



EuroPHit



D4.6_Proceedings of Financial Workshops

INTELLIGENT ENERGY – EUROPE II

Energy efficiency and renewable energy in buildings

IEE/12/070

EuroPHit

[Improving the energy performance of step-by-step refurbishment and integration of renewable energies]

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Abstract

Financial workshops were held throughout the EU to support interested financial institutions and local partners in offering financial products specifically for step by step refurbishments. The workshops were carried out as part of the EuroPHit project, which aims to provide solutions to deep energy retrofits for the critical area of step-by-step refurbishments. The project looks at technical solutions as well as the financial models required to make these projects viable and attractive to investors.

The objectives of the workshops themselves were to explore the barriers, opportunities and potential solutions to financing deep retrofits at scale. The aim of these on-site training workshops were to inform, to motivate and bring together decision makers within the financial institutions and their staff, governing bodies of home owner associations, Tenant organisations and Local authorities, Associations of energy advisors, and property portfolio managers among others.

The workshops made it possible to inform and motivate a variety of decision makers and staff involved in decision making on a range of issues relating to step-by-step retrofits. These included EU policies and legislation, the technical requirements, strategies and calculation tools, special features of the refurbishment of buildings with a special focus on step-by-step refurbishment, relevance of certification and labelling systems, task and function of energy advisors, risk assessment of refurbishment quality and strategy as well as the impacts of a refurbishment and the use of renewable energies on the building's value, costs and financing needs.

1 Financial Workshop in London, United Kingdom

Date: 16th September 2014

Location: Saint Gobain Innovation Centre, London, UK

Attendees: 24 people attended the workshop from a number of different sectors attended, including the finance and investment sectors, housing associations and other portfolio managers, and designers.

Summary:

This was the first workshop in a series that will be held in each of the EuroPHit partner countries. The workshops are being held to explore the barriers, opportunities and potential solutions to financing deep retrofits at scale.

The session was chaired by BRE, who are leading on the financial work package for EuroPHit. The morning session focused on the domestic retrofit market, with the afternoon session concentrating on the contrasting and overlapping issues surrounding commercial retrofit.

Adam Robinson of BRE began the session by explaining the context of deep retrofit in the UK and how the EuroPHit project is positioned to up-scale the number of such retrofits. Georg Kraft of IZN then presented on his experiences of mechanisms of financing retrofits in Germany and using EU funds.

Portsmouth City Council delivered a presentation on the EnerPHit retrofit of Wilmcote House, the UK EuroPHit case study project. This delivered a very informative insight as to why and how it was decided to go to the EnerPHit standard. Presentations were also delivered by representatives from RE:NEW and RE:FIT, projects in London which use ESCOs in order to guarantee energy savings in retrofit projects.

Many interesting discussions were had throughout the sessions, particularly around public perceptions, demonstrating cost effectiveness, and legislative drivers. The outcomes of the discussions will go on to inform the development of the EuroPHit project, with further workshops planned over the coming months. Please visit the EuroPHit website for further information or contact Adam Robinson at robinsona@bre.co.uk.



EuroPHit_Task_4.6_20140916_The 1st EuroPHit Financial Workshop in Saint Gobain Innovation Centre, London, Photos © BRE

2 Financial Workshop in Bratislava, Slovakia

Date: 29th October 2014

Location: Hotel Tatra, Bratislava, Slovakia

Attendees: 25 people attended the workshop from a number of different sectors attended, including the finance and investment sectors, housing associations and other portfolio managers, and designers.

Summary:

This was the second workshop in a series that will be held in each of the EuroPHit partner countries. The workshops are being held to explore the barriers, opportunities and potential solutions to financing deep retrofits at scale. The first session, in London, was chaired by BRE, who are leading on the financial work package for EuroPHit.

Bjørn Kierulf of Createrra began the session in Bratislava by explaining the context of EuroPHit project and how the project is positioned to up-scale the number of deep retrofit in Slovakia and other partner countries. After this brief introduction, Georg Kraft of IzN presented on his experiences of mechanisms of financing retrofits in Germany and using EU funds, which included sharing lessons from case study projects, discussing financial barriers to undertaking retrofits, exploring new/alternative financial models etc.

Peter Robl of Knauf Insulation focused his presentation on the domestic financing renovation, showing some numbers of building stock in Slovakia, the costs of renovation and models of financing renovation.

Many interesting discussions were had throughout the sessions, particularly around public perceptions, demonstrating cost effectiveness, and legislative drivers. The outcomes of the discussions will go on to inform the development of the EuroPHit project, with further workshops planned over the coming months. This concerns especially the following aspects:

- we should try to attract more participants from the financial sector. I
- we should arrange meetings with local banks which are possible intermediaries for the development banks (CEB, EIB, EBRD, KfW) to implement programs using EU funding.

Please visit the EuroPHit website for further information or contact Adam Robinson at robinsona@bre.co.uk.



EuroPHit_Task_4.6_20141029_The 2nd EuroPHit Financial Workshop, Bratislava, Photos © iEPD

3 Financial Workshop in Copenhagen, Denmark

Date: 26th February 2015

Location: Merkur Andelskasse, Copenhagen, Denmark

Attendees: 8 people attended the workshop.

Summary:

There is a huge potential for energy efficiency, and it's feasible. But there are also threats, one of which is poor quality in design-construction-operation.

Claus Skytt of Merkur, who kindly hosted the workshop, presented the bank's financial products. Merkur makes bank loans with lower interest rate for "climate" projects: Energy efficiency, PV's etc. The lower rates are covered by lower profit to Merkur. Merkur has an excess of deposits and finds that there is too little interest in these loans. By refurbishments Merkur demands an overall plan for the actions. Sometimes they finance the most feasible steps first and implement the next steps after some years, when they are about to pay back, in order to keep the total loan down. In this way they finance not only the most feasible but all feasible actions, implementing the full energy saving potential.

Jette Moldrup, manager of the lending department at Kommunekredit presented their way of working. It is an association of all the Danish municipalities (kommuner). It issues bonds internationally and in this way offers loans to the municipalities, the regions, and to companies guaranteed by or owned by them. They do not take deposits and they have never had a loss on a loan. She finds that there are already a lot of energy efficiency projects going on, and Kommunekredit currently offers financing at around 0% interest rate. She hardly sees the need of further subsidies. In ESCO-projects Kommunekredit often cover the financing, as ESCO-companies can not raise financing at comparable interest rates and thus would not realise the same amount of energy savings.

Georg Kraft and Klaus Stocker presented the EuroPHit-material on financing models. They explained the promotion of energy efficient buildings, based on the experience in Germany and the promotional system of the EU. They discussed special financial tools to promote energy efficiency, like long term loans and redemption grants, recourse financing respectively project financing and forfeiting. With regard to the technical aspects of the EuroPHit project they explained what banks need to know about the whole house approach, target values for primary energy, reliable calculation tools and certification systems.

During and after the talks there were some valuable discussions, one of them about ESCO: Most ESCO-projects have a short economical horizon (up to 10 years); not discussing 20, 40 or 60 years service life of the implemented solutions. This is contrary to the model, which Merkur and EuroPHit subscribe to. ESCO generally does not increase the local knowledge and experience with energy savings. For this exact reason the Danish municipality Sønderborg has decided to not use ESCO.

Other issues discussed were:

- Owner-tenant: Merkur is cooperating with the Danish Tenants' Association (Lejernes Landsorganisation) to bridge the gap between the owners investment and the tenants' savings
- Areas, typically rural, or far off the economical centres, with low prices of housing and even empty houses: Even if an energy saving measure is feasible, and even if the owner has the economy to pay back a loan anyway, a bank may deny financing the

project, as it will not raise the possible sales price of the house anywhere near the amount invested.

- On the other hand energy labelling seems to play a role on the pricing in areas with a more regular housing market
- Schools is another example, where the sales price will hardly increase due to energy saving measures, as there's often not really a working market for this kind of buildings



EuroPHit_Task_4.6_20150226_The 3rd EuroPHit Financial Workshop, Copenhagen, Photos © PHDK

4 Financial Workshop in Dublin, Ireland

Date: 20th March 2015

Location: SEAI, Dublin, Ireland

Attendees: 15 people attended the workshop from a mix of relevant sectors, including the main Irish banks (Bank of Ireland and AIB), ESCO's, Energy Consultants, Electric Ireland and architects in private practice

Summary:

This workshop comprised an introduction to the EuroPHit project as well as relevant financial schemes and models nationally and internationally. This led to an exploration of barriers, opportunities and potential solutions to the financing of deep retrofits.

An overview of building performance in Ireland generally and the EnerPHit Standard was given by Art McCormack, followed by an introduction to one of the Irish Case studies, Rochestown House, by Mariana Moreira, both of MosArt Architects. A retrofit financial model worked out for both academic and practical personal purposes was then presented by Fintan Smyth of Saint-Gobain. Involving previous public engagement, the presentation traced a shift in attitude towards greater willingness to invest in retrofitting once the case was presented cogently regarding significant savings in heating costs, comfort, longevity of structure, health and aspects of stress reduction. This was followed by an outline by Josephine Maguire of the Better Energy Finance Scheme developed by SEAI (http://www.seai.ie/Better_Energy_Financing/). Finally, Georg Kraft of IzN presented on his experiences of mechanisms for financing retrofits in Germany, including the use of EU

funding. This presentation also introduced attendees to such concepts as Recourse Financing and Forfeiting / Forfaiting.

The workshop progressed on to discuss retrofit financing issues of concern and possibilities from the perspective of those who attended. Important points discussed included:

It was generally recognised that the principle of spending money in order to save money should be recognised as a 'good risk' for lending bodies.



EuroPHit_Task_4.6_20150320_The 4th EuroPHit Financial Workshop, Dublin, Photos © Mosart

A 'one size fits all' approach to lending is not sufficient or effective for contemporary life. Rather, a more flexible financing system needs to be developed, especially for the domestic market, comprising a 'matrix effect' adapting to different people in different circumstance, eg. family expansion and contraction, stay-at-home parents, single / double earners cost of childcare (in Ireland), accommodating the desire of a single parent to seek employment and a long-term tenant intending to carry out retrofit works.

- A key question debated in regard to flexible approaches, especially those involving ESCO's, where the latter's interest / involvement might be limited to a few years, was on whose balance sheet would the debt ultimately rest in case of non-completion of works or default?
- The 'Bike to Work Scheme' could provide an analogous model for individual and relatively modest retrofits or for a proportion of the works whereby one's employer would advance a loan to the employee that would be paid back gradually over a few years. This might best suit straight debt financing, involving smaller loans.
- The question of how to finance the step-by-step construction approach was discussed, including part of a loan being contingent on EnerPHit certification as Quality Assurance and, thus, reduced financial risk.
- There was no clear agreement on whether banks would take into account the anticipated energy savings. Whilst one representative of a major Irish bank maintained they would not, another said that a loan would be more easily obtained where calculations were produced outlining yearly cashflow, especially for the step-by-step approach showing the need for particular amounts of money at certain stages and the savings involved and, thus, the return on investment. This could involve a Operational Lease whereby debt is written down based on the savings (as opposed to a Capital Lease). Certified Passive House Designers / Consultants should be well placed to provide the necessary information.

- Notwithstanding, Irish banks would focus, in particular, on credit worthiness in order to minimise risk to themselves rather than payback based on energy savings. This, therefore, calls for the education of financial institutions in respect of energy balance, savings and the many other positive aspects of building to the EnerPHit and Passive House Standards, including health and comfort of occupants and increased longevity / durability.

5 Financial Workshop in Milan, Italy

Date: 21th March 2015

Location: Milan, Italy

Attendees: The event has been attended by 45 people. Most of them were designers but there were also: financial institutions, building contractors, students and delegates of public administrations.

Summary:

The Italian Workshop organized by ZEPHIR – Passivhaus Italia took place on the 21st March 2015 within Made Expo, one of the biggest Italian expositions on building industry. This choice has been done in order to give a greater visibility to the event. This main goal of the workshop was to stimulate the interest of financial institutions, designers, policy makers and building contractors on the topic of financing energy efficient retrofits.



EuroPHit_Task_4.6_20150321_The 5th EuroPHit Financial Workshop, Milan, Photos © ZEPHIR

Francesco Nesi introduced the topics of Nearly Zero Energy Buildings, energy efficient retrofits and EuroPHit project. Later Fabio Ferrario presented the EnerPHit standard and the Passivhaus certification criteria for retrofits. He explained in detail the EuroPHit project and the concept of step-by-step retrofit. More precisely he discussed the following aspects of the EuroPHit project:

- political background
- importance of considering energy efficiency also in projects that are retrofitted with a step-by-step approach
- EuroPHit case study projects, showing all the different types of building where the EnerPHit standard can be applied.
- Other activities carried on within EuroPHit: training courses, components developments and dissemination events (conferences and PH days).

Finally he presented a study on the economic convenience of retrofitting a multifamily building to the EnerPHit standard by comparing it with two other solutions: 1. retrofitting the building to the minimum level required by law and 2. retrofitting it by replacing just the components that reached the end of their lifecycle.

Klaus Stocker presented the EuroPHit-material on financing models. He explained the promotion of energy efficient buildings, based on the experience in Germany and the promotional system of the EU. He discussed special financial tools to promote energy efficiency, like long term loans and redemption grants, recourse financing, project financing and forfeiting. With regard to the technical aspects of the EuroPHit project he explained what banks need to know about the whole house approach, target values for primary energy, reliable calculation tools and certification systems.

Valter Paoli discussed what an ESCO is and explained in which form ESCOs have been developing in Italy. He then introduced “Società Servizi Energetici Comunità Montana Vallesabbia” which is the ESCO he is administrating and the concept of a public ESCO. He showed a case study project of energy efficient retrofit that is going to be financed by this ESCO analysing cash flow and payback time.

Finally he summarized the existing Italian regulation on energy efficiency and refurbishment, incentives and discussed possible definitions of NZEB that could be applied in Italy.

Discussion and questions have been focused mainly on ESCO financing mechanisms and different types of ESCO existing in Italy. Moreover it has been discussed the Italian political situation and possible definitions of NZEB that could be introduced by policy makers.

6 Financial Workshop in Leipzig, Germany

Date: 16th April 2015

Location: Leipzig, Germany

Attendees: The event has been attended by 25 participants, most of them designers, but also some representatives of financial institutions, building contractors, students and delegates of public administrations.

Summary:

The workshop started with a welcome and introduction by project coordinator Jan Steiger (PHI) and a short presentation of the project aims of the EuroPHit project, explaining the need to improve step-by-step retrofit processes and the promotion of these by financial support programmes.

After that, Prof. Dr. Wolfgang Feist (PHI) presented an overview on cost effectiveness of Passive House components and high efficiency concepts in general. On the one side, costs for high performance components were presented, but also explained, why in high efficient constructions a reduced portion of construction material can lead to very moderately increased costs for the high efficient components.

Included into the considerations was also a summary of the Component Award 2014 on cost efficient windows, explaining the better cost-effectiveness of almost any participating window in the award in 2014, compared to a reference window with double glazing and moderate frame qualities, with usually slightly lower investment costs but considerable less savings.

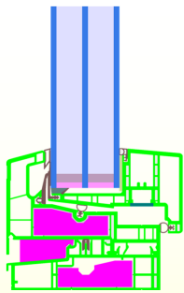





Photo: passivhaus-eco®

1 Hilzinger		Price, Company	
VADB 550	<i>REFERENCE</i>		Product name
296	<i>298 €/m²</i>		Price [€/m ² inst.w]
28%			LCC savings [%]
257			Oil savings [l/m ²]

Price: Investment costs for ref. building [€/m² inst. window incl. VAT]. Life-Cycle Cost savings: compared to ref. case [%]. Oil savings: per m² window compared to ref. window (life-cycle 40 a)

EuroPHit
WINNER: PVC (3 participants)

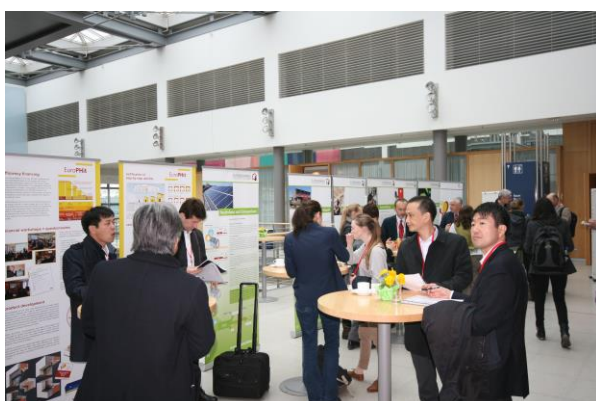


**COMPONENT
AWARD
2014**
Passive House Institute

Presentation of Component Award 2014 results, Leipzig, Figure © PHI

The following two presentations by Berthold Kaufmann and Witta Ebel focused on explaining basics of economic efficiency calculations of retrofit measures and the impact of boundary conditions and variables, to give an overview over the calculation principles behind cost efficiency considerations of high-efficiency projects. Questions by the workshop participants were clarified and answered.

Finally, Dr. Klaus Stocker presented an overview on available financing and promotional programmes for high efficiency projects, explained the 4 main financing concepts for efficiency retrofits. Finally, he introduced to bankability considerations the financing sector would undertake before agreeing on financing efficiency projects and discussed further questions regarding the financing institute’s perspectives of efficiency financing projects.



EuroPHit_Task_4.6_20150416_The 6th EuroPHit Financial Workshop, Leipzig, Photos © PHI

After a short break, as an additional topic to the workshop, the collection of efficiency cost data and its evaluation was discussed by Berthold Kaufman and Jan Steiger. A template for the collection of efficiency cost data was furthermore presented and discussed.

As final guest presenters, Berthold Kaufmann and Alexander Zhivov (ERD-IL) presented project aims and business models for deep energy retrofits currently evaluated in the IEA Annex 61 project and encouraged the workshop participants to contribute cost data for evaluation purposes.

7 Financial Workshop in Sofia, Bulgaria

Date: 28th May 2015

Location: Hotel Hemus, Sofia, Bulgaria

Attendees: 27 bankers from all banks in Bulgaria were personally invited from the Executive Director of EnEffect, 17 confirmed their attendance. There were 23 people participating in the seminar, 7 from them as lecturers.

Summary:

Welcome address and introduction by Zdravko Genchev, Executive Director of EnEffect. After presenting the other speakers, he outlined the present situation on adoption of the European Directives (EE & EPBD) and shared the conclusion that most of the countries fail in their efforts for reducing Primary energy consumption. He introduced the topics of Nearly Zero Energy Buildings, energy efficient retrofits and EuroPHit project. He gave examples with PH buildings and retrofits.

Iglika Lutzkanova from EnEffect explained in detail the EuroPHit project and the concept of step-by-step retrofit. She tried to convince the auditorium that PH standard is achievable and needed in Bulgaria. She explained the necessity of ventilation as a means to provide the necessary levels of comfort. She presented the Case study “St.St. Cyril and Methodius” in Gabrovo and the steps that need to be taken.

Georg Kraft presented the topic “Guidelines for Financial Institutions”. He explained what banks need to consider the entire building and not just a part of it; to target values for primary energy, to accept reliable calculation tools and certification systems. He also gave examples with the promotional schemes used by KfW.



EuroPHit_Task_4.6_20150528_The 7th EuroPHit Financial Workshop, Sofia, Photos © EnEffect

Klaus Stoker presented “Cash flow analysis as basis for financing”. He discussed financial instruments for energy efficiency investments in buildings like debt financing, ESCO financing, forfaiting, and leasing.

- The discussions continued during the café break.

Pavel Manchev from EnEffect presented the financial aspects of the selection of measures in energy efficiency projects. He presented the financial analysis of the “St. Cyril and Methodius school”, a part of which is an investment plan, in which each step is performed at the moment that it becomes profitable because of the rise of the fuel prices and reduced cost of the products used. For the assessment of the profitability of the steps, a moment when the internal rate of return (IRR) is higher than 10% for a given 20-year period is selected, but it is mandatory that this moment is chosen when the time for repair of the building is approaching (eg. Change of windows place after the expiry of their economic life in '25). He made comparison with “one shot” variant, and variants with different energy sources.

Krasimir Najdenov - Director of Direction Coordination and management of EE & RES at the **Sustainable Energy Development Agency (SEDA)** presented the introduction of the White certificates in Bulgaria – an area, new for the country. He made introduction of energy trading schemes and 'white' certificates – what they are and how they will be used. “White certificate” is a document, which declares the amount of energy savings. They can be traded on the stock exchange. Energy service companies sell them. White certificates are promoting investments without a budget. So far 18 states have introduced or plan to introduce them. Mr. Najdenov emphasized on the motivation of the users and the expected results. In his presentation he pointed out the new role of energy distributors and suppliers: the energy service offered must include, besides the energy supply as such, also measures and services for the effective use of the supplied energy. Therefore, energy suppliers must also know and offer a range of possible energy saving measures.

Dimitar Doukov- Director of the Bulgarian Energy Efficiency and Renewable Sources Fund (BGEEF) made presentation on Opportunities and Barriers to Financing EE Retrofits. He summarized the barriers and gave recommendations to overcome them. As a good example he pointed out the creation of a National Fund for energy efficiency financing and technical support, under the Directive 2012/27 / EC - Art. 20. He presented the work of BGEEF, which gives credits below market interest rates, partial credit guarantees and portfolio guarantees. He explained the schemes used by the Fund and showed examples of the completed projects, financed by it.

8 Financial Workshop in Sofia, Bulgaria

Date: 29th May 2015

Location: In the offices of Bulgarian Energy Efficiency and Renewable Energy Fund (BGEEF), Sophia, Bulgaria

Attendees: The participants were experts from BGEEF, who have already attended the financial seminar the day before. The themes discussed were continuation of the topics raised from the seminar. There were 4 people participating in workshop from the side of BGEEF and 4 lecturers.

Summary:

- Discussion of funding for projects in Bulgaria in the sphere of energy efficiency.



- Description of practical examples of funding in Germany (including new buildings, residential and administration buildings);
- Government building standards and their impact on the interest rate of loans
- Energy performance certificate (EPCs) as an additional positive factor for buying (or renting) buildings;
- Discussion of possible solutions for the problems in Bulgaria (increasing the motivation of owners of residential buildings, changes in the legislative base for public financing etc.);
- Grants for reconstructions – method of receiving a grant;
- Stimulation of financing of sustainable housing retrofit in Bulgaria – proposal: long-term loans. Currently there are only short-term loans. One condition has to be fulfilled – credit duration should not exceed 20 years, because the life of some constructive elements (for example – windows) does not exceed 20 years;
- Discussion of situation of financing of sustainable housing retrofit in Germany with practical examples – interest rate, payback period, possibility of prepayment;
- Discussion: which standards must be achieved and what measures must be implemented to receive a grand from KfW or other financial institutions? – the experience in Germany and the possibility of its application in Bulgaria (example installation of ventilation – benefits and disadvantages);
- Presentation of two projects – Delfn Kindergarten in the town of Burgas and Multi Profile Hospital for Active Treatment “Dr. Stamen Iliev” in the town Montana.
- Discussions about ENSI – Energy Saving International AS;
- Explanation of calculation 4% interest rate from Presentation (Slide 14 – Cash Flow Example: Housing refurbishment (Rental Homes)).



EuroPHit_Task_4.6_20150529_The 8th EuroPHit Financial Workshop, Sofia, Photos © Eneffect

9 Financial Workshop in Växjö, Sweden

Date: 22nd September 2015

Location: Victoria Hall, Växjö, Sweden

Attendees: The event has been attended by 35 people.

Summary:

September 22 was the "Inspiration of passive house" in Växjö. IG Passive House organized the event which gave an overview of economic and ecological sustainability of energy-efficiency projects, and it presented EuroPHit project.

35 people had gathered in Victoria Hall and listened first to Simone Kreutzer IG Passive House which presented her own residence, Villa Circuitus. The house contains a range of innovative products and solutions that are new to the Swedish market.

Then it was time for Georg Kraft (Chairman of Friedrichsdorfer Institute for Sustainability) and Rolf Hennes presenting EuroPHit project. Both German pensioners, who previously worked for the large German bank KfW. EuroPHit project involves phased renovation that makes older homes profitable, energy-efficient in a lifecycle perspective. The principle is to do the entire renovation at once but incrementally.

They presented including a list of funding opportunities in Europe for renovations. The goal is to get more banks working with EU funds for energy efficient renovations. That would mean that the bank can attract new customers through favourable loans motivated to streamline its property. In Sweden, there is still room for improvement on the part.



EuroPHit_Task_4.6_20150922_The 9th EuroPHit Financial Workshop, Växjö, Photos © IGPH

10 Financial Workshop in Barcelona, Spain

Date: 25th November 2015

Location: Universidad Pompeu Fabra, Barcelona, Spain

Attendees: 15 participants.

Summary:



On 25th November before the 7th Spanish Passivhaus Conference, PEP organized a workshop on the measurements for financing EnerPHit retrofits, the high efficiency Standard, carried out step-by-step.

A group of experts from different national and European organizations discussed the different alternatives they have available in Spain: credit lines, subsidies, loans, European programme funding, energy service companies, tax incentives, etc. The goal was to find a way how to make a building project attractive for a financial institution to invest in.



EuroPHit_Task_4.6_20151125_The 10th EuroPHit Financial Workshop, Barcelona, Photos © PEP

In the end of the session one of the EuroPHit case studies was discussed – a social housing building from the 50s in the city of San Sebastian. This was an example that perfectly represents the reality of Spain, where most residential buildings are multi-family rather than single-family, and the residents must approve every decision.

11 Financial Workshop in Barcelona, Spain

Date: 27th November 2015

Location: Universidad Pompeu Fabra, Barcelona, Spain

Attendees: The EuroPHit project as well as financial schemes were presented during the Passivhaus Conference on November 27 in Barcelona, by Dr. Klaus Stocker, with about 250 participants.

Summary:

After the success of the first workshop carried out in Barcelona with financial institutions and other relevant organizations in Spain, PEP has organized a second edition of the workshop for the assistants of the Passivhaus Spanish national conference. Among the audience, there were architects, craftsmen, politicians, bankers and manufacturers. Nearly 300 participants, who work daily in energy retrofits all around the country.

This time Klaus Stocker has presented his experiences during the project and the main conclusions about how to deal with financial barriers in order to achieve the best results in energy retrofits: new strategies and options. A topic that is of great interest for the audience, due to the difficulties to undertake such projects since the beginning of the economic crisis.

The workshop was carried out in the beginning of a special session focus on retrofits. It was followed by the presentation of four relevant Enerphit projects: a congress center, a rural hostel, a pavilion of the University and a Civic Center.

The session concluded with a round table where experts and public have discussed about the roadmap of energy retrofits in Spain.

The presentation of this workshop is available in the PEP website: www.platafora-pep.org



EuroPHit_Task_4.6_20151127_The 11th EuroPHit Financial Workshop, Barcelona, Photos © PEP

12 Financial Workshop in Paris, France

Date: 23th March 2016

Location: Paris, France

Attendees: 4 persons

Summary:

The workshop held in Paris, France consisted in a meeting with the national public investment bank Caisse des Dépôts and a local authority, Conseil Départemental du Val de Marne. A larger workshop had been scheduled originally during the French Congress Passibat in Paris on 14/11/2015 but had to be cancelled as Passibat was postponed to April 2016.

Welcome and Introduction by Simon Camal (LAMP) covering the EuroPHit project, with presentation of the quality insurance tools, the financial analysis of case studies in France and from other partners, retrofit financial guidelines and economical analysis of quality insurance via cash flow simulation.

The reduced number of attendees (4 persons) gave time to discuss EuroPHit results (costs from case studies, financial guidelines and analysis) and investigate current financing topics in France (eco-loan from Caisse des Dépôts, comparison with KfW financing schemes, needs from local authorities).

Conseil Departemental du Val du Marne expressed its feedback on implementing retrofits to the EnerPHit standard, in one go or step by step.

The authority has set up in 2015 a reduction target for its energy consumption. Danger here is to retrofit quickly to minimal energy efficiency standards, therefore creating lock-in effects. Approach followed is to give priority to quality over quantity, shift operations if needed.

Certification is an important element of the global strategy defined in 2015 and certification must guarantee a level of quality.

How to embed energy efficiency in a global maintenance strategy, which includes other urgent issues such as access for disabled, fire protection, adaptation to new functionalities?

Caisse des Dépôts presented their financial offer and other public funding opportunities for local authorities. Prêt Croissance Verte offers soft loan to local authorities who build to Passive House Plus / Premium standards or French concurrent standard BEPOS-Effinergie 2013. This loan is also offered for retrofits without specific energy efficiency target. The idea is to intensify the retrofit market.

New French law is in preparation: make mandatory for local authorities to conduct energy audits and tender for retrofit measures, with a minimal energy consumption reduction of 25%. A good basis for step by step projects. It needs to formalize intrinsic energy performance (corrected from weather variations and occupant contingency).



EuroPHit_Task_4.6_20160323_The 12th EuroPHit Financial workshop, Paris, Photos © LAMP

13 International Financial Workshop in Frankfurt, Germany

Date: 18th March 2016

Location: Frankfurt am Main, Germany

Attendees: 11th Financial workshop by Georg Kraft, Dr. Klaus Stocker, Gerald Gaigg, Witta Ebel, Rolf Hennes, Jan Steiger and Zeno Bastian, with 25 participants.

Summary:

This workshop was the final culmination of a series of national financial workshops that were held throughout the EuroPHit Project. This workshop looked to bring the lessons learned

throughout the project course and create a dialogue regarding the way forward to address barriers to financing deep energy retrofits and seize on potential opportunities.

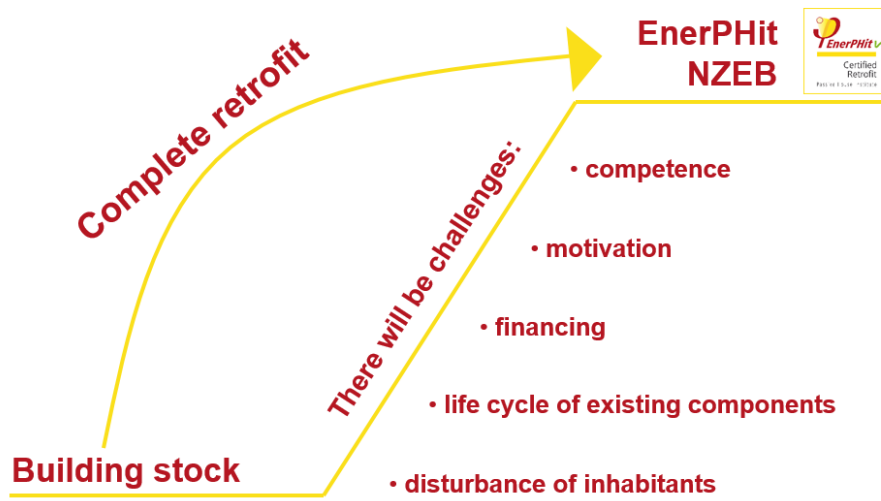


Figure 1_ All at once – we know it works!, Source: PHI

Jan Steiger of the Passive House Institute started the workshop by introducing the EuroPHit project and its outcomes and results. After this brief introduction, Zeno Bastian of the Passive House Institute presented on built examples within the project and the new certification scheme for step-by-step retrofits, which assures owners and investors of the total energy savings following the completion of the final retrofit step.

To engage the group, a first group exercise was conducted where participants shared common financing implementation barriers and existing best practices.

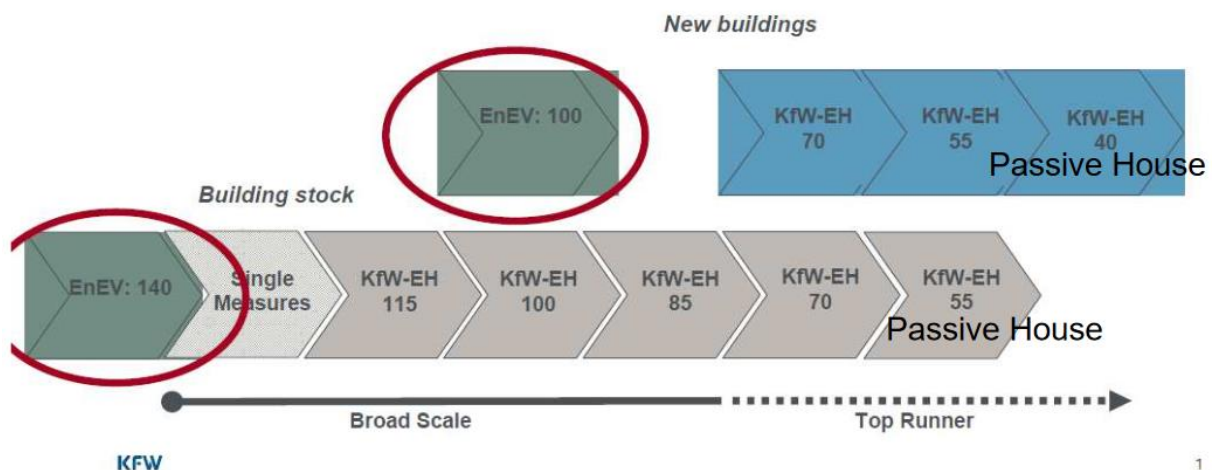


Figure 2_KfW Promotion: The benchmark is the legal requirement for Passive Houses: International Passive House Standard, Source: IzN

Further presentations were then held, by Dr. Georg Kraft and Prof. Dr. Klaus Stocker of IzN, who examined different mechanisms and concepts of financing retrofits. Following these examples from Tirol (by Gerald Gaigg) and Germany (from Jan Steiger and Rolf Hennes) were presented to examine how this currently works in some areas. Dr. Witte Ebel then

presented briefly on the design of step-by-step retrofit financing schemes before leading split-group work, where participants actually designed such a scheme in teams.

Please visit the EuroPHit website for further information and copies of the presentations or contact info@passivehouse-international.org with any questions.



EuroPHit_Task_6.4_20160318_The EuroPHit International Financial workshop, Frankfurt am Main, Photos © PHI

14 Conclusions

The financial, social and technical aspects of step-by-step retrofit concepts were discussed during the workshops with participants from financial institutions, local administration and state authorities, architects and planners.

We found:

- Interdisciplinary discussions of step-by-step retrofit concepts are needed to develop realistic concepts for project promotion and implementation. There is a huge need for investments and financing of the energetic retrofit of buildings throughout the EU member states
- There was a general lack of knowledge of cash flow assessment and financial viability of retrofit concepts at all participating groups
- There were proposals to promote certain planning activities and the installation of specific components, which are important but not yet financially viable, by soft loans and grants. In particular, the design of step-by-step retrofit concepts should be promoted by a grant component
- Certain technical questions, such as quality assurance and certification systems gained importance from the perspective of finance and collaterals
- The financial institutions learned that financing has to be tailored to different implementation strategies of retrofit projects, like the energy efficiency improvement of single components for a whole building, complete modernization of whole building parts, partial modernization of building parts according to the existing component's life cycle and modernization of building assemblies by combining several small buildings into a bigger, much more compact and thereby more efficient building concept. Normally long term loans are required.
- It appeared that there is quite a different approach to energetic refurbishing of buildings between European countries. Whereas it is assumed that the bigger part of all refurbishments is carried out as refurbishment steps, according to component life cycle and due to available budget. In other countries, the lack of budget funds seems to lead to building use that is exceeding the components life cycle and more or less allows only one-shot retrofits when the buildings have to be renovated completely. The necessity to elaborate special financial concepts for step-by-step refurbishments thereby is comprehended differently in the various partner countries.
- There was little knowledge about the promotional activities of the EU in this field. This seems to be enforced by the complexity of the EU-activities in this field.
- The financial institutions focus on the general creditworthiness of the building owner in its assessment of risk. The savings from the refurbishment measures are of second importance and in some countries they do not play a role at all. Economic benefits ("external effects") are only considered by development institutions, but not by commercial banks.
- ESCO financing and forfeiting models can help to overcome barriers of public financing and to provide immediate cash flow for financing an EE project
- There was little knowledge about the promotional activities of the EU in this field. The participation of EIB, CEB, EBRD, or KfW representatives would have been appreciated at all workshops. Further workshops should be organized together with the European Development Financial Institutions.

Technical References

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