ENPER-EXIST

Roadmap for energy efficiency measures / policies in the existing building sector

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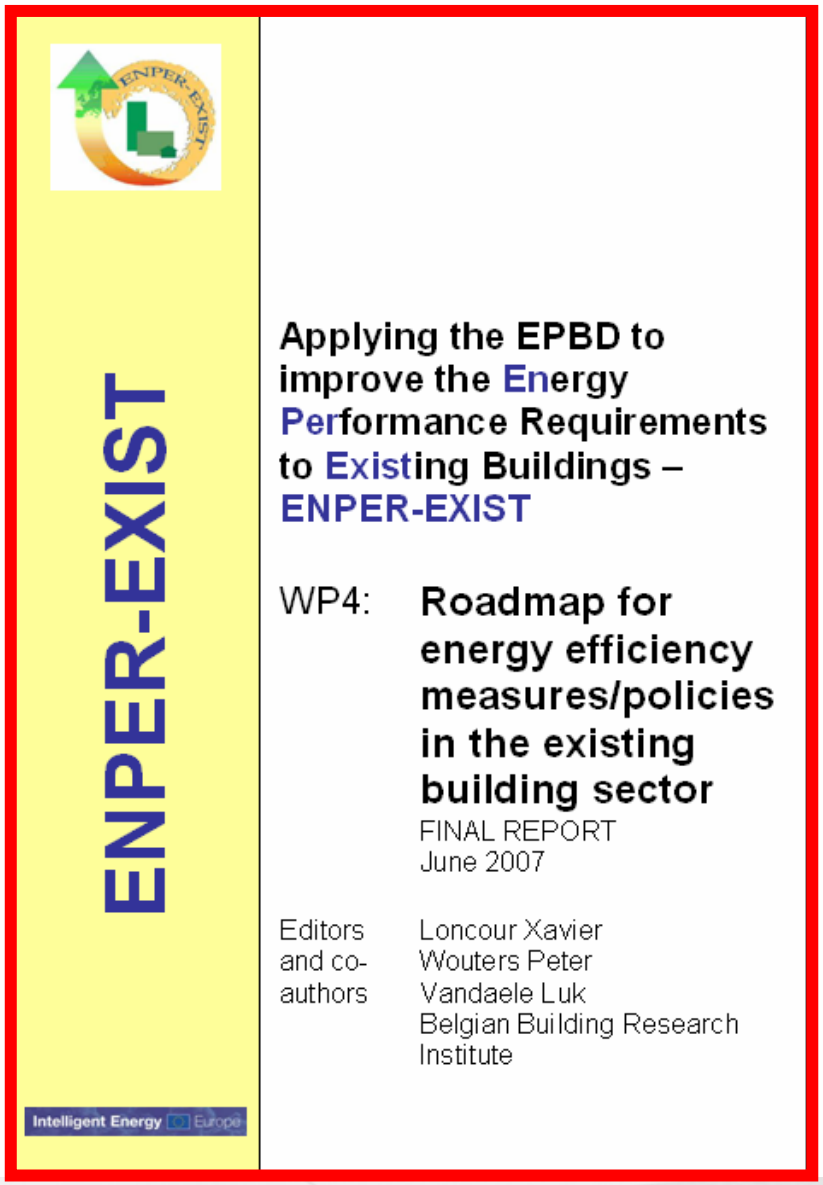
Brussels – 27 June 2007

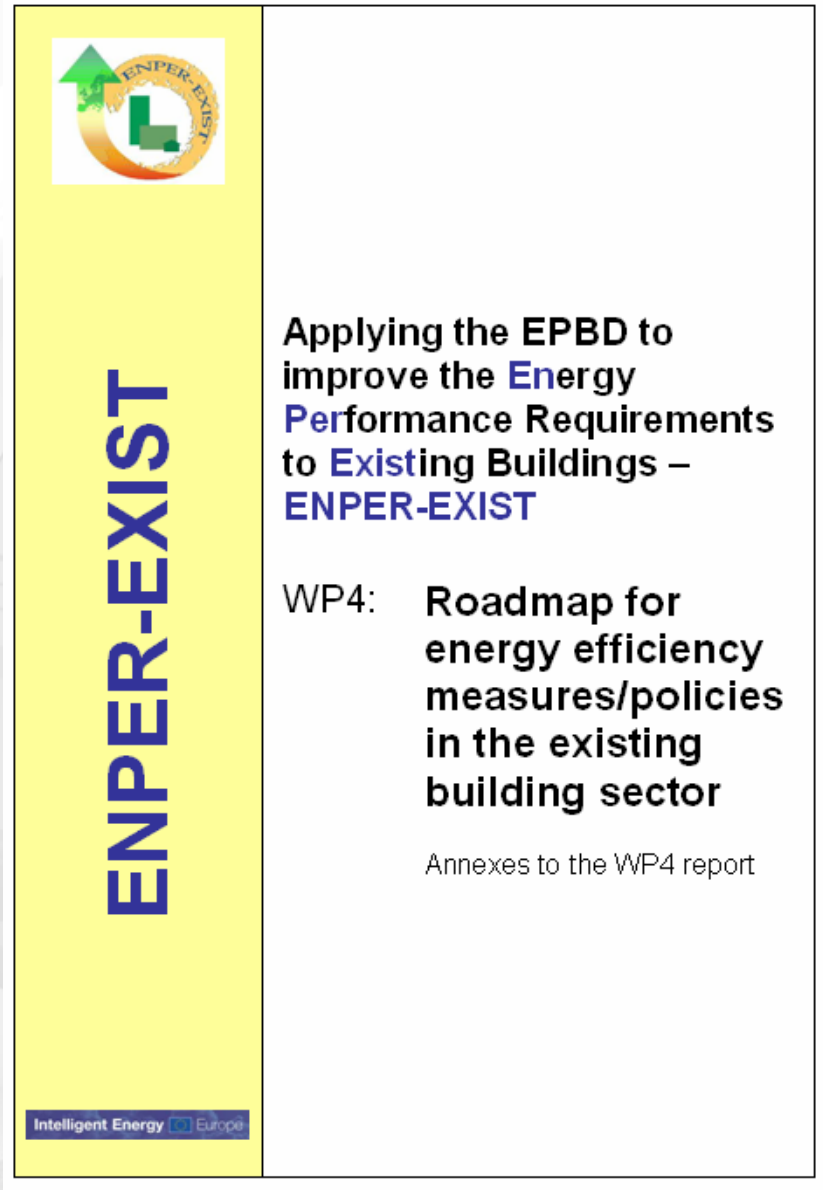
Division Energy and Climate
BBRI - Belgian Building Research Institute

Content of this presentation

- Available reports and content
- The Roadmap toolbox
- Case studies of specific building type
- Cross-country comparison of existing measures to improve the energy efficiency of existing buildings

Available reports





Content of the report

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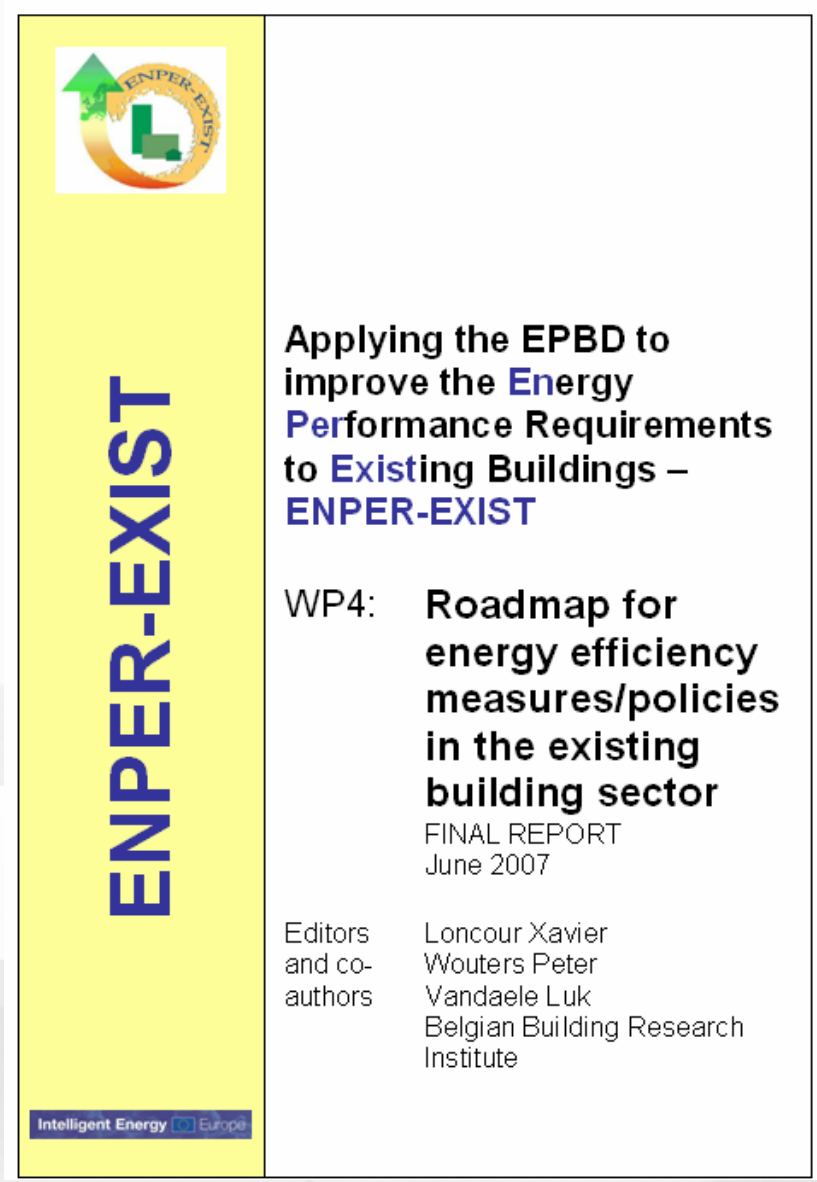
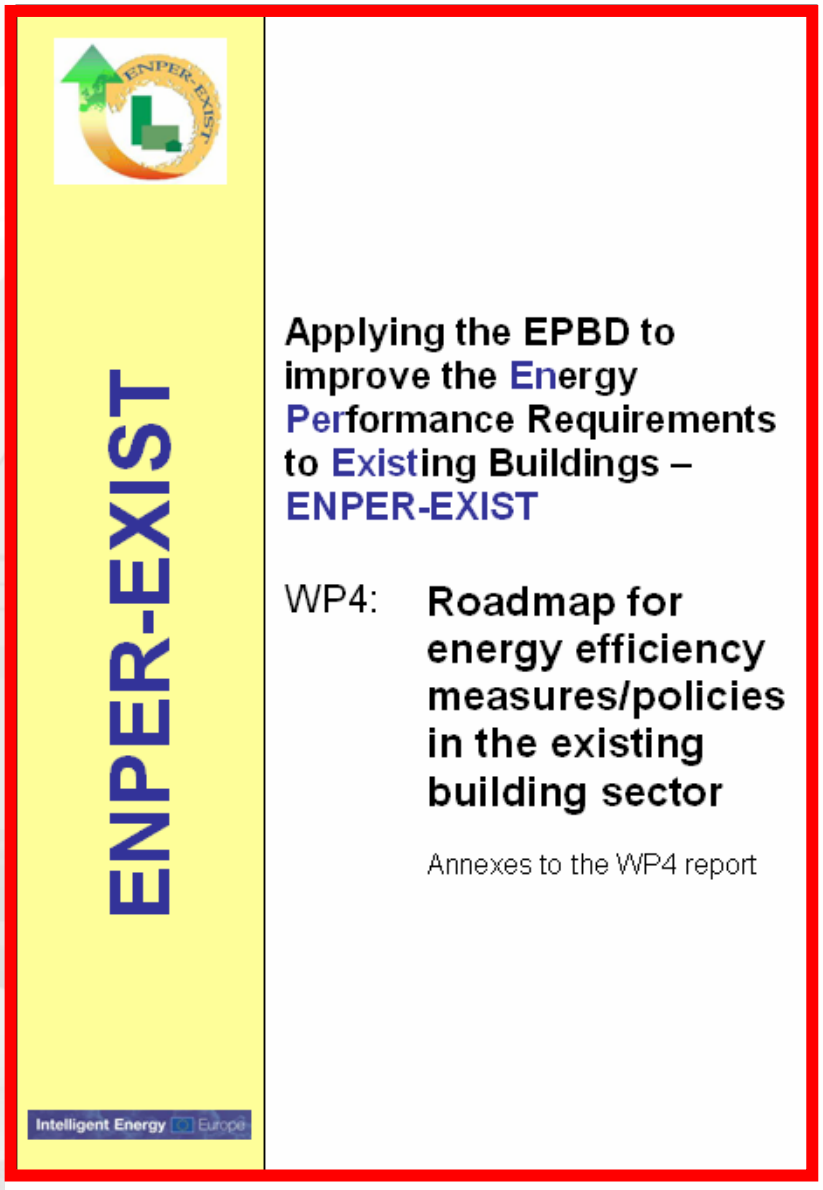
Available reports





Overview of existing instruments aiming to improve the energy efficiency of existing buildings – situation in 7 european countries

- Situation in Belgium
- Situation in Denmark
- Situation in France
- Situation in Germany
- Situation in Greece
- Situation in The Netherlands
- Situation in The United Kingdom

Long term vision of European countries regarding the energy efficiency in the existing building stock

- Long term vision in Belgium
- Long term vision in Denmark
- Long term vision in France
- Long term vision in Germany
- Long term vision in The Netherlands
- Long term vision in The United Kingdom

Analysis of the situation of 8 specific building market sectors

- Social housing managed by public bodies
- Residential sector - lack of enthusiasm and invisibility of energy saving measures
- Residential sector – owners with no financial possibilities
- Apartment buildings – the problematic of the co-ownership and decision making within apartments
- Apartment buildings – importance of the way heating costs are charged
- Rented office buildings
- Educational buildings
- Public buildings

Welcome in the ENPER EXIST Roadmap toolbox !

SAVE ENPER EXIST

Roadmap for energy efficiency measures/policies in the existing building sector

Energy efficiency is becoming a very important topic in Europe and in the world. Among the different sectors where energy savings can be realised, the European action plan for energy efficiency of the European commission has identified the building sector as a top priority. Huge cost-effective energy savings can be realised in existing buildings. The action plan for energy efficiency mentions a potential by 2020 of 27% to 30% according to the building type. Realising this potential will not be done by itself and a set of accompanying measures should be developed and implemented by different actors.

This tool has been developed in the scope of the ENPER EXIST project. It is a complement to the Roadmap report that can be found on the project website. It contains information relative to the measures that can stimulate energy efficiency in existing buildings. The existing measures as well as examples of long-term vision in 7 European countries are described.

Information relative to the following European countries can be found in this toolbox : Belgium, Denmark, France, Germany, Greece, The Netherlands and United Kingdom.

This toolbox gives also indications (including pro's and con's) about the possibilities to enlarge the scope of the Energy performance of buildings directive.

This toolbox makes references to specific parts of the roadmap report and to the annexes. It has to used in combination with these two documents. The set of documents (report + annexes + toolbox) can be downloaded on the project website. To properly work, the zip file containing these docucmnets has to be uncompressed a single directory and the tree structure has to be maintained. The use of this toolbox requires a webbroweser and a pdf reader

Go the reports | **Go to cross country comparison** | **About the toolbox**

Belgium | Denmark | France | Germany | Greece | The Netherlands | United Kingdom

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Welcome in the ENPER EXIST Roadmap toolbox !

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Roadmap for energy efficiency measures/policies in the existing building sector

Home | Go to cross country comparison | About the toolbox

This tool contains information relative to the **measures** that can stimulate energy efficiency in existing buildings. The existing measures in **7 European countries** as well as long-term vision are treated.

This tool contains information about the following European countries partners in the ENPER EXIST Project : Belgium, Denmark, France, Germany, Greece, The Netherlands and United Kingdom.

Roadmap for energy efficiency measures/policies in the existing building sector

Consult the final report

Consult the annexes to the report

Possibilities for widening the scope of the EPBD

Consult the report

Overview of existing and possible measures to improve the energy efficiency of existing buildings

Cross country comparison

Consult the report

Go to cross country comparison — View syntesis matrix

Type of measure		Belgium	Denmark	France	Germany	Greece	The Netherlands	United Kingdom
1. The regulatory measures								
1.1 Legal requirements (technical)								
1. Adoption and/or reinforce requirements								
a. Building level - overall energy performance		exist	exist	exist	exist	ud	exist	exist
b. Building level - subset performance		exist	exist	exist	exist	no	no	no
c. Component level		exist	exist	exist	exist	exist	exist	exist
d. Enlarge the application field of the requirements		exist	exist	no	exist	ud	no	no
2. Adaptation of energy and environment standards		no	no	no	exist	exist	no	no
3. Visible meters in the building		no	exist	exist	no	no	no	ud
4. Requirements compliance check		exist	exist	no	no	no	no	no
5. Public / governmental buildings								
a. Stricter requirements for governmental buildings		no	exist	exist	exist	no	no	exist
b. Integration of the energy performance of buildings in public procurement procedures		exist	exist	exist	exist	no	exist	no
c. Retrofitting of public buildings		exist	exist	exist	exist	no	no	no
1.2. Other legal supporting measures								
1. Energy certification scheme								
a. Way certificates are communicated / displayed		exist	exist	exist	exist	exist	exist	exist
b. Towards the mandatory realization of the recommendations enclosed into the energy certificates		no	exist	no	no	no	no	no
c. Base the development of adapted supporting tools on the knowledge of the building stock gained by the collection of energy certificate		ud	exist	no	ud	ud	no	no
d. Linking incentives to energy performance certification		ud	ud	no	exist	no	exist	ud
2. Encourage reconstruction instead of heavy renovation works		ud	no	exist	no	no	no	ud
3. Adaptation of the renting level								
a. Right for the owner to charge energy investments in renting level (agreed procedure)		no	no	no	exist	no	no	no
b. Right for the tenant to deduct energy efficiency investments in rent paid to owner (agreed procedure)		no	no	no	no	no	no	no
4. Adaptation of the legislation concerning co-ownership								
a. Reduced majority level to decide to implement measure proven to be energy efficient		no	no	exist	no	no	no	no
b. Reduced majority level to decide to implement measure proven to be energy efficient and cost efficient		no	no	exist	no	no	no	no
c. Requirement regarding the constitution of financial reserve for energy efficiency measures in co-owned buildings		no	exist	no	exist	no	no	no

Identification of the measures to improve the energy efficiency of existing buildings

Case studies

- Cases studies were developed to identify the relevant measures to improve the energy efficiency of existing buildings

  → Input to the list of measures

- Definition of the cases studies
  1. The type of building
  2. The type of works / transaction realised

The type of work – transaction realised

- New construction
- Existing building
  - In case of sales
  - In case of rent
  - In case of renovation
    - Major renovation
    - Light renovation
  - Renewal of environmental permit (or similar)
  - No specific action (all the other cases)
    - Occupied by building owner
    - Occupied by tenants

Specific moment

Case studies

- Content of the case studies
  - Description of the situation
  - The concerned actors and their motivations
  - Possible measures to reinforce incentives and / or overcome barriers

List of cases studies

- Residential buildings
  1. Social housing managed by public bodies
  2. Residential sector - lack of enthusiasm and invisibility of energy saving measures
  3. Residential sector – Owners with no financial possibilities
  4. Apartment buildings – the problematic of the co-ownership and decision making within apartments
  5. Rented apartment buildings – importance of the way heating expenses are shared
- Non Residential buildings
  6. Rented office buildings
  7. Educational buildings
  8. Public buildings

List of possible and existing measures to improve the energy efficiency of existing buildings

Overview of existing measures and actions

- List of individual measures. Best efficiency probably by combining different measures
- Main focus on energy efficiency of existing buildings - other important factors not taken into account
  - Unpopular (e.g. energy tax)
  - Global housing situation
  - Social aspects as fuel poverty
- List of generic measures. The application into a specific country has always to take the specific situation into account:
  - Eastern part of Germany - about 60% of rented dwellings
  - Spain - 80% of owner-occupied dwellings

  → Subsidiary principle

Overview of existing measures and actions

1. The regulatory measures
2. The financial levers
3. Non-governmental activities
4. Research / demonstration and development projects
5. Promotional measures / increase public awareness

Overview of existing measures and actions

Legal requirements (technical)

1. Adoption and/or reinforce requirements
   a. At the building level - overall energy performance
   b. At the building level - subset performance
   c. At the component level
   d. Enlarge the application field of the requirements
2. Adaptation of energy and environment standards
3. Visible meters in the building
4. Requirements compliance check
5. Public / governmental buildings
   a. Stricter requirements for governmental buildings
   b. Integration of the energy performance of buildings in public procurement procedures
   c. Retrofitting of public buildings

Type of measure		Belgium	Denmark	France	Germany	Greece	The Netherlands	United Kingdom
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a. Building level - overall energy performance		exist	exist	exist	exist	ud	exist	exist
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c. Component level		exist	exist	exist	exist	exist	exist	exist
d. Enlarge the application field of the requirements		exist	exist	no	exist	ud	no	no
2. Adaptation of energy and environment standards		no	no	no	exist	exist	no	no
3. Visible meters in the building		no	exist	exist	no	no	no	ud
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a. Stricter requirements for governmental buildings		no	exist	exist	exist	no	no	exist
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c. Retrofitting of public buildings		exist	exist	exist	exist	no	no	no

Visible meters in buildings

- The imposition to have meters in building exists in Denmark and France
- In France
  - RT2000 and RT2005 have set requirements regarding mandatory meters in the buildings. These meters shall enable to determine the amount of energy used for the different usages.
  - Level of metering is adapted to building size. Metering is mandatory for management purposes. There is no requirement regarding the visibility of meters by the building users.

Type of measure		Belgium	Denmark	France	Germany	Greece	The Netherlands	United Kingdom
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Requirements compliance check

- In the Flemish region, the compliance has to be proven after the construction by an independent expert based on the as build situation. Mechanisms of fines are integrated into the regulation.
- A comparable approach (as-build) is also followed in Denmark

Overview of existing measures and actions

Other legal supporting measures

1. Energy certification scheme
   a. Way certificates are communicated / displayed
   b. Towards the mandatory realization of the recommendations enclosed into the energy certificates
   c. Base the development of adapted supporting tools on the knowledge of the building stock gained by the collection of energy certificate
   d. Linking incentives to energy performance certification
2. Encourage reconstruction instead of heavy renovation works
3. Adaptation of the renting level
   a. Right for the owner to charge energy investments in renting level (agreed procedure)
   b. Right for the tenant to deduct energy efficiency investments in rent paid to owner (agreed procedure)

Type of measure	Belgium	Denmark	France	Germany	Greece	The Netherlands	United Kingdom
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4. Adaptation of the legislation concerning co-ownership							
a. Reduced majority level to decide to implement measure proven to be energy efficient	no	no	exist	no	no	no	no
b. Reduced majority level to decide to implement measure proven to be energy efficient and cost efficient	no	no	exist	no	no	no	no
c. Requirement regarding the constitution of financial reserve for energy efficiency measures in co-owned buildings	no	exist	no	exist	no	no	no
d. Rules to transfer cost savings on all co-owners or financial reserve when building retrofitting is applied (to be developed for all kind of heating system and cost ventilation)	no	no	no	no	no	no	no
5. Legal status of the co-ownership for bank credits for energy refurbishments	no	no	no	no	no	exist	no
6. Energy friendly urban regulations	exist	exist	exist	exist	no	exist	exist
7. Minimum energy requirements for renting	no	no	no	no	no	no	no
8. Environmental permit	no	no	no	no	no	exist	exist
9. Adoption of annual energy efficiency plans	no	exist	no	no	no	no	no
10. Mandatory energy efficiency impact assessment of new regulations	exist	exist	exist	exist	exist	exist	no

Towards the mandatory realization of the recommendations enclosed into the energy certificates

- Energy certificates are containing recommendations to improve the considered building
- In most country, the certificate is seen as a source of information about the building without other consequence
- In Denmark, there is no mandatory realisation obligations except for the public building, where energy-saving measures pointed out in the energy label must be realised if pay-back time is less than five years

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5. Legal status of the co-ownership for bank credits for energy refurbishments		no	no	no	no	no	exist	no
6. Energy friendly urban regulations		exist	exist	exist	exist	no	exist	exist
7. Minimum energy requirements for renting		no	no	no	no	no	no	no
8. Environmental permit		no	no	no	no	no	exist	exist
9. Adoption of annual energy efficiency plans		no	exist	no	no	no	no	no
10. Mandatory energy efficiency impact assessment of new regulations		exist	exist	exist	exist	exist	exist	no

Adaptation of the renting level

- Most countries don't have legal mechanism allowing these adaptations
- Private agreement may always occur between the owner and the renter
- In Germany, investment costs of renovations (including energy efficiency measures) can be transferred to the tenant by an increase of up to 11 % of the investments on the yearly rent

Type of measure		Belgium	Denmark	France	Germany	Greece	The Netherlands	United Kingdom
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6. Energy friendly urban regulations		exist	exist	exist	exist	no	exist	exist
7. Minimum energy requirements for renting		no	no	no	no	no	no	no
8. Environmental permit		no	no	no	no	no	exist	exist
9. Adoption of annual energy efficiency plans		no	exist	no	no	no	no	no
10. Mandatory energy efficiency impact assessment of new regulations		exist	exist	exist	exist	exist	exist	no

Overview of existing measures and actions

Other legal supporting measures

4. Legislation concerning co-ownership
    1. Reduced majority level to decide to implement measure proven to be energy efficient
    2. Reduced majority level to decide to implement measure proven to be energy efficient and cost efficient
    3. Requirement regarding the constitution of financial reserve in co-owned buildings
    4. Rules to transfer cost savings on all co-owners or financial reserve when building retrofitting is applied (to be developed for all kind of heating system and cost ventilation)
5. Legal status of the co-ownership for bank credits for energy refurbishments
6. Energy friendly urban regulations
7. Minimum energy requirements for renting
8. Environmental permit
9. Adoption of annual energy efficiency plans
10. Mandatory energy efficiency impact assessment of new regulations

Type of measure		Belgium	Denmark	France	Germany	Greece	The Netherlands	United Kingdom
1.2. Other legal supporting measures								
1. Energy certification scheme								
a. Way certificates are communicated / displayed		exist	exist	exist	exist	exist	exist	exist
b. Towards the mandatory realization of the recommendations enclosed into the energy certificates		no	exist	no	no	no	no	no
c. Base the development of adapted supporting tools on the knowledge of the building stock gained by the collection of energy certificate		ud	exist	no	ud	ud	no	no
d. Linking incentives to energy performance certification		ud	ud	no	exist	no	exist	ud
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c. Requirement regarding the constitution of financial reserve for energy efficiency measures in co-owned buildings		no	exist	no	exist	no	no	no
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5. Legal status of the co-ownership for bank credits for energy refurbishments		no	no	no	no	no	exist	no
6. Energy friendly urban regulations		exist	exist	exist	exist	no	exist	exist
7. Minimum energy requirements for renting		no	no	no	no	no	no	no
8. Environmental permit		no	no	no	no	no	exist	exist
9. Adoption of annual energy efficiency plans		no	exist	no	no	no	no	no
10. Mandatory energy efficiency impact assessment of new regulations		exist	exist	exist	exist	exist	exist	no

Energy friendly urban regulations

- In The Netherlands the energy performance of an area or district (EPL, Energie Prestatie op Locatie) can be determined (by calculation) taking into account the energy distribution systems as well as the energy performance of the individual buildings
- When (re)developing such an area the Municipality may set requirements to the EPL
- The EPL was introduced in 1998 for new-construction projects and in 2001 for existing areas

Overview of existing measures and actions

The financial level

1. The fiscal tool
   a. Deduction for energy investments
   b. Taxation stimuli of energy efficient buildings and penalties for others
   c. No increase of the building taxes in case of energy efficient refurbishment
2. The taxation tool
   a. Reduced VAT
      1. on energy savings products
      2. on energy supply
   b. Energy tax
   c. Buildings included in the CO2 taxation market

Overview of existing measures and actions

The financial level

3. Subsidies for energy efficient technologies
4. Granting soft loans
   a. Higher amount possible if more energy efficient
   b. Lower interest rate with credits
   c. Specific loans for energy efficient retrofitting / pre-financing of the works
5. Third party financing (PPP)
6. European structural funds
7. Higher energy price paid for e- from PV or CHP
8. Insurance – lower insurance rate for energy efficient retrofitted buildings

Type of measure		Belgium	Denmark	France	Germany	Greece	The Netherlands	United Kingdom
2. The financial level								
1. The fiscal tool								
a. Deduction for energy investments		exist	no	exist	no	exist	exist	exist
b. Taxation stimuli of energy efficient buildings and penalties for others		no	no	exist	no	exist	no	no
c. No increase of the building taxes in case of energy efficient refurbishment		no	no	exist	no	exist	no	no
2.The taxation tool								
a. Deduction for energy investments								
i. on energy savings products		exist	no	exist	no	no	no	exist
ii. on energy supply		no	no	no	no	no	no	no
b. Energy tax		exist	exist	exist	exist	no	exist	exist
c. Buildings included in the CO2 taxation market		no	no	exist	no	no	no	exist
3. Subsidies for energy efficient technologies / measures		exist	exist	exist	exist	exist	exist	exist
4. Granting soft loans								
a. Higher amount possible if more energy efficient		exist	no	exist	exist	no	no	no
b. Lower interest rate with credits		exist	no	exist	exist	exist	no	exist
c. Specific loans for energy efficient retrofitting / pre-financing of the works		ud	no	exist	exist	exist	no	no
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7. Higher energy price paid for e- from PV or CHP		no	no	exist	exist	exist	no	no
8. Insurance – lower insurance rate for energy efficient retrofitted buildings		no	no	no	no	no	no	no
9. Energy tariffs								
a. Adapted energy tariff according to the level of energy performance certificate		no	no	no	no	no	no	no
b. Increasing tariff with the energy consumption		no	no	no	no	no	no	no

Higher energy price paid for e- from PV

- In Greece, according to Law 3468/06 for the RES, the price for the sale of 1 kWh of PV electricity fluctuates between 0,40-0,50 €/kWh and is continuously readjusted to the conventional energy price
- So the price per kWh produced from PV and sold to the energy provider/net is five times higher as the price for purchase

Overview of existing measures and actions

The financial level

9. Energy tariffs
   a. Adapted energy tariff according to the level of energy performance certificate
   b. Increasing tariff with the energy consumption

Overview of existing measures and actions

Non-governmental activities

1. Sector agreements
   a. Components
   b. Installers
   c. Regional / municipal

2. Energy market mechanisms
   a. Require utilities to realise energy efficient measures
   b. System of the white certificates

Type of measure		Belgium	Denmark	France	Germany	Greece	The Netherlands	United Kingdom
3. The regulatory measures								
1. Sector agreements								
a. Components		no	no	no	no	no	exist	no
b. Installers		ud	no	no	no	no	exist	no
c. Regional / municipal		exist	no	exist	exist	no	exist	no
2. Energy market mechanisms								
a. Require utilities to realise energy efficient measures		exist	exist	exist	ud	no	no	exist
b. System of the white certificates		no	ud	exist	ud	no	ud	no

Require utilities to realise energy efficient measures

- In the UK, under the Energy Efficiency Commitment (EEC), electricity and gas suppliers are required to achieve targets for the promotion of improvements in domestic energy efficiency
- The energy suppliers offer financial incentives for different energy saving measures
  - cavity wall and loft insulation, energy efficient lighting and appliances, high efficiency boilers, ground source heat pumps, solar water heating and fuel switching (e.g. from electricity to gas), …
- Measures eligible under the EEC must be additional to regulatory requirements → most of the energy saving activity tends to be focused on existing housing

Overview of existing measures and actions

Demonstration / research and development projects

- Demonstration project / good examples
- Research and development project / fundamental research

Overview of existing measures and actions

Promotional measures / increase public awareness

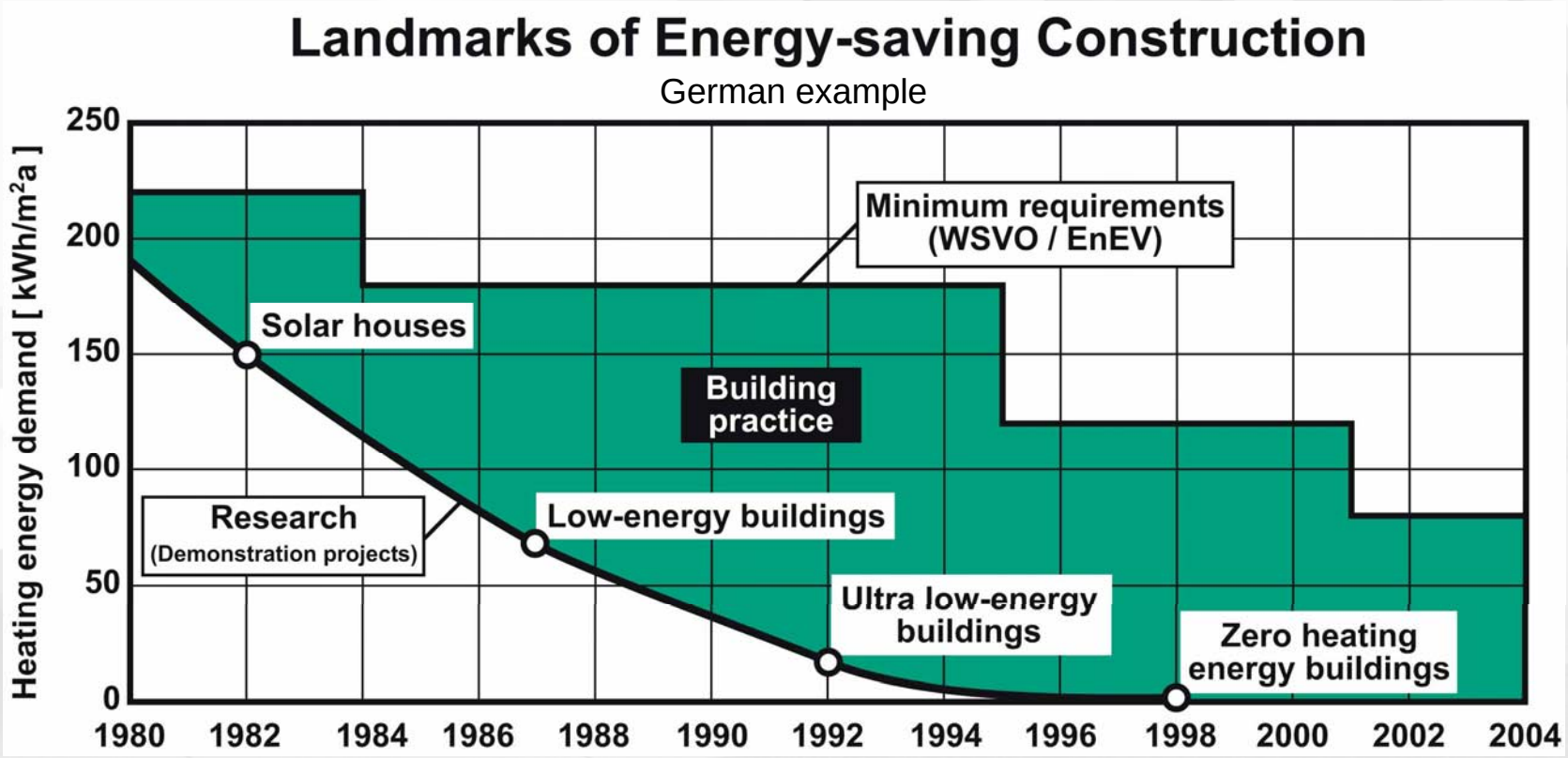
- Campaign on related advantages to energy savings
- Voluntary labelling / certification initiatives
- Information on cost-efficient measures

Type of measure	Belgium	Denmark	France	Germany	Greece	The Netherlands	United Kingdom
4. Demonstration / research and development projects							
1. Demonstration project / good examples	exist	exist	exist	exist	exist	exist	exist
2. Research and development project / fundamental research	exist	exist	exist	exist	exist	exist	exist

Type of measure	Belgium	Denmark	France	Germany	Greece	The Netherlands	United Kingdom
5. Demonstration / research and development projects							
1. Campaign on related advantages to energy savings	exist	exist	exist	exist	exist	exist	exist
2. Voluntary labelling / certification initiatives	exist	exist	exist	exist	exist	exist	exist
3. Information on cost-efficient measures	exist	exist	exist	exist	exist	exist	exist

Demonstration projects

- Allow disseminating and increasing the public awareness regarding innovative techniques
- Play a role in the transmission of knowledge and newly established experience



Dissemination of the report

- Via the project website

www.enper-exist.com

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