

# Financing of Sustainable Buildings Retrofit EuroPhit Financial Workshop Barcelona 7. Conferencia Espanola PASSIVHAUS 27. November 2015

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Programme of the European Union

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# Promotion of Energy Efficient Buildings



# EU Funding for Energy Efficiency in Buildings

<http://www.buildup.eu/financing-schemes/>



## About Financing Schemes

In this section of BUILD UP you can find information involving financing schemes for investments in energy efficiency measures in buildings.

- Grant programs
- Credit lines and guarantee schemes
- Redemption Grants
- EU Funding for Sustainable Energy in Buildings
  - Europe-wide funds
  - National and Regional schemes
  - National/Regional schemes for
    - Individuals
    - for Municipalities/Social Housing
    - for Non-Residential Buildings
- European Development Financial Institutions
  - CEB/EIB/EBRD
  - National Development Institutions (like KfW)

Sort by  in  order | Show  results per page

### LIFE (2014-2020) and PF4EE, the financial instrument for energy efficiency

18689 visits | Building Energy related activities by the European Commission (directives and regulations)

### COSME – the Programme for the Competitiveness of Enterprises and Small and Medium Enterprises (SMEs)

936 visits | Building Energy related activities by the European Commission (directives and regulations)

### Horizon 2020 Framework Programme

4443 visits | EU funded energy related research projects (FP6, FP7)

### European Structural and Investment Funds (ESI) 2014-2020

4726 visits | Building Energy related activities by the European Commission (directives and regulations)

### Structural and Cohesion Funds 2007-2013

1962 visits | Building Energy related activities by the European Commission (directives and regulations)

### Financial incentives supporting EPBD recast objectives (Article 10, Directive 2010/31/EU)

2238 visits | Information on legislation

### Support schemes promoting the use of energy from renewable sources (as per Directive 2009/28/EC)

1613 visits | Information on legislation

### Intelligent Energy – Europe programme (IEE)

2522 visits | Intelligent Energy Europe projects



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## National/Regional schemes for Residential Buildings

National, Regional, Local

### Scheme Contents

5 Items

▶ [Advanced Search](#)

Search

Sort by  in  order | Show  results per page

#### [Programa Geotcasa / Geotcasa GIT \(Geotcasa / Geotcasa GIT programme\) - Spain](#)

1719 visits | [National official sites](#)

#### [Programa Solcasa / Solcasa GIT \(Solcasa / Solcasa GIT programme\) - Spain](#)

1730 visits | [National official sites](#)

#### [Programa Biomcasa II / Biomcasa GIT \(Biomcasa II / Biomcasa GIT programme\) - Spain](#)

1599 visits | [National official sites](#)

#### [Ayuda a la rehabilitación de viviendas destinadas al arrendamiento \(Aid for the rehabilitation of dwellings that will be rented\) - Spain](#)

1756 visits | [National official sites](#)

#### [Ayudas para la rehabilitación de la vivienda \(Grants for housing rehabilitation\) - Spain](#)

1345 visits | [National official sites](#)

[View All Schemes](#)



## ELENA - European Local ENergy Assistance



**Europäische  
Investitionsbank**

**EIB ELENA**  
Big investment  
projects  
> 50 million €

**KfW**

**KfW ELENA**  
investment projects  
< 50 Mio. €

Several facilities



**CEB**  
COUNCIL OF EUROPE DEVELOPMENT BANK

**CEB ELENA**  
Social investment  
projects  
< 50 Mio. €



**European Bank**  
for Reconstruction and Development

**EBRD ELENA**  
Focus on  
municipalities  
< 50 Mio. €

## What you need to know – technical aspects

**Holistic target based approach:** Consider the entire building and not just a part of it. What is my final objective in terms of energy consumption (kWh/m<sup>2</sup>/year) → even for step-wise refurbishment

**Target value for primary energy:** The same amount of consumption for electricity, oil, gas or RE *is different* in terms of **primary energy**

**Reliable calculation tools:** For base case as well as actual savings (PHPP → passive house calc. tool)

**Certification systems:** To know whether particular efficiency targets have been reached (especially for step-by-step refurbishment)

**Certification is necessary** to prove the achievement of different steps (especially to outsiders like banks, support institutions etc.)

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# The financial face of a project

- Making a project bankable:
  - Risks
  - Cash flow as basis for financing
- Refurbishment cost and “anyhow”-cost



# Is the project bankable? →→ **RISKS**

EuroPHit

## 1. Technological risk

- Quality of design and construction, novelty of technology
- Expected savings will not be reached
- End-user behaviour affecting energy savings

## 2. Financial risk

- Price changes
- Budgeting of energy cost savings:
  - Are savings recognised as such?
  - Can they be separated from other cash flows?

## 4. Maturity match and country-adapted repayment periods:

- Maturities (=repayments to banks) must match annual cash flow derived from the project-savings (Debt service ratio). Sometimes this leads to unusually long repayment periods

## 5. Creditworthiness of borrower (private/municipalities/institution etc.) and /or collateral (also: equity and “anyhow cost”)

## 6. Participation of public institutions (reduces risk)



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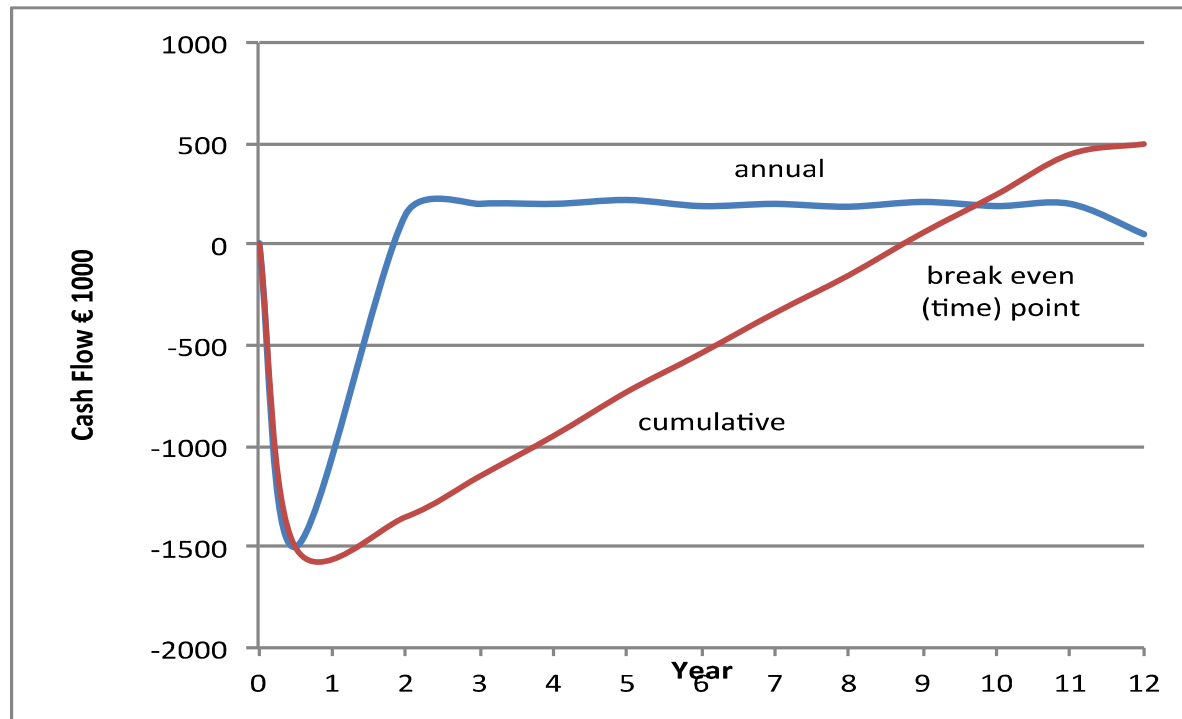




- ❖ Usually houses undergoing energy efficiency refurbishment do also need other renovation,
  - ❖ e.g. the heating system is already 20 years old, the walls need repainting, the windows are close to breakdown and the roof is leaking.
  - ❖ It is advisable to couple energy saving measures with other, e.g. maintenance measures that are necessary or planned anyhow. For instance, a wall needing a new plastering can be insulated at the same time. In this case, only the additional costs are counted as energy efficiency investment.
- ❖ Energy savings alone can seldom recover total refurbishment cost. Therefore energy related cost and “anyhow cost” (incidental cost) have to be separated.



## Typical cash flow profile of an energy efficiency project



invest-  
ment  
phase

repayment phase



## Cash flow example: Housing refurbishment (Rental homes)

in 1000 €		C	D	E	F	G	H	I	J	K	L	M	N
Year		0	1	2	3	4	5	6	7	8	9	10	
4	1. Revenue	0	169	169	169	169	169	169	169	169	169	169	
5	Renovation rent increase		85	85	85	85	85	85	85	85	85	85	
6	Rent increase energy efficiency		84	84	84	84	84	84	84	84	84	84	
7	2. Investment (energy efficiency part)	625											
8	3. Maintenance cost (2% ann.increase)		0,0	6,0	6,1	6,2	6,4	15,0	6,6	6,8	6,9	7,0	
9	4. Project Cash Flow (energy)	line 6-8	-625	84,0	78,0	77,9	77,8	77,6	69,0	77,4	77,2	77,1	77,0
10	4a. Project cash flow after tax	line 9-18		83,5	78,0	77,9	77,8	77,2	69,0	75,7	74,9	74,1	73,3
11	5. Equity		125										
12	7. Loan Finance												
13	8. Loan disbursement+debt service	line 14+15	500	70,0	70,0	68,0	66,0	64,0	62,0	60,0	58,0	56,0	54,0
14	8.1 Principal	line 16 *c15		50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0
15	8.2 Interest	4%		20,0	20,0	18,0	16,0	14,0	12,0	10,0	8,0	6,0	4,0
16	Loan Balance		500	500,0	450,0	400,0	350,0	300,0	250,0	200,0	150,0	100,0	50,0
17	Net Cash flow before tax	line 9-11-13	-125	14,0	8,0	9,9	11,8	13,6	7,0	17,4	19,2	21,1	23,0
18	Profit before tax**)			1,5	-4,5	-2,6	-0,7	1,1	-5,5	4,9	6,7	8,6	10,5
19	Profit tax 35%	35%	-125	0,5	0	0	0	0,4	0	1,7	2,4	3,0	3,7
20	Net Cashflow after tax	line 17-19	-125	13,5	8,0	9,9	11,8	13,2	7,0	15,7	16,9	18,1	19,3
21	Plus repayment subsidy 15% (tax free)	15%		7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5
22	Net cash flow after tax+subsidy		-125	21,0	15,5	17,4	19,3	20,7	14,5	23,2	24,4	25,6	26,8

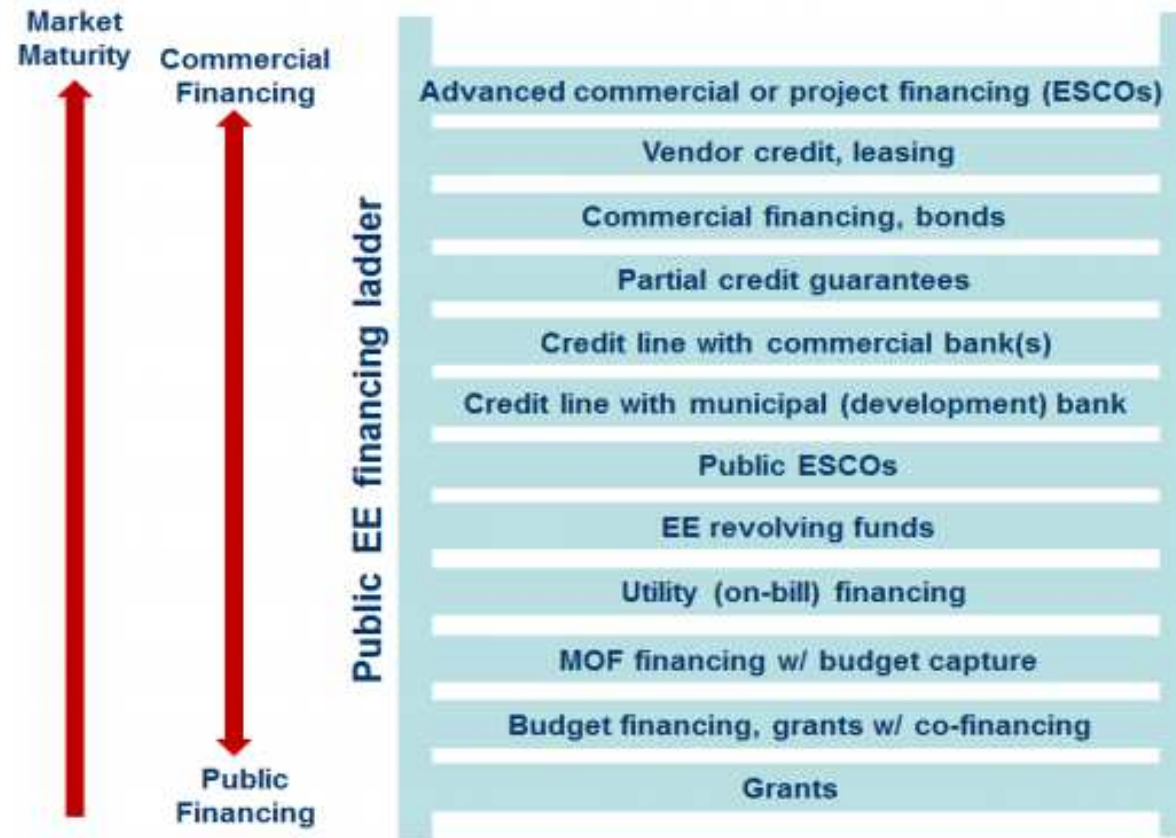
# Financial Instruments for Energy Efficiency Investments in Buildings

- Debt financing
- ESCO financing
- Forfaiting
- (Leasing)
- Public supports



# Financing ladder for public buildings

The Financing Ladder for Public Building EE



Source: J. Singh WB

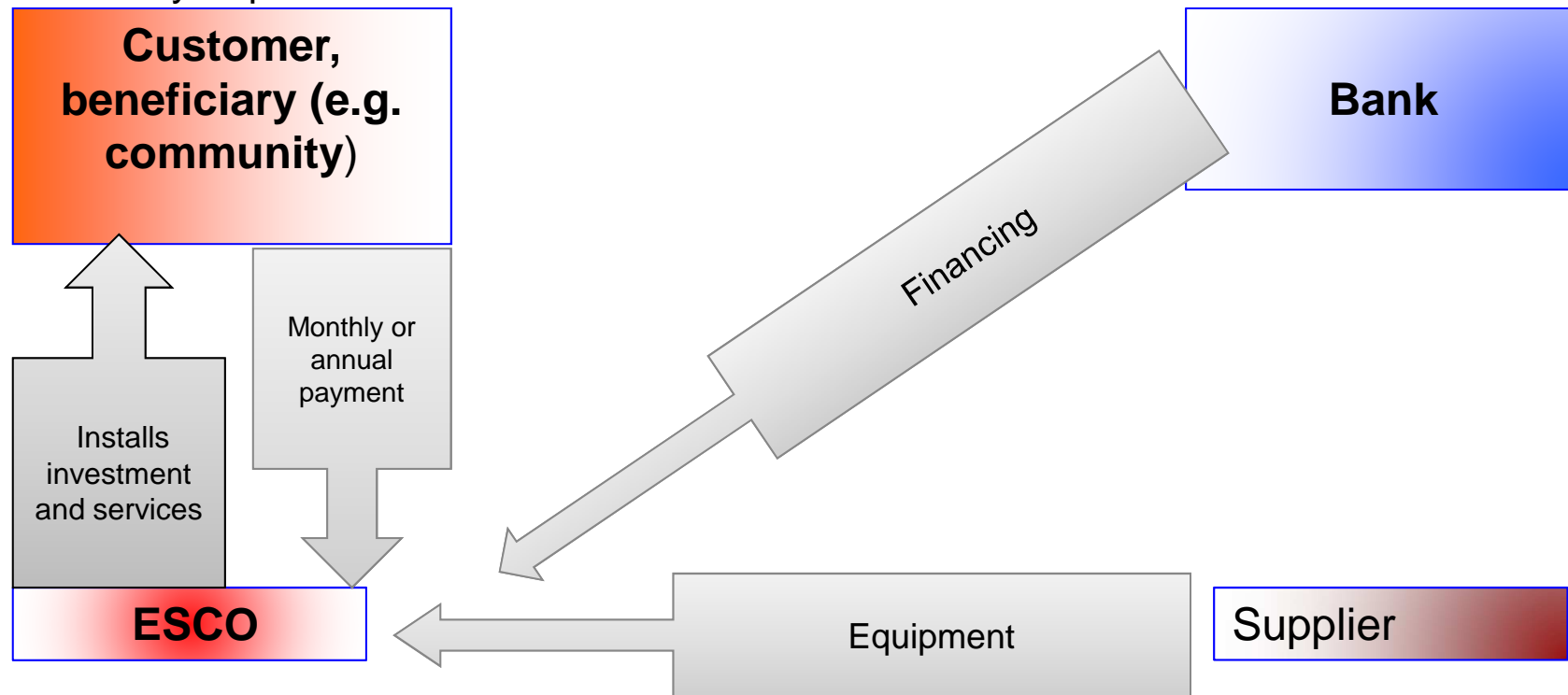


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**ESCO:** ESCO (Energy service company): “Natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer’s facility or premises



## FORFAITING (in brief):

- **Financing a forfait means:**
  - Selling a receivable for a discounted lump sum to a bank (forfaiter), normally on the basis of bills of exchange
  - Example: A sum of € 1 Million in 10 annual repayment instalments, discounted at a forfaiting fee of 4% annually yields an immediate payment of € 880.000 (minus around 0,25% provision fee etc.)
  - Passing on all accountability from the financial obligation, meaning: There is no more financial obligation from the side of the seller of the receivable (e.g. ESCO) in case of breach of contract, non fulfilment etc.

## Public Supports: from EU, Government, Regional Government, City etc.

### Public supports can help:

- To shorten the long repayment periods and to make a project financeable by market based instruments
  - To create trust for a refurbishment project in order to find financing sources, especially in countries where the type of project is still unknown
  - To improve the cash flow and the net-present value of a project in order to find project sponsors (equity as well as loan financing)
  - To compensate for external, but intangible benefits (like CO<sub>2</sub> reduction)
  - To reduce technical risks for the forerunners and to ease market introduction for new technologies and approaches
- **But for Buildings outside the public sector: they will always require additional market based financing (Ideal: combination of both)**



Thank you

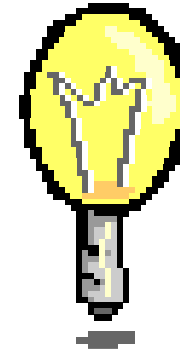
for further information see:

**Financing of Sustainable  
Housing Retrofit  
Guidelines for Financial  
Institution**

<http://europhit.eu/downloads>  
(go to financial guidelines)



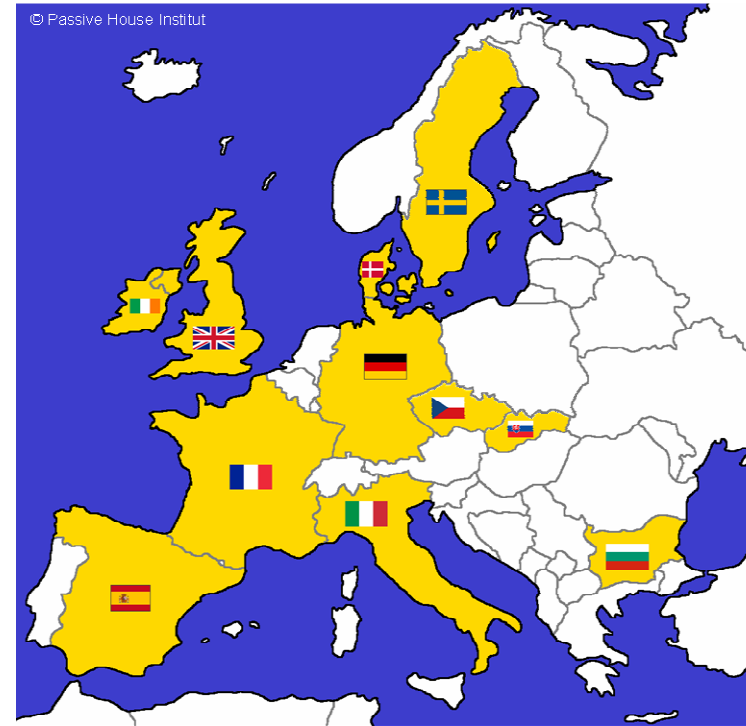
# Discussion and questions



Thank you  
for your attention

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