

Why building retrofit matters for the IEA and the EU?

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International
Energy Agency

IEA Snapshot

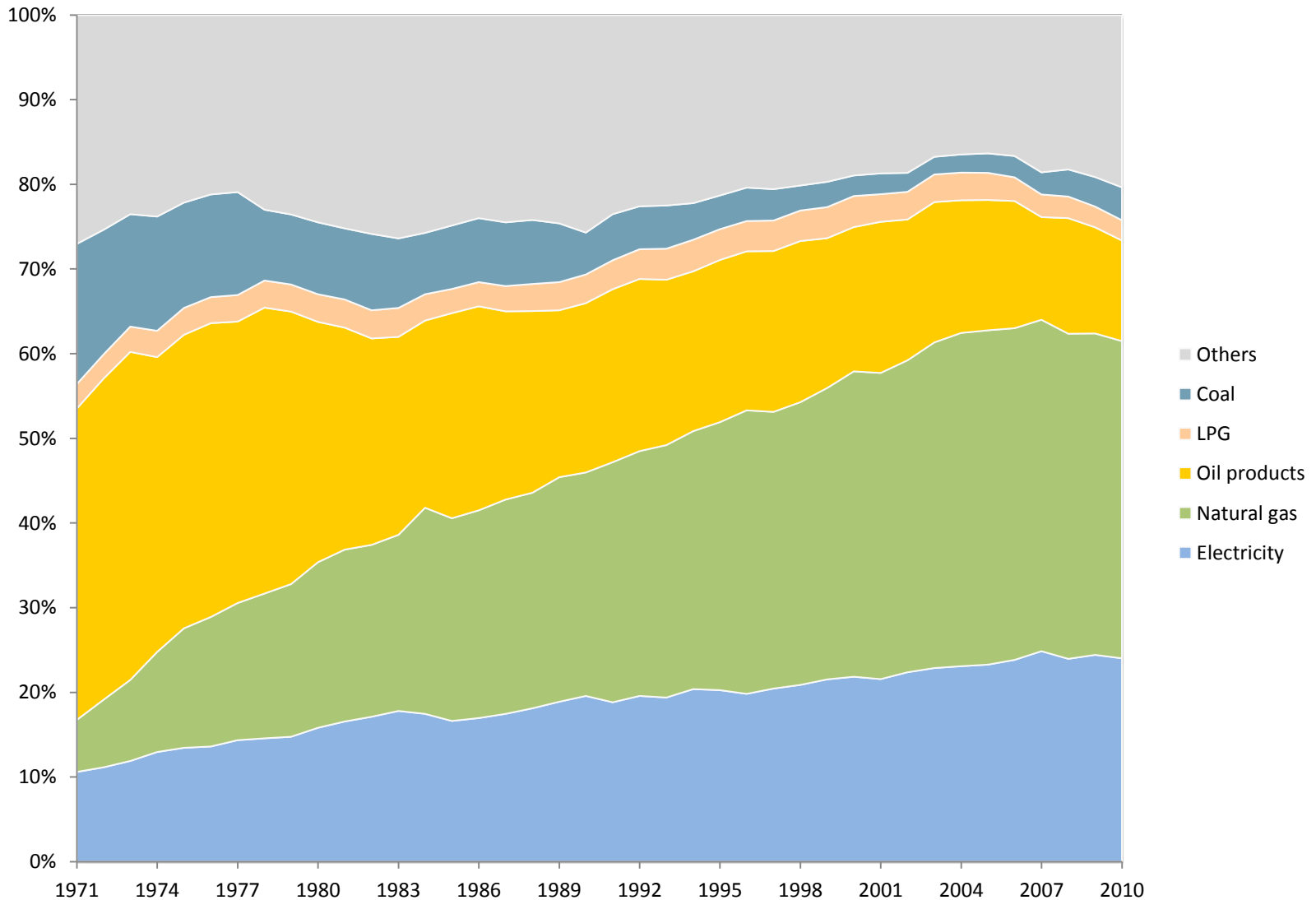
- **An autonomous body of the OECD founded in 1974**
- **An energy policy advisor and think tank**
- **28 Member countries**
 - **Asia Pacific:** Japan, South Korea, Australia & New Zealand
 - **North America:** USA, Canada
 - **Europe:** UK, Ireland, Germany, France, Belgium, Luxembourg, Spain, Portugal, Italy, Austria, Denmark, Netherland, Greece, Finland, Sweden, Czech Rep, Hungary, Slovak Republic, Turkey, Switzerland, Norway, Poland
- **Decision making body:**
 - **Governing Board:** Director-Generals of Member countries
 - **Standing Committees** review IEA programs and work
- **Secretariat:** 220 engineers, economists and statisticians

Why does the buildings sector matter for the IEA?

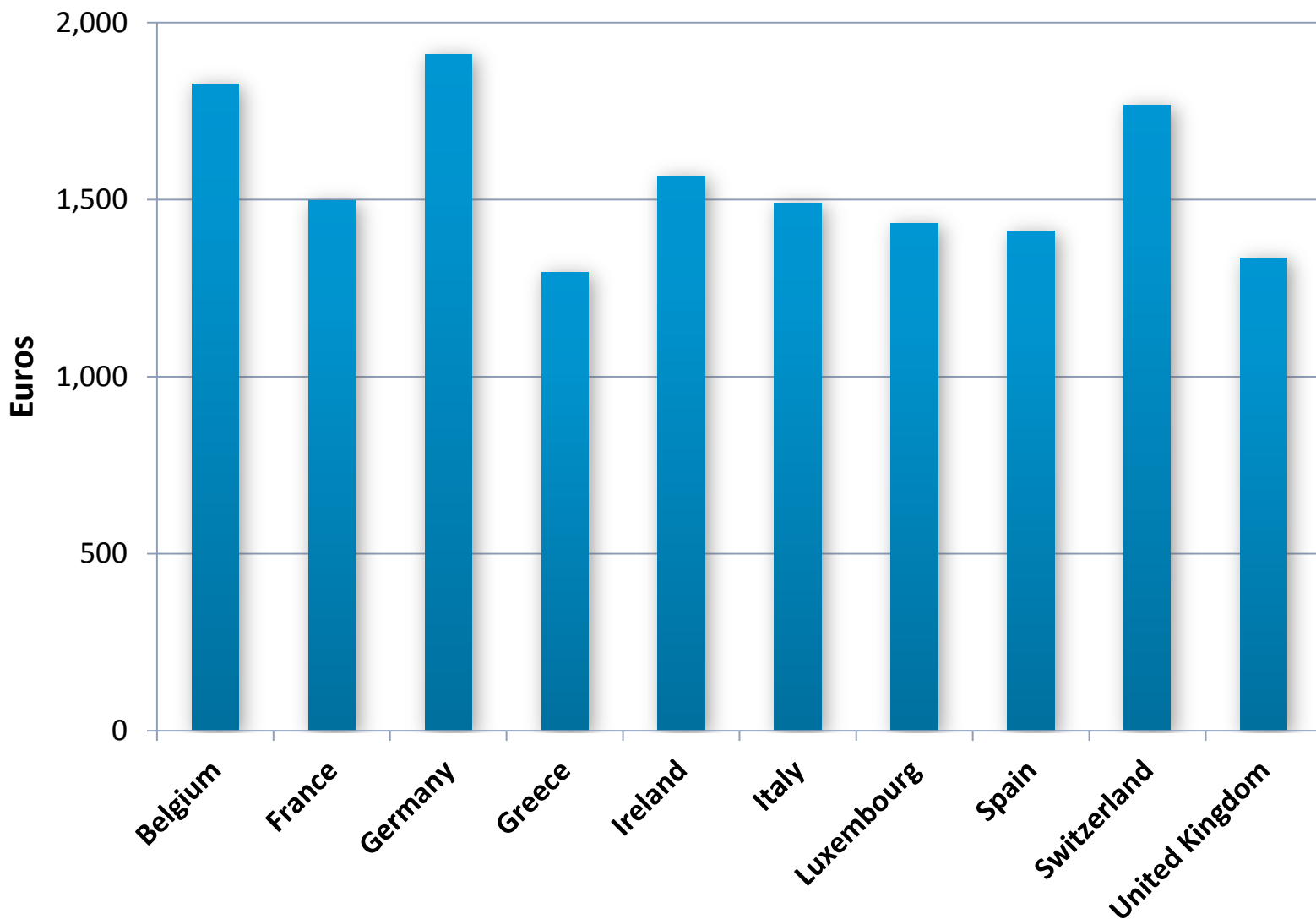
Country	Share of PE	Country	Share of PE
Australia	17%	Austria	34%
Canada	33%	Denmark	45%
Finland	33%	France	45%
Germany	45%	Italy	35%
Japan	41%	Netherlands	36%
Norway	26%	Spain	32%
Sweden	40%	Switzerland	49%
UK	44%	US	42%

2008

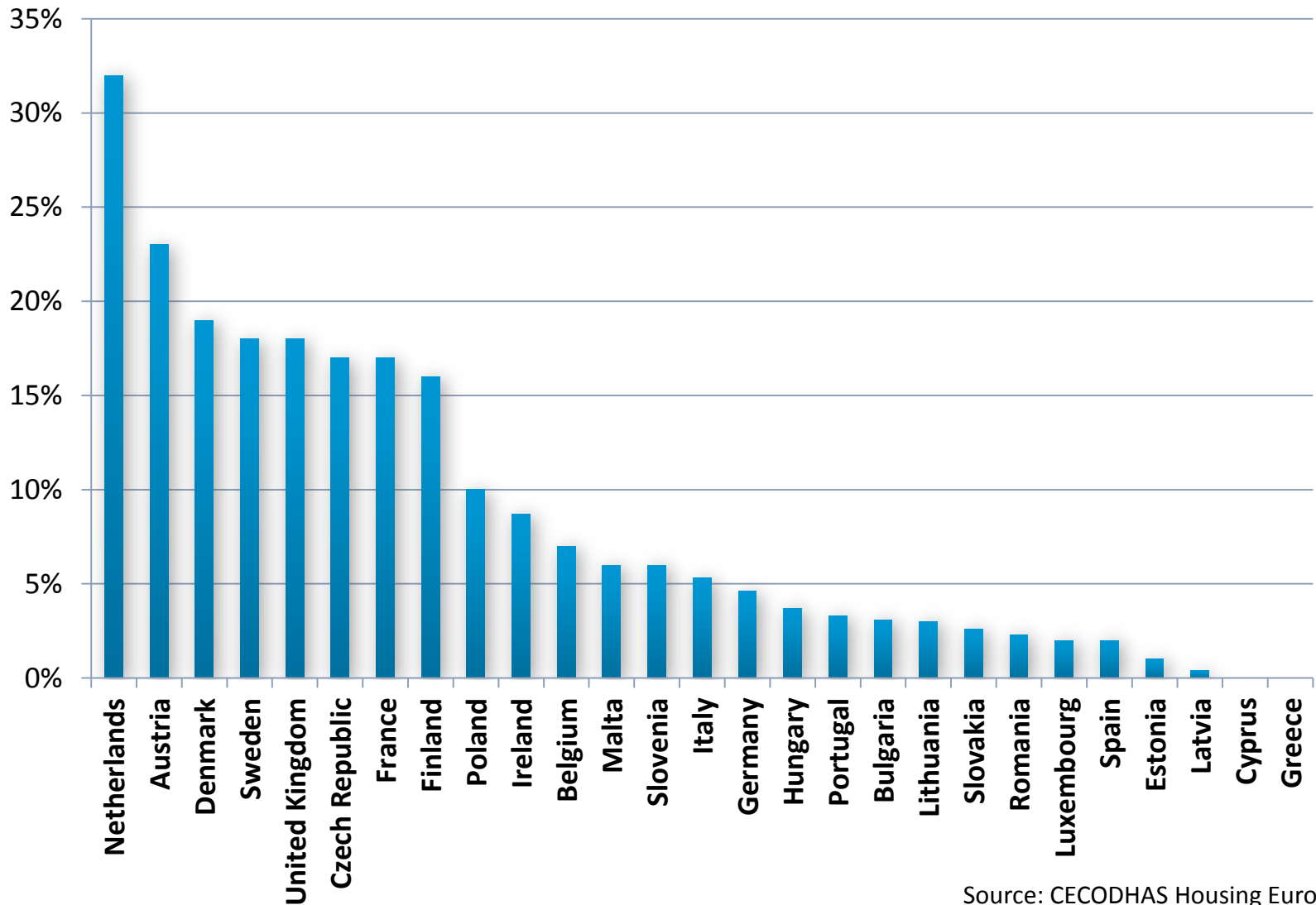
Energy consumption of the residential sector by energy carrier in OECD Europe



Average household energy expenditure per year in European countries



Share of social rental housing in the total building stock in EU27 countries



Source: CECODHAS Housing Europe

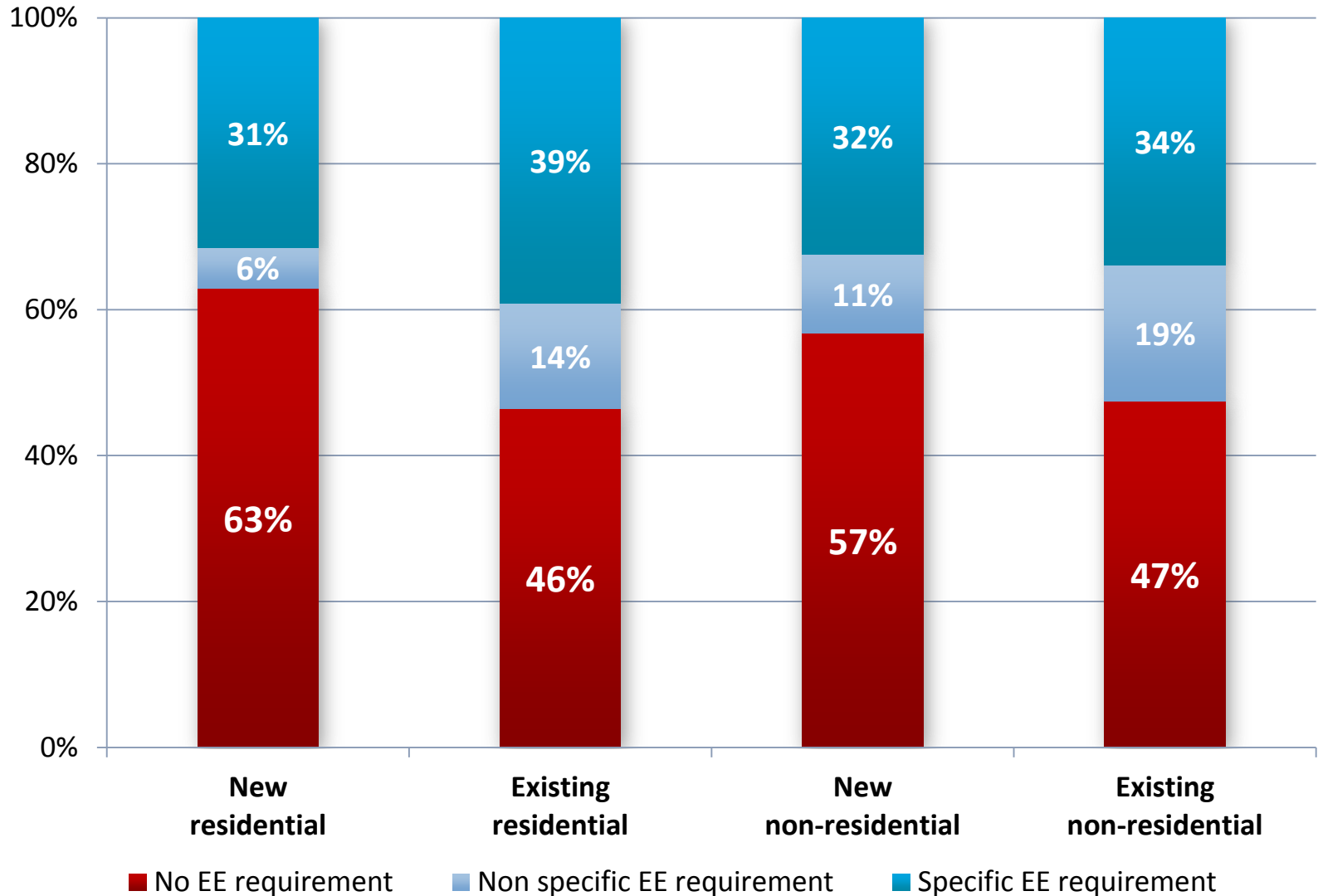
What has been done so far?

- **Regulatory instruments: Building energy codes**
 - new buildings
 - Existing ones when they undergo renovation

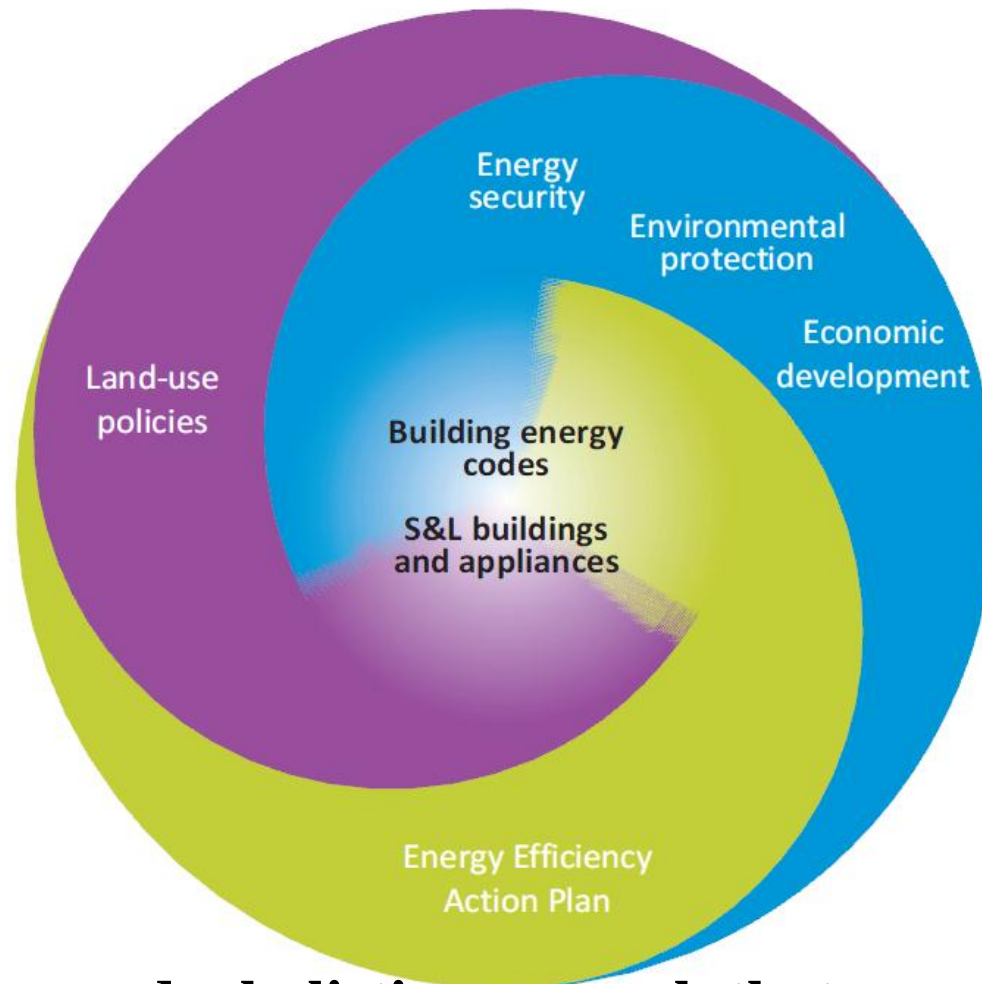
- **Information instruments: Labels**
 - Mandatory Energy Performance Certificate
 - Various voluntary labelling schemes

- **Financial instruments: Incentive schemes**
 - Loans
 - Grants

More incentive schemes need to be tied to specific energy efficiency requirements



What shall we do to reduce buildings energy consumption?



Buildings need a holistic approach that goes beyond energy savings

Opportunities and Challenges in the buildings sector

■ Opportunities

- **Improve energy security** through reduced energy dependency
- **Increase economic development** through reduced public spending on infrastructure, health and fuel subsidies
- **Avoid environmental impacts**

■ Challenges

- Energy consumption in the buildings sector is **complex and multi-faceted**
- **Governance** is difficult as the buildings sector is highly fragmented
- **Financial and human resources** are lacking

The IEA is estimating the retrofit rate needed to achieve targeted savings

- Categorize the building stock by **age of construction** and building segment
- Estimate the **total energy consumption** of each building segment
- Estimate the **achievable reduction** in energy consumption for each segment
- Estimate the **renovation rate** needed to achieve the targeted reduction in energy consumption
- Estimate the resulting **economic benefits** and **investment needs**

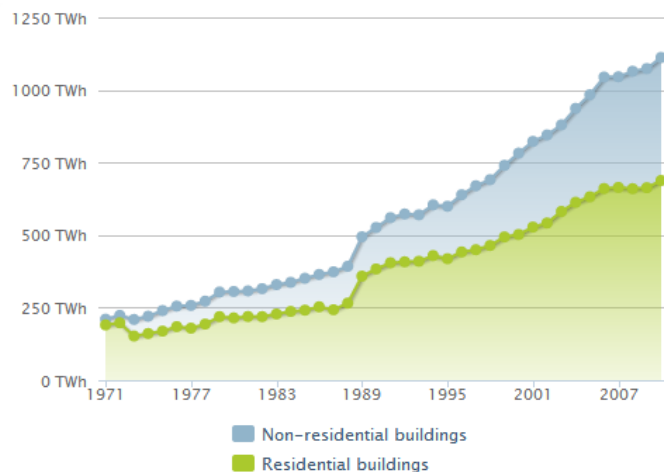
The IEA is developing the pathway to low energy buildings

- Identify the **opportunities and challenges** offered by the buildings sector
- Assess **building energy efficiency policies**: codes, labels, incentives, energy prices
- Analyse **energy consumption trends** in the buildings sector
- Develop a country specific **policy package** to move towards a **low energy building stock**
- The buildings sector needs a **paradigm shift**



Facts

Final energy consumption of the buildings sector (2010)	1,112 TWh
Residential buildings	688 TWh
Non-residential buildings	424 TWh



Final energy consumption of the buildings sector

Policies

National policies

Building Codes

All buildings [Código Técnico de la Edificación](#)

Labels

All buildings [Certificado de Eficiencia Energética ...](#)

New buildings [Passivhaus](#)

Incentive Schemes

All buildings [Grants for Energy Efficiency in Build...](#)

Existing buildings [Renove Tourism Plan 2009](#)

Zero Energy Buildings

New buildings [Zero Energy Building](#)

COUNTRY

Spain

[Overview](#)

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