

# Energy efficient buildings are key to shaping our future – Is industry ready to tackle the challenges?

Paula Brandmeyer | Deutsche Umwelthilfe e.V. - Environmental Action Germany

## About us



**Environmental Action Germany (Deutsche Umwelthilfe e.V.) has been campaigning to preserve the natural foundations of life for more than 40 years. In doing so, it brings together protecting the environment and consumer protection like no other organisation in Germany. Environmental Action Germany supports all sustainable ways of life and economic systems that respect ecological boundaries. At the same time, we fight for the preservation of biological diversity and the protection of natural assets as well as for climate protection.**

## We are...



...  
a non-profit  
environmental and  
nature protection  
organisation.



...  
a consumer protec-  
tion organisation  
entitled to bring  
legal action.



...  
politically  
independent.



...  
campaigners at a  
national and  
European level.

# Our interests



Nature  
Energy & climate  
Transport

Clean air  
Recycling  
Consumers

Issues at municipal level  
Environmental justice  
Issues at international level

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# About us: Working for more efficiency in the building sector

## Our goal:

- Decarbonized building stock by 2050:  
→ unlock the potential in the building and heating sector

## Our contribution:

- Awareness raising and information
- Discuss possible instruments and the best instrument mix



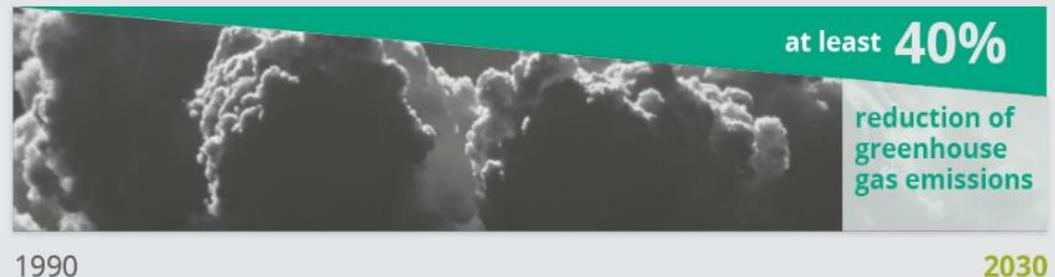
# International Climate Negotiations: Paris Agreement

## 2015 to 2050

- Limiting global warming to well below 2 degrees Celsius
- to aim to limit the increase to 1.5°C
- Consensus that there is only a limited budget for GHG emissions left
- All countries undertake their own measures and report regularly on the progress
- EU to limit emissions by at least 40% by 2030

- The energy efficiency of existing buildings in developed economies such as Europe needs to improve by at least a factor of four.
- Paris Agreement needs 95% reduction of GHG in all sectors (Heating, Transport, Electricity)

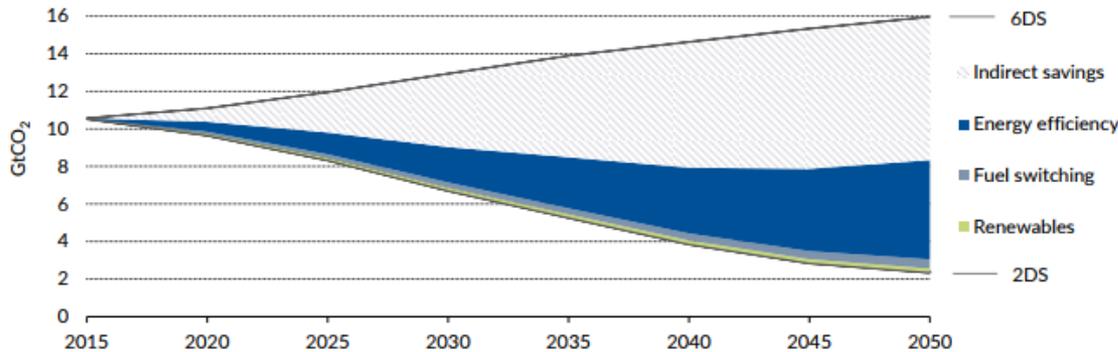
### 2030 goal: EU's commitment to Paris Agreement



Source: European Union, 2016

# International Climate Negotiations: Building stock

Global building sector emissions saving potential to 2050

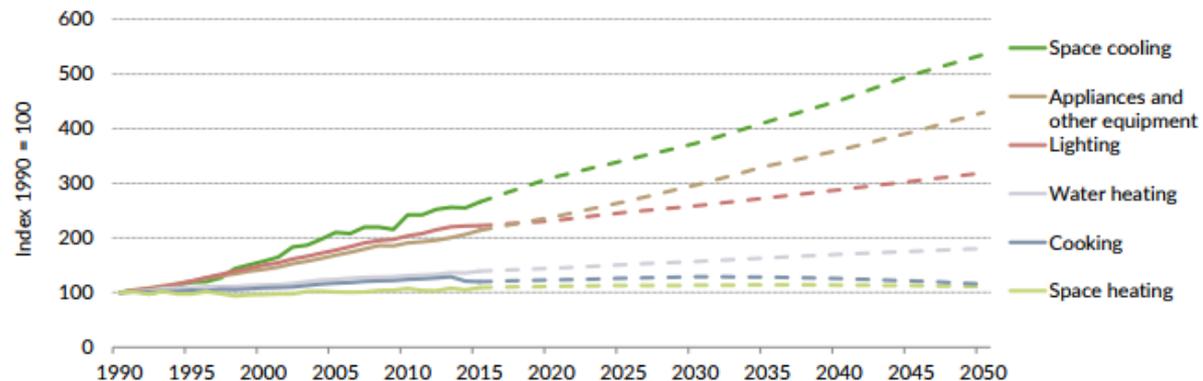


Note: Indirect savings represent CO<sub>2</sub> emissions reduction from power generation for electricity and commercial heat in the building sector.  
Source: IEA (2016), Energy Technology Perspectives 2016, www.iea.org/etp.

The building sector has enormous potential to reduce energy related GHG emissions, especially through energy efficiency measures

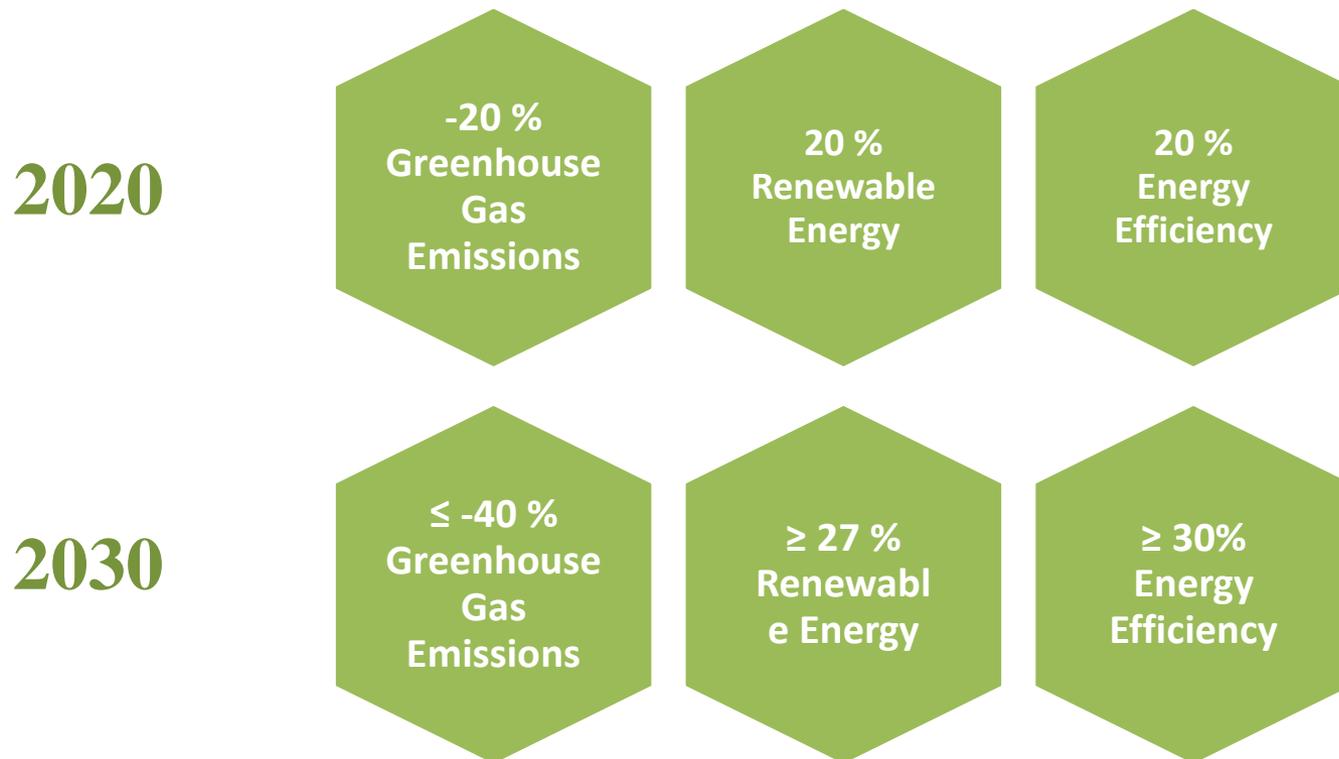
Space cooling has been and will continue to be the fastest growing building end-use to 2050.

Global buildings sector end-use energy consumption, 1990-2050



Note: Index represents change in final energy demand for building sector end-uses.

# „Clean Energy for all Europeans“ package – 2030 Framework for Climate and Energy



Source: European Union, 2016

# „Clean Energy for all Europeans“ package

## – EED – Efficiency First

- **2030 target (% energy consumption)**

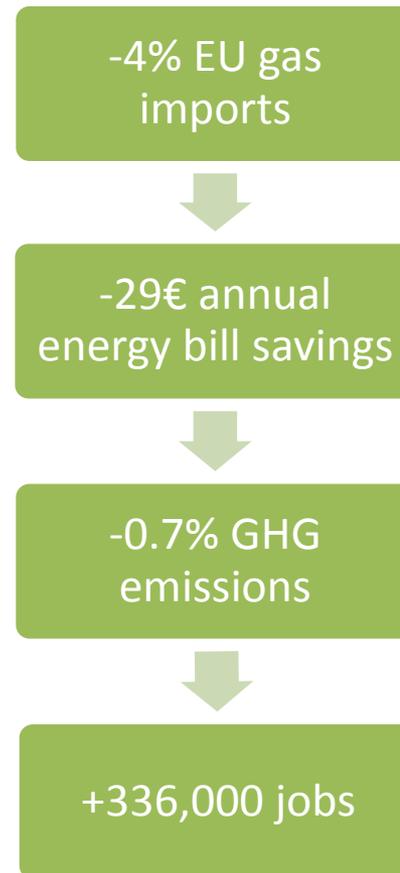
EU level of 30%, binding/indicative not decided on yet

- **Art 7 EED (1.5% annual savings)**

Loopholes reduce savings to 0.85%:

- Counting RES as savings up to 25%
- Excluding transport from savings

For every 1% extra energy savings by 2030:



# „Clean Energy for all Europeans“ package – Efficiency of the building stock

## EU-Performance of Buildings Directive (EPBD)

is the European Union's main legislative instrument aiming to promote the improvement of the energy performance of buildings within the Community.

- Decarbonizing the building sector by 2050
- Yearly renovation rate of 3% of the European wide public building stock (currently approx. 1%)
- „smartness indicator“
- incentivises tackling energy poverty through building renovation.



## Significance of the building sector

40% of EU's energy demand is consumed in buildings.

Buildings are responsible for 36% of GHG emissions in the EU.

High need for renovation in the building stock – goal of 3% per year



Currently, about 35% of the EU's buildings are over 50 years old. By improving the energy efficiency of buildings, we could reduce total EU energy consumption by 6% and lower CO<sub>2</sub> emissions by about 5%.

# Significance of the building sector - share of buildings in final energy consumption in EU-28

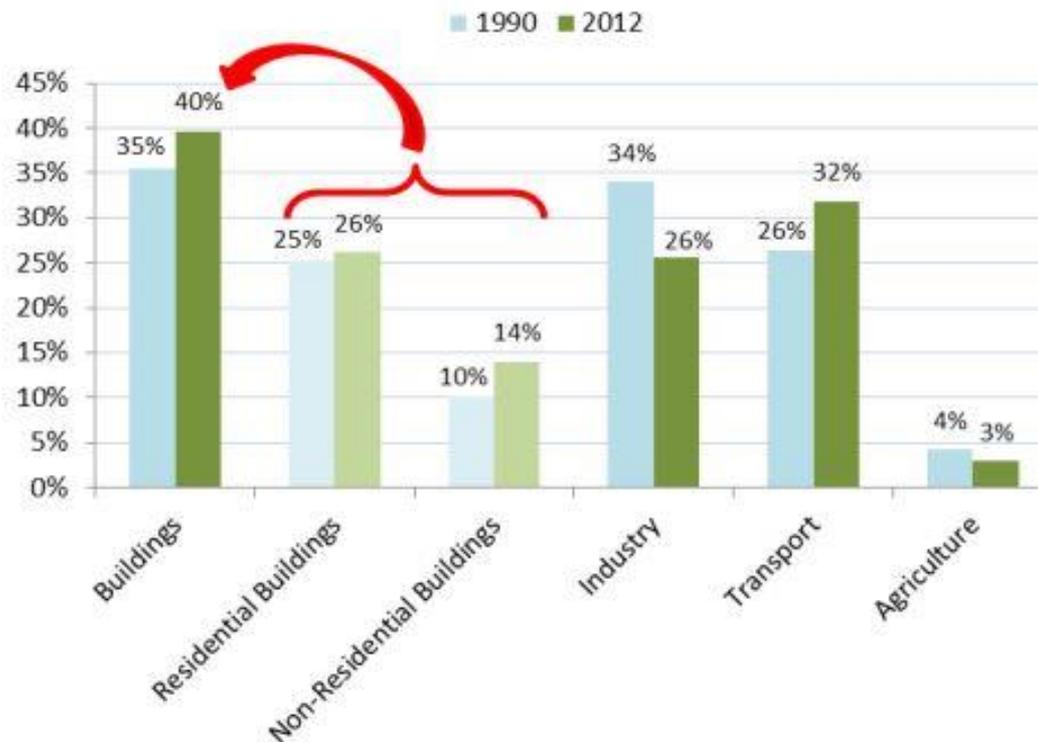


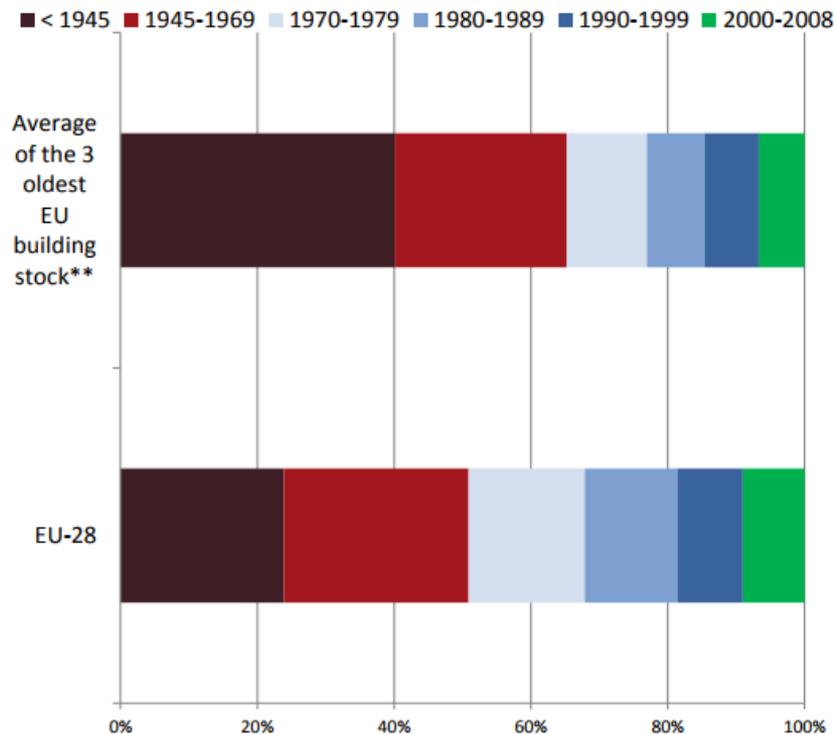
Figure 2: Share of buildings in final energy consumption in EU-28 (Source: Eurostat)

**Energy efficiency reduces heating demand, saves resources and reduces CO2 emissions**

**This potential need to be lifted.**

# Significance of the building sector

EU residential building stock by age



Source: Entranze, Odyssee

\*\* Belgium, UK, Denmark

Half of the residential stock was built before 1970, i.e. before the first thermal regulations

The very long life-cycles of buildings create risks of energy use 'lock-in' with the effects of low ambition today playing out for decades.

## Significance of the building sector – 3 pillar approach

*3 pillar approach: reduction of greenhouse gas emissions, increase in renewable energy AND energy efficiency*

Significantly increasing the rate of renovation of Europe's aging building stock is key to meeting all targets.

The heating sector can contribute the largest portion of carbon savings in retrofitting existing buildings and replacing old equipment.

Building renovation is the most cost-efficient way forward.

A technology neutral approach is vital

Focus on energy efficient heating will pave the way to decarbonising heat demand in a cost-effective way, while reinforcing the predominantly European industry.

Decentralized heating solutions facilitate the deployment of renewable energy sources and boost local economic development.

Continuous innovation and competitiveness dependent on a stable, ambitious and coherent future energy policy.

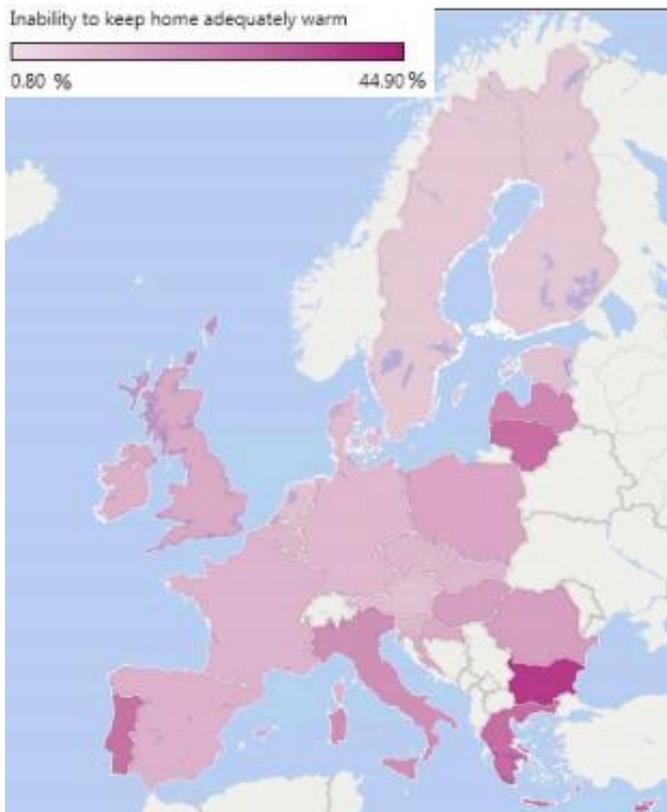


## Barriers to building renovation

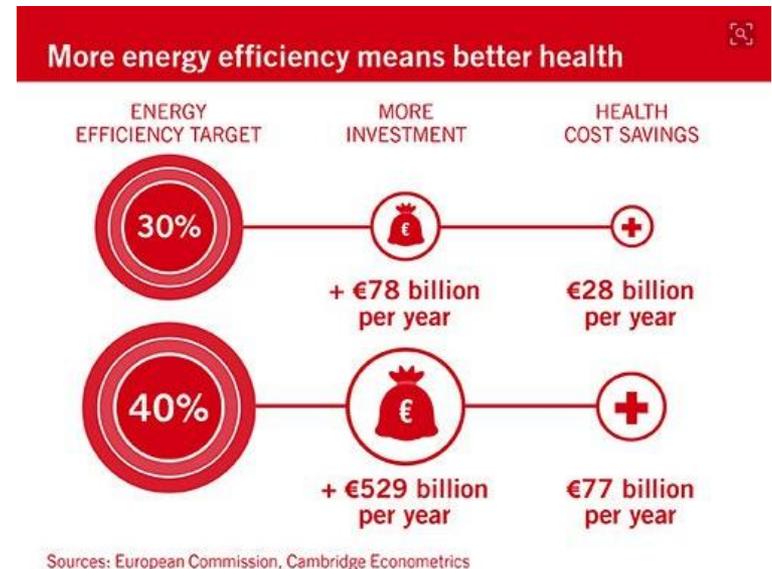
- **Property investors do not occupy the buildings**
  - The rent does not reflect the energy costs
  - Renters only interested in low rents without taking (future) energy costs into account
  - Hence, property investors have little motivation to invest in high energy efficiency buildings
- **Lack of Life Cycle Assessment**
  - low construction costs still the most important factor to select a project
  - Ressouce efficiency is not taken into account
- **Still a myth that high energy efficiency buildings**
  - Are uneconomically
  - Are more difficult to build
  - Are less attractive to see and work in

# More Energy Efficiency – less energy poverty and health issues

- Energy poverty and health issues closely interlinked
- Reduction of energy poverty and health issues related to bad insulation reduces public and private costs



Population unable to keep home adequately warm in 2013  
Source: BPIE, Eurostat



Source: CAN Europe

## Ressource Efficiency: Recycling of Construction and Demolition Waste (CDW)

- 48 % of the waste produced fall to construction and demolition work (CDW) and further 15 % of the waste produced come from mining and stone and earth extraction
- 2/3 of the waste are produced in the fields of construction, demolition, mining and extraction of stones and earths. This waste consists predominantly of mineral waste.
- Dumping this waste in an ecological manner is not possible.

### We call for:

Increasing the percentage of recycled materials and reused structures from CDW

Increasing the technical and economic value of CDW-derived materials and structures

Minimizing future CDW coming from the next generation of buildings

## Conclusions

- Reducing GHG emissions from the building stock is essential for reaching the international and EU climate goals
- Energy demand has to be reduced, while renewable energy supply has to increase
- EU countries have to deliver on their promise to put efficiency first and to reach the goals set in the Paris Agreement
- Ambitious nZEB definitions and regulations need to be implemented in all member states
- More resource efficiency is needed: construction and demolition waste need to be recycled



# Thank you very much for your attention.

Paula Brandmeyer  
Team leader Energy Efficiency  
[brandmeyer@duh.de](mailto:brandmeyer@duh.de)

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