

National Action Plan on Energy Efficiency (NAPE)

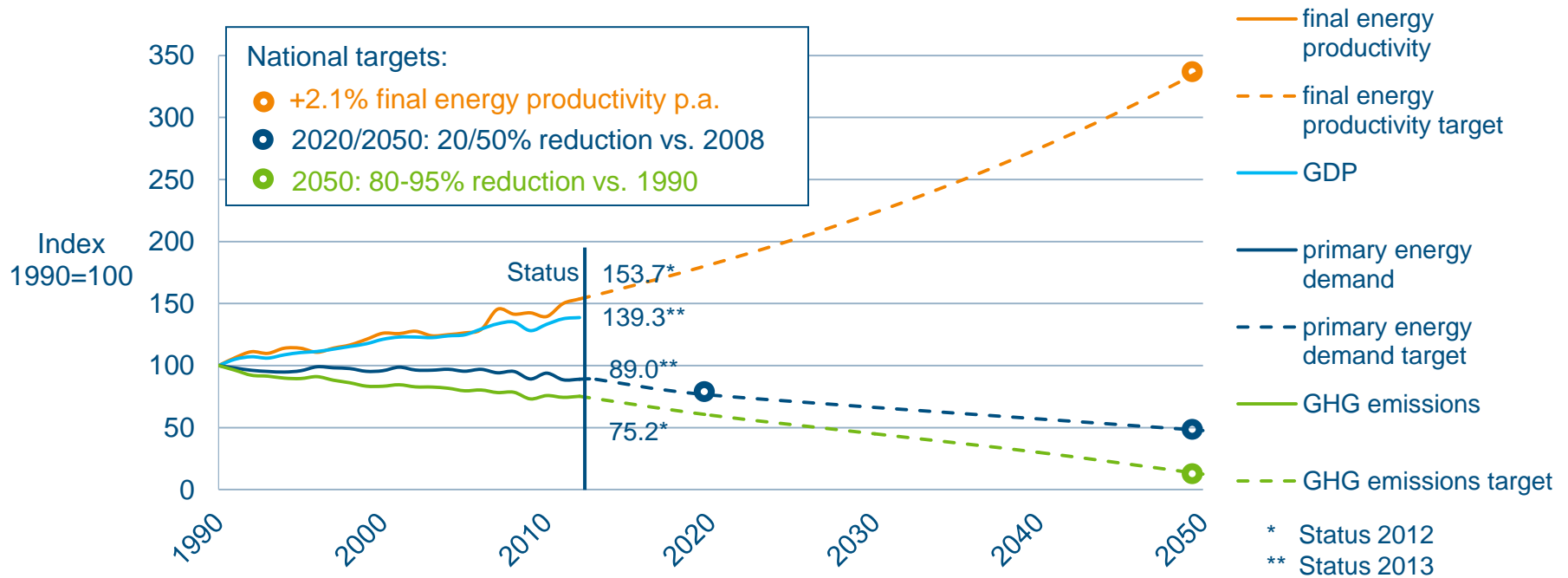
David Lerch, Federal Ministry for Economic Affairs and Energy

Indo-German Energy Forum (IGEF)

Sub-Group 3: Demand-Side Energy Efficiency and Low Carbon Growth Strategies

New Delhi, February 12th 2015

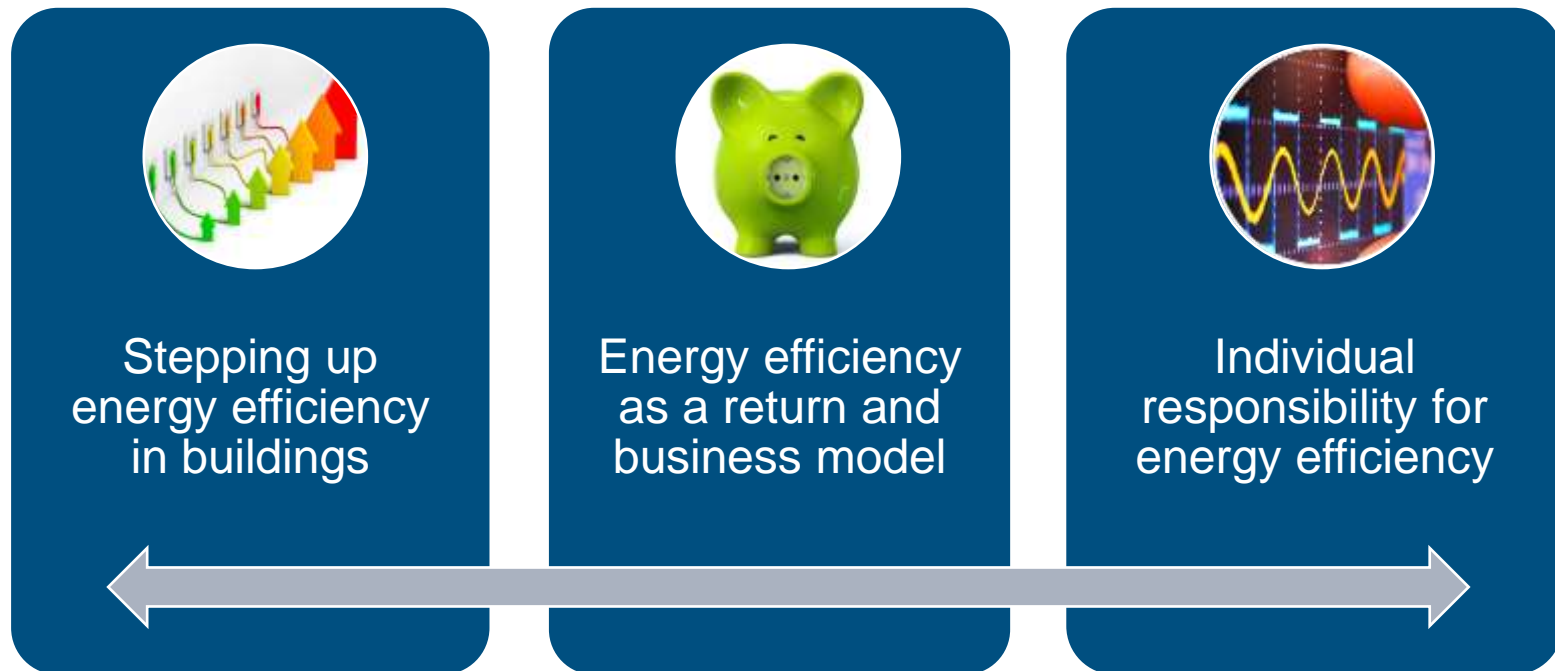
Efficiency targets and energy productivity in Germany



Source: IEA; Worldbank; Eurostat; BMWi

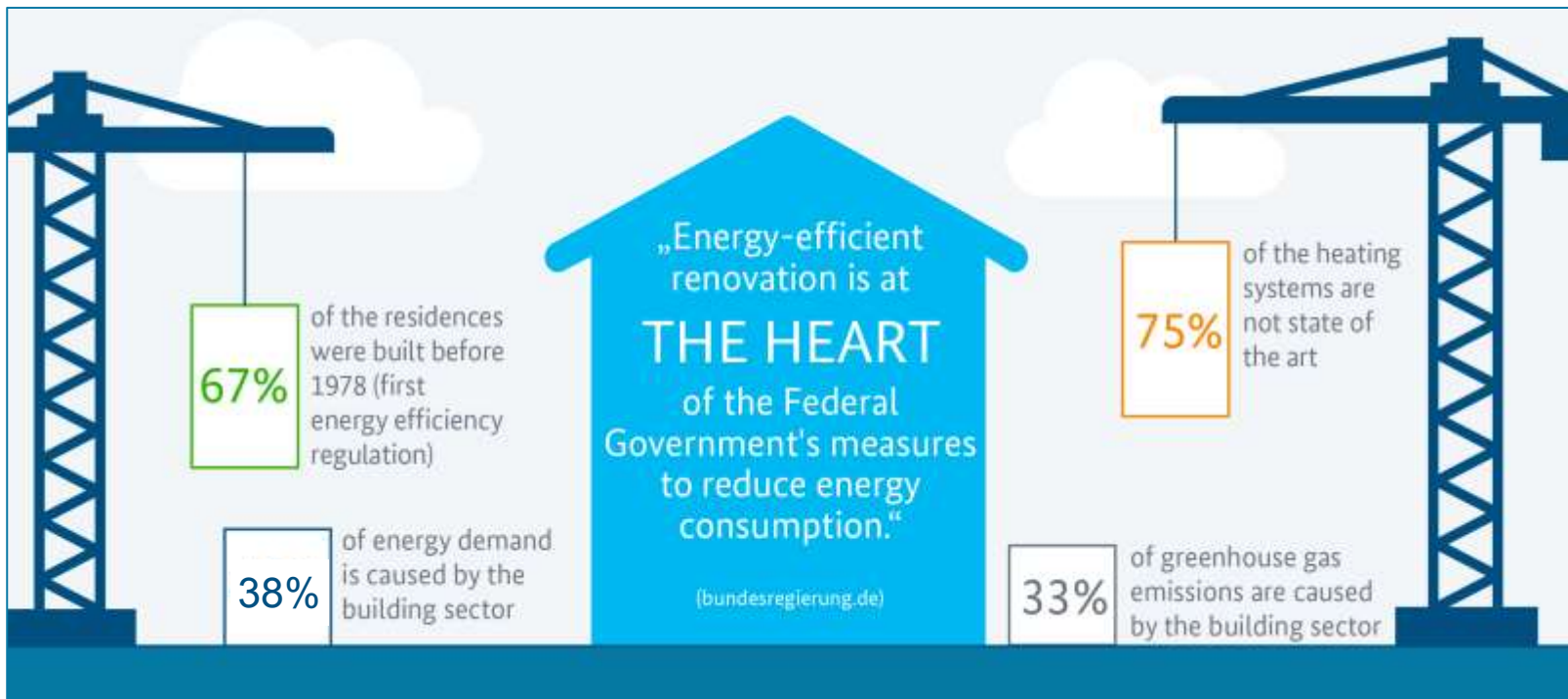
Economic growth decouples from energy consumption and emissions.

Key pillars of the National Action Plan on Energy Efficiency



All the measures under the NAPE adhere to a common principle: supply information - provide support - demand action.

Saving potential of buildings



Source: BDH

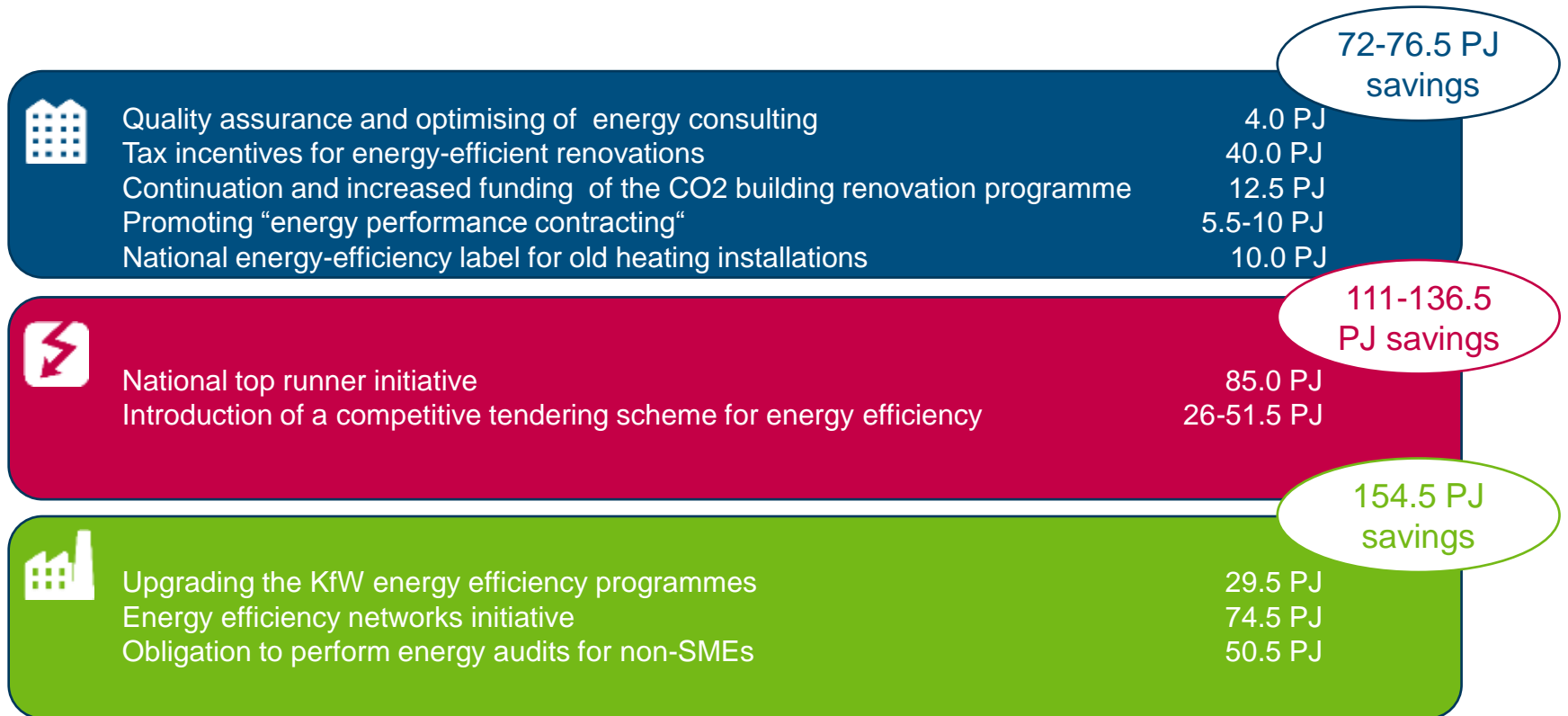
The Energiewende can only be a success if existing buildings are included.

Key pillars of the National Action Plan on Energy Efficiency



*All the measures under the NAPE adhere to a common principle:
supply information - provide support - demand action.*

NAPE: Efficiency measures and their expected savings



A balance of information, support and regulation.

Energy Efficiency Network Initiative

- **Best-practice exchange** among 8-15 company practitioners within a region over 3-4 years
- Internationally applied (Switzerland, China, Austria and Germany)
- Pilot project in Germany with 30 Learning-Energy-Efficiency-Networks (doubling of EE improvements / 10% energy savings over 5 years)
- Goal of agreement between Federal Government and 18 industry and business associations: 500 networks until 2020

EE networks are a suitable instrument for advancing a culture of efficiency in industry, trade and commerce.

Energy Efficiency Network Initiative

Criteria of Network initiative:

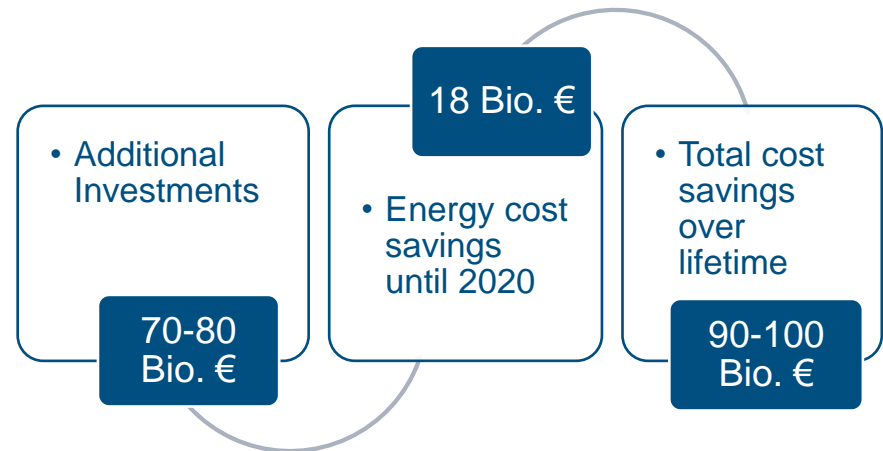
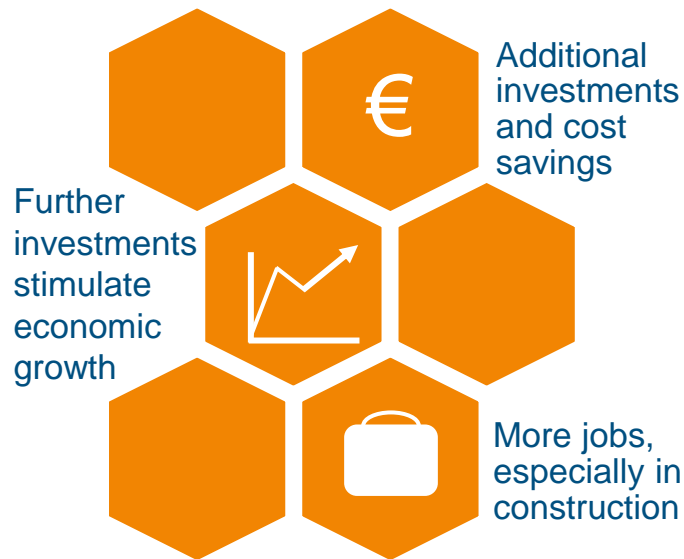
- **Energy audits** conducted by participating companies serve as foundation for the process
- Setting a **mutual efficiency target** for the network as a whole
- **Guidance** by energy efficiency experts
- **Monitoring** by the Federal Government (based on sample)

EE Networks may be a valid approach also for India in order to enhance knowledge in companies and to implement energy audits.

NAPE: Longer-term work processes

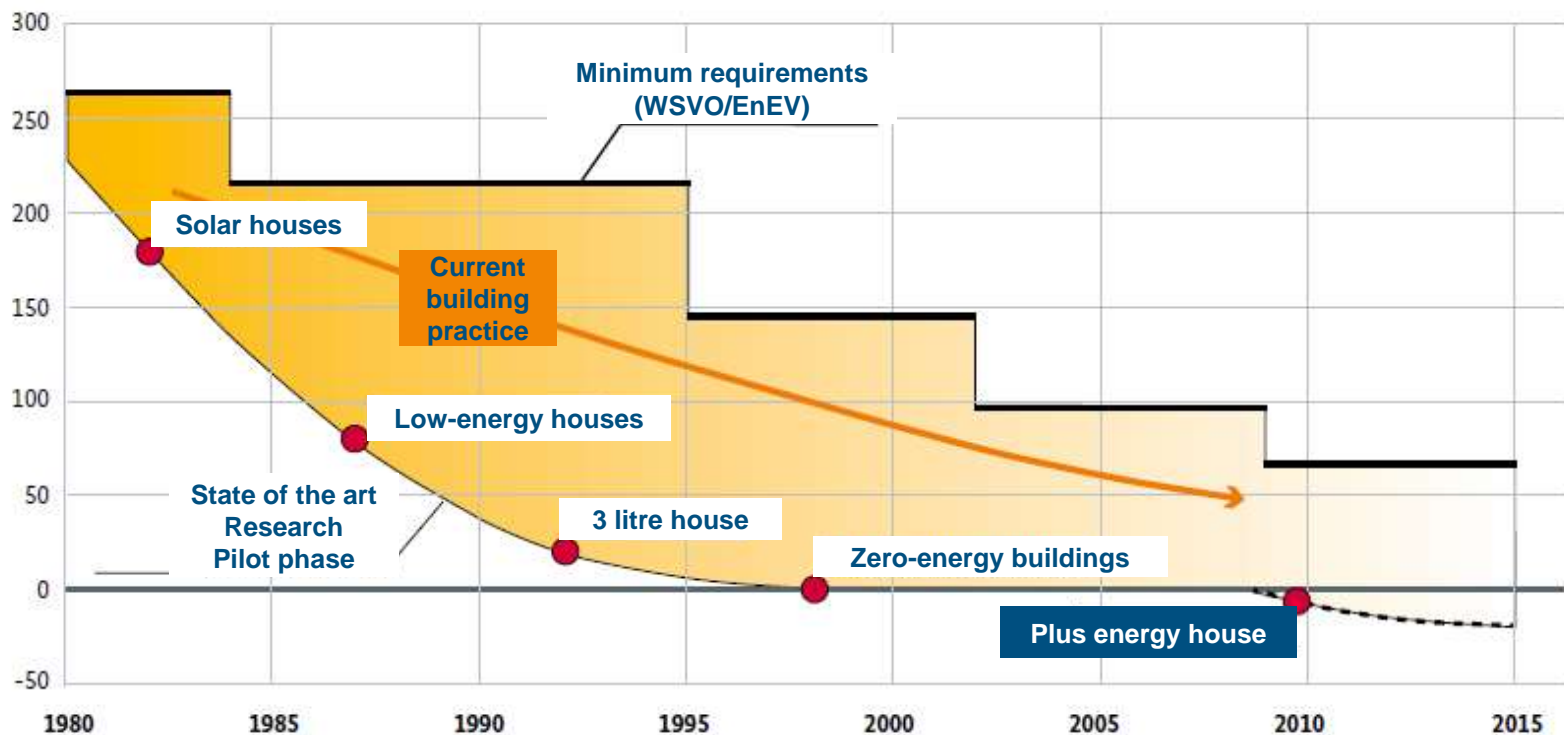
- **Comprehensive energy efficiency strategy for buildings**
(energy saving law, tenancy law, renovation roadmaps,...)
- **Advisory services: Bundling and quality assurance**
- **Improving framework for energy efficiency services**
- **New financing schemes**

NAPE: Economic effects of additional investments



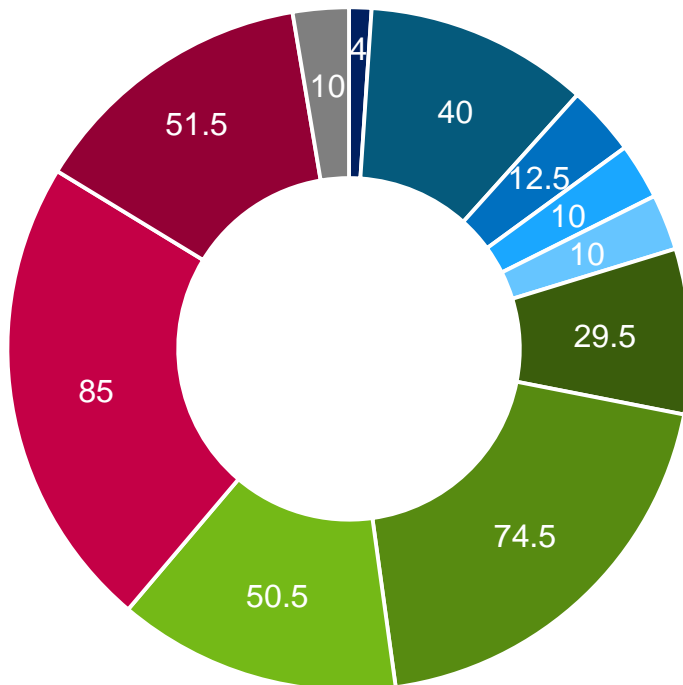
The strengthening of energy efficiency measures stimulates various economic effects.

Learning curves in energy efficient buildings



Regulation follows the technical learning curve to make new buildings more and more efficient.

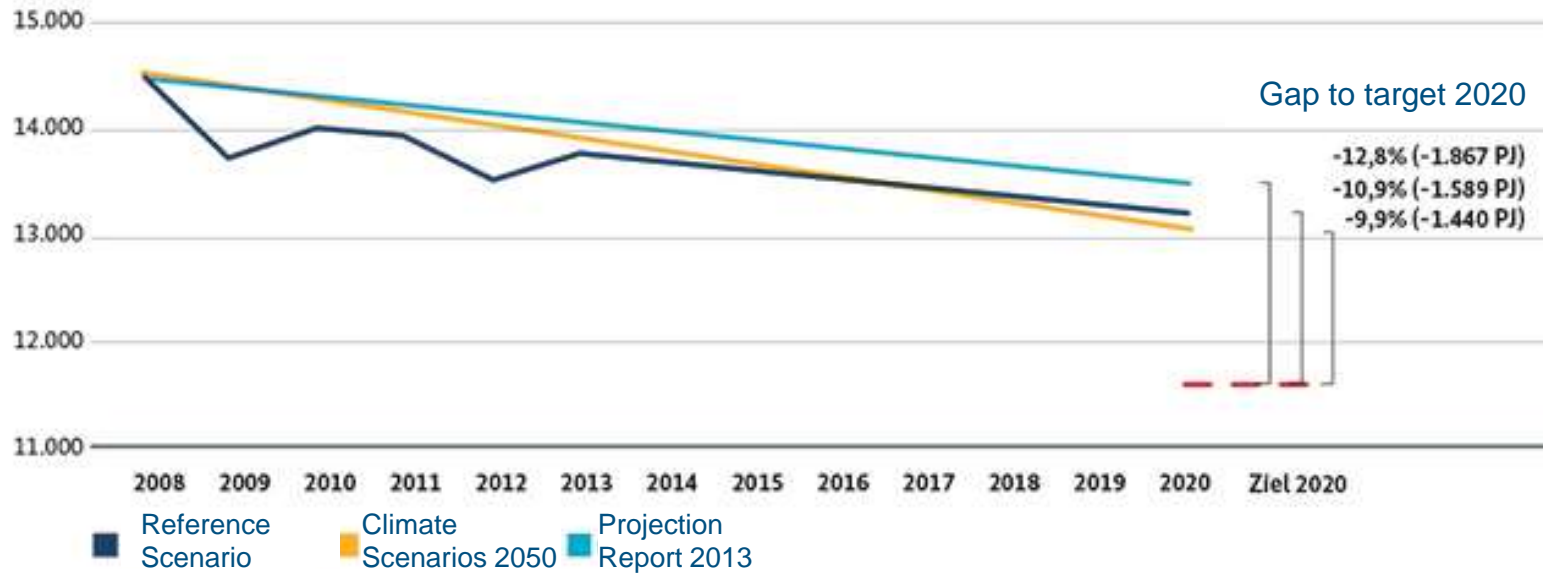
NAPE: Additional energy efficiency measures in Germany



- Quality assurance and optimising of energy consulting
- Tax incentives for energy-efficient renovations
- Upgrading, continuation and increased funding of the CO2 building renovation programme
- Promoting "energy performance contracting"
- National energy-efficiency label for old heating installations
- Upgrading the KfW energy efficiency programmes
- Energy efficiency networks initiative
- Obligation to perform energy audits for non-SMEs
- National top runner initiative
- Introduction of a competitive tendering scheme for energy efficiency
- Additional immediate measures

These measures shall lead to additional energy savings of 350-380 PJ by 2020.

Primary Energy Demand Scenarios until 2020



Further energy savings are needed to achieve a 20% reduction in primary energy consumption.

Main German energy efficiency measures (federal level)



Buildings

- Energy consulting
- KfW programmes for construction and renovation
- MAP (Market Incentive Programme)
- Energy saving legislation



Products and appliances

- Energy consulting (Energy Efficiency Campaign)
- NTRI: National Top Runner Initiative
- Energy Efficiency Labelling Ordinance
- Ecodesign Directive (eff. classification)



Industry and business

- Energy consulting services
- KfW credits and loans (Effizienzprogramm, BAFA)
- Obligatory energy audits
- European emissions trading (ETS)



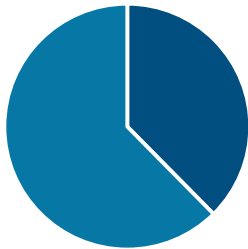
Transport

- Labelling (EU Directive Fuel Economy)
- Regulation of consumption
- Motor vehicle taxation
- E-mobility strategy
- Mobility and fuel strategy


A balance of consultation and information, incentives and regulations.

Energy efficiency in buildings

Sector relevance
Final energy consumption
(2013): 3,484 PJ



Bottom-up energy savings
NEEAP (2008-2013)

 171.6 PJ/a
(power coefficient 2.5)



Sector measures

- Information campaign
- Energy consulting
- KfW programmes for energy-efficient construction and renovation
- Heating check and labeling
- Energy saving legislation (EnEV)
- Energy performance certificates
- Key points of the energy efficiency strategy for buildings

NAPE immediate measures

- Tax incentive for energy efficient renovation
- Enhancement of the KfW programmes for energy-efficient construction and renovation

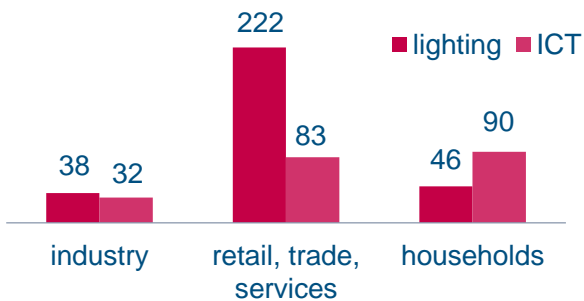
Saving potential
NAPE: 72-76.5 PJ

The current rate of energy-efficient renovation (0.9% per year) needs to be doubled in order to achieve a climate-neutral building sector by 2050.


Energy efficient consumer products and appliances

Sector relevance

Energy demand (PJ) 2011



Bottom-up energy savings NEEAP (2008-2013)

 82.6 PJ/a
(power coefficient 2.5)



Sector measures

- Energy-related Products Act (EVPG)
- Energy Consumption Labelling Ordinance
- Electricity tax
- Guidance on energy (Campaign: climate seeks protection, initiative energy efficiency)

Saving potential
NAPE: 111-136 PJ

NAPE immediate actions

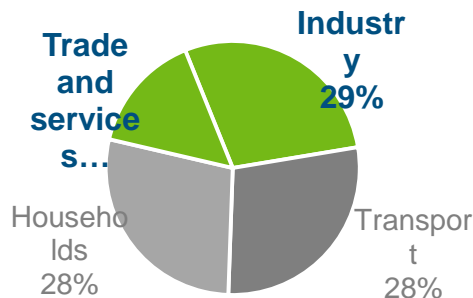
- Competitive tendering
- Top-runner-strategy

Ecodesign and labelling are key for appliance efficiency.


Energy efficiency in trade/services and industry

Sector relevance

44% of final energy consumption in 2013
4,053 PJ



Bottom-up energy savings NEEAP (2008-2013)

 21.7 PJ/a
(power coefficient 2.5)



Sector measures

- Energy consulting services
- KfW credits and loans
- Grants for cross-cutting technologies and energy efficient production processes
- Obligatory energy audits
- European emissions trading
- Voluntary agreements with the manufacturing sector

NAPE immediate actions

- Competitive tendering
- Energy efficiency networks

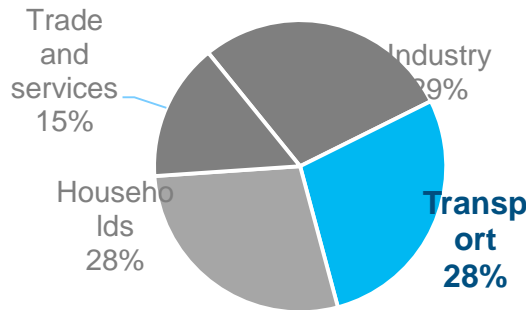
Saving potential
NAPE: 154.5 PJ

Depends strongly on reform of the EU emissions trading scheme.


Energy efficiency in transport

Sector relevance

28% of final energy consumption in 2013
2,612 PJ



Bottom-up energy savings NEEAP (2008-2013)

 12.2 PJ/a
(power coefficient 2.5)



Sector measures

- Labelling (EU Directive)
- Fuel taxes
- Motor vehicle taxation
- E-mobility strategy
- Mobility and fuel strategy

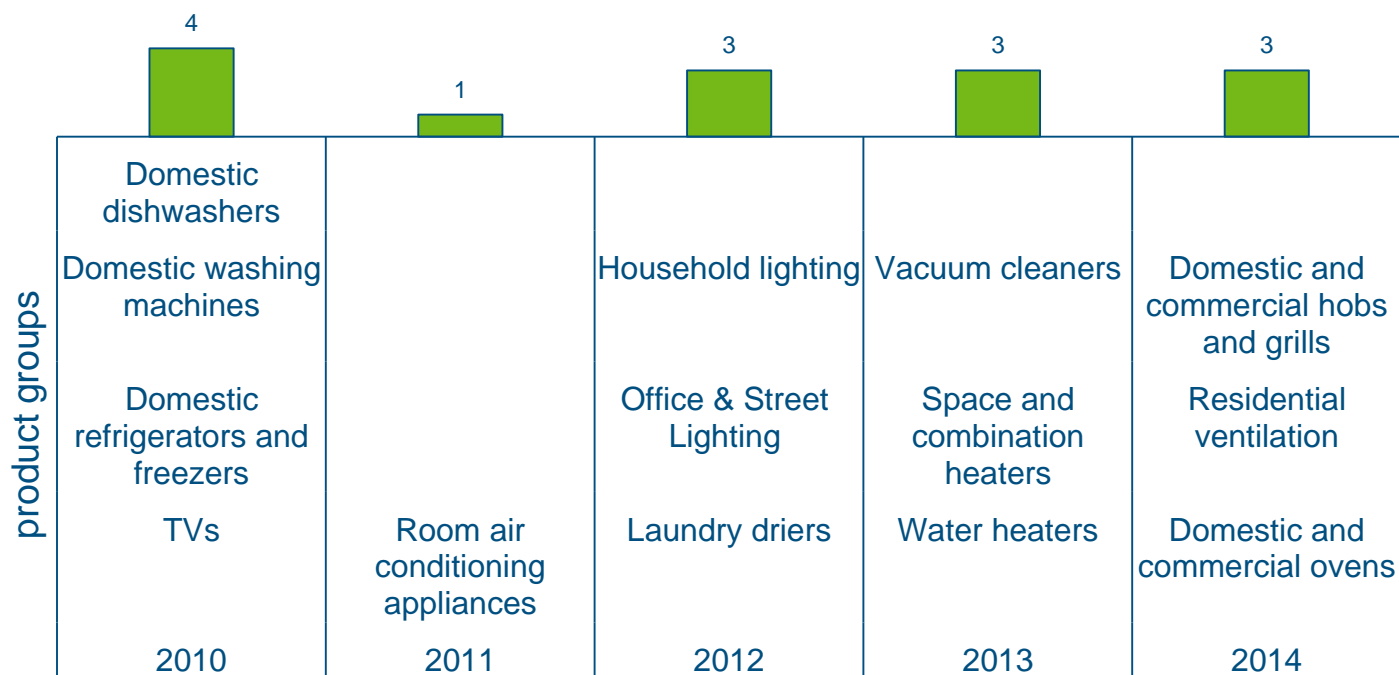
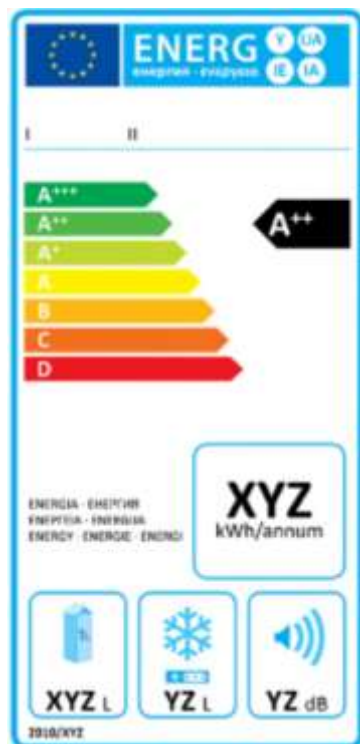
NAPE immediate actions, e.g.

- Promoting the use of electrical drives
- Extension of road toll for heavy vehicles
- Promoting public transport

Saving potential
NAPE: 110-162 PJ

Fuel taxes are the dominant measure in the transport sector.

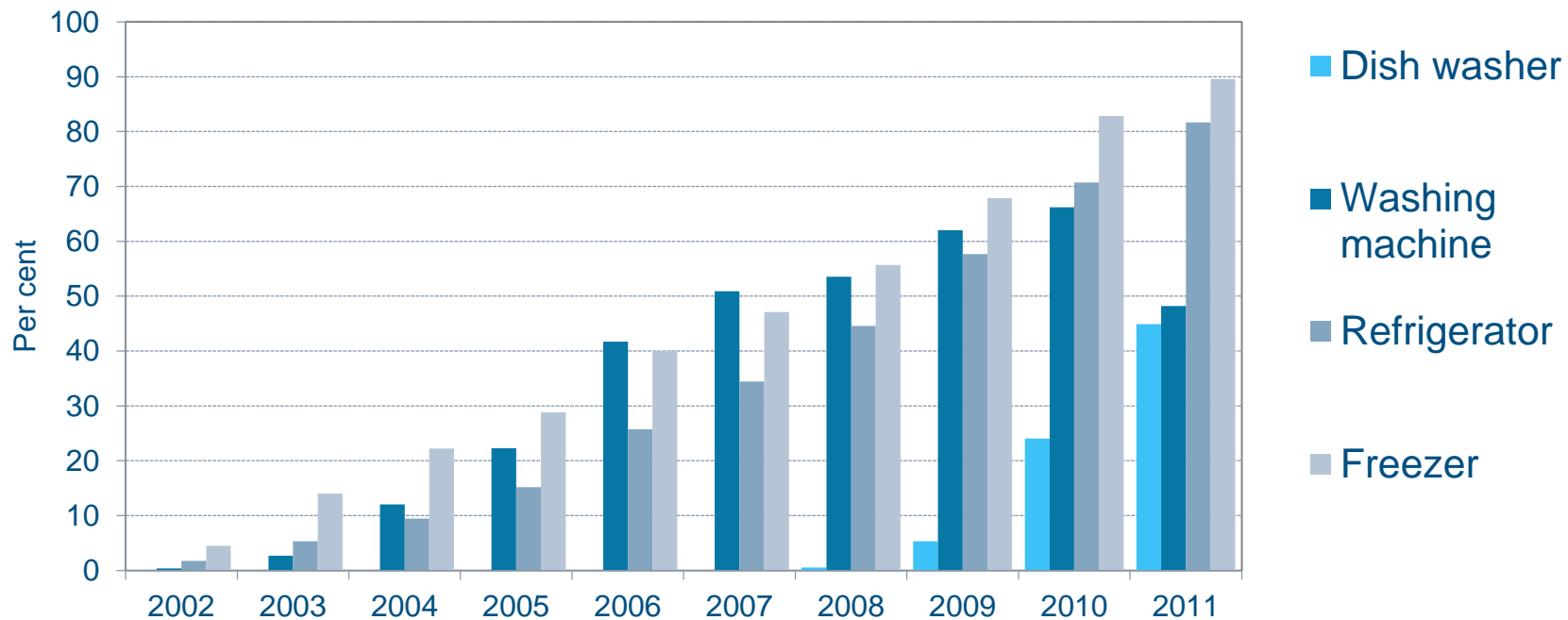
EU energy labels are mandatory for 14 products



Source: BAM/BMWi 2015

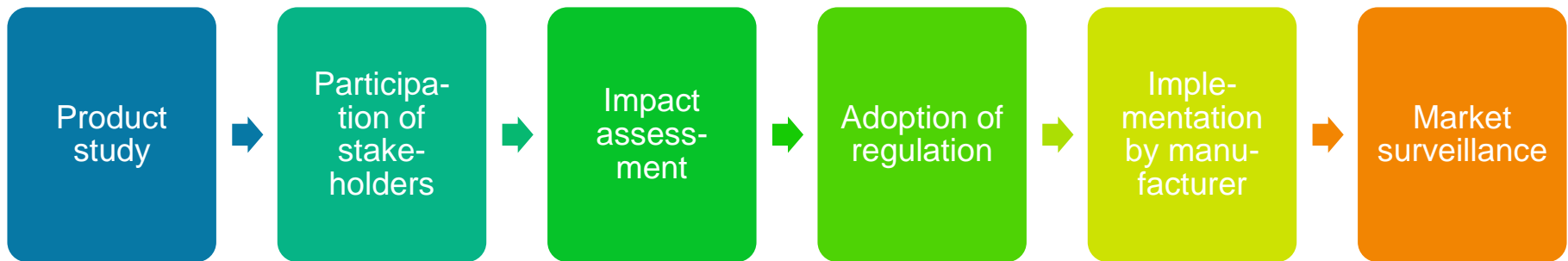
An increased take-up of more efficient appliances can be observed since energy labels were introduced.

Sales of appliances with highest efficiency class



The most efficient appliances become more popular continuously.

Implementation process under the Ecodesign Directive



- 24 product groups are already covered
- Two types of mandatory product requirements:
 - a) Specific requirements (limit values)
 - b) Generic requirements

The adoption of product requirements is a result of comprehensive analysis and stakeholder consultation.

Method for setting specific ecodesign requirements under the EU Ecodesign Directive

Selection of a number of representative models of the product in question on the market

Technical, environmental and economic analysis

Identification of the best-performing products and technology available on the market

Identification of technical options for improving the environmental performance of the product

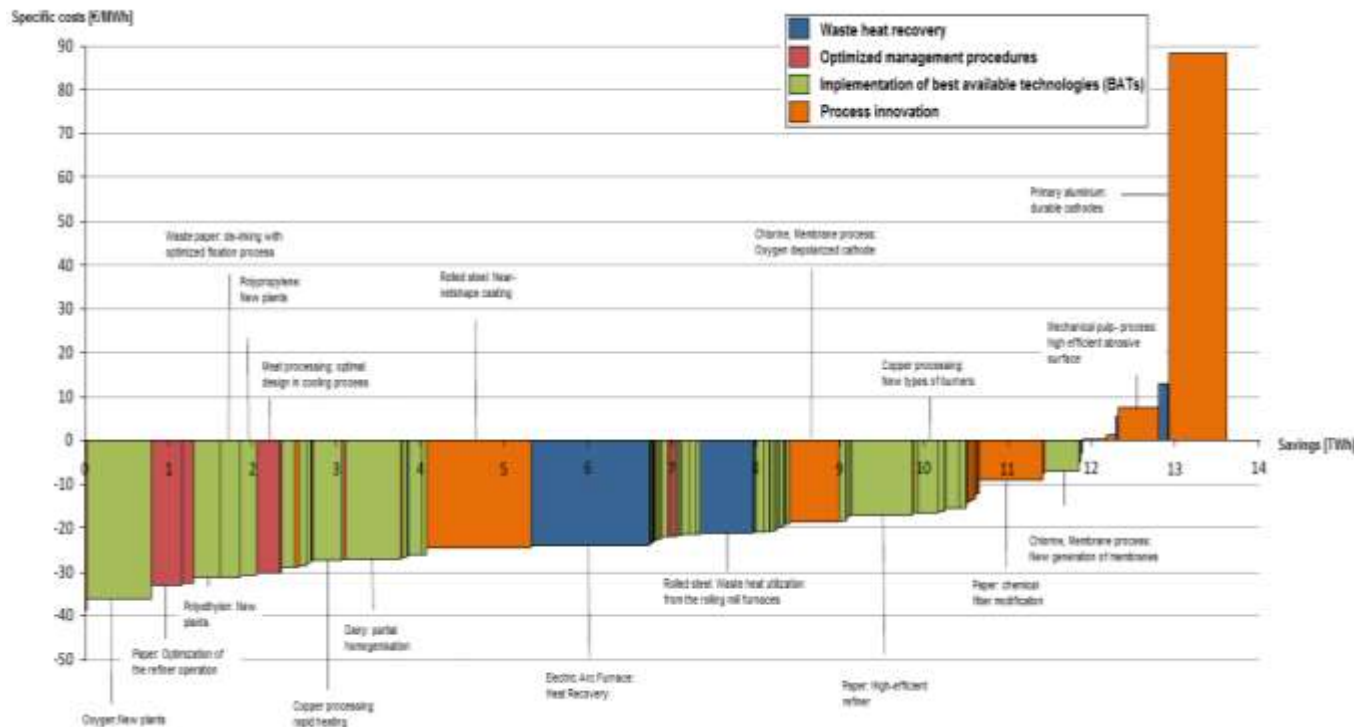
Set of specific ecodesign requirements aiming at the life cycle cost minimum to end-users & sensitivity analysis

The best-performing products and technologies serve as a benchmark



Federal Ministry
for Economic Affairs
and Energy

Cost effective industrial efficiency measures



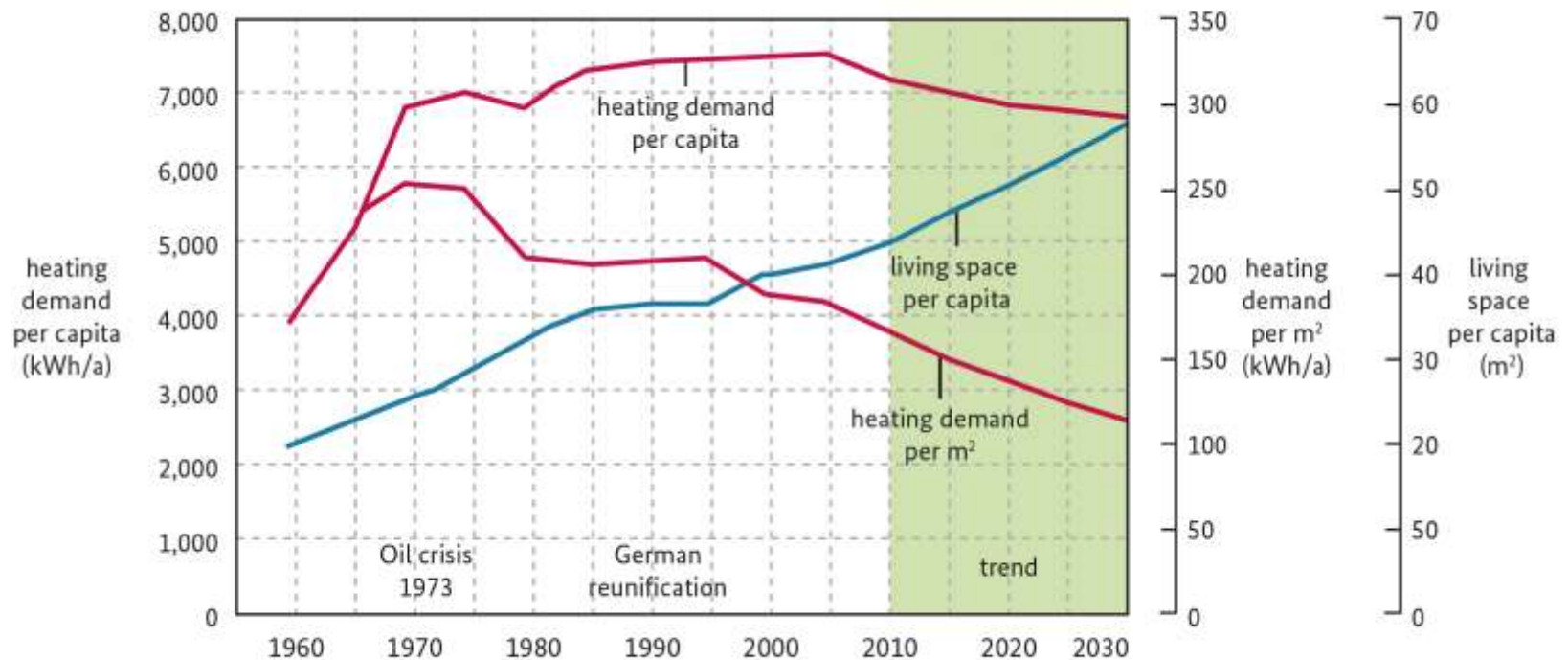
Barriers



- Operational write-offs
- Amortization requirements
- Financing
- Upfront-investment
- Lack of information and time

Some barriers still inhibit the implementation of economically viable energy efficiency measures.

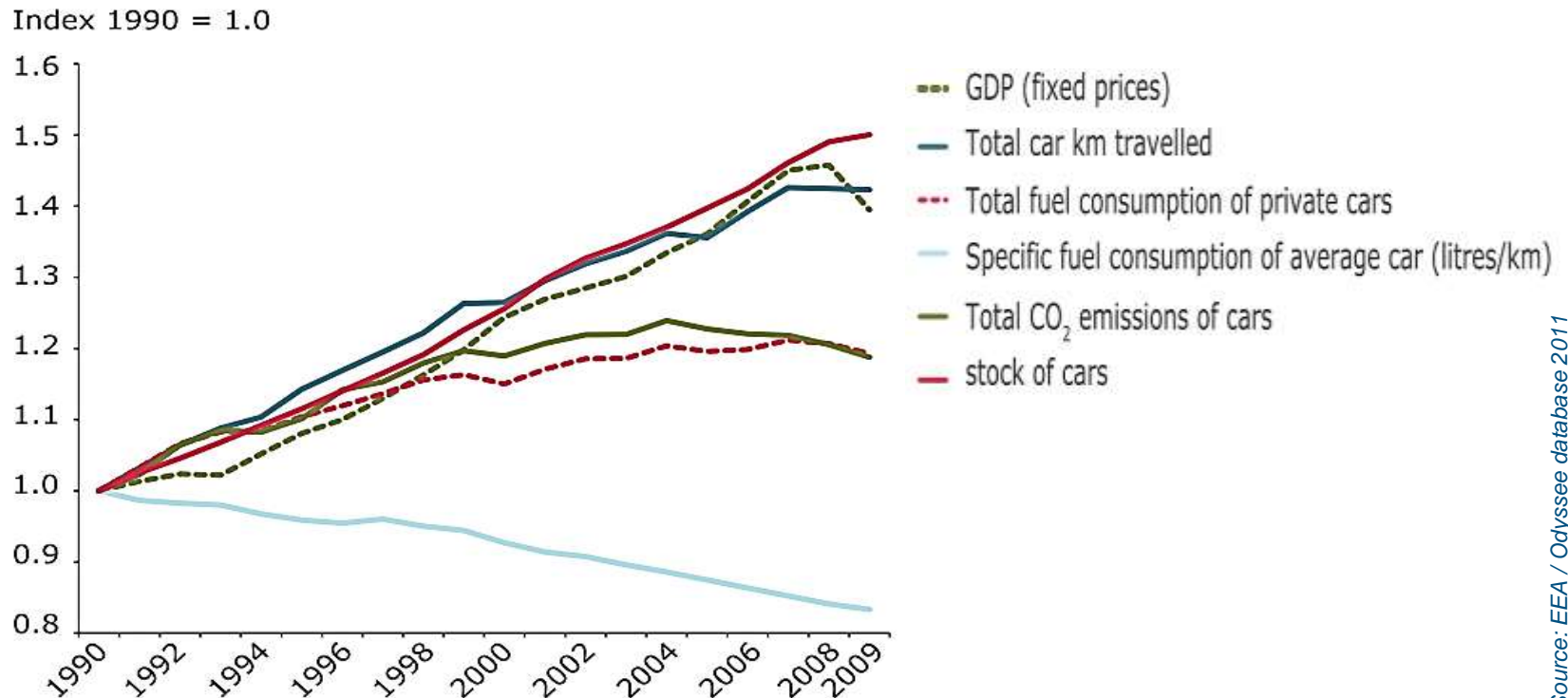
The “rebound” effect in homes



Source: Ebert, Essig & Hauser 2010

Energy-efficiency gains are offset by the “rebound” effect, hence higher energy savings are necessary.

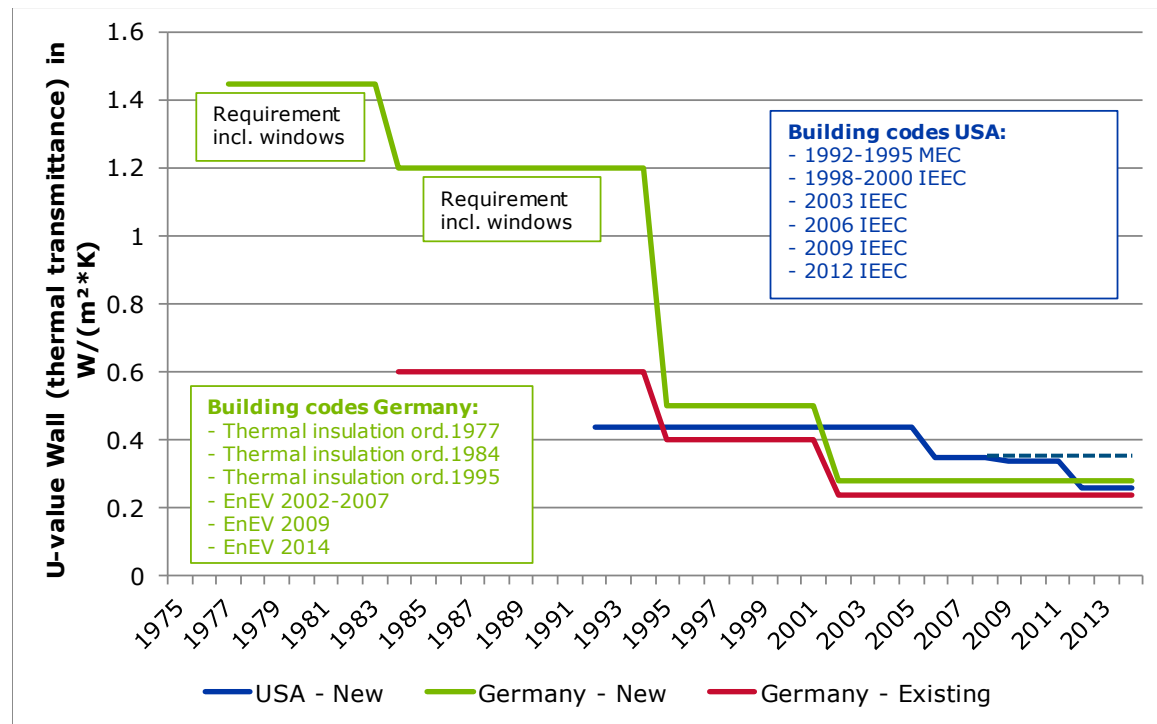
Growth in private car travel versus fuel efficiency (EU-27)



Source: EEA / Odyssee database 2011

The annual fuel consumption increased steadily until 2007, although the cars became more efficient.

Buildings' energy demand requirements in Germany and the US



Current efficiency requirements for new buildings are similar in Germany and the US.