the event, Miguel Contreras Manrique, President of AVS, stated that improving energy efficiency in housing tackles both environmental and economic issues as it helps to reduce energy consumption and household energy costs. However, financial mechanisms for refurbishment and guidance on obtaining such funding are needed. This is particularly relevant in Spain where the financial crisis has severely impacted the country's economy and accessing funding from banks is almost impossible. The event also served as an opportunity for housing associations to find innovative ways to work together to address the crucial issues of housing affordability and energy efficiency. This was highlighted by Marco Corradi, the Chair of Housing Europe's Energy Experts Network, during the welcome session. Antoni Sorolla Edo, President of AVS Catalonia, added that by looking at other European examples or experiences, housing associations can learn more lessons about improving the energy efficiency of their housing stock.

The conference was followed by a study visit to two low-energy housing projects managed by the *Patronat Municipal de l'Habitatge de Barcelona*: Roc Boronat and Can Cortada. During the study

visit, participants had the opportunity to interact with architects and engineers and learn about the measures that had been adopted in these projects to achieve high energy standards.

#### 1.4 This report

This report highlights the discussions and outcomes from the conference and study visit held in Barcelona, Spain on 13 February 2014 and which focused on the finance opportunities for energy efficiency in housing in the Mediterranean context. It gives an overview of the new Structural Funds and other financial instruments that were presented by experts from Spain, Italy and France as well as their possible application in social housing in warm/Mediterranean climates. The report also briefly summarises the key features of the two low energy developments that were visited as part of the event. The report concludes with some recommendations for social housing providers in warm/Mediterranean climates in order that they take advantage of the finance opportunities in energy efficiency offered by the EU and other schemes available in their countries.

## 2. EU finance opportunities for energy efficiency in housing

The first part of the event<sup>3</sup>, attended by some 90 participants, was mainly dedicated to the opportunities offered by the EU, particularly by the Structural Funds for the new programming period 2014-2020. Other supporting schemes and programmes on energy efficiency were also presented, including the Horizon2020 call for proposals launched in December 2013. All the presentations are available on the Powerhouse Europe website.<sup>4</sup>

### 2. 1. Opportunities offered by the new Structural Funds for social housing in Spain

*Julien Dijol, CECODHAS Housing Europe*

The EU legislative and policy framework for 2014-2020 features a single set of rules governing finance instruments for five main European funds in order to provide a more efficient and sustainable alternative to complement traditional grant-based financing. Julien Dijol of CECODHAS Housing Europe provided an overview of the key features of the European Structural and Investment Funds (ESIF)<sup>5</sup> for the new programming period 2014-2020 with a focus on how the funds can help the renovation and new construction of social housing in Spain.

For the period 2014-2020, Spain has been allocated approximately EUR €28.6 billion of Cohesion Policy funding. Varying amounts are allotted to areas or regions in Spain depending on their levels of

<sup>3</sup> See workshop programme in the Appendix section

<sup>4</sup> Presentations can be accessed at [http://www.powerhouseeurope.eu/nc/news\\_events/events/detail/back/past-events/article/power-house-warmmediterranean-taskforce-workshop-study-visit-20-21-february-2014-barcelona/](http://www.powerhouseeurope.eu/nc/news_events/events/detail/back/past-events/article/power-house-warmmediterranean-taskforce-workshop-study-visit-20-21-february-2014-barcelona/)

<sup>5</sup> Brief description of ESIF: [http://ec.europa.eu/regional\\_policy/thefunds/index\\_en.cfm](http://ec.europa.eu/regional_policy/thefunds/index_en.cfm)

economic development and specific challenges the country needs to address in the areas covered by the funds. As a country currently experiencing a difficult macroeconomic situation, Spain can increase the rate of co-financing (from national or private funding) by 10 percentage points and can receive 100 per cent funding from the ESIF for the technical assistance required to develop these finance instruments.

These finance instruments present significant opportunities for investing in energy efficiency or low carbon initiatives which can support affordable housing and sustainable urban development in Spain. One of the national priorities for Spain, set out in a Partnership Agreement with the European Commission<sup>6</sup>, is to make a more efficient use of natural resources. The recommendations include implementing energy efficiency measures in new build and existing buildings and promoting innovative finance schemes as well as increasing the use of renewable energy in dwellings. Two possible scenarios were briefly illustrated on how to apply the ESIF in order to improve energy efficiency. The ESIF can either be used at a national level to create a national revolving fund on energy efficiency or they can be used to set up an integrated strategy for the sustainable development of a city or region. However, in order for these two scenarios to happen in reality, there are several key factors that need to be addressed which include: intermediary entities (public or private agencies) that will pool financial needs of housing providers and financial resources; legislation that permits the development of low carbon market finance; technical assistance and the active involvement of local authorities.

## 2.2 Opportunities offered by the new Structural Funds for social housing in Italy

*Francesco Nola, Italian Ministry for Infrastructure and Transport*

Francesco Nola of the Italian Ministry for Infrastructure and Transport focused on how the EU Structural Funds can address the issue of energy efficiency, with an outline of how the proposed Italian 'national programme for residential housing' for the 2014–2020 period can fulfil the strategic objectives of the EU funds while decreasing energy consumption in buildings and guaranteeing adequate housing.

Improving energy efficiency in buildings is a threefold process, focusing on retrofitting, introducing energy saving technology and producing renewable energy. The proposed national programme also aim to tackle social issues such as responding to the need for appropriate housing, including issues of thermal comfort and lowering the costs linked to housing, including the energy costs of combatting fuel poverty. Other objectives aim to increase well-being as well as improve social inclusion and build cohesion. Mr Nola also mentioned that the strategic objectives of the EU Structural Funds have been translated into specific goals in the Italian national programme.

In addition, he illustrated the different responsibilities of central government and regional authorities, reflecting the type of activities the EU funds will be dedicated to at different levels. The regional authorities focus on intervention programmes which are comprehensive and respond to their development plans. The programmes they develop that reflect EU strategic objectives are eligible for funding. At a national level, the EU funds are directed towards financing the process of

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<sup>6</sup> Position of the Commission Services on the development of Partnership Agreement and programmes in SPAIN for the period 2014-2020:  
[http://ec.europa.eu/regional\\_policy/what/future/pdf/partnership/es\\_position\\_paper.pdf](http://ec.europa.eu/regional_policy/what/future/pdf/partnership/es_position_paper.pdf)

capacity building to facilitate the management and overseeing of various interventions taking place at different scales. In order for the EU funding to be used to its full potential, according to Francesco Nola, the administrative capacity of the national institutions has to be increased and adapted to EU procedures. There is a need to integrate different stakeholders, systematise the prioritisation of investments and beneficiaries and build the capacity to monitor and evaluate the effects of EU funding.

Mr Nola's presentation stressed not only the importance of having the targeted and well-tailored goals that EU structural funds aim to address but also illustrated the need for institutional capacity in order to make use of finance resources for energy efficiency.

### 2.3 Alternative finance schemes and Horizon 2020 Call for Proposals

Adrien Bullier, EASME - European Commission

The first part of Adrien Bullier's presentation underlined the need for 'deep' or comprehensive renovation of the existing building stock in order to meet the EU energy and climate objectives for 2020 and 2050. However, the existing financial schemes for renovation in buildings are not sufficient or replicable on a large scale and could only generate around 20 to 40 per cent savings in energy.<sup>7</sup> Hence, finance solutions that are adapted to the low profitability and long payback time of the comprehensive energy refurbishment in the building sector are crucial. Mr Bullier focused on the issue of Energy Performance Contracting (EPC), a finance scheme rarely used to finance deep renovation in buildings as it would require investment in the building envelope with a long payback time, which is currently an unattractive model in the market. The case of *Energies POSIT'IF* in the region of Ile-de-France was highlighted as a good approach for increasing the impact of EPC and its use for the deep renovation of residential and public buildings. *Energies POSIT'IF*<sup>8</sup> is a *Société d'Economie Mixte*— a public private company used by French local authorities to facilitate the retrofit of multi-residential buildings (condominiums) and renewable energy production. By acting as a third party investment operator to provide funding for the renovation of condominiums, *Energies POSIT'IF* plays an active role in creating a market for deep renovation.

In the second part of his presentation, Mr Bullier described Horizon 2020, a new EU financial instrument and specified its role in financing energy efficiency. From 2014 onwards the type of activities funded by the Intelligent-Energy Europe Programme are supported under the European Union's Research and Innovation Programme 'Horizon 2020'. It is a subsidy scheme, designed to finance innovation, research and development, with approximately €80 billion of funding available in total between 2014 and 2020 for different initiatives in order to boost the region's global competitiveness. Two-year work programmes determine the specific areas funded by Horizon 2020, including the 'Secure, Clean and Efficient Energy' programme which is subdivided into different calls for entry for energy efficiency, such as:

- EE5 - Increasing energy performance of existing buildings through process and organisation innovations and creating a market for deep renovation;
- EE19 - Improving the financeability and attractiveness of sustainable energy investments;

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<sup>7</sup> For a detailed analysis, see Bullier and Milin, 'Alternative financing schemes for energy efficiency in buildings, ECEEE 2013, [www.buildup.eu/publications/37594](http://www.buildup.eu/publications/37594)

<sup>8</sup> See [http://www.managenergy.net/sm\\_energies\\_posit\\_if.html](http://www.managenergy.net/sm_energies_posit_if.html) for more information on Energies POSIT'IF



- EE20 - Project development assistance for innovative bankable and aggregated sustainable energy investment schemes and projects;
- EE21 - Development and market roll-out of innovative energy services and financial schemes for sustainable energy.

Horizon 2020<sup>9</sup> can be used as an opportunity to obtain finance to put into practice innovative solutions for energy efficiency or as a platform that generates forward thinking solutions that facilitate the financing of energy efficiency.

### 3. Existing financial mechanisms for energy efficiency in Mediterranean countries

#### 3.1 The PAREER Programme – Energy refurbishment in the residential sector (Spain)

*Fernando García Mozos, Institute for Diversification and Energy Saving (IDAE)*

The Ministry of Industry, Energy and Tourism, through the Institute for Diversification and Energy Saving (IDAE) launched a programme of aid for the energy efficient refurbishment of housing (PAREER) in October 2013. The programme has €125 million of grants and funding for measures to improve the energy efficiency of thermal envelope, heating and lighting and to replace conventional energy with biomass and geothermal energy heating systems. The aim of the PAREER programme is to promote integrated actions that promote the improvement of energy efficiency and renewable energy use in the existing building stock in the residential sector, as well as comply with energy efficiency regulations.

Fernando Garcia Mozos of IDAE presented the main features of the programme, the eligibility criteria and requirements. A key requirement of the programme is a one-letter improvement in the energy rating of the building. The beneficiaries of the programme are: owners of residential buildings; communities or groups of owners of multi-family buildings; owners of hotel buildings; and energy companies. The programme can offer grants and/or repayable loans which have maximum term of 12 years, with guarantee or surety contract amounting to 20 per cent of the loan amount. The PAREER programme is currently accepting applications for funding through the IDAE website until 30 October 2015.<sup>10</sup>

#### 3.2 Opportunities to finance energy efficiency: the INTERREG Programme (Spain)

*Amadeu Iglesias Unzue, IMPSOL – Metropolitan Area of Barcelona*

Amadeu Iglesias Unzue of Barcelona's Institute for Metropolitan Development and Land Property Management (IMPSOL) presented the Ecohabitat project which was a part of the INTERREG IV B SUDOE Programme, a transnational cooperation programme aiming to strengthen economic

<sup>9</sup> For further information on Horizon 2020, please visit: <http://ec.europa.eu/programmes/horizon2020/>

<sup>10</sup> PAREER Programme: <http://www.idae.es/index.php/id.745/lang.uk/mod.pags/mem.detalle>

integration and improved cooperation among authorities or organisations in South West Europe (SUDOE) in the areas of competitiveness and innovation, environment, sustainable development and land use planning. The Ecohabitat project is a transnational cooperation project between Toulouse, Barcelona and Lisbon aiming to promote technological innovation and sustainable housing in their respective urban areas through research and experimentation, capacity building and the creation of a transnational network of academic professionals, authorities and companies.

The first phase of the programme involved meeting stakeholders and a transnational comparative study to analyse existing building regulations and criteria for sustainable construction and refurbishment. Construction work completed 15 years ago in Barcelona and Toulouse were surveyed and the results showed further work that could be done to improve their energy efficiency and sustainability using current technology. The study not only looked at housing but also examined the topics of waste management, renewable energy, sustainable mobility, urban space and the green belt. The second phase consisted of activities that were designed to transfer skills and facilitate the implementation of new sustainability building criteria and technologies that were developed in the project. Simulations of housing refurbishment were also undertaken in Barcelona which found that a 50 per cent saving in energy consumption can still be achieved in a 10-year-old building if 10 per cent of construction costs are invested to improve its energy efficiency. The project partners plan to continue the transnational cooperation and network that was initiated through the INTERREG programme even after the end of the project. Further details can be found at the Ecohabitat project website<sup>11</sup>.

### 3.3 Feasibility of energy efficiency measures in social housing: A regional approach (Italy)

*Marco Corradi, Azienda Casa Emilia Romagna (ACER)<sup>12</sup> and Energy Experts Network Housing Europe*

Marco Corradi opened by highlighting the urgency of tackling the energy efficiency issue given the current economic downturn affecting numerous households in Italy and across Europe. He stated that in this context, one of the objectives for housing associations must be to ensure a reduction in the overall housing costs for tenants. He also pointed out certain considerations which were particularly relevant to the Italian context, such as: whether retrofitting was always viable or whether it was sometimes appropriate to resort to demolition; how other housing improvements could and should be implemented during the refurbishment process, e.g. anti-seismic measures, improved electrical systems, improved accessibility for wheelchair users; the significant climatic variations in Italy, spanning across six different climatic zones, all of which have to be taken into account in terms of envisaging possible energy-efficiency measures.

The presentation featured the existing European or national funds available to support these objectives, including ERDF and the European Investment Bank funds, the national energy strategy and regional incentives and initiatives, some of which are made up of reimbursable loans, while others are in the form of grants. To highlight an example, Mr Corradi focused on the approach

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<sup>11</sup> Ecohabitat project: <http://www.ecohabitat-sudoe.eu>

<sup>12</sup> Azienda Casa Emilia Romagna (ACER) is a private housing association which manages the social housing stock for the province and municipalities that own the housing units. It is a market-oriented enterprise with strong social commitments and a focus on energy efficiency, low costs and high building standards.

promoted by ACER in the region of Reggio Emilia, that being the reliance on savings from energy efficiency measures to finance the investment needed for refurbishment. This can be done by Energy Performance Contracting through ESCOs, whereby the ESCOs provide the initial funding for energy efficient refurbishment, aiming to generate a 50 per cent saving or reduction in the consumption of energy. The tenants keep 20 per cent of the savings on the original energy consumption and use the remaining 30 per cent to repay the initial investment in energy efficiency. With this approach, over the course of 12–15 years, the initial investment can be repaid and the tenants enjoy increased thermal comfort and obtain savings with respect to their previous expenditure. This scheme of financing through savings can be combined with additional resources from the ‘fuel poverty fund’ or those obtained through the ‘Ecobonus’ and ‘Conto Termico’ incentives which aim to reduce costs to those investing in energy efficient refurbishment and in the replacement of energy intensive heating system.

### 3.4 The use of ERDF to finance energy refurbishment in the Turin area (Italy)

*Sebastiano Ciavarella – Local Agency for Housing (ATC)<sup>13</sup> Torino*

Sebastiano Ciavarella described the Regional Operational Programme 2007/2013 ‘Competitiveness and Employment’ which is the instrument that regulated the use of the ERDF funds in the Piedmont region. The programme had four guiding objectives: 1) innovation and productivity; 2) sustainability and energy efficiency; 3) local renovation; 4) technical assistance. Energy efficient refurbishment of public buildings managed by ATC as social housing fell within the second objective, which aimed to reduce the energy consumption of buildings and/or to enable the use of renewable energy resources and was attributed a total budget of €30 million.

Throughout the presentation, Mr Ciavarella referred to eight energy efficient refurbishment projects that have been carried out in and around Turin province with ERDF funding. The buildings included between 96 and 651 housing units each and obtained funding that varied from approximately €1.11 million to almost €9.3 million to carry out various refurbishment works. The advantages of undertaking refurbishment works financed by ERDF funds included a larger share of costs (70 per cent) that were covered compared to other European programmes (35–50 per cent), and the possibility of combining this with other finance schemes. However, 30 per cent of the refurbishment costs were not covered by ERDF fund and needed further funding sources which could be a challenge for housing providers to obtain. Moreover, there were other refurbishments or social programmes associated with housing that are not eligible for funding. Other disadvantages of using ERDF funds included the lack of a contingency fund for unexpected costs and the complexity of the accounting and auditing system.

### 3.5 The use of ERDF to finance energy efficiency in social housing (France)

*Carine Puyol, Social Union for Habitat(USH)<sup>14</sup>*

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<sup>13</sup> Agenzia Territoriale per la Casa (ATC) is a regional public body that extends across the Piedmont region providing affordable housing to low-income households and which manages its housing stock along with that of other public entities.

<sup>14</sup> Union Sociale pour l’habitat (USH) is an organisation which forms part of the social housing sector in France and represents around 760 rent-controlled residential buildings through five federations. It also has specific branches in charge of the training and professionalization of other entities in the sector.

Carine Puyol of USH presented the current situation regarding energy efficiency in social housing in France. Around 4.5 million households currently reside in social housing. She stated that these are classified as *Habitation à Loyer Modéré* (HLM) - public or private rent-controlled housing. Public authorities had committed to tackle energy efficiency in buildings, with 80,000 of the most energy consuming buildings to be refurbished according to the *Grenelle de l'environnement* (2008), and the Pact between HLMs and the State to renovate 100,000 buildings per year according to the *Grenelle de l'environnement* (2013).

In order to meet these requirements, the French government had made use of EU resources through the European Regional Development Fund (ERDF). The French case demonstrated a successful maximisation of these funds for energy efficiency in buildings. As of April 2013, €233.7 million had been or were scheduled to be allocated to the energy-efficient refurbishment of social housing, which brought the average ERDF contribution per housing unit to €3,276 (approximately 17 per cent of the total investments). Ms Puyol also pointed out the repercussions on the national economy, highlighting that the ERDF generated an additional €1.1 billion through a multiplier effect and 15,000 temporary or permanent employment opportunities. To date 58,000 households have benefited from the refurbishment enabled by ERDF funds, contributing to the increase in people's well-being and combating fuel poverty.

The EU funds were used in four different forms: subsidies, loans, tax assistance and mortgage assistance. The total amount of grants and subsidies that could be received had to equal or be superior to the refurbishment costs minus revenues from the increase in rent. The speaker stressed the importance of controls over the use of EU funds. These were regularly checked both by European and national authorities (minimum of three times a year). There were also important requirements to meet in order to access funding, such as the existence of a mandate that trusted social housing providers with the management of the Services of General Economic Interest<sup>15</sup>, and the need for a system to ensure the correct calculation of costs and identify possible overcompensations. If this occurred, the excess funds had to be reimbursed to the EU.

#### 4. Examples of nZEB developments in Spain

To complement the morning session, Powerhouse nZEC, Federcasa and AVS organised a study visit in the afternoon in collaboration with AVS Catalonia and *Patronat Municipal de l'Habitatge de Barcelona PMHB*). Two housing projects in Barcelona managed by the PMHB were visited. During the visits, participants were able to interact with architects and engineers and hear from them about the measures that had been adopted to achieve high energy standards.

<sup>15</sup> Economic activities that public authorities identify as being of particular importance to citizens and that would not be supplied (or would be supplied under different conditions) if there were no public intervention. See European Commission website : [http://ec.europa.eu/competition/state\\_aid/overview/public\\_services\\_en.html](http://ec.europa.eu/competition/state_aid/overview/public_services_en.html).

#### 4.1 Roc Boronat (Calle Roc Boronat, 108)



Class A building in Roc Boronat  
Photo credit: [www.construction21.eu](http://www.construction21.eu)

The building of 95 new housing units is the first multifamily building in Barcelona that has obtained the highest energy rating (Class A). The building has a total area of 12,297 m<sup>2</sup>; the home size ranges from 45 m<sup>2</sup> to 78 m<sup>2</sup>. The dwellings have been designed for medium-sized families including two or three bedrooms per dwelling. The façade is ventilated with a double skin formed from sunscreens of sliding wooden slats which can be moved depending on the needs and preferences of the residents. The building is connected to Districlima, the largest heating and cooling network in Spain; and is one of the cases studied by Powerhouse nearly Zero Energy Challenge, Spain.

Further information on the Roc Boronat building can be found on the Powerhouse case studies website<sup>16</sup>. The energy consumption of Roc Boronat is also being monitored and the first results will be available online on the Hive project database.<sup>17</sup>

#### 4.2 Can Cortada (Avenida de l'Estatut de Catalunya, 57)

The 'Can Cortada' building is a 160-unit residential block located in the district of Horta-Guinardo in Barcelona and has a Class B energy rating. The principles of passive architecture were applied to reduce heating and electricity consumption as well as to save on maintenance costs. The building consists of 15 two-bedroom apartments, 145 three-bedroom units and 152 parking spaces and has a total area of 25,677 m<sup>2</sup>. A video of the study visit to this development is available on Youtube.<sup>18</sup>



Inside a housing unit in Can Cortada building  
Photo credit: [www.bcn.cat/habitatge](http://www.bcn.cat/habitatge)

As Barcelona City Council aims to provide access to subsidised housing, the units are 'owned' on a leasehold basis for a specified period of time (75 years) while the land is owned by the *Patronato Municipal de l'Habitatge de Barcelona*. By means of a draw held in February 2014, all 160 units have now been allocated to the people listed in the social housing register. The subsidised housing units of between 60 m<sup>2</sup> and 81 m<sup>2</sup> have an estimated monthly payment (parking included) of between € 392 and € 685, paid through a mortgage. There are a number of benefits for residents of this form of property tenure including having the means of affordable payments

<sup>16</sup> Powerhouse case studies website:

[http://www.powerhouseeurope.eu/nc/cases\\_resources/case\\_studies/single\\_view/?tx\\_phecasestudies\\_pi3%5Bid%5D=166&tx\\_phecasestudies\\_pi3%5Bdisplaytype%5D=overview](http://www.powerhouseeurope.eu/nc/cases_resources/case_studies/single_view/?tx_phecasestudies_pi3%5Bid%5D=166&tx_phecasestudies_pi3%5Bdisplaytype%5D=overview)

<sup>17</sup> Hive project database: <http://panel.hiveproject.eu/building-chart.php>

<sup>18</sup> Video of the study visit: [https://www.youtube.com/watch?v=AV\\_Dydh\\_5uo](https://www.youtube.com/watch?v=AV_Dydh_5uo)

through mortgages of 30 years, stability and security. Moreover, the leaseholder can recover some of the money paid if the house is returned during the first 15 years. In circumstances where the tenant can no longer pay the mortgage payments because of lack of work or for other reasons, the lease can be extinguished and the tenant is refunded the money paid and is free of any debt.

## 5. Conclusions

Given the current economic downturn affecting numerous households, particularly in southern Europe, improving the energy efficiency of buildings is crucial to combat fuel poverty and address the market gap for deep renovation. However, financing is key to increasing the energy performance of buildings in order to reduce energy and maintenance costs for both residents and housing providers.

The European Structural and Investment Funds for the new programming period 2014–2020 and Horizon 2020 Energy Programme present significant opportunities for those in the housing sector to invest in energy efficiency or low carbon initiatives. With the help of these finance instruments, the energy efficiency market can develop and attract private sector additional finance or subsidised capital. They can be used to complement the finance from banks and ESCOs for energy efficiency projects. This is very beneficial in warm/Mediterranean climates where the payback time of energy efficiency investments can take longer due to lower demand for heating in winter compared to cold/continental climates. Hence, the EU finance instruments provide considerable finance opportunities for social housing providers in warm/Mediterranean climates to implement energy efficiency measures to nZEB standards, allowing them to reduce energy costs and improve their tenants' thermal comfort.

The existing financial mechanisms that were presented at the conference also show further possibilities of improving the energy efficiency of buildings in combination with the EU structural funds. In particular, Energy Performance Contracting through ESCOs or public third-party investment operators, as shown by ACER in Italy and *Energies POSIT'IF* in France, has the potential to develop and stimulate the market for the deep renovation of buildings. As the EPC is generally suitable for financing energy efficiency measures with short or medium payback, combining this with EU finance instruments and other financial schemes could support comprehensive energy efficiency projects with longer payback periods. There is, therefore, a need to improve the framework conditions for utilising EPC and other finance instruments and for housing providers to further explore the full use of these financial mechanisms in deep renovation projects.

In addition, cooperation at all levels is key in order to effectively coordinate and implement the use of finance instruments including ESIF, as well as national and regional financial mechanisms. This entails a need for Member States to integrate the different stakeholders and approaches to programming by building the institutional capacity for utilising the finance resources for energy

efficiency whilst encouraging social housing providers to invest in increasing their expertise and understanding of funding options.



**APPENDIX: Conference Programme – February 13, 2014 (in Spanish)**

**Morning Session**

Finance opportunities for energy efficiency in housing: Application of the new Structural Funds and other instruments

*Moderators: Carlos de Astorza, AVS and Anna Pozzo, Federcasa*

**Venue:** Sal3n de Actos. Patronat Municipal de l’Habitatge. C/ Doctor Aiguarder, 24

**Organisers:** AVS

FEDERCASA

Power House Nearly Zero Challenge - MED

**Partners:** AVS Catalunya

Patronat Municipal de l’Habitatge de Barcelona

**09:15 - 09:30 h. Welcome**

Mr Marco Corradi

President, Energy Experts Network Group – CECODHAS Housing Europe

Mr Antoni Sorolla i Ed3

President, AVS Catalunya

Mr Miguel Contreras Manrique

President, AVS

**09:30 - 10:00 h.- Introduction to the new (finance instruments) Structural Funds and its relationship with housing activities in Energy Efficiency, Rehabilitation and Activities at the district level**

Speaker: Mr Julien Dijol

Policy Officer, CECODHAS Housing Europe

**10:00 - 10:20 h.- Alternative schemes for financing energy efficiency in buildings**

Speaker: Mr Adrien Bullier

Project Officer Unit 1 – Renewable Energy, European Commission

**10:20 - 10:40 h.- Proposal for financing energy efficiency**

Speaker: Mr Marco Corradi

President, Energy Experts Network Group – CECODHAS Housing Europe

**10:40 - 11:00 h.- The management and participation in aid programs on Energy Efficiency**

Speaker: Mr Fernando Garc3a Mozos

Head of the Department of Domestic Affairs and Buildings Directorate of Energy Saving and Efficiency (IDAE)



**11:00 - 11:30 h.- Debate**

Moderator: Mr Carlos de Astorza y García de Gamarra  
Coordinator NZEB Warm/MED Spain

11:30 - 12:00 h.- Break

**12:00 – 12:20 h.- The opportunities of the new programming period in Italy**

Speaker: Ms Costanza Pera  
General Director of Housing Policy, Ministry of Infrastructure and Transportation in Italy

**12:20 - 12:40 h.- Participation of Public Enterprises in the Structural Funds: The INTERREG Programme**

Speaker: Mr Amadeu Iglesias Unzue  
Manager, IMPSOL

**12:40 - 13:00 h.- The use of ERDF in Piemonte region**

Speaker: Mr Sebastiano Ciavarella  
ATC Torino

**13:00 - 13:20 h.- The use of ERDF in France**

Speaker: Ms Carine Puyol  
EU Representative, Union Sociale pour l'habitat

**13:20 - 14:00 h.- Debate**

Moderator: Ms Anna Pozzo  
Coordinator NZEB Warm/MED Italy

***Afternoon Session***

Study visits to low energy developments in Barcelona

**16:00 - 18:00 h.- Study visits to representative buildings of the Powerhouse nZEB Challenge programme**

Roc Boronat (Calle Roc Boronat, 108)

Can Cortada (Avenida de l'Estatut de Catalunya, 57)

PROJECT PARTNERS





**NEARLY  
ZERO  
ENERGY**  
HOUSING FOR  
WARM/MEDITERRANEAN  
CLIMATE ZONES

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