

# Financing of Sustainable Housing Retrofit

## Guidelines for Financial Institutions Workshop Milan 21. March 2015

**Friedrichsdorfer Institut zur Nachhaltigkeit IZN e.V**  
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1. Promotion of Energy Efficient Buildings
2. EU Policy and Promotion
3. Financial Instruments
4. The EuroPhit Project
5. The German Case
6. Italy
7. Discussion and questions



# Part 1

# Promotion of Energy Efficient Buildings



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## What banks need to know – technical aspects

**Holistic 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

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



## Part 2

# EU Policy and Promotion



# EU Funding for Energy Efficiency in Buildings

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



**BUILD UP**  
energy solutions  
for better buildings

**Financing Schemes**

THE EUROPEAN PORTAL FOR ENERGY EFFICIENCY IN BUILDINGS

News ▾ Events ▾ Publications ▾ Links ▾ Cases ▾ Tools ▾ People ▾ Blogs ▾ Communities ▾ Financing Training Country Fa

## About Financing Schemes

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

- [European wide funds](#)
- [National/Regional schemes for Individuals \(homeowners & tenants\)](#)
- [National/Regional schemes for Municipalities, Social Housing, Companies, Enterprises](#)
- [National/Regional schemes for Residential Buildings](#)
- [National/Regional schemes for Non-Residential Buildings and other Facilities](#)

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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[www.europhit.eu](http://www.europhit.eu)



## ELENA - European Local ENergy Assistance



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



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

Several facilities



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



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

## Part 3

# Financial Instruments





# Financial Instruments

- Overview
- Cash flow as basis for financing
- Cash flow analysis: Example
- Project- versus recourse finance
- More details:
  - Debt financing,
  - ESCO financing,
  - Forfaiting,
  - Leasing
- Public supports



# The basis for financing is the financial soundness of a project

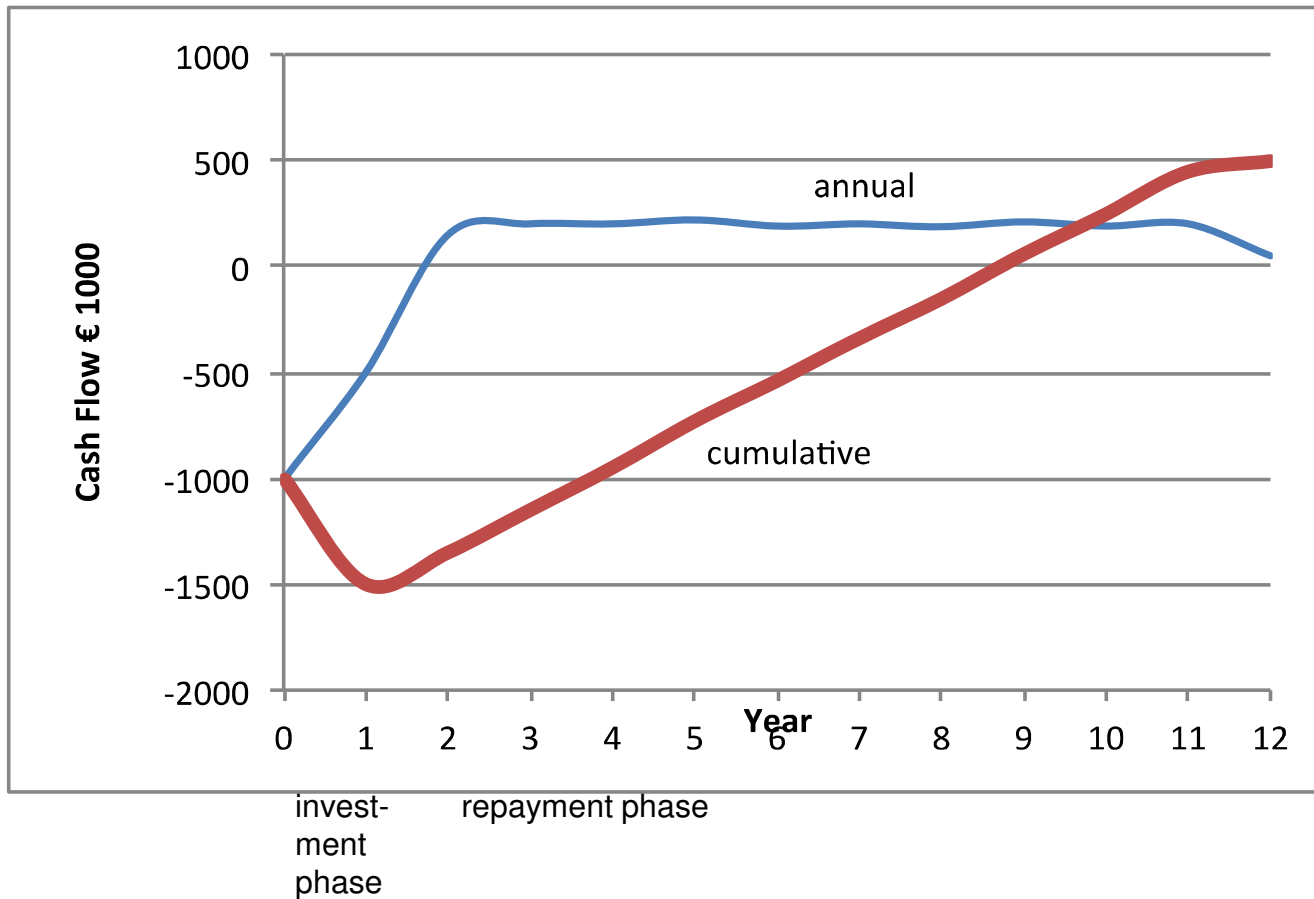
The basis for financial soundness is the cash flow.

- Economic benefits (externalities) are not considered, but they can serve as justification for public supports,
- Cash flow from energy efficiency projects consists of:

Inflows	Outflows
Savings from efficiency gains	Equity share at investment cost
	Operation cost
Higher rents (house-owners)	Higher rents (tenants)
Loan disbursements	Repayment/interest for loans

- Savings will arrive as avoided outflows.
- Savings usually fluctuate, they also depend on price developments and can only be measured if the base case values are known
- They do not always arrive at the same place as the outflows (investment versus operating budget; tenant versus landlord) -> conflict lines

## Typical cash flow profile of an energy efficiency project





## Project versus recourse finance:

- **Recourse (or balance sheet finance):** Finance is granted on the basis of the creditworthiness of the investor (mostly supported by a collateral). Cash flow and NPV are (for the bank) of secondary importance
- **Project finance:** Finance is granted on the basis of the financial soundness (cash flow) of the project. The investor has to prove that the cash flow is sufficient to cover the repayment (debt service ratio  $>1$ ; Life loan ratio  $> 1$ , at all times)
- **Recourse and project finance:**
  - Project finance for energy efficiency part
  - Recourse finance for the incidental and modernisation part (since there are no visible future financial benefits)

## **Financial Instruments for Energy Efficiency Investments in Buildings**

- ① **Debt financing, credit lines, revolving funds,**
- ② **ESCO financing,**
- ③ **Forfeiting/ Cession**
- ④ **Leasing**

## Debt financing, Credit lines, Revolving funds,

- **A conventional bank loan is the simplest form of debt**
- **As recourse financing:**
  - Creditworthiness of borrower, not necessarily project
- **As project finance:**
  - Private house-owner: Standardised procedures, normally under a public programme requiring standardised technical as well as financial ratios
  - Community: Cash-flow must be sufficient for loan-service
  - Separate finance for “incidental part” (equity or recourse financing)

## EPC and ESCO FINANCING :

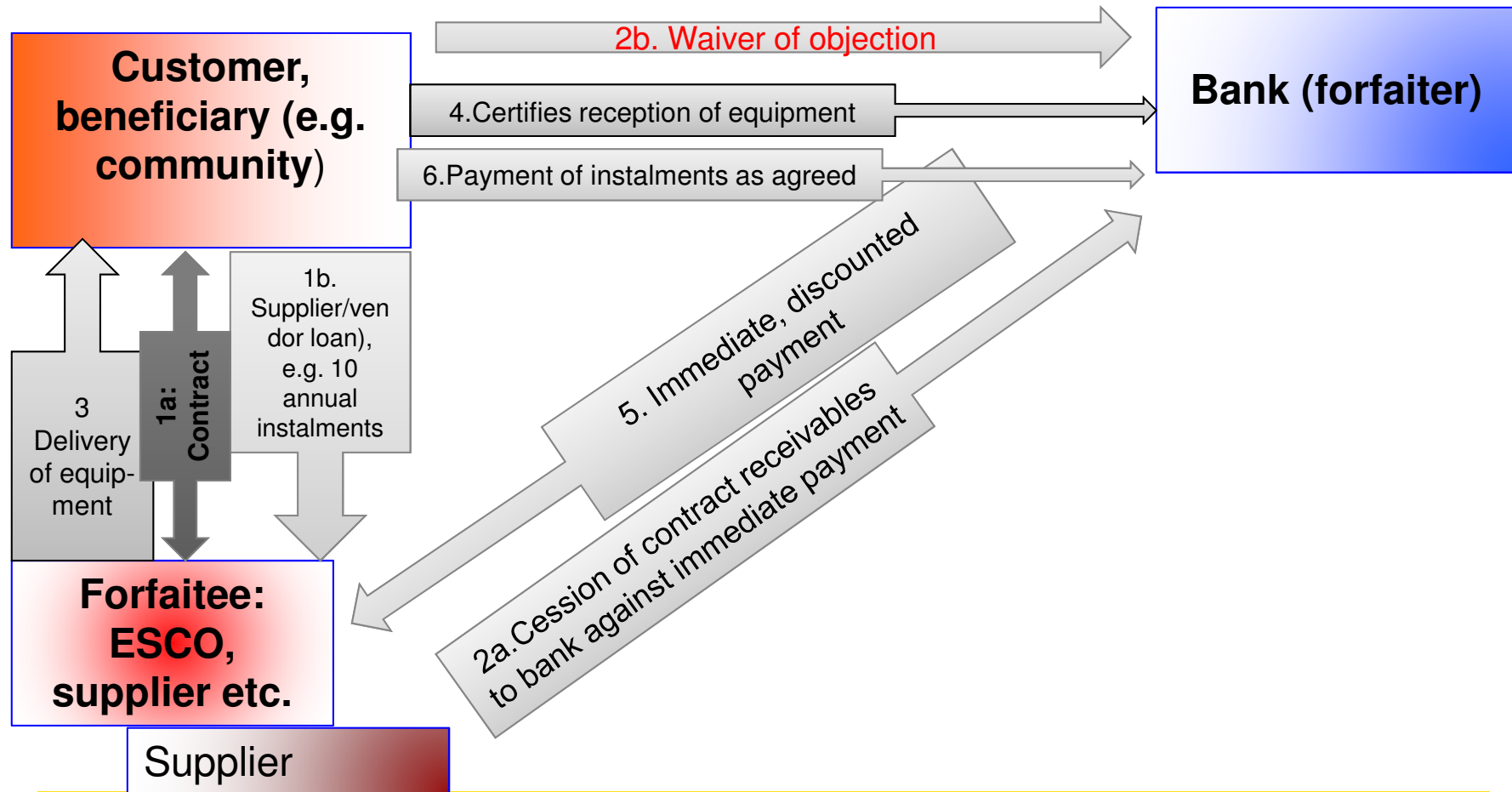
- **EPC (Energy performance contracting)** refers to the contractual arrangement between a provider of energy services and the customer
- **ESCO (Energy service company):** “Natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer’s facility or premises” (*Energy Efficiency Directive (EED, 2012/27/EU)*)
- **ESCO by itself is not yet a financing solution.** Depending on the share of hardware/equipment to be installed upfront there is still a financing problem for the ESCO which might also affect the customer: Financial solutions like project finance or forfeiting will have to be applied



## FORFAITING:

- **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.
  - This “abstractness of the forfaiting document” will be further emphasised by a “waiver of objection”, which means the customer waives his right to object legally against his repayment obligation because of any dispute (like non fulfilment of conditions, late delivery, warranties etc.)

# FORFAITING:



## Forfeiting pros and cons:

- Immediate cash for the contractor (ESCO etc.)
- For the contractor: **The debt is not booked on his balance sheet**, so the potential for further debts remains unlimited (in principle)
- Forfeiting needs **immaculate creditworthiness** of the debtor and/or the project (otherwise it becomes expensive or impossible)
- The debtor is always the institution which receives the investment (never the ESCO or the supplier)
- The **waiver of objection** poses the problem that the investor cannot stop the payments any more if contractual obligations are not reached
- This can, however, be avoided if the **operational part is separated from the investment part** (Operation cost normally need no financing anyway)

## LEASING:

- Investment goods are only **leased to the investor** and will be taken back after an agreed time (with the option to buy them at an agreed residual value)
- **Operating Leasing:** Leasing period is much shorter than life time
- **Financial Leasing:** Leasing period approaches life time
- Normally leasing makes only sense for **goods that can be given back** without high cost for de-installation: therefore leasing will be the **exception for housing retrofits** (if ever: financial leasing with the option to buy)
- **Tax reductions:** Leasing (in particular cross border leasing) reached some positive (as well as negative) reputation on the basis of tax saving models. Contracts, however, are complicated, sometimes tricky and therefore a good team of international tax experts and lawyers are needed

# Public supports

**Justification is over energy savings, external effects (CO<sub>2</sub>/GHG-reduction), demand induced tax revenues, employment effects etc.**

- 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
  - National/Regional schemes for Individuals for Municipalities/Social Housing
  - National/Regional schemes for Residential Buildings
  - National/Regional schemes for Non-Residential Buildings
- European Development Financial Institutions
  - CEB/EIB/EBRD
  - National Development Institutions (like KfW)



# Public supports

Justification is over energy savings, external effects (CO<sub>2</sub>/GHG-reduction), demand induced tax revenues, employment effects 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 improve the financing structure in particular for communities and public institutions lacking financial sources under strict saving requirements
- But: they will always require additional market based financing

# Financing the retrofit of buildings

EuroPHit

[http://ec.europa.eu/energy/efficiency/studies/doc/2014\\_guidance\\_energy\\_renovation\\_buildings.pdf](http://ec.europa.eu/energy/efficiency/studies/doc/2014_guidance_energy_renovation_buildings.pdf)

<b>Document title</b>	Financing the energy renovation of buildings with Cohesion Policy funding
<b>Job Number</b>	ENER/C3/2012-415
<b>Prepared by</b>	Julien Paulou (ICF International), Jonathan Lonsdale (ICF International), Max Jamieson (ICF International), Isabella Neuweg (ICF International), Paola Trucco (Hinicio), Patrick Maio (Hinicio), Martijn Blom (CE Delft), Geert Warringa (CE Delft)
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[www.europhit.eu](http://www.europhit.eu)

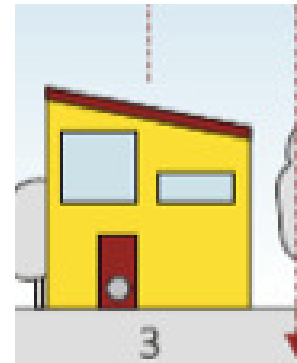
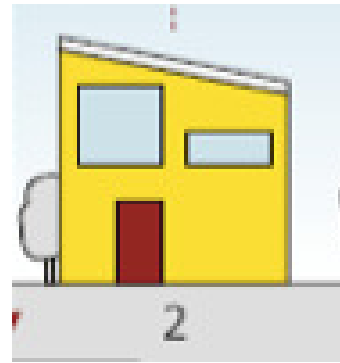
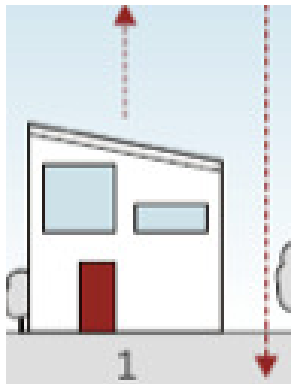


# Part 4

## The EuroPhit Project and the EnerPhit Standard







Certification is necessary to prove the achievement of individual steps (especially to outsiders like banks)



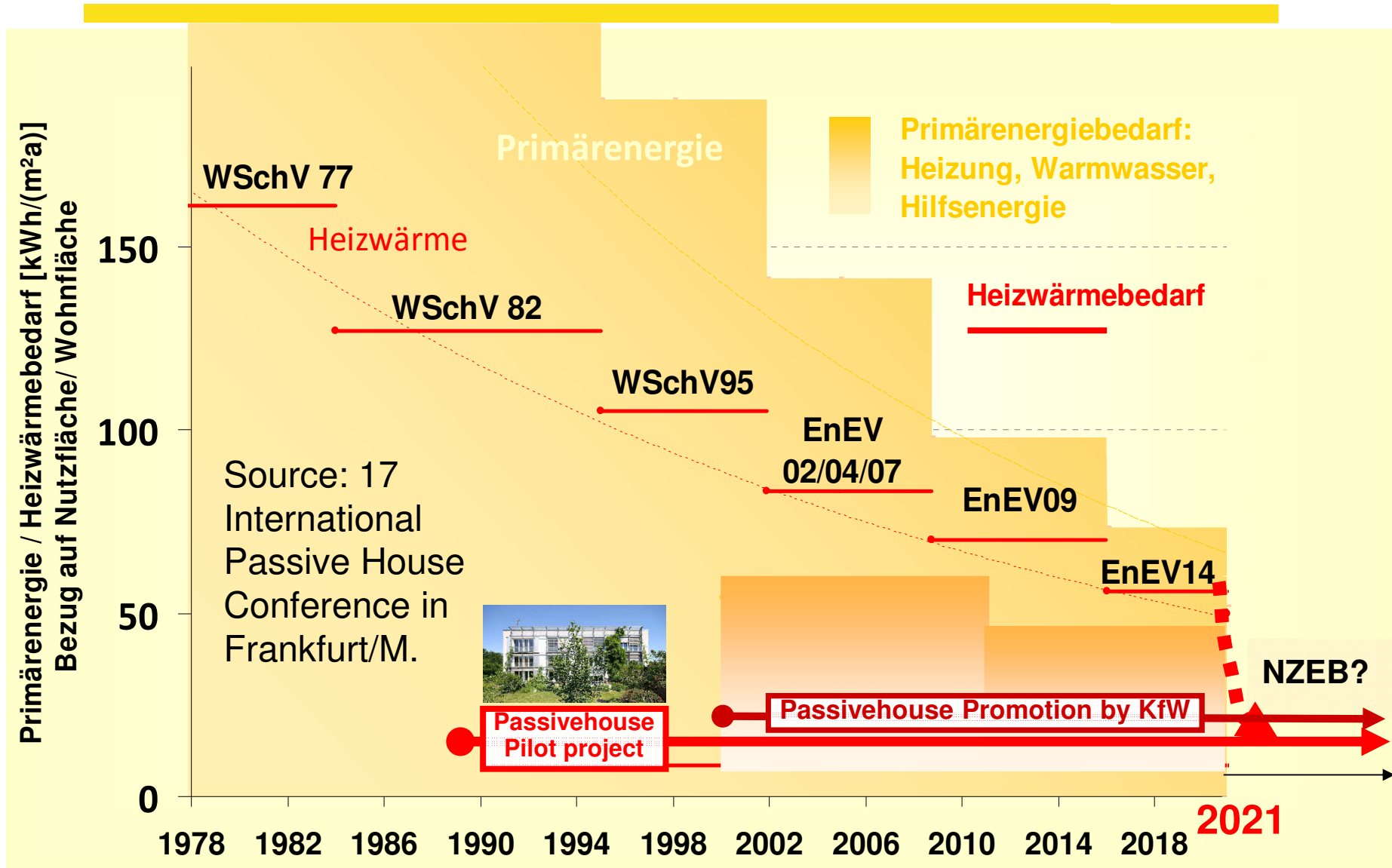
# Part 5

# The German Case



# Germany | Building Energy Performance Standards

EuroPHit



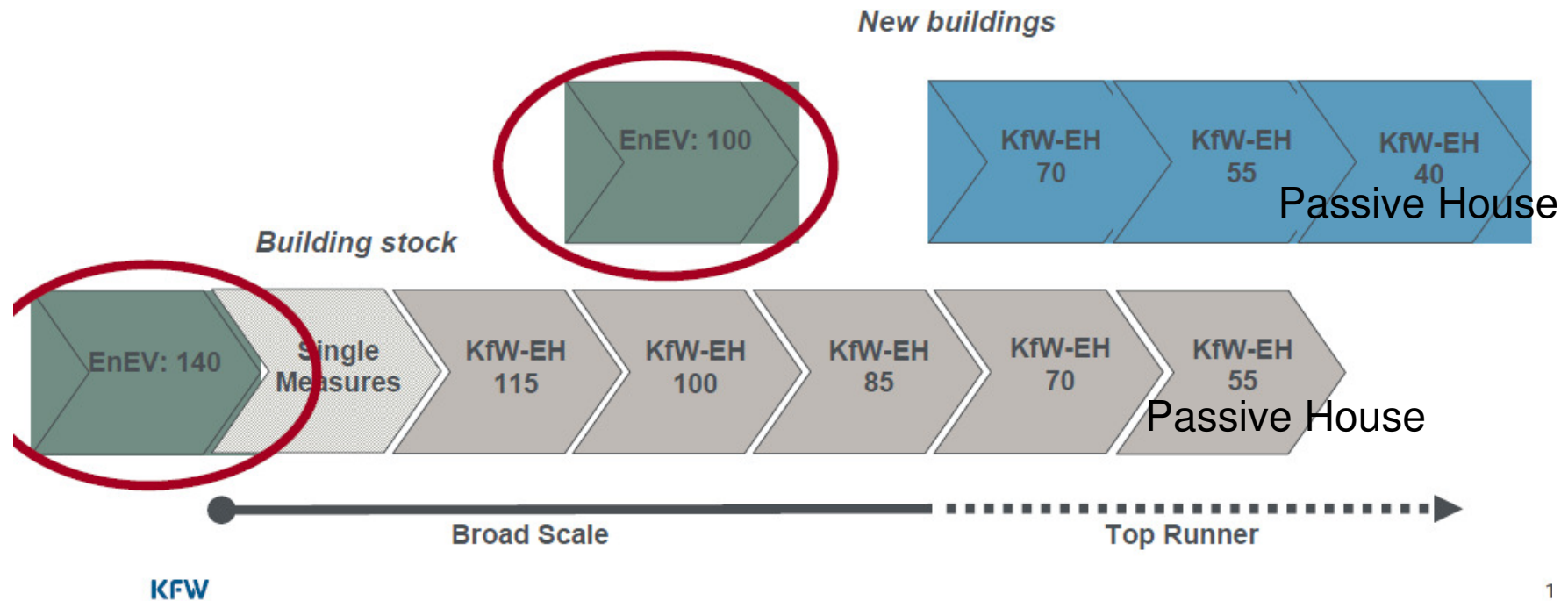
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[www.europहित.eu](http://www.europहित.eu)

Passive House Institute

**KfW Promotion: The benchmark is the legal requirement**

**For Passive Houses: International Passive House Standard with PHPP**





## Budgetary effects and external effects

Public supports create investments and they can contribute to achieve external effects like GHG savings, health improvements etc.

- Such effects, however, are under dispute, depending on the respective standpoint
- Theoretically a 20% subsidy for an investment project can generate VAT incomes for the government. With a 20% VAT it could be budget neutral
- In addition there are multiplier effects
- There is also the benefit of GHG savings (indicator CO<sub>2</sub>): Depending on the value attached to a ton of CO<sub>2</sub> the savings can be between US\$ 25 (IMF) and € 80 (German environmental agency)
- The Swiss Prognos AG, for example, estimates –in the basic scenario- the following values: (Bn Euro) Subsidy fund 25 → investments → 428 → tax revenue 39 → total value added → 80 energy cost savings 92 and CO<sub>2</sub> reduction 15,6 Million ton p.a.,



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[www.europhit.eu](http://www.europhit.eu)



# Part 6

# Italy



## Detrazione fiscale per ristrutturazioni edilizie (Tax deduction for building renovation) - Italy

URL | <http://efficienzaenergetica.acs.enea.it/>

The tax deduction mechanism is a voluntary mechanism which offers the possibility of **deducting from income tax (personal income tax [IRPEF] or corporate income tax [IRES]), 55% of the costs incurred for the energy efficiency upgrading of existing buildings**. The deductions must be spread over 10 years.

The deduction is permitted for resident and non-resident taxpayers, even if corporate revenue holders, who are in possession, for any reason, of the building subject of intervention. In particular:

- natural persons (including those having a right *in rem* over the building, co-proprietors for interventions on jointly-owned common parts, tenants, persons who hold the building on loan);
- taxpayers who receive corporate revenue (natural persons, partnerships, capital companies);
- professional associations;
- public and private authorities who do not perform commercial activities.

**Eligible interventions** are:

- Energy efficiency upgrading of existing buildings
- Installation of Solar thermal panels
- Replacement of central heating systems

For year 2012 the range of costs was extended to include costs for the **replacement of traditional water heaters** with heat pump water heaters for the production of domestic hot water.

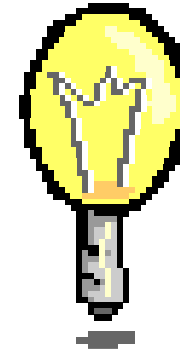
The 55% tax deduction measure **has been extended until 31.12. 2013**.

**ENEA (Italian National Alternative Energy Authority)** is in charge of management and control of the tax deduction mechanism. Interested parties can visit the [ENEA website](#) dedicated to the tax deduction mechanism for more details



# Part 7

## Discussion and questions





Thank you

