

Future of Energy Efficiency Finance: Getting the policy instruments and institutions right
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Low Energy Buildings Challenges and Opportunities

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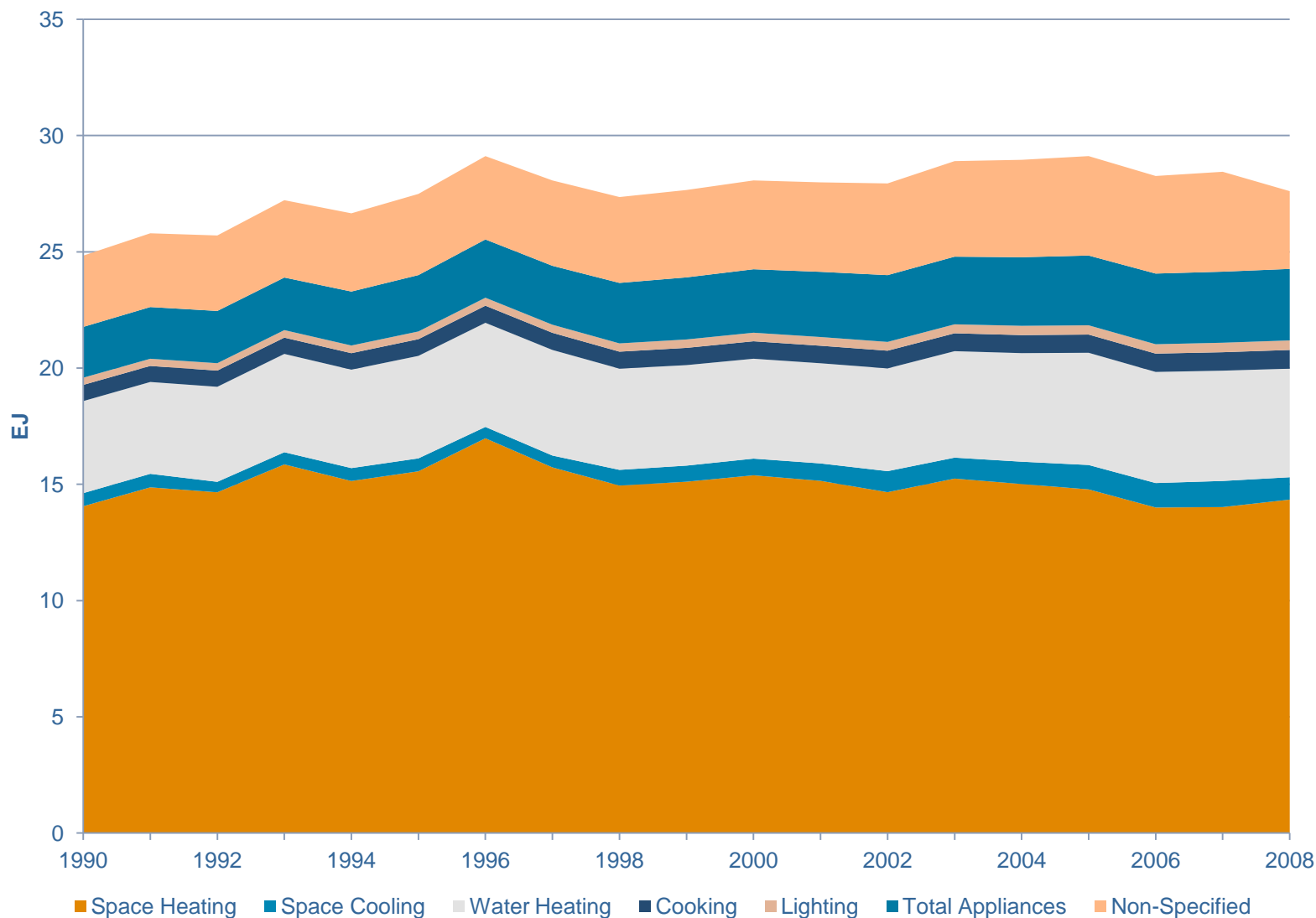


**International
Energy Agency**

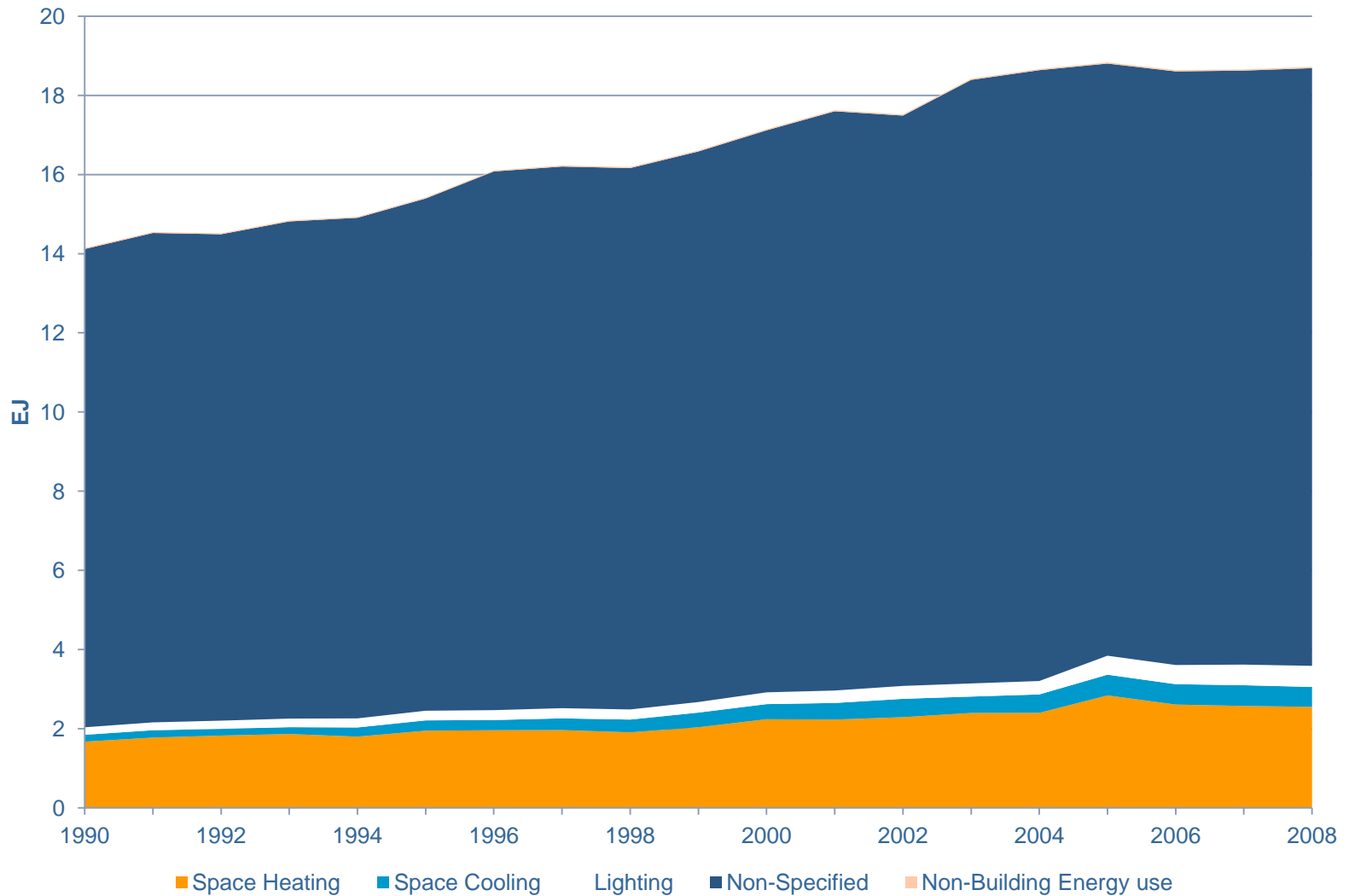
Buildings share of primary energy consumption

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%

Residential end-uses energy consumption (IEA 28)



Non-residential end-uses energy consumption (IEA 28)



Why is it so hard to get energy savings?

- Buildings are complex systems
 - Holistic approach is needed to address to reduce energy consumption in the buildings sector
 - Policy packages are required
 - Regulatory instruments (codes and MEPs) and their enforcement
 - Labels and certificates and their enforcement
 - Economic instruments (financial, tax, market based instruments and direct investments)
- BUT LONG TERM INSTRUMENTS**

IEA 25 Energy Efficiency Policy Recommendations

1. Across sectors

- 1.1 Energy efficiency data collection and indicators;
- 1.2 Strategies and action plans;
- 1.3 Competitive energy markets, with appropriate regulation;
- 1.4 Private investment in energy efficiency;
- 1.5 Monitoring, enforcement and evaluation of policies and measures.

2. Buildings

- 2.1 Mandatory building energy codes and minimum energy performance requirements
- 2.2 Aiming for net zero energy consumption buildings
- 2.3 Improving energy efficiency of existing buildings
- 2.4 Building energy labels and certificates
- 2.5 Energy performance of buildings components and systems.

3. Appliances

- 3.1 Mandatory energy performance standards and labels for appliances and equipment;
- 3.2 Test standards and measurement protocols for appliances and equipment;
- 3.3 Market transformation policies for appliances and equipment.

4. Lighting

- 4.1 Phase-out of inefficient lighting products and systems;
- 4.2 Energy-efficient lighting systems.

5. Transport

- 5.1 Mandatory vehicle fuel efficiency standards;
- 5.2 Measures to improve vehicle fuel efficiency;
- 5.3 fuel-efficient non-engine components;
- 5.4 Improving operational efficiency through eco-driving and other measures;
- 5.5 Improve transport system efficiency.

6. Industry

- 6.1 Energy management in industry;
- 6.2 High-efficiency industrial equipment and systems;
- 6.3 Energy efficiency services for small and medium-sized enterprises;
- 6.4 Complementary policies to support industrial energy efficiency.

7. Energy utilities

- 7.1 Energy utilities and end-use energy efficiency.

Analysis of Buildings Energy Efficiency Policies in the IEA and the BRICS countries

Country	Information provided by the country	Information gathered by the IEA	No information at all
Australia		✓	
Austria			✓
Belgium			✓
Canada	✓	✓	
Czech Republic			✓
Denmark	✓	✓	
Finland		✓	
France		✓	
Germany	✓	✓	
Greece			✓
Hungary			✓
Ireland			✓
Italy	✓		
Japan	✓	✓	
Korea	✓	✓	
Luxembourg	✓	✓	
Netherlands	✓	✓	
New Zealand			✓
Norway		✓	
Poland			✓
Portugal	✓	✓	
Slovak Republic	✓	✓	
Spain	✓	✓	
Sweden	✓		
Switzerland			
Turkey		✓	
UK	✓	✓	
US		✓	
Tunisia	✓		
South Africa	✓	✓	
China		✓	
India		✓	
Russia	✓	✓	

Data collection status

Analysis criteria and Indicators

Policy instrument	Analysis Criteria	Indicators
Buildings Energy Codes	Legal status	Voluntary or Mandatory
	How often is the code revised?	Number of years between current and next version
	Governance Structure	Responsibility for each step (development, implementation, verification, enforcement)
	Enforcement	-Penalty type -Number of times enforced -Compliance rates since 2008
	Technical assistance	Is there compliance software or not? If yes, is the compliance software available for free or not?
	Scope	-Residential (new and existing) -Non-residential (new and existing)
	Energy requirements	-Energy requirements for the overall primary energy consumption -End-uses included in the energy requirements, if any -Energy requirements for HVAC products -Energy requirements for insulation and buildings elements -Energy requirements for lighting -Thermal comfort requirements
Energy label/Certificate	Legal status	Voluntary or Mandatory
	How often is the label revised?	Number of years between current and next version
	Governance Structure	Responsibility for each step (development, implementation, verification, enforcement)
	Enforcement	-Penalty type -Number of times enforced -Compliance rates since 2008
	Technical assistance	Is there compliance software or not? If yes, is the compliance software available for free or not?
	Scope	-Residential (new and existing) -Non-residential (new and existing)
	Certification methodology	-Calculated rating -Measured rating
	Impact on the market	Number of certified buildings per category (new and existing)
	Transparency	Is there a database of certified buildings? If yes, is the database available for free?
	Energy requirements	-Energy rating -End-uses included in the energy requirements if any

Analysis criteria and Indicators

Policy instrument	Analysis Criteria	Indicators
Incentive schemes	Instrument type	-Fiscal instruments: taxes, tax relief -Financial instruments: grants, loans -Market based instruments: white certificates
	How often is the scheme revised?	Number of years between current and next version
	Governance Structure	Responsibility for each step (development, implementation, verification, enforcement)
	Enforcement	-Penalty type -Number of types enforced -Compliance rates since 2008
	Scope	-Residential (new and existing) -Non-residential (new and existing)
	Funding mechanism	-Public -Private -3 rd party financing
	Interlinkage with other instruments	-Energy requirements
	Impact on the market	-Funding per award -Number of awards -Recipient/beneficiary
	Effectiveness	-Energy savings -Cost (total and administrative cost)
Zero Energy Buildings Strategy	Legal status	Voluntary or Mandatory
	Chronology	Define the targeted year for the implementation of ZEBs
	Scope	-Residential -Non-residential
	Energy requirements	-End-uses considered -Share of renewables -Energy balances (monthly, annually)
	Impact in the market	-Marginal cost -Share of ZEBs buildings in 2010 -Projected share of ZEBs buildings between 2011 and 2020

Key findings

- **Complex documentation**
- **Lack of clearly defined energy performance requirements**
- **Misaligned policy instruments**
- **Weak enforcement**
- **Lack of monitoring**

Key messages

- **Buildings Energy Efficiency Policies should be based:**
 - on a long-term ambitious strategy for reducing energy consumption
 - holistic approaches that address indoor comfort, energy security, fuel poverty and climate change challenges
 - and sustainable policy commitments from all stakeholders
- **Learning curves and adaptation to the latest best practices are needed to gain confidence and support from building owners and operators**

Key messages

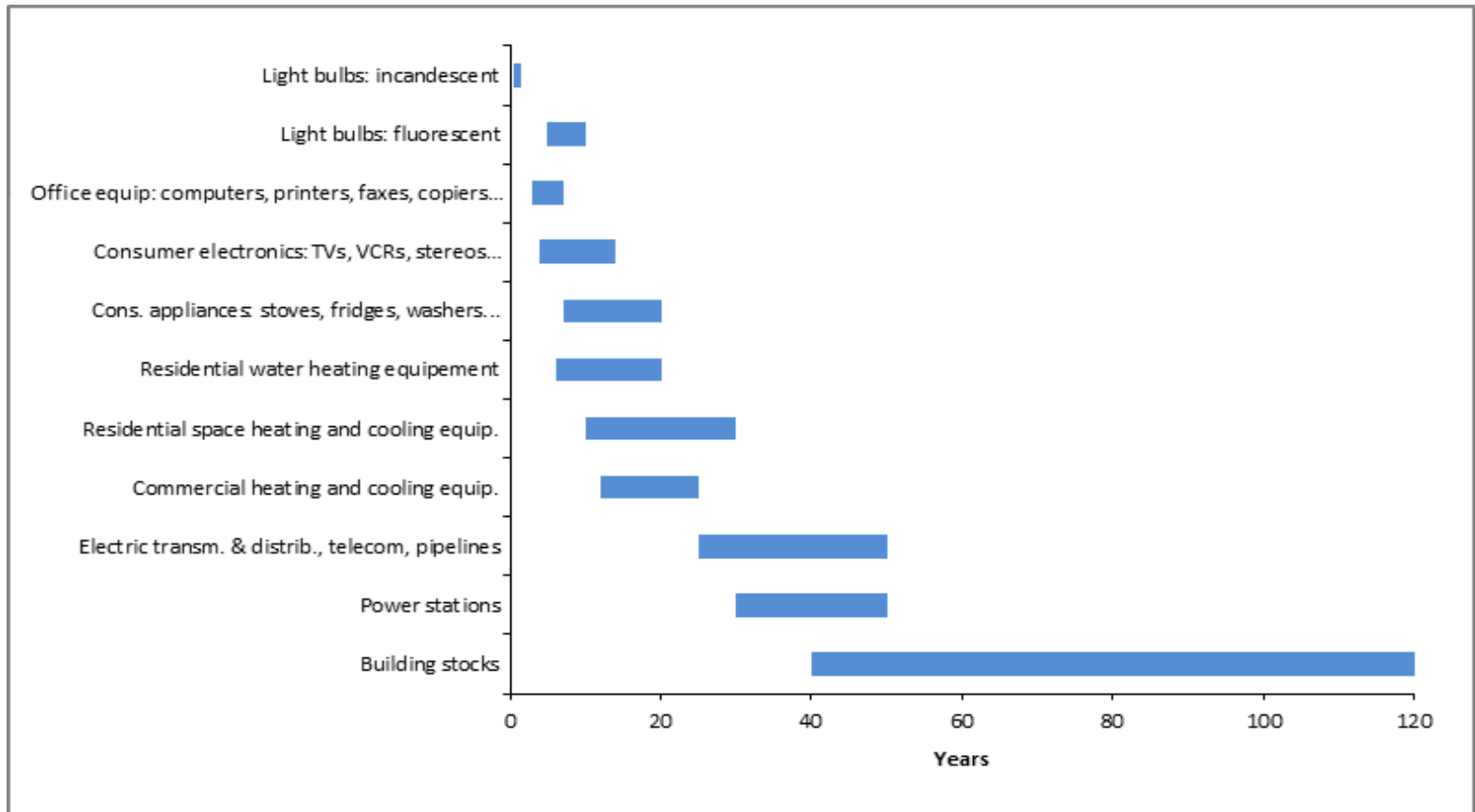
- It is important to get it right in the first place:
 - Reducing energy consumption in buildings must start at the design stage for new buildings
 - For all existing buildings the shell (roofs, walls and windows) must be addressed first to minimise heating and cooling demand
- Public funding is needed for training, technical assistance and awareness campaigns and in some case to leverage private capital
- Retrofitting existing buildings requires mandatory renovation rate (regulation) and LONG-TERM FINANCING INSTRUMENTS

Key messages

- Energy requirements should be set at a cost-optimum level
- National plans should be implemented to transform existing buildings to nearly Zero Energy Building whenever technically feasible and economically viable

**How can the finance community
contribute to making low energy
buildings a reality?**

Where should we start?



Based on Philibert and Pershing 2002, ETP 2010

How to align financing instruments with the long term strategy needed to reduce energy consumption in the buildings sector?

Thank you for your attention

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