ENERGY EFFICIENCY

International Energy Agency

Energy Efficiency: Supporting our climate goals

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Head of Energy Efficiency & Environment (Climate) Division, IEA

ADP Technical Experts Meeting: Energy Efficiency
Bonn, 13 March, 2014

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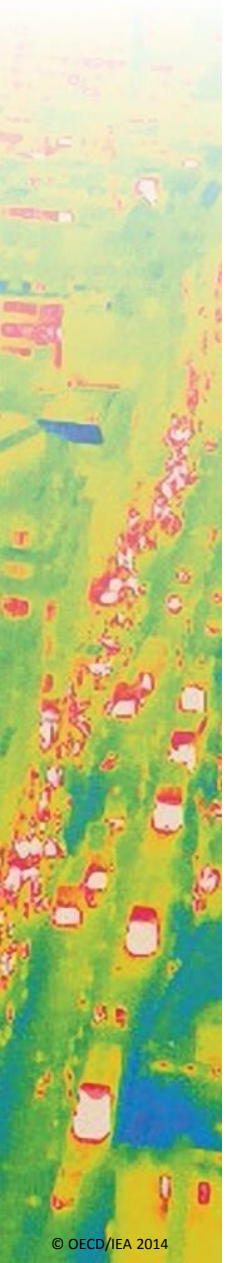

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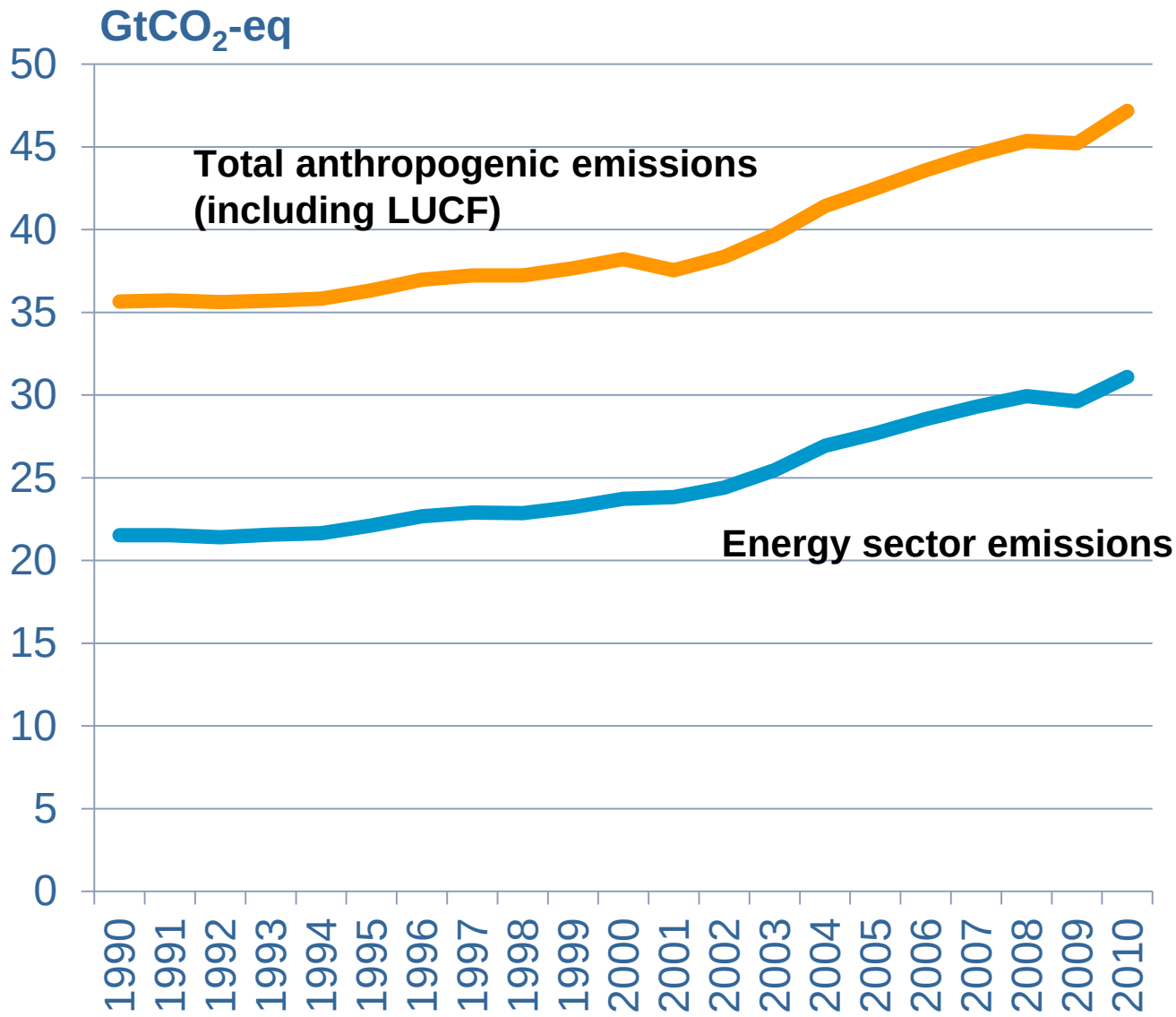
From total to energy GHG emissions



Energy sector is a key driver as it represents over 60% of human generated emissions...

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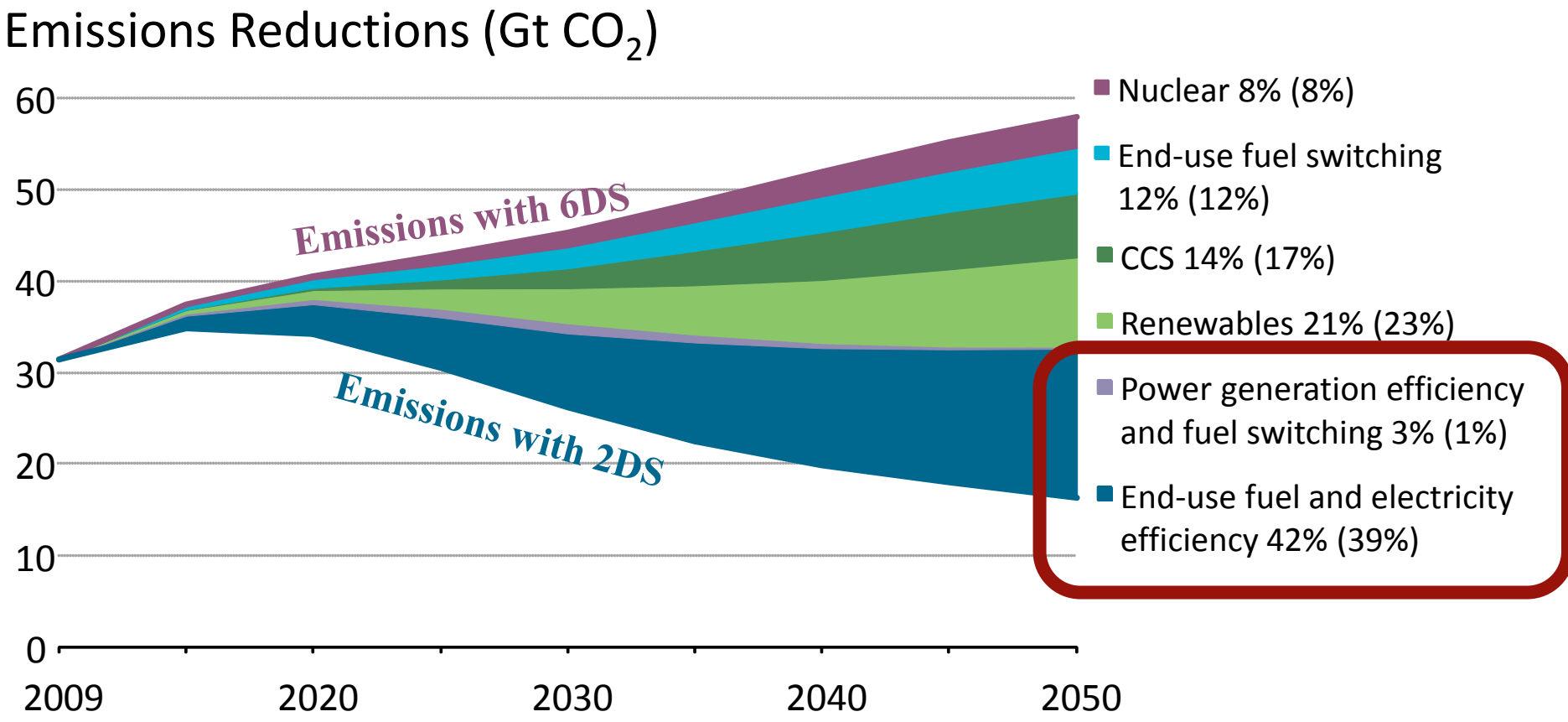
Portfolio of decarbonising measures

A major role for Energy Efficiency



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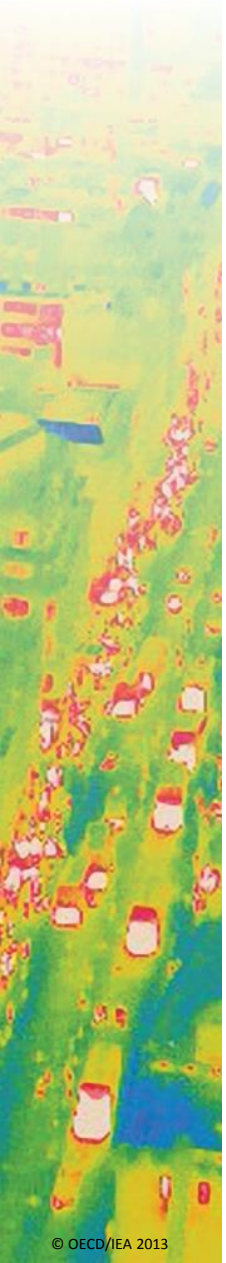

Great needs

'Great Expectations'

But…

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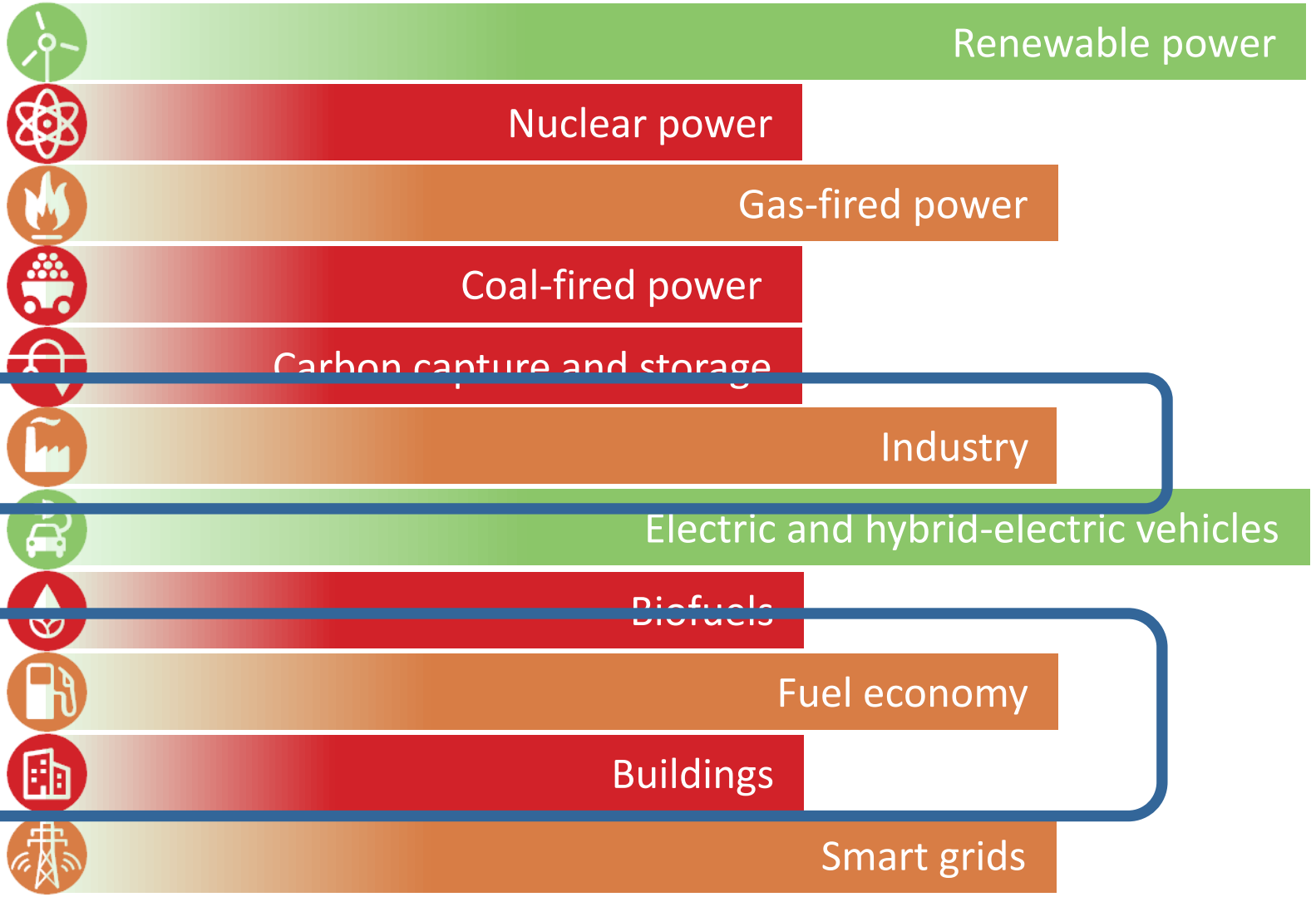
EE is not on track



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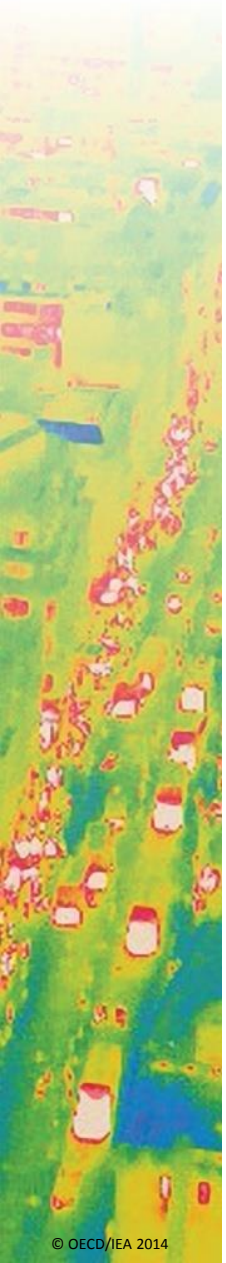

What is slowing us?

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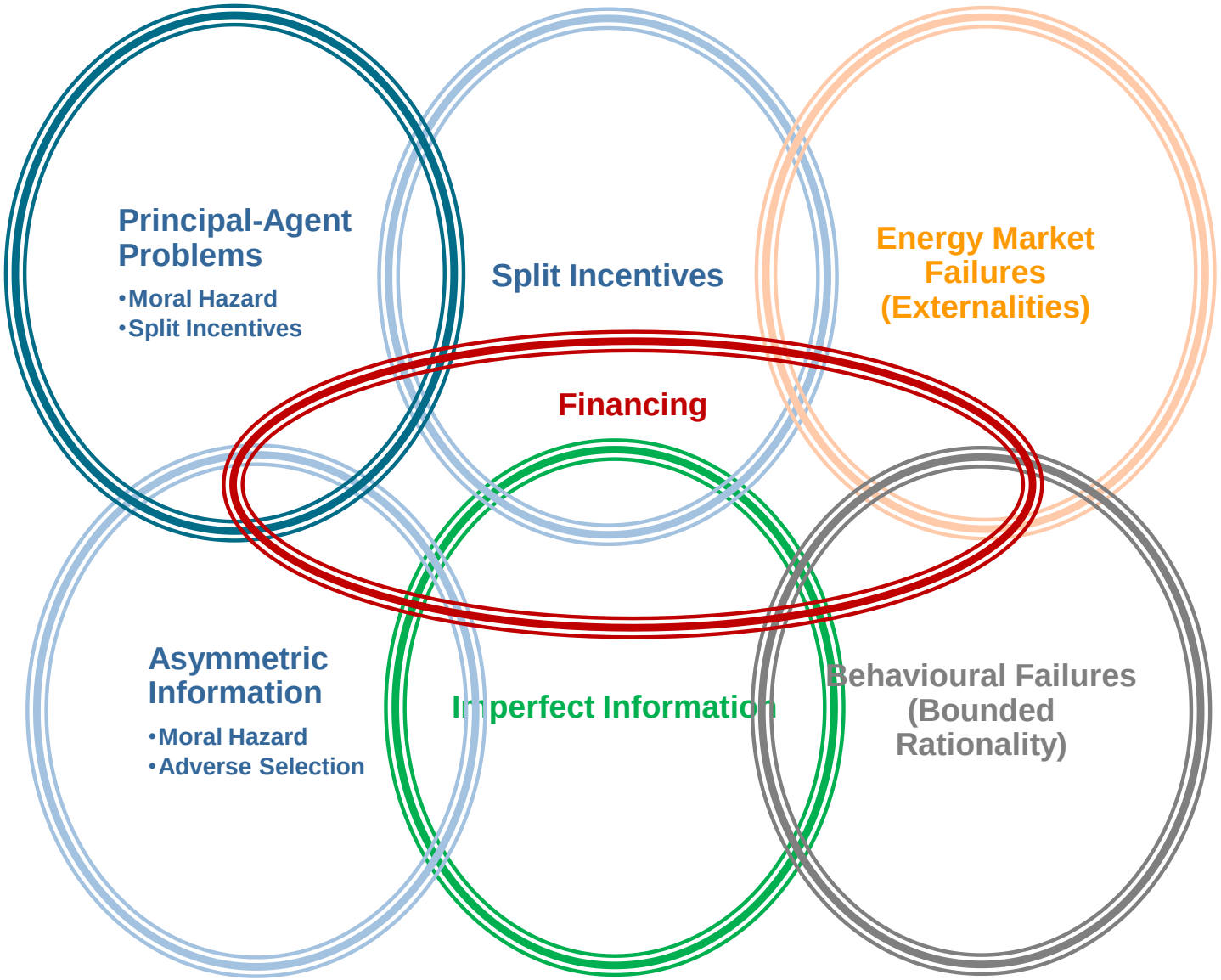
Market failures impede EE investment



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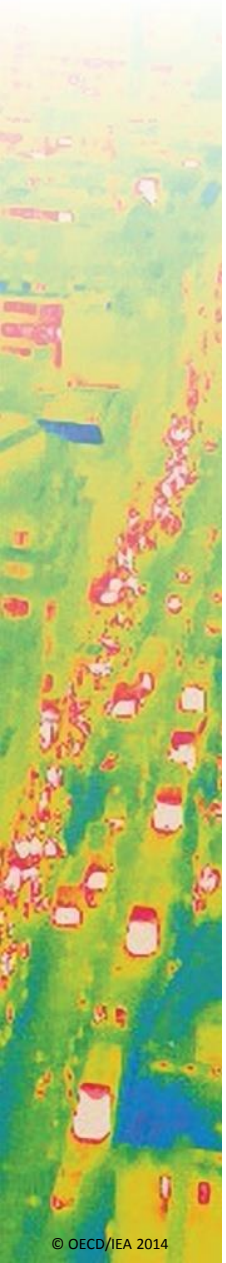

Good policies are needed. . .

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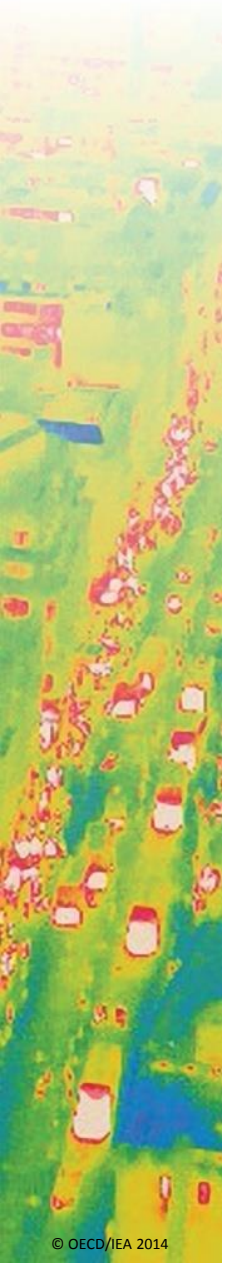

A. Why is EE important to our climate aspirations

B. **How can we promote EE – some policy and other areas**

C. **…**

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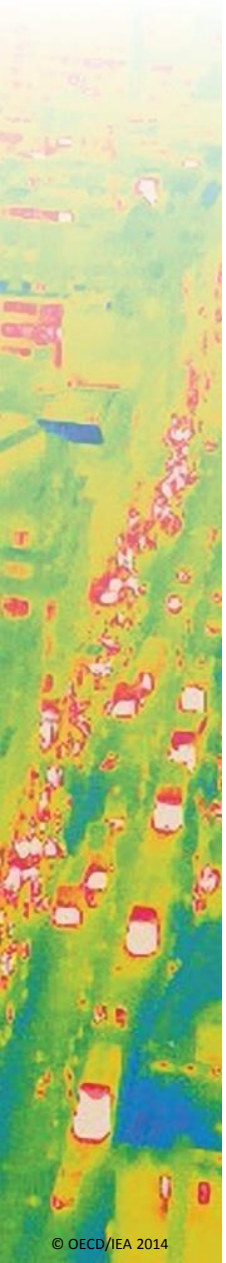

Policy solutions are often straight-forward. . .

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25 EE Policy Recommendations

Cross-sectoral

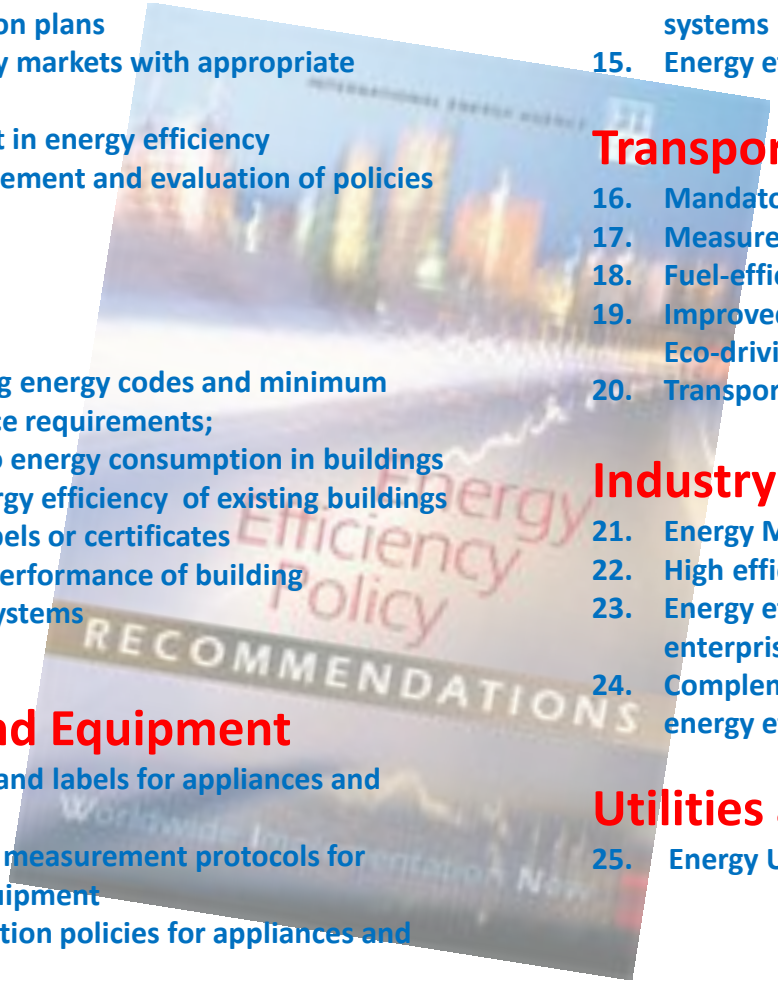
1. Energy efficiency data collection and indicators
2. Strategies and action plans
3. Competitive energy markets with appropriate regulation
4. Private investment in energy efficiency
5. Monitoring, enforcement and evaluation of policies and measures

Buildings

6. Mandatory building energy codes and minimum energy performance requirements;
7. Aiming for net zero energy consumption in buildings
8. Improving the energy efficiency of existing buildings
9. Building energy labels or certificates
10. Improved energy performance of building components and systems

Appliances and Equipment

11. Mandatory MEPS and labels for appliances and equipment
12. Test standards and measurement protocols for appliances and equipment
13. Market transformation policies for appliances and equipment



Lighting

14. Phase-out of inefficient lighting products and systems
15. Energy efficient lighting systems

Transport

16. Mandatory vehicle fuel efficiency standards
17. Measures to improve vehicle fuel efficiency
18. Fuel-efficient non-engine components
19. Improved vehicle operational efficiency through Eco-driving and other measures
20. Transport system efficiency

Industry

21. Energy Management in industry
22. High efficiency industrial equipment and systems
23. Energy efficiency services for small and medium enterprises
24. Complementary policies to support industrial energy efficiency

Utilities and end-use

25. Energy Utilities and end-use energy efficiency

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6 key poles for action

A. **Minimum energy performance standards** (appliances, equipment, vehicles, buildings, etc.)

B. **Information/Awareness** (e.g., labelling)

C. **Designated EE promotion authority**

D. **Financing** (market, concessional, etc.)

E. **Technology development** (from incandescent to CFLs to LEDs; better ceiling fans)

F. **Better Data** (identify EE opportunities, impacts)

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Different instruments are used in different sectors

Industry

- Audit standards
- Energy management support
- Energy prices
- CO_2 emissions trading
- Tax relief
- 3rd party finance and ESCOs
- R&D incentives

Transport

- Vehicle emissions standards
- Vehicle labelling
- Vehicle tax incentives
- Fuel taxes
- User charges
- Advanced vehicle subsidies
- Public transport infrastructure investment

Buildings

- Mandatory minimum standards for equipment & buildings
- Labelling for equipment & buildings
- Loans and grants for refurbishment
- Direct investment in social housing
- Tax relief
- 3rd party finance and ESCOs

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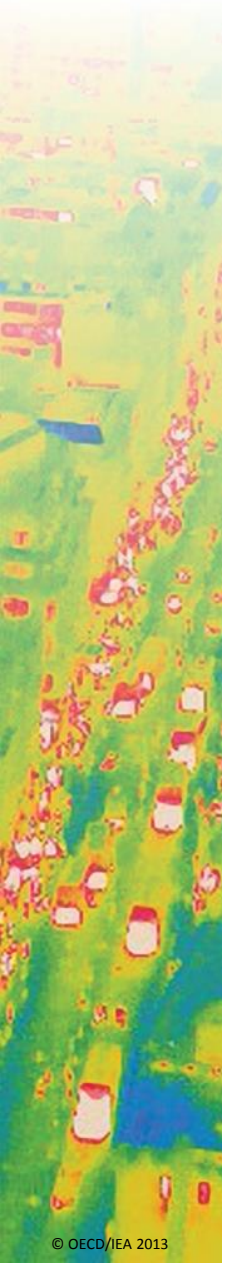

Some policy examples . . .

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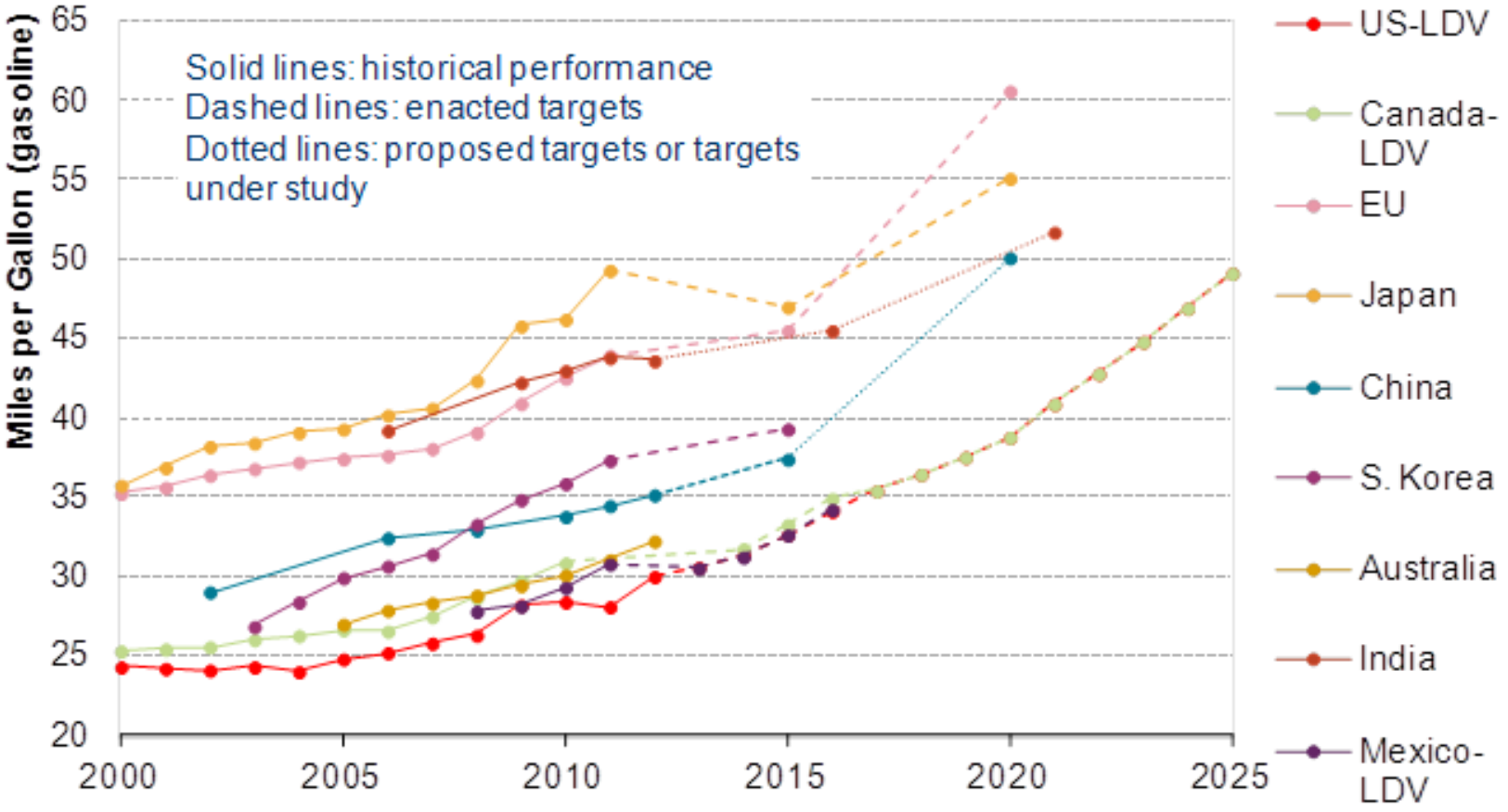
International comparison of light-duty vehicle fuel economy standards



Freight vehicle fuel efficiency is also important but largely unregulated

Source: ICCT, 2013

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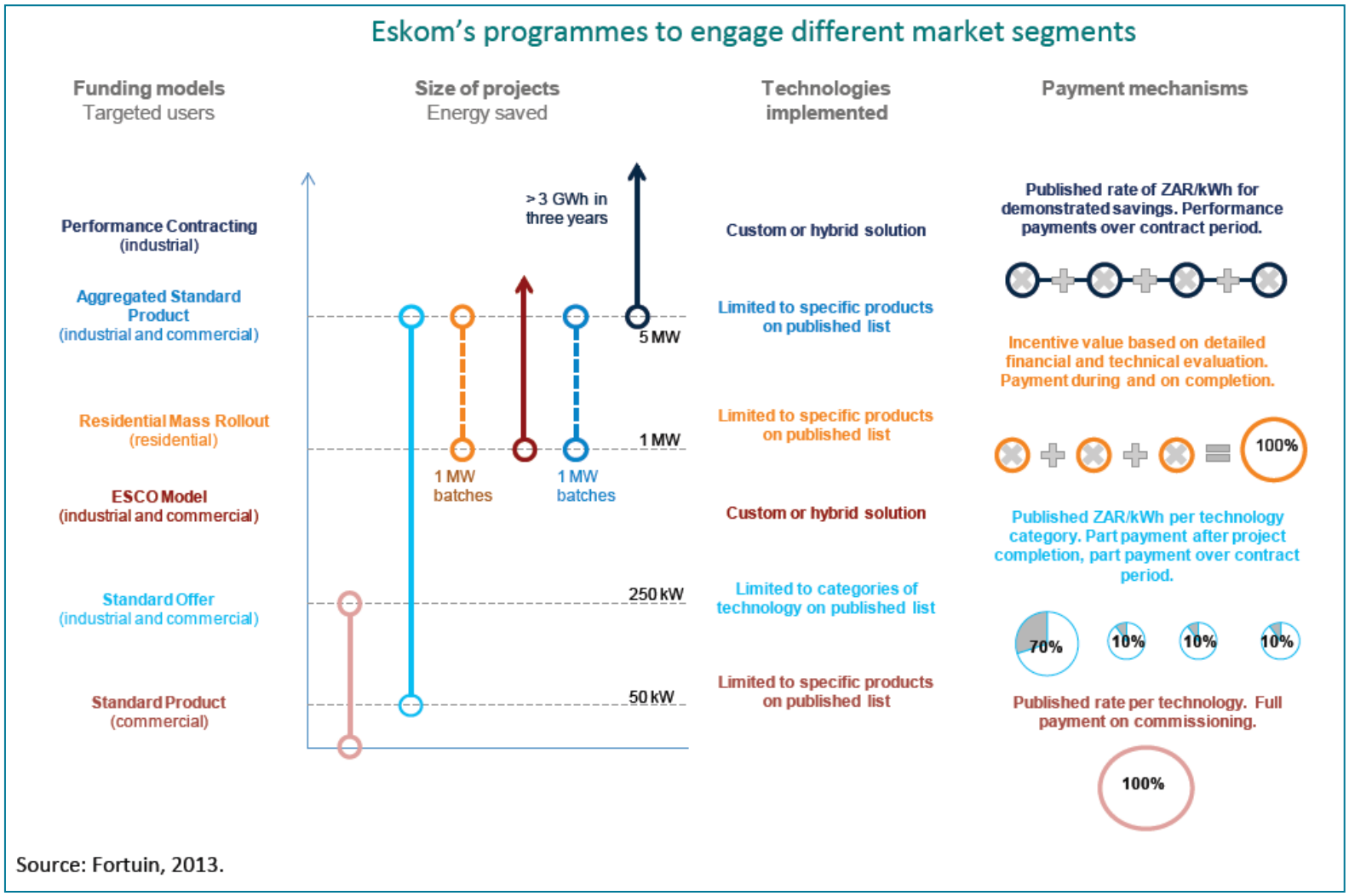
South Africa: Utility EE programs

- **Utilities and other energy providers have an important potential role to play in encouraging EE among consumers**



Source: Fortuin, 2013.

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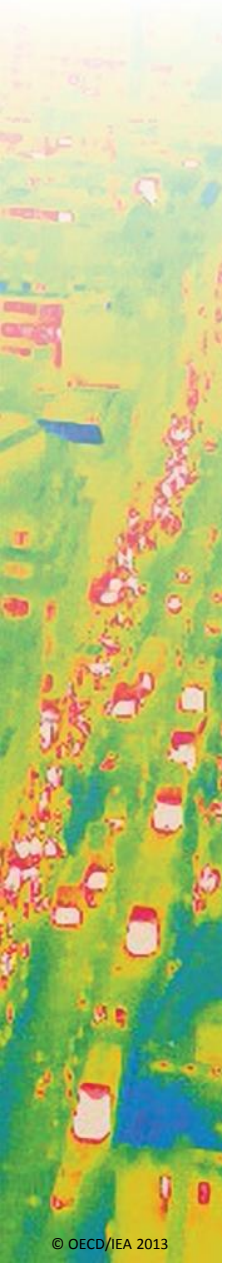

For more Examples for: IEA's 25 Energy Efficiency Policy Recommendations

-- see Appendix --

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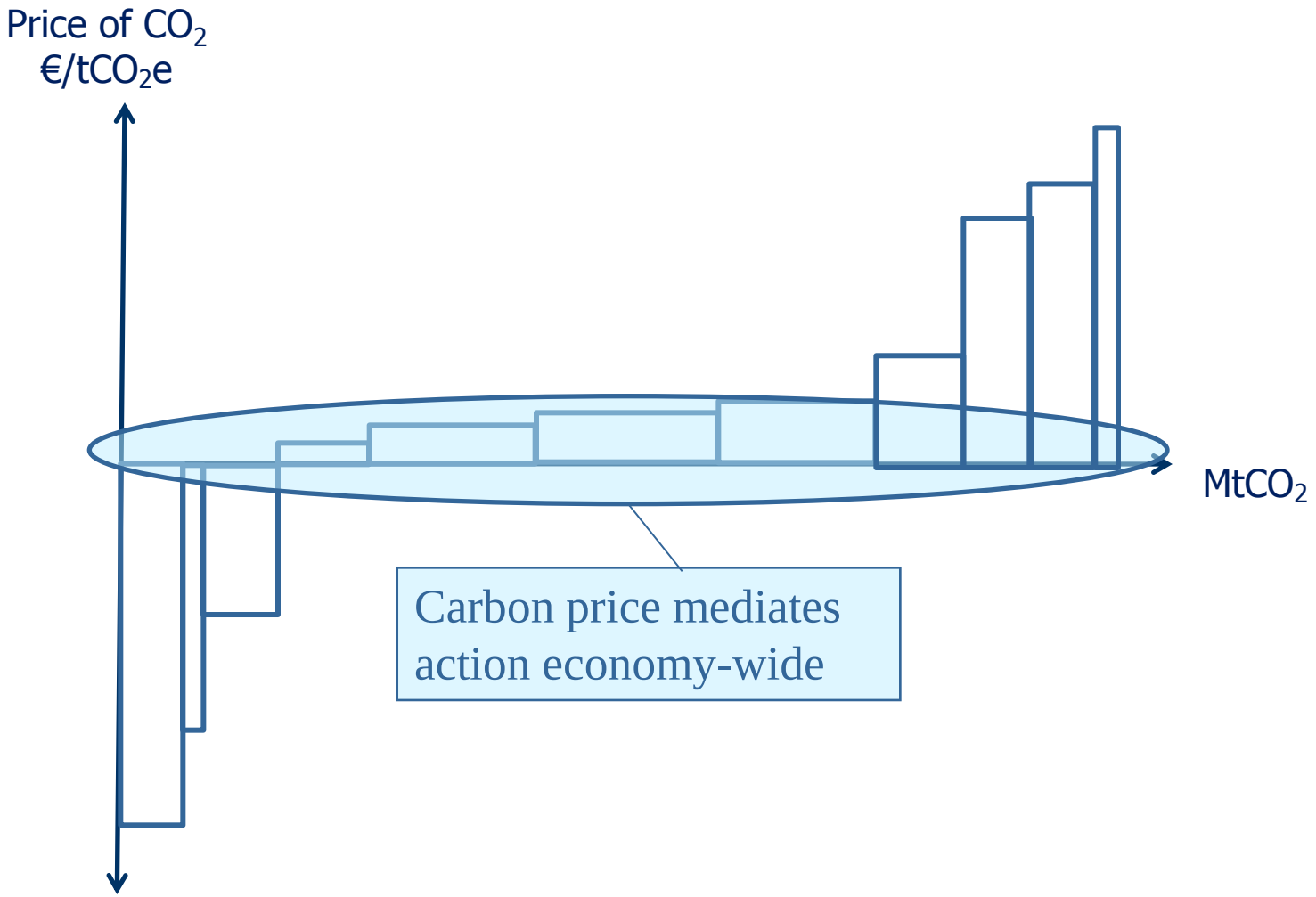
Climate policies can also help push EE . . .



Hood-IEA, "Summing up the Parts" 2011

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More finance is also needed . . .

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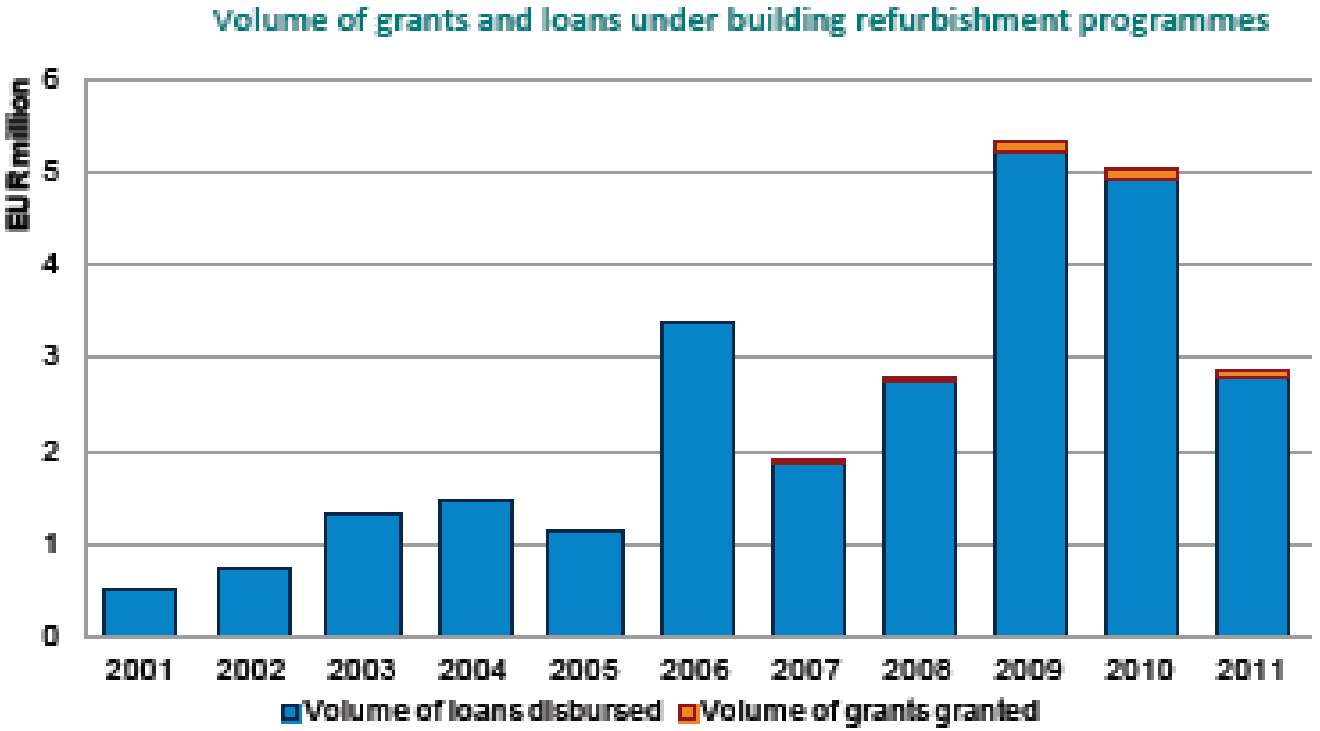
Domestic finance is key: reallocating resources to promote EE gains

Germany (KfW) building loan program



Note: covers the programmes "CO_2 refurbishment of buildings" (2001-09) and "Energy-efficient refurbishment" (2009-10).

Sources: IEA, 2012; IEA analysis based on Kleemann *et al.*, 2005; Clausnitzer *et al.*, 2007-10; Diefenbach *et al.*, 2011; Diefenbach *et al.*, 2012.

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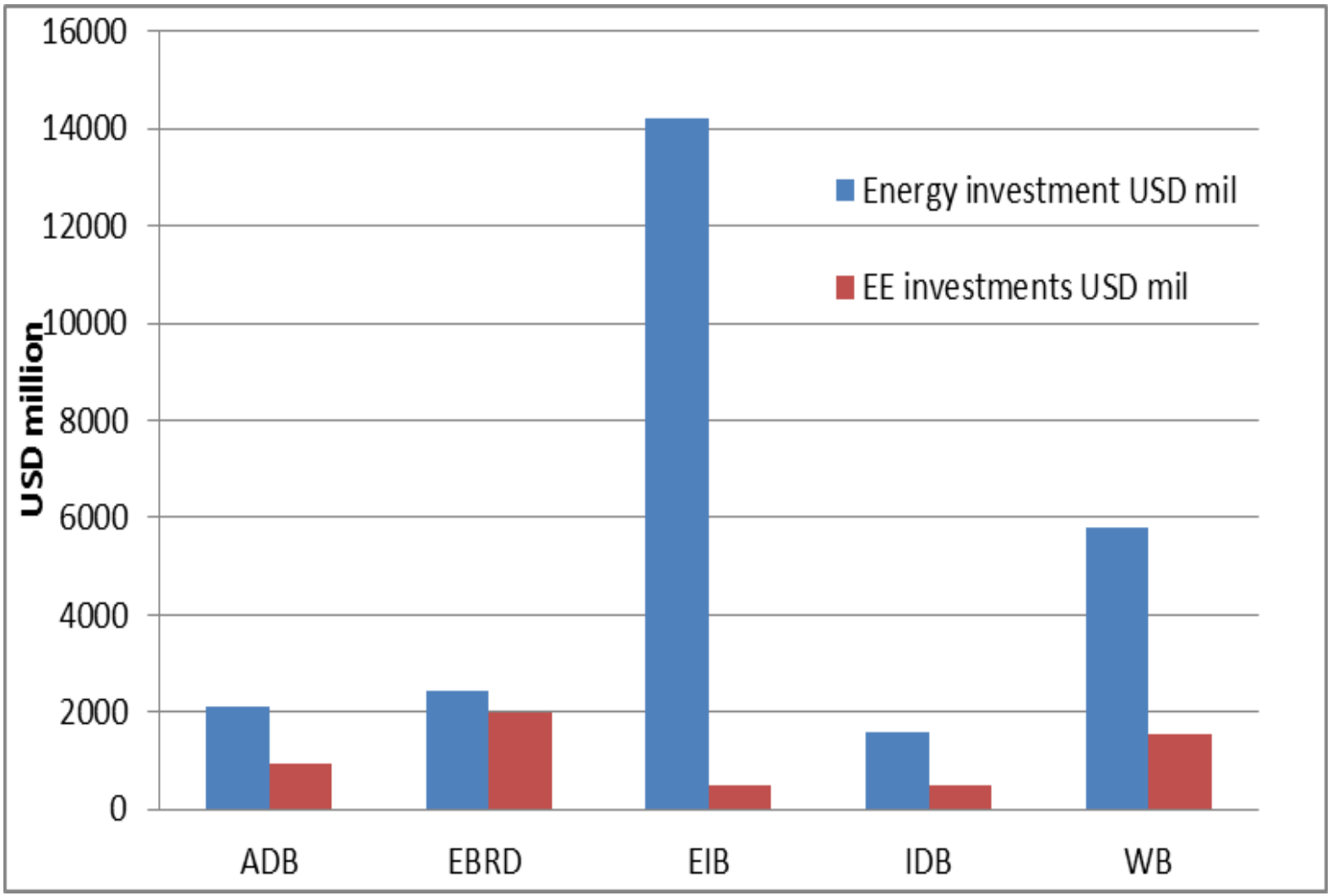
MDBs, others: important source and with potential to scale up finance



IEA Analysis: Plugging the energy efficiency gap with climate finance - 2012

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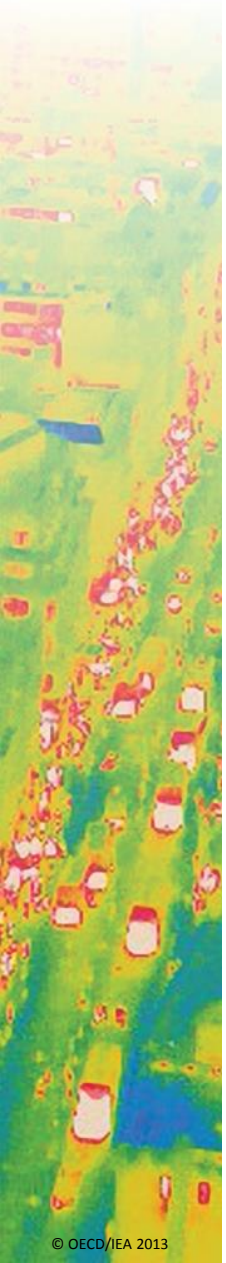

Not just about consumption, also about efficient energy supply . . .

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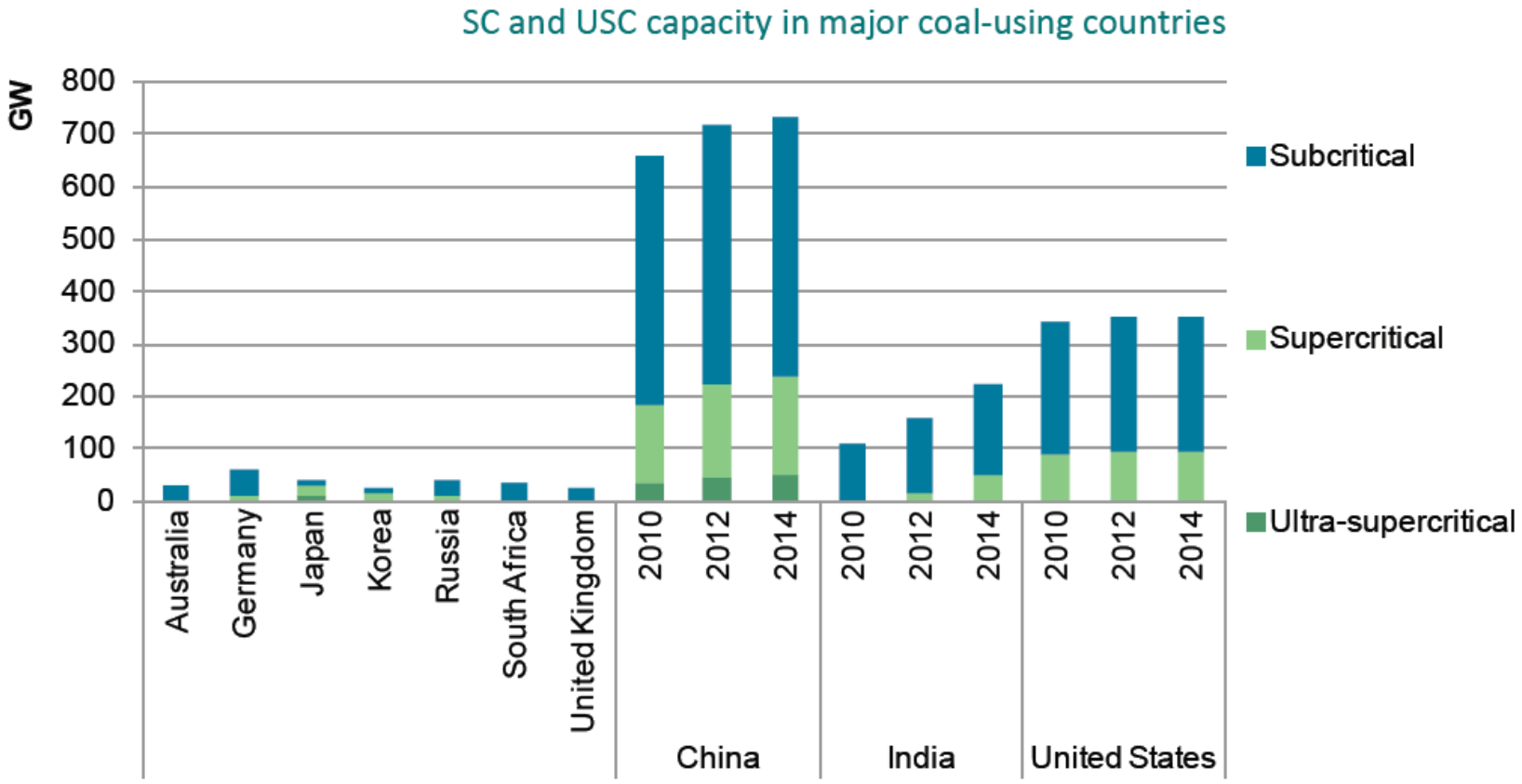
Supply-side efficiency is also important

- Supply-side interventions important part of energy efficiency story
- China has increasing percentage of supercritical and ultra-supercritical coal-fired power plants
- All new plants of 600 MW or more must use supercritical or ultra-supercritical technology



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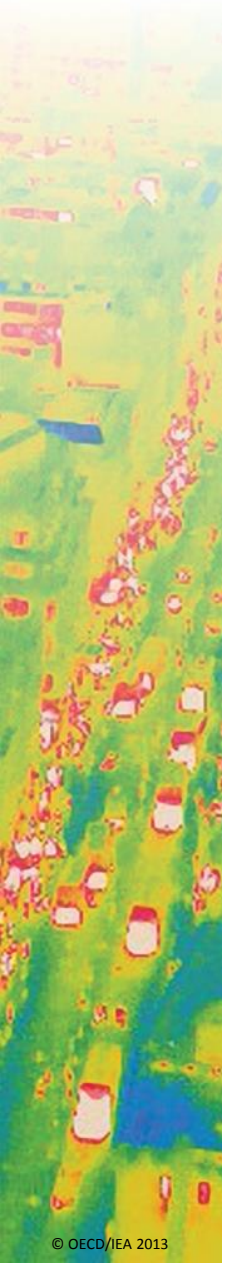

Not just about government policy, users/producers are also key . . .

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Diverse Key Actors

- **Government:**
  - Policy Maker
  - Consumer (public buildings, etc.)
- **Private Sector**
  - Households
  - Companies (SMEs, large industry)
  - Financial institutions – fund providers
- **Commercial Public Sector**: utilities, transit systems, industry

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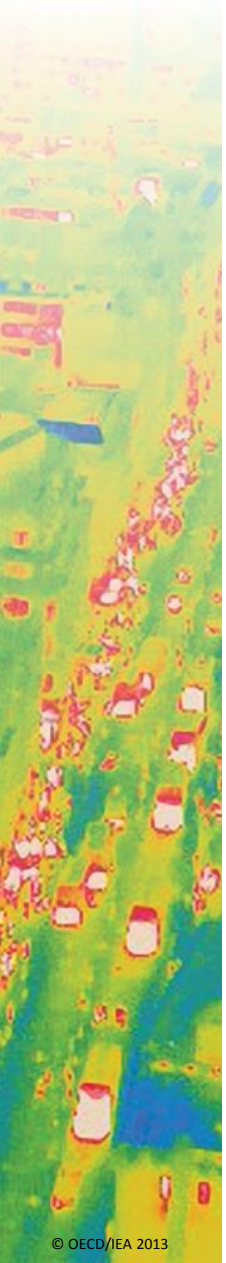

A lot of EE is cost effective . . .

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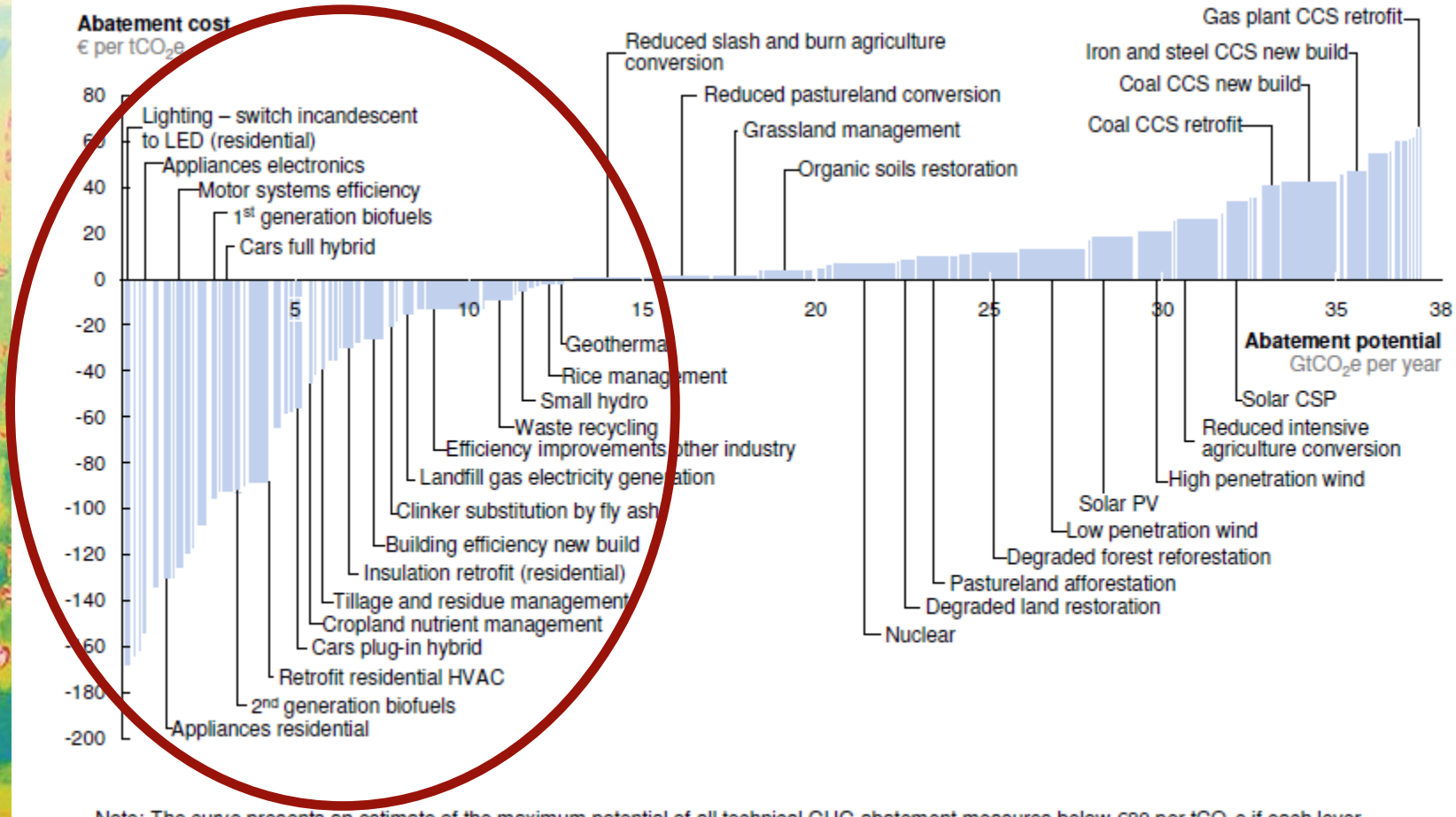
EE: often a ‘no-regrets’ investment



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €80 per tCO_2e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.

Source: Global GHG Abatement Cost Curve v2.1 Mckensey&Company: Impact of the financial crisis on carbon economics

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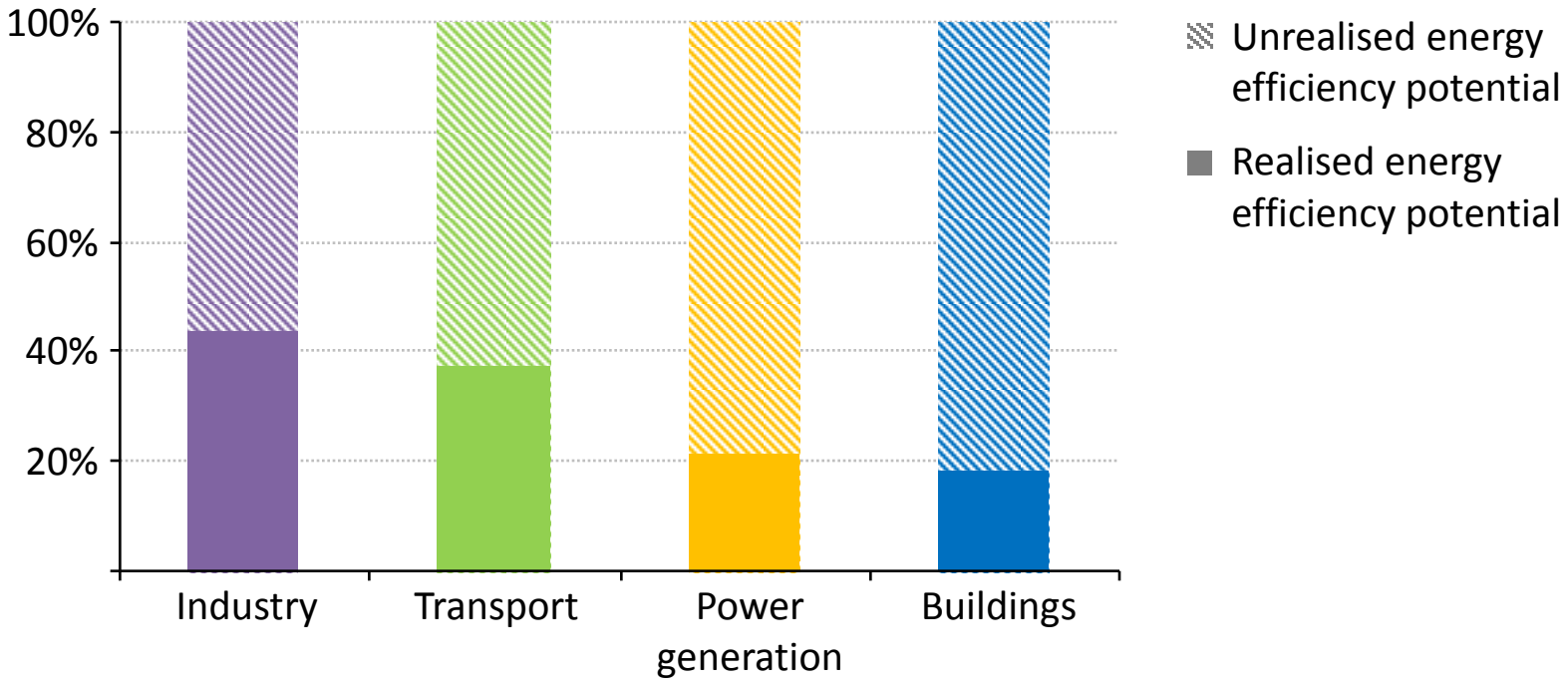
Energy efficiency: a huge opportunity going unrealised

WORLD ENERGY OUTLOOK 2012

Energy efficiency potential used by sector in the New Policies Scenario



Two-thirds of the economic potential to improve energy efficiency remains untapped in the period to 2035

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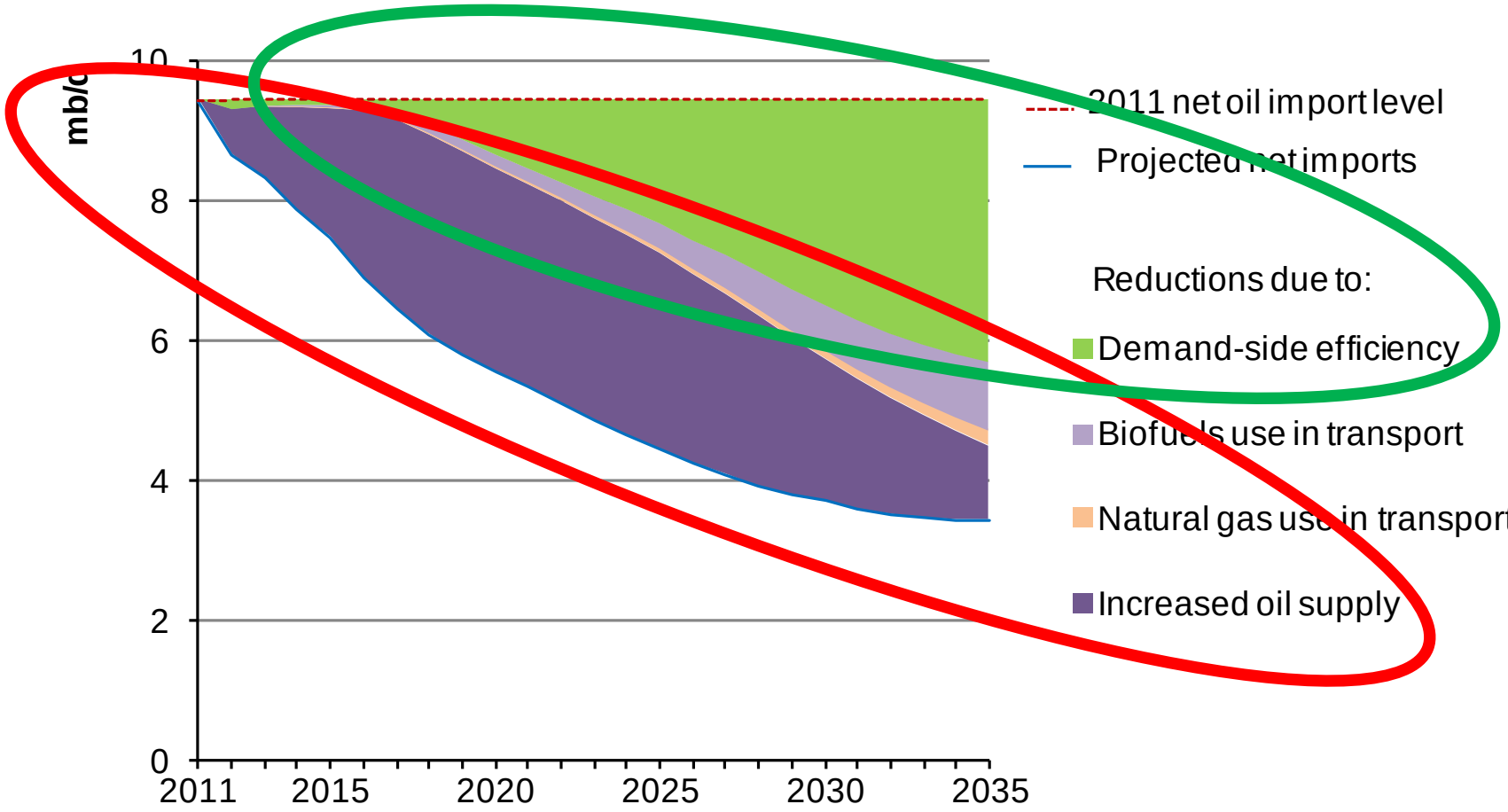
EE is often a neglected part of the story: Impact of supply- and demand-side improvements on US oil import needs

WORLD ENERGY OUTLOOK Special Report



Source: WEO 2012

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To scale-up EE to meet our climate aspirations

Effective policies are key . . .

. . . But more is needed

We need to change the 'mind-set' about EE

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Table of contents

A. Why is EE important to our climate aspirations

B. How can we promote EE – some policy, etc. areas

C. **Going beyond 'good policies'**

D. …

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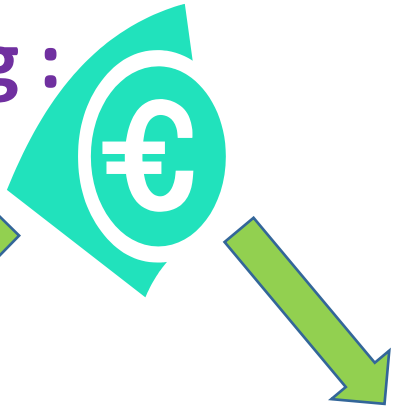
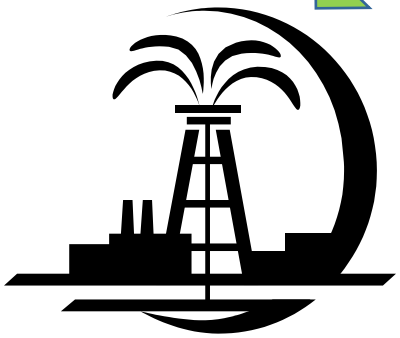
Facing up to the Fuels Competition

EE keeps producing :





2010

2013

2023

Energy Efficiency

2010

2013

2023

We need to keep measuring EE "output" year after year after year and make this more apparent

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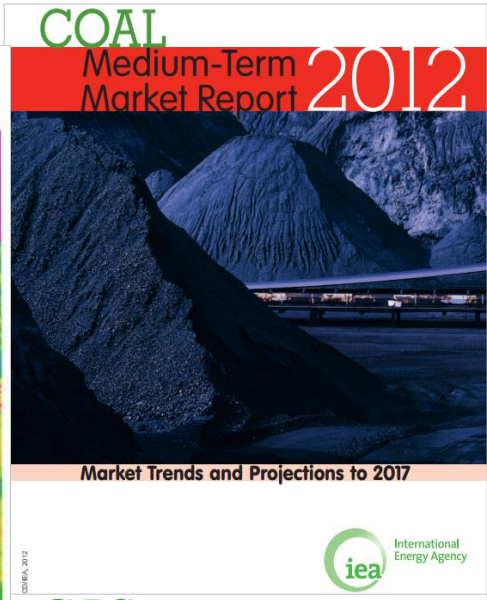
IEA Energy Efficiency (fuel) Market Report



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Energy efficiency is . . .

Microsoft.com

a domestic fuel

(‘the home-grown fuel’)

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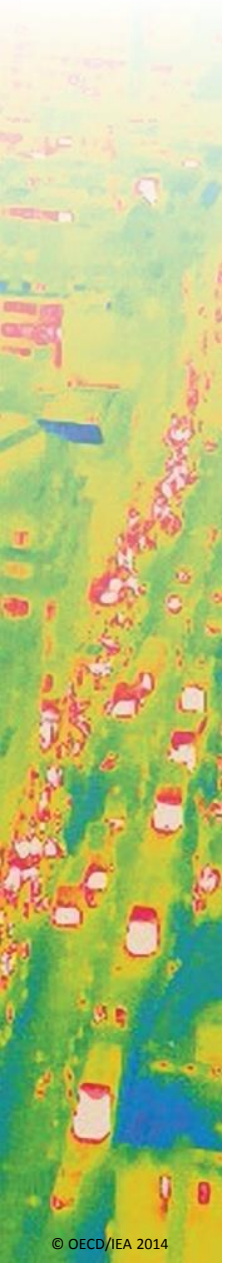

EE supports sound growth, not just conservation . . .

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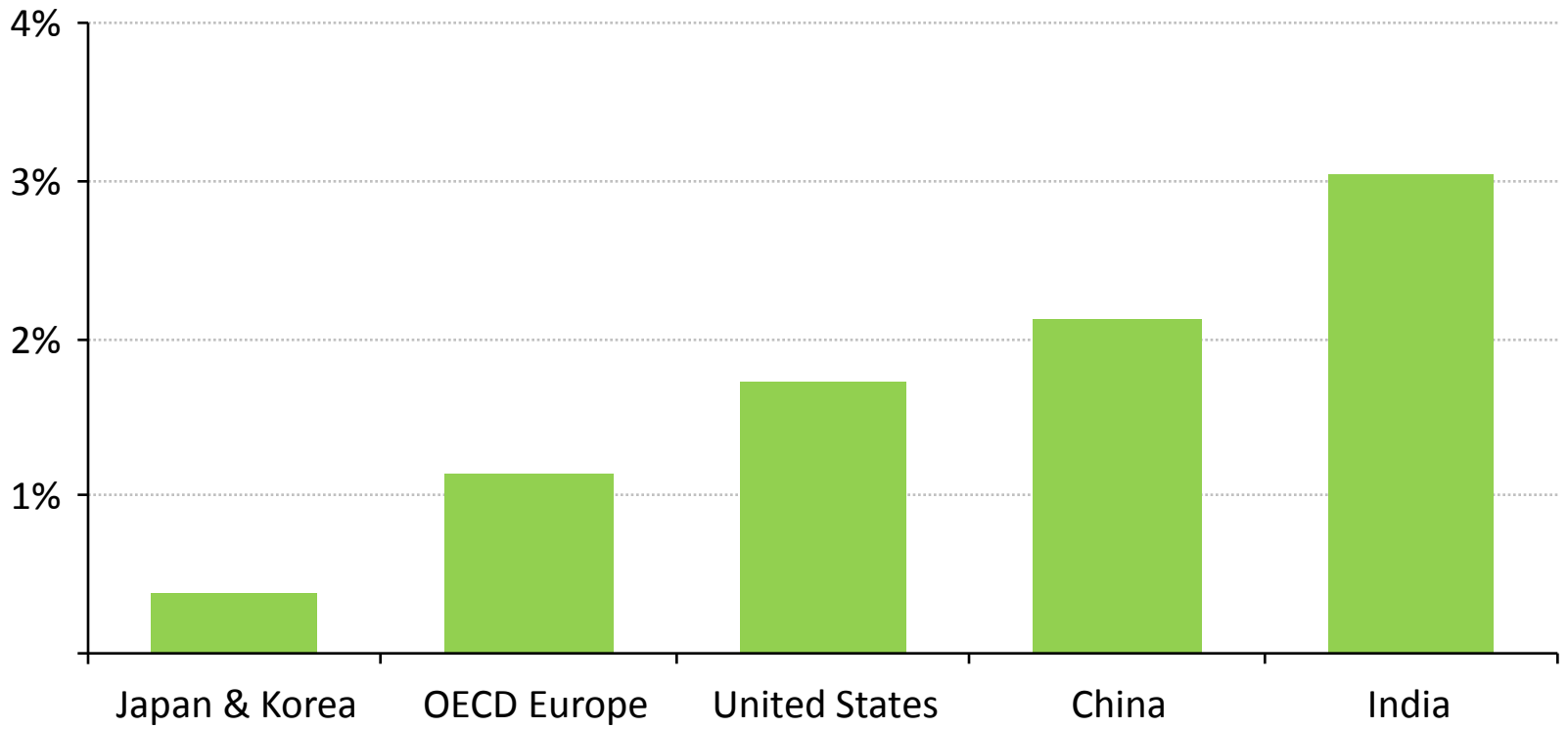
Energy efficiency can help drive economic prosperity

WORLD ENERGY OUTLOOK 2012

GDP in Efficient World Scenario versus New Policies Scenario, 2035



Cumulative investments in energy efficiency of $12 trillion are more than offset by fuel savings & trigger economic growth of a cumulative $18 trillion

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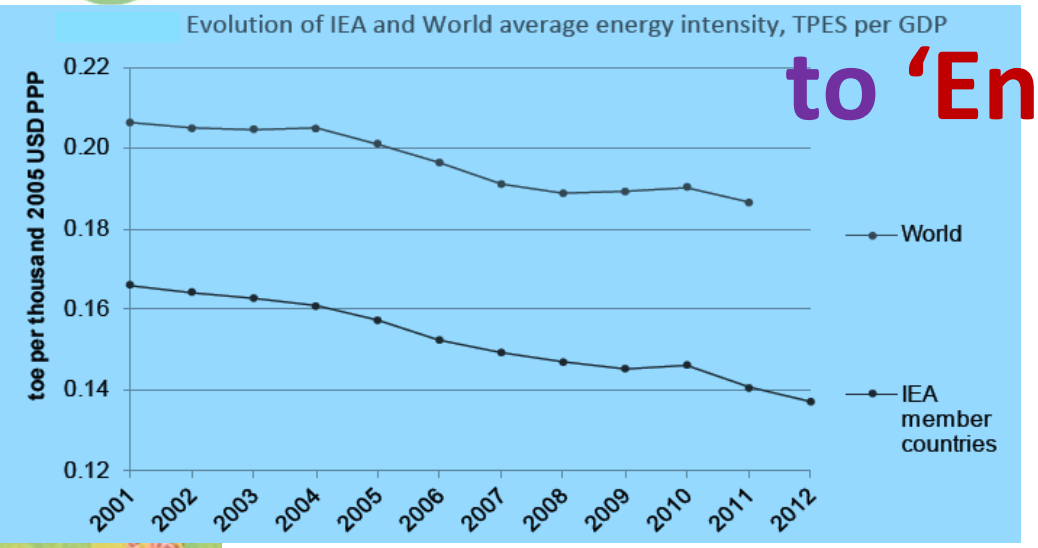
Need to move from 'Energy intensity' to 'Energy productivity'



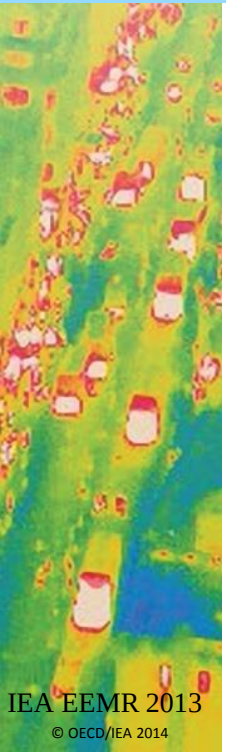
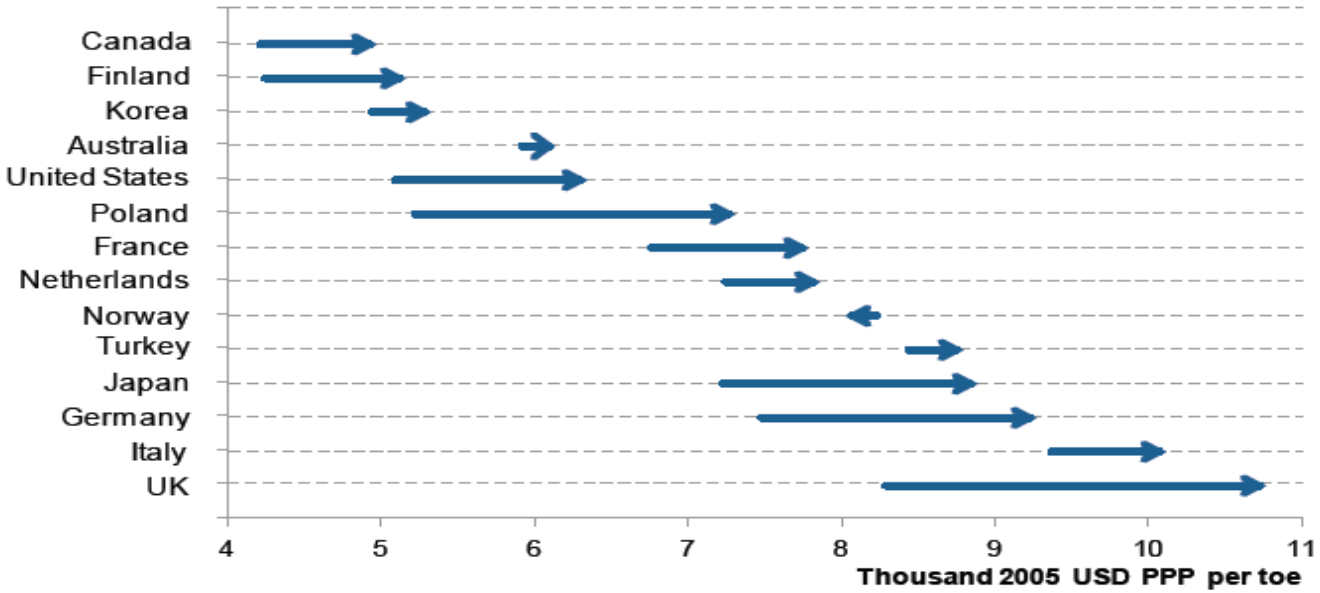


Figure 3.6 Evolution of energy productivity for selected IEA member countries, GDP per unit of TPES, 2002-12



Notes: left ends of bars represent 2002 values, right ends represent 2012 values. 2012 data are estimated.

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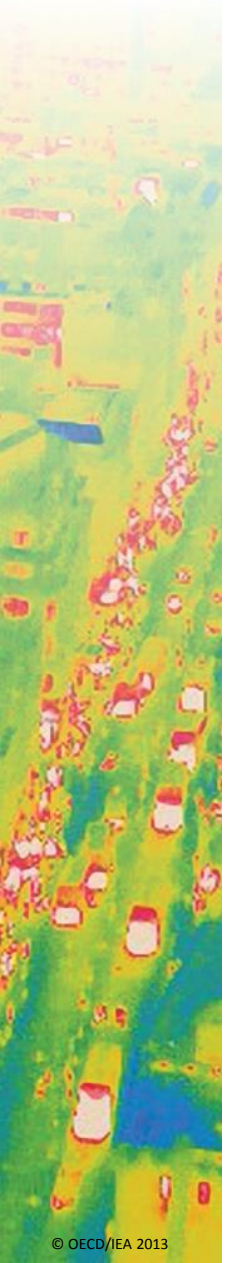

Improved EE supports improved access . . .

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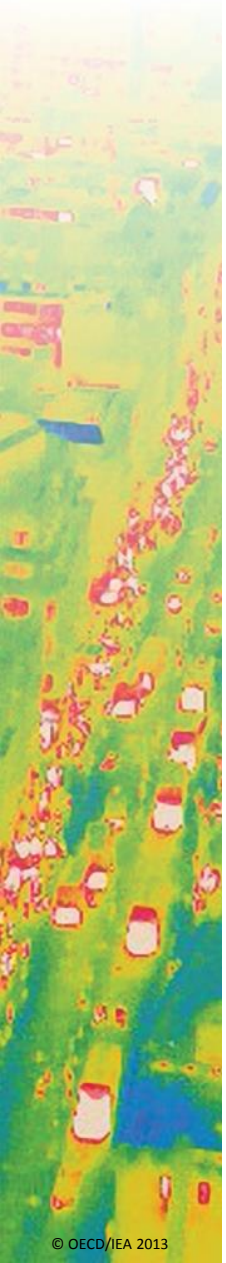

Improved EE

can help in fight against

local pollution . . .

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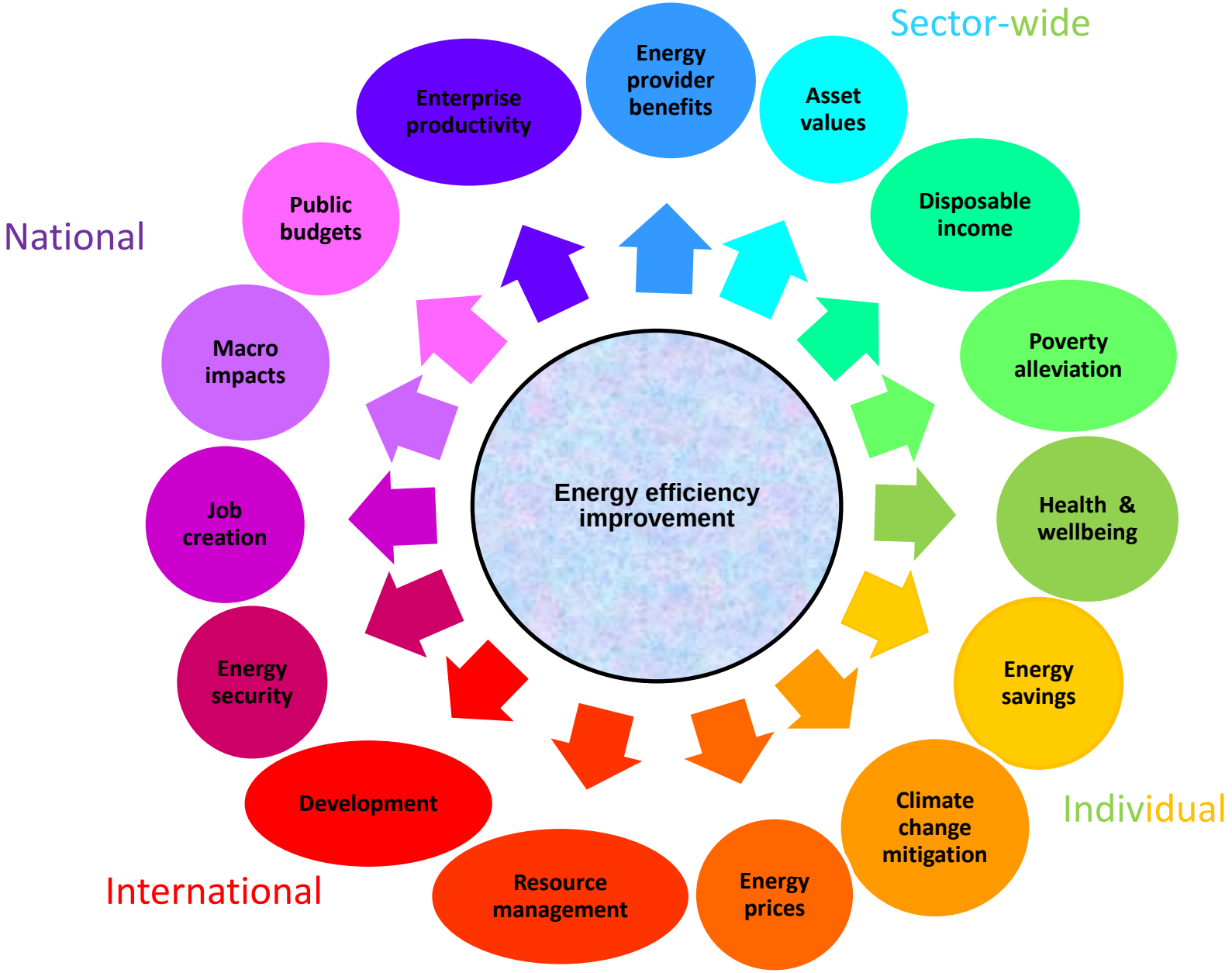
EE generates variety of benefits



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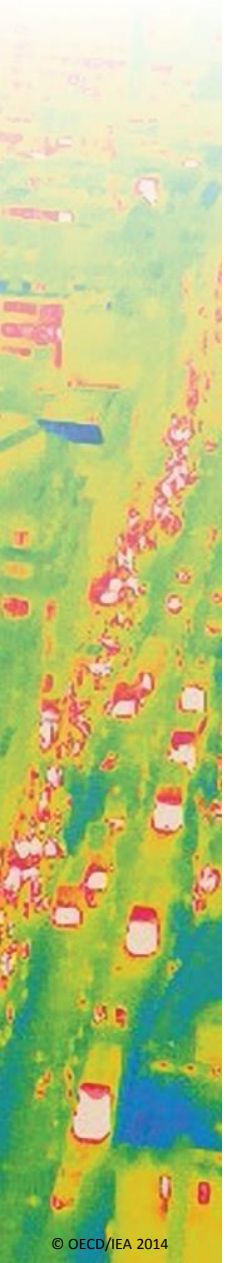

Need to Increase motivation

For EE activities

by expanding set of engaged stakeholders (what is their EE benefit)

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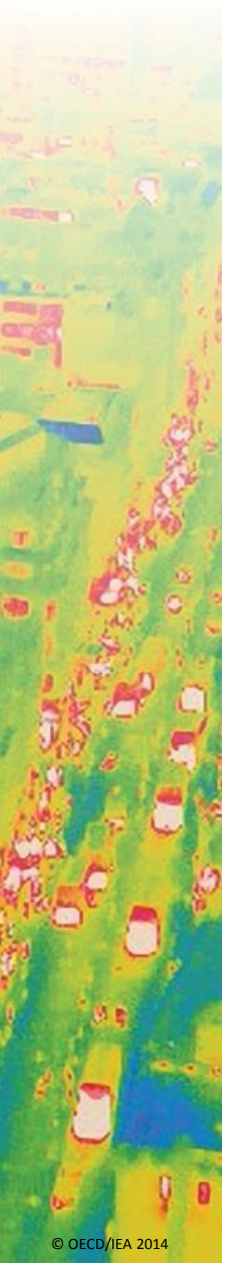
Multiple benefits at multiple levels



The Public

International

- Energy prices
- Resource management
- GHG emissions abatement

More Public/Private Stakeholders

National

- Macroeconomic effects
- Job creation
- Energy security
- Public budget impacts

Sectoral

- Increased asset values
- Energy provider and infrastructure benefits
- Industrial productivity and competitiveness

Individual

- Health, wellbeing and social improvements
- Poverty alleviation: energy affordability & access
- Increased disposable income

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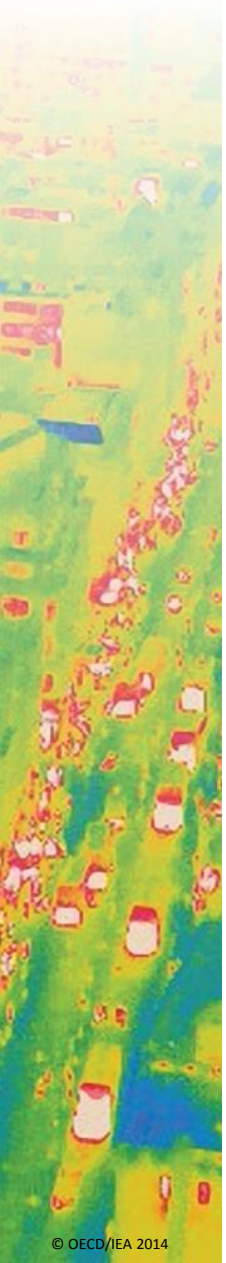

EE across countries:
Common and Differentiated

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‘Different strokes for different folks’

Benefits vs. Co-Benefits → Multiple Benefits

	Country or Stakeholder A	Cty/Stk B	Ctry/Stk C	Etc.
Industrial Competitiveness	Co-Benefit			
Fuel Imports	Primary	Co-Benefit		
Poverty Alleviation and Development			Primary	
GHG Emissions		Primary	Co-Benefit	
Job Creation	Co-Benefit	Co-Benefit		
Local pollution	Primary		Co-Benefit	

❖ ***benefits both energy importers and exporters***

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Objectives → Relevant to many diff. countries

A. Increased affordability for consumers	➢ **Poor and middle-class families in different countries**
B. Energy and economic security (managing import dependence)	➢ **E.g., Island states and 'virtual islands'**
C. Local pollution	➢ **Urban/other areas around the world**

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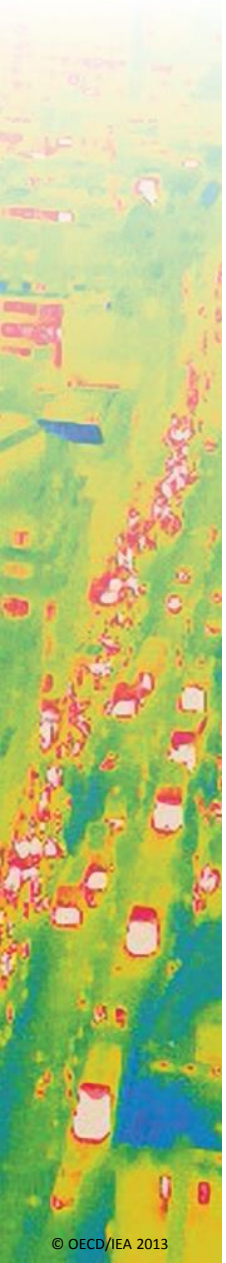

EE supports resilience . . .

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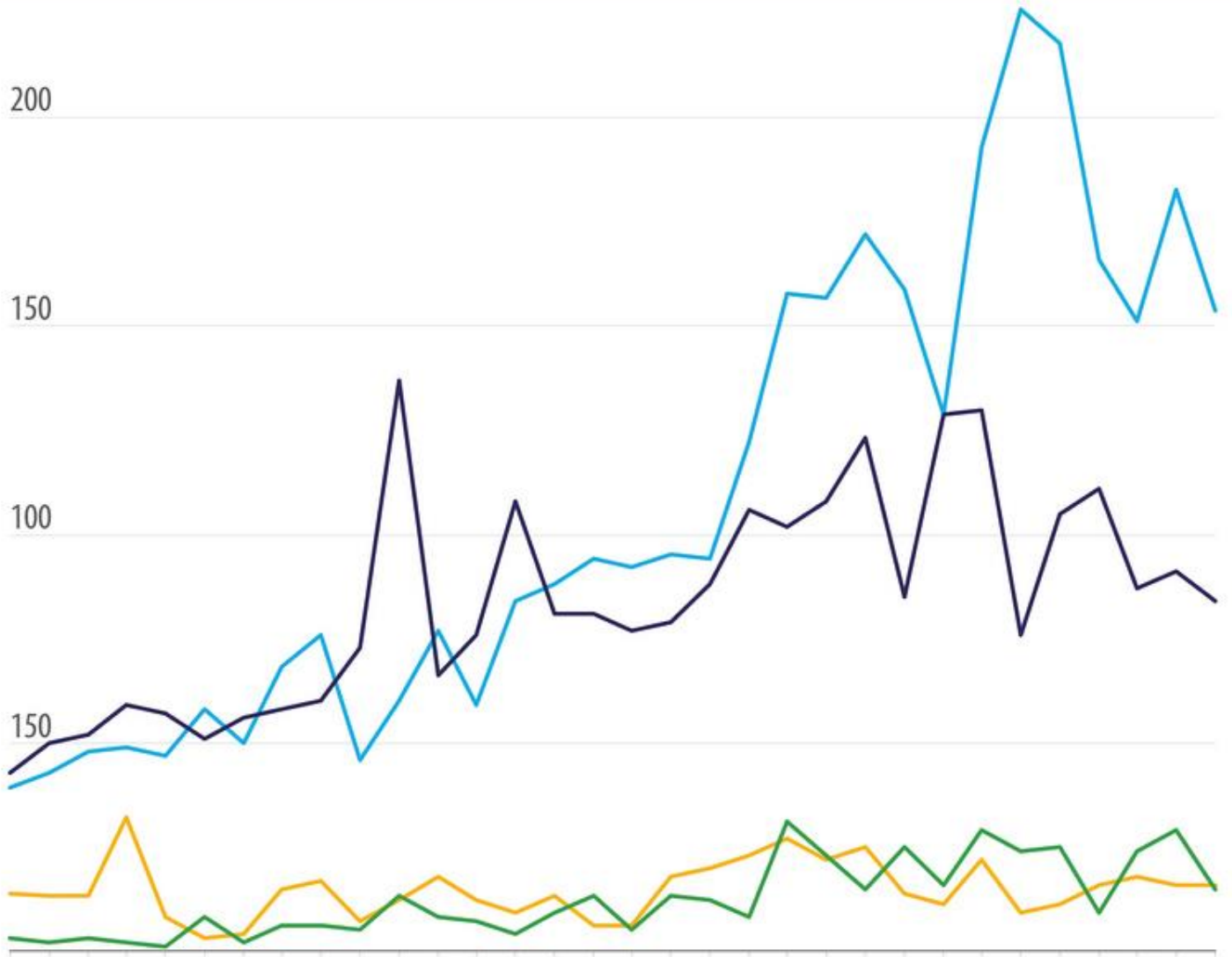
Number of Climate-related Disasters Around the World (1980-2011)

3455 FLOODS

2689 STORMS

470 DROUGHTS

395 EXTREME TEMPS



UNISDR
The United Nations Office for Disaster Risk Reduction
http://www.unisdr.org

Created on 13 June 2012

DATA SOURCES

EM-DAT - http://www.emdat.be/ - The OFDA/CRED International Disaster Database; Data version: 13 June 2012 - v12.07

Humanitarian Symbol Set (2008): http://www.ungiwg.org/map/guideline.php

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
FLOOD	39	43	48	49	47	58	50	68	76	46	60	77	59	84	88	94	92	95	94	122	158	157	172	159	129	193	226	218	166	151	183	154
STORM	43	50	52	59	57	51	56	58	60	73	137	66	76	108	81	81	77	79	88	106	102	108	123	85	129	130	76	105	111	87	91	84
DROUGHT	14	13	13	32	8	3	4	15	17	7	12	18	12	9	13	6	6	18	20	23	27	22	25	14	11	22	9	11	16	18	16	16
EXTREME TEMPERATURE	3	2	3	2	1	8	2	6	6	5	13	8	7	4	9	13	5	13	12	8	31	23	15	25	16	29	24	25	9	24	29	15

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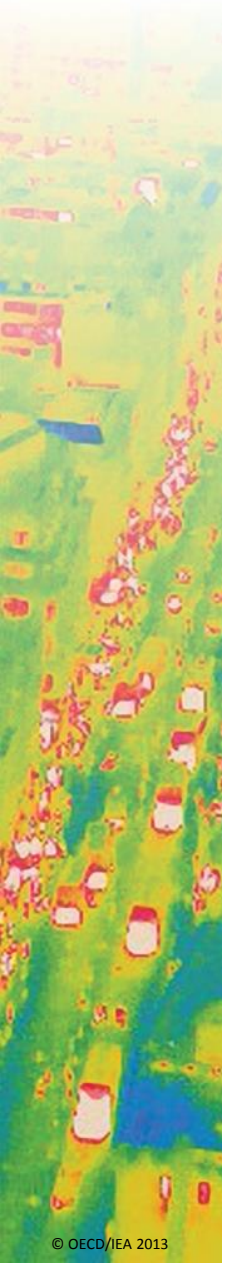

EE supports resilience . . .

there are fewer assets that are exposed

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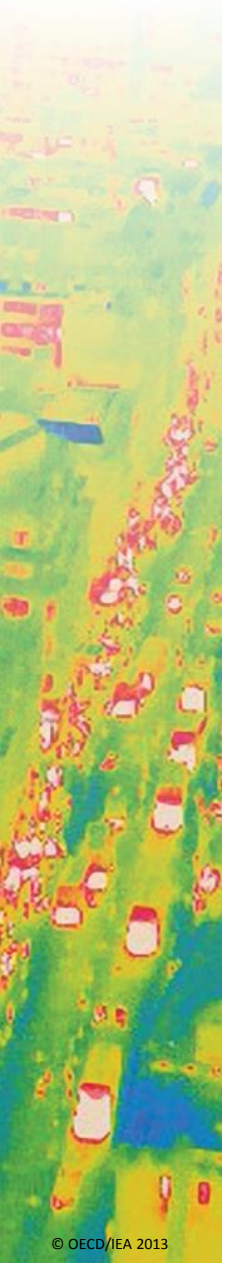
Table of contents



A. Why is EE important to our climate aspirations

B. How can we promote EE – some policy, etc. areas

C. Need more than good policies

D. **Possible Next Steps**

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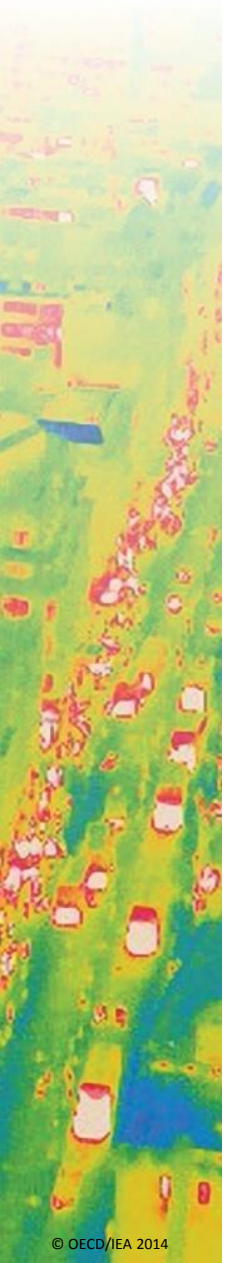

Much change will be domestic-driven

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25 EE Policy Recommendations are a useful guide

Cross-sectoral

1. Energy efficiency data collection and indicators
2. Strategies and action plans
3. Competitive energy markets with appropriate regulation
4. Private investment in energy efficiency
5. Monitoring, enforcement and evaluation of policies and measures

Buildings

6. Mandatory building energy codes and minimum energy performance requirements;
7. Aiming for net zero energy consumption in buildings
8. Improving the energy efficiency of existing buildings
9. Building energy labels or certificates
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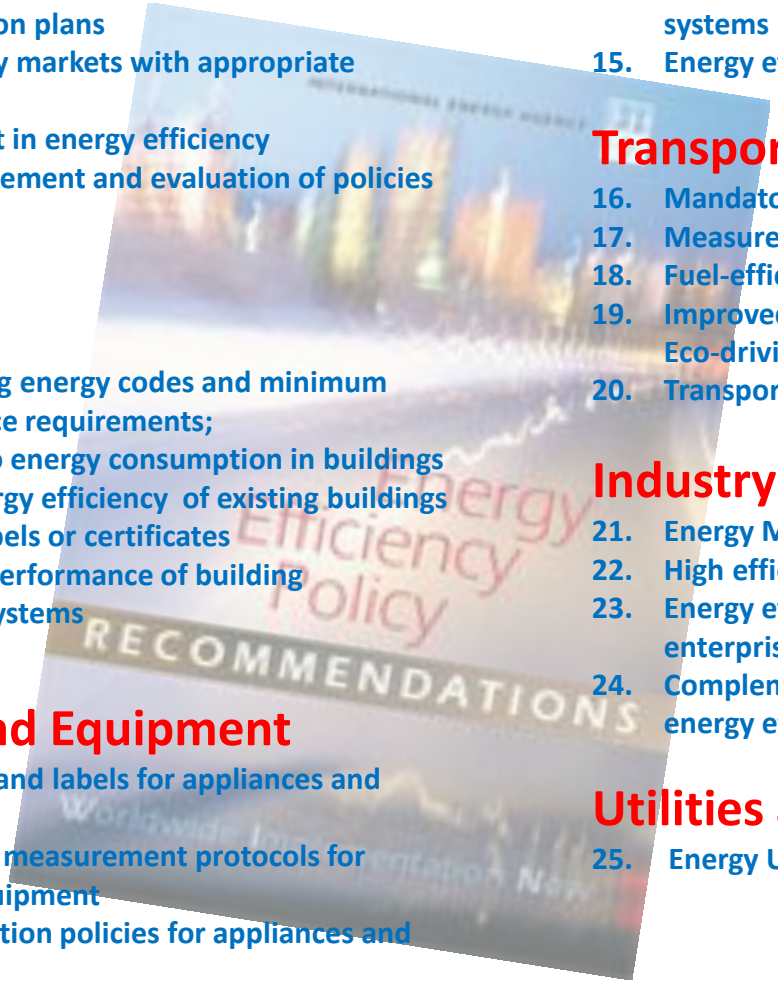
12. Test standards and measurement protocols for appliances and equipment
13. Market transformation policies for appliances and equipment



Lighting

14. Phase-out of inefficient lighting products and systems
15. Energy efficient lighting systems

Transport

16. Mandatory vehicle fuel efficiency standards
17. Measures to improve vehicle fuel efficiency
18. Fuel-efficient non-engine components
19. Improved vehicle operational efficiency through Eco-driving and other measures
20. Transport system efficiency

Industry

21. Energy Management in industry
22. High efficiency industrial equipment and systems
23. Energy efficiency services for small and medium enterprises
24. Complementary policies to support industrial energy efficiency

Utilities and end-use

25. Energy Utilities and end-use energy efficiency

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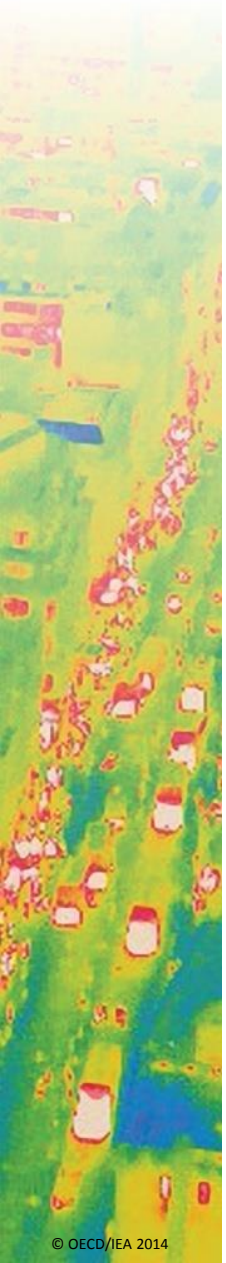

International Cooperative Initiatives also have a role to play . . .

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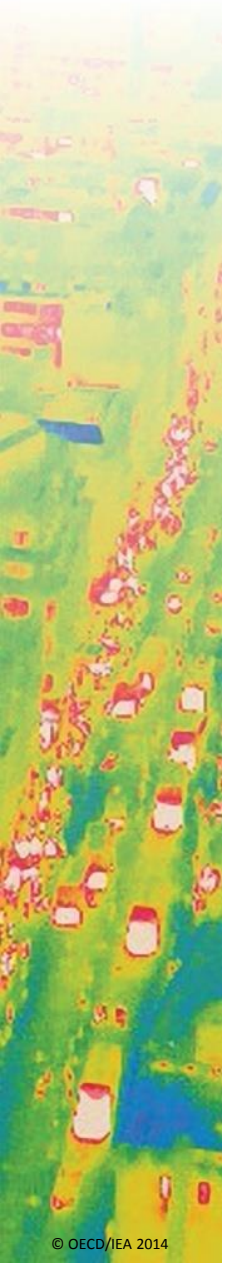
Collective efforts



UNDP

PRACTICAL ACTION
Technology challenging poverty

IIASA

UNEP

ESMAP

WORLD ENERGY COUNCIL
CONSEIL MONDIAL DE L'ÉNERGIE
For sustainable energy.

SUSTAINABLE
ENERGY FOR ALL

iea International Energy Agency

THE WORLD BANK

GLOBAL ALLIANCE FOR CLEAN COOKSTOVES

European Bank
for Reconstruction and Development

UNIDO

ipeec International Partnership for Energy Efficiency Cooperation

UNITED NATIONS FOUNDATION

RCREEE
Regional Center for Renewable Energy and Energy Efficiency
المركز الإقليمي للطاقة المتجددة وكفاءة الطاقة

World Health Organization

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Some ICIs in EE area:

Current Initiatives for Energy Efficiency: There are numerous international initiatives working to promote energy efficiency. This table gives an overview of 29 initiatives highlighting their structure, focus and relationship to climate change and emissions reduction goals.

Initiative Name	Multilateral Initiative	Market Transformation Program	Quantitative GHG Emissions Methodology	International Financing Program	Policy Program	Technology or Sector Specific Program	Climate or Emissions Mitigation Focus	Exclusive Energy Efficiency Focus
ADB Clean Energy Program (*demand & supply side EE*)	■			■			■	
Building Codes Assistance Project (ASE, ACEEE, NRDC)					■	■		■
China Sustainable Energy Program (Energy Foundation)				■		■	■	
Collaborative Labeling and Appliance Standards Program (CLASP)		■	■		■		■	■
EBRD Sustainable Energy Initiative	■			■			■	
Efficient Lighting Initiative (China Standard Certification Center, IFC, GEF)	■	■				■		■
en.lighten initiative for developing and emerging countries (UNEP, GEF)	■	■			■	■		■
European Motor Challenge Programme (European Commission)	■					■		■
Global Buildings Performance Network (Climate Works Foundation)						■	■	■
Global Superior Energy Performance Partnership (GSEP)	■					■		■
Green Growth Action Alliance (G2A2) (WEF)	■			■				
IEA Efficient Electrical End-Use Equipment (4E)	■					■	■	■
IEA Technology Agreement: Buildings and Communities	■		■		■	■	■	
IEA Technology Agreement: Demand Side Management	■	■	■			■	■	
IFC China Utility-based Energy Efficiency Finance Program (CHUEE)		■		■			■	■
Inova Energia Program (Brazil)				■		■		
Institute for Building Efficiency (Johnson Controls)						■	■	■
International Partnership for Energy Efficiency Cooperation (IPEEC)	■				■			■
Renewable Energy and Energy Efficiency Partnership (REEEP)	■			■				
Super-efficient Equipment and Appliance Deployment (SEAD) Initiative (CEM)	■	■	■					■
Top Runner Program (Japan)		■			■			■
TopTen Global Alliance on Product Efficiency	■	■					■	■
UNECE Energy Efficiency 21 Programme	■			■		■	■	■
UNEP Sustainable Buildings and Climate Initiative	■		■		■	■	■	
UNEP Sustainable Energy for All (SE4All) Energy Efficiency Hub (Risø Centre)	■						■	■
Walmart Supplier Energy Efficiency Program		■				■		■
WBCSD Cement Sustainability Initiative	■		■			■	■	■
WBCSD Energy Efficiency in Buildings Manifesto		■				■	■	■
World Bank Energy Sector Management Assistance Program (ESMAP)	■	■		■				

Source: WRI: N.Aden report 2014

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Super-Efficient Equipment & Appliance Deployment (SEAD)

SEAD accelerates the pace of market transformation for energy efficient products

- **Awards** — Showcase leadership in energy efficiency
- **Incentives** — Increase demand for energy efficient products
- **Procurement** — Lead by example, with tools & best practice
- **Standards & Labels** — Ensure energy efficiency performance
- **Technical Analysis** — Provide foundation for policy success

Technical Assistance — Support implementation

CLEAN ENERGY MINISTERIAL
Accelerating the Transition to Clean Energy Technologies

Build alliances/expertise to increase EE

A. **Expand Domestic support**

B. **International partners:**
   - **Sharing 'know-how'/experience**
   - **ICIs/twinning/partnerships**

C. **Financing**

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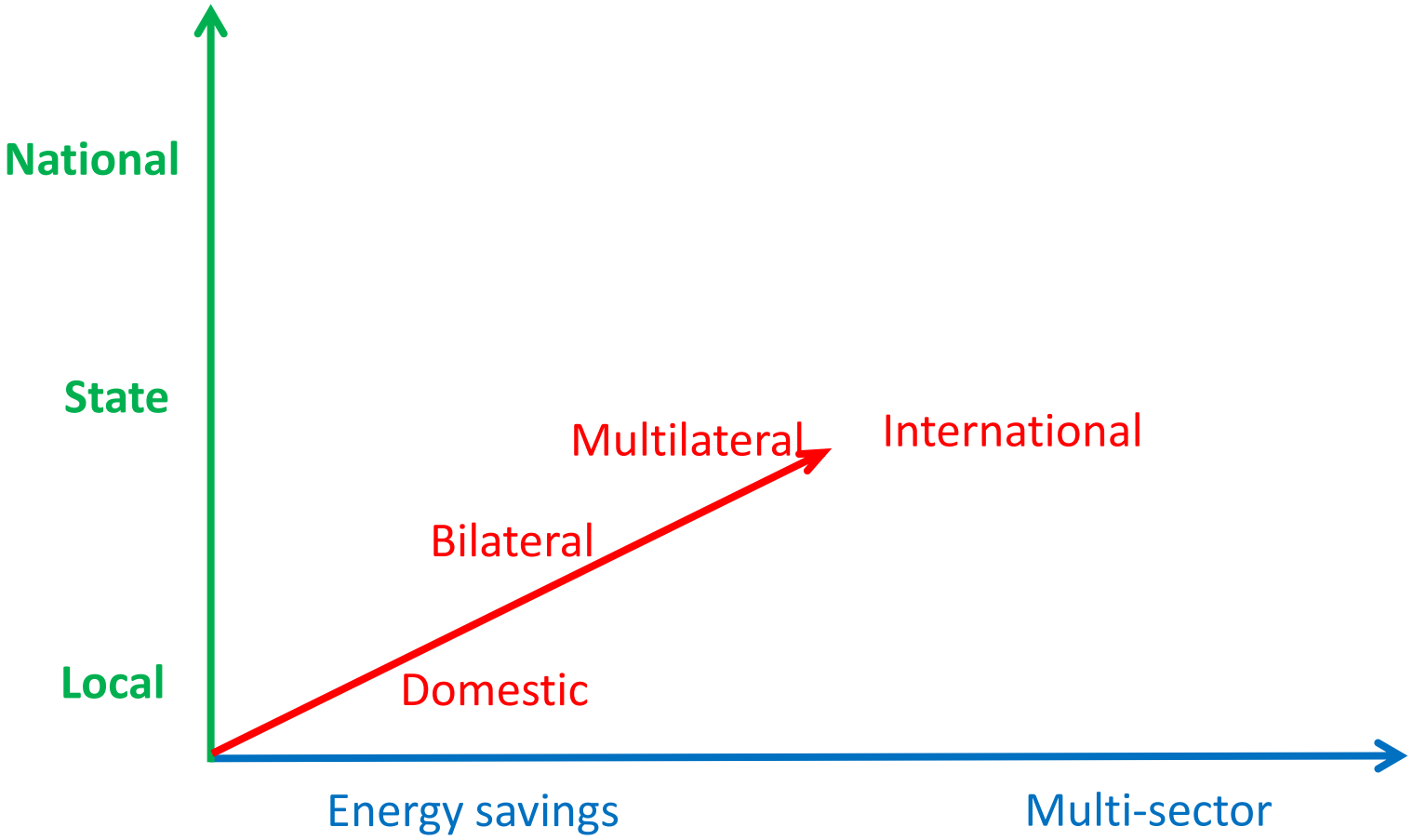
Multi-faceted approach: multiple axes



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Matchmaking: Capacity Suppliers with Demand

Willing Suppliers of expertise ⟷ **Interested Policymakers, etc.**

~~**Speed-dating**~~

Long-term relationship

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Appendices

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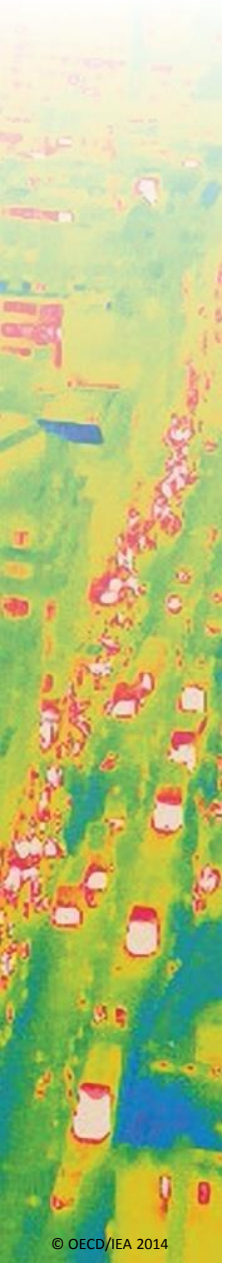

Appendix 1
Examples for:
IEA's 25 Energy Efficiency Policy Recommendations

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25 EE Policy Recommendations

Cross-sectoral

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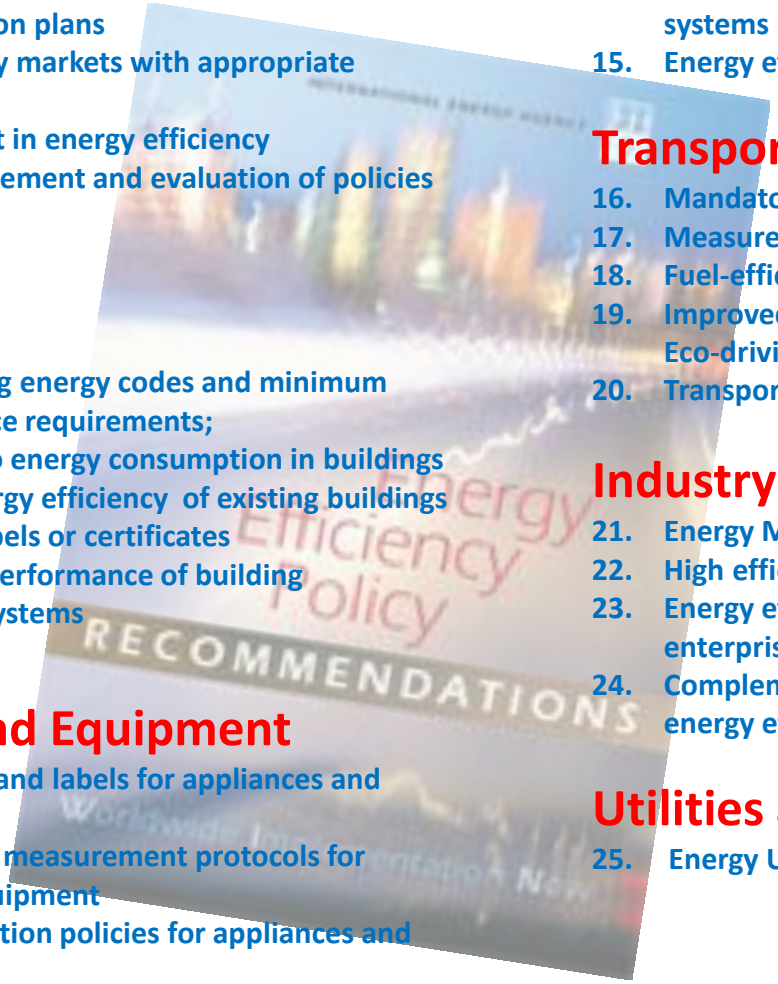

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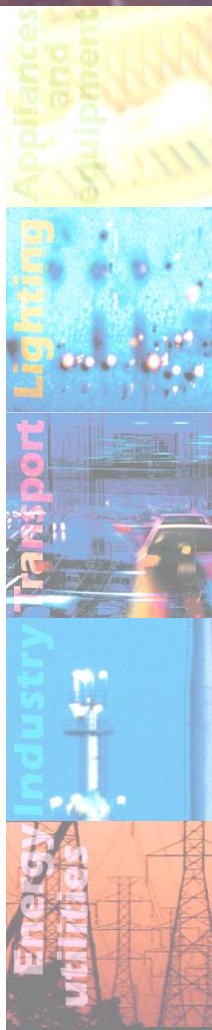

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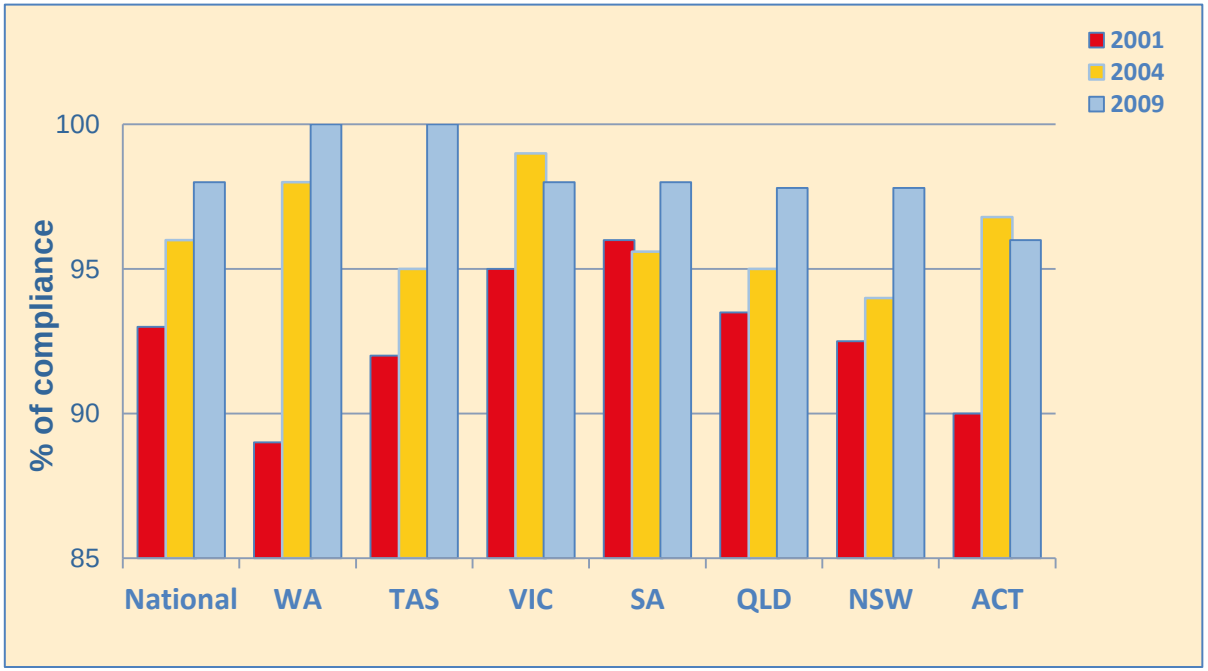
5. Monitoring, Verification and Enforcement



MVE activities ensure the integrity of energy requirements by minimizing non-compliance.

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Buildings

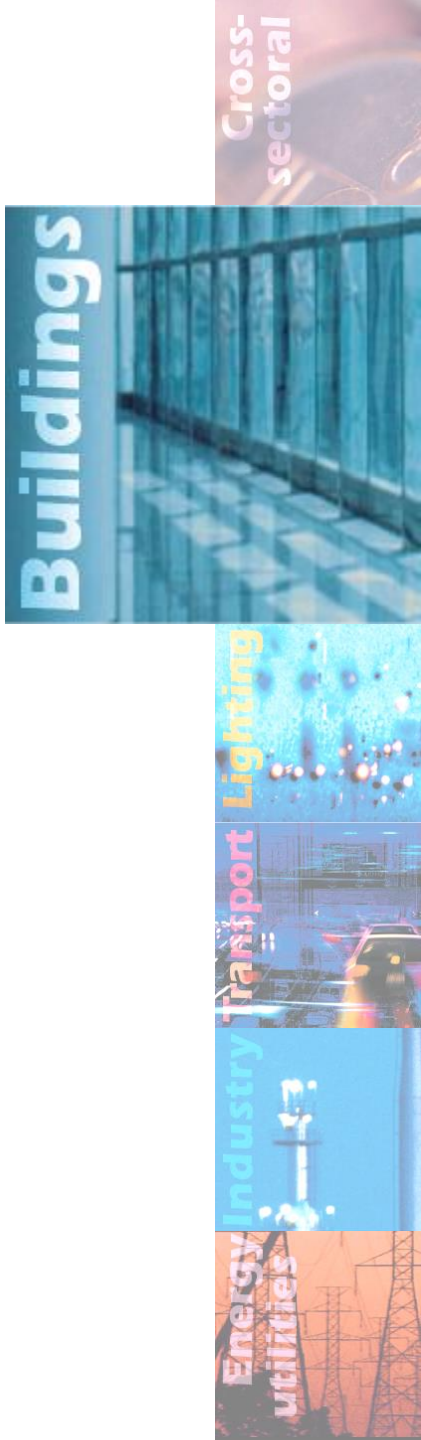
6 Mandatory building codes and MEPS

7 Net-zero energy consumption in buildings

8 Improved energy efficiency in existing buildings

9 Building energy labels or certificates

10 Energy performance of building components and systems



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Priority actions in the buildings sector

Areas for policy action	Overall savings potential	Policy urgency	Bulk of savings available
Energy efficiency of building shell measures			
New residential buildings	Medium to large	Urgent	Immediately and medium- to long-term
Retrofitted residential buildings	Large	Urgent	Immediately and medium- to long-term
New sevice buildings	Large	Urgent	Immediately and medium- to long-term
Retrofitted service buildings	Medium to large	Urgent	Immediately and medium- to long-term
Energy efficiency of lighting, appliances and equipment			
Lighting	Medium	Average	Immediately
Appliances	Large	Average	Short- to medium-term
Water heating systems	Large	Urgent	Short- to medium-term
Space heating systems	Medium to large	Urgent	Short- to medium-term
Cooling/ventilation systems	Medium to large	Urgent	Short- to medium-term
Cooking	Small to medium	Average/urgent	Immediately
Fuel switching			
Water heating systems	Medium to large	Urgent/average	Short- to long-term
Space heating systems	Medium to large	Urgent/average	Short- to long-term
Cooking	Small	Average/urgent	Short to medium-term

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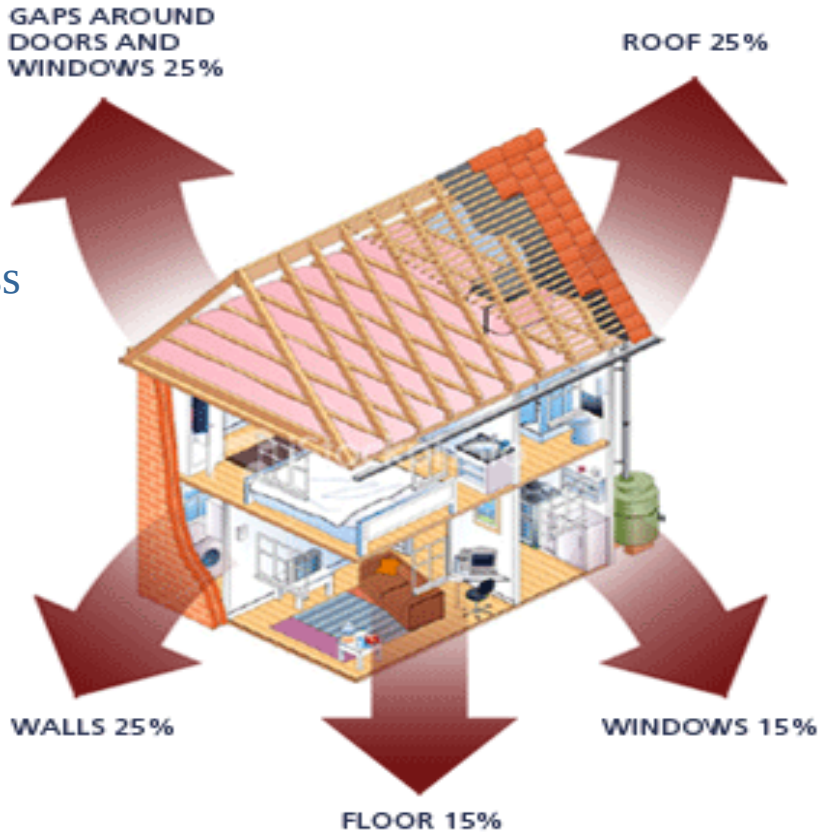
6. Mandatory Building Codes and MEPs

- Lower the U-Values

(Measurement of the rate of heat loss through a material)

- Minimum Energy requirements (Standards)
- Air tightness



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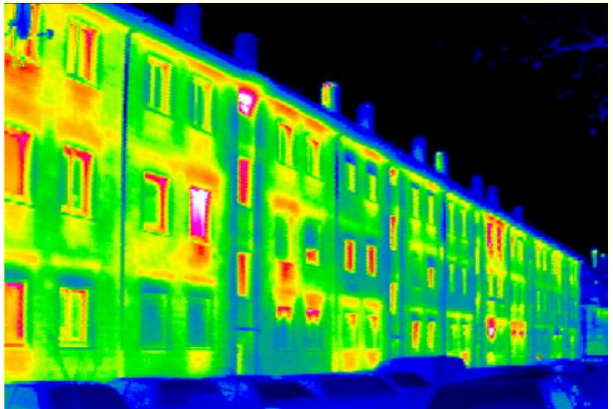
8.Improved energy efficiency in existing buildings

- Building Codes (France)
- Mandatory Energy Performance Certificates (the EU)
- Financial mechanisms
- Awareness programs
- Public procurement (the EU)



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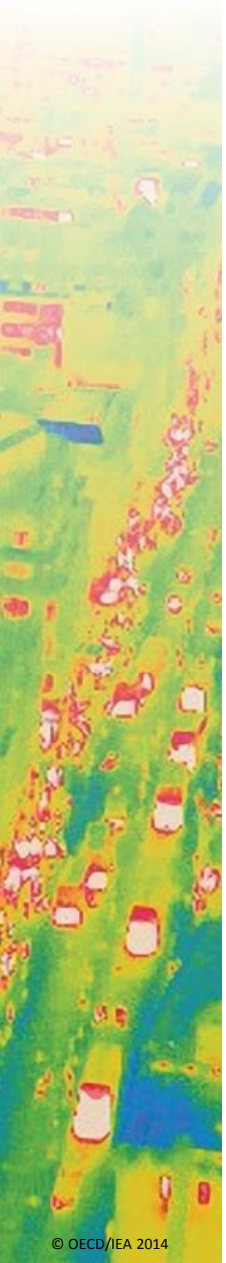
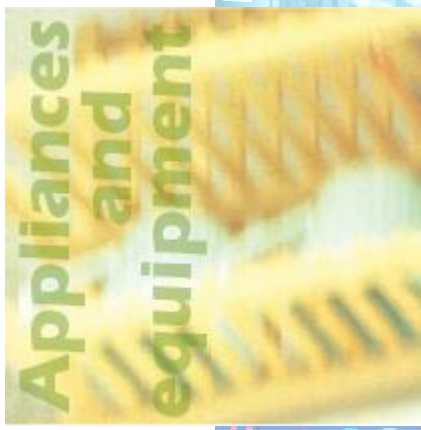


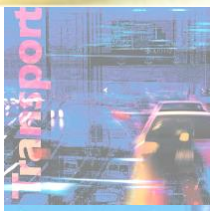
Appliances and equipment

11 Mandatory MEPS and labels

12 Test standards and measurement protocols

13 Market transformation policies





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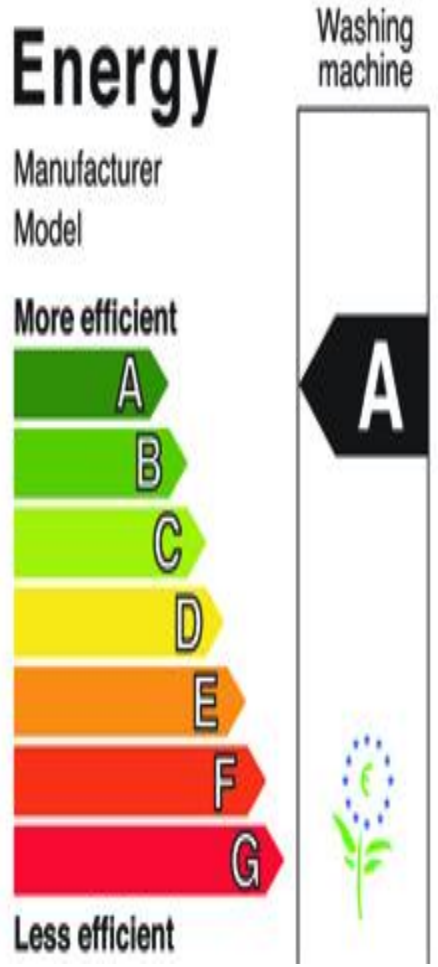
11. Mandatory Energy Performance Requirements or Labels

- Energy performance requirements (Standards) and Labels – a proven cost-effective policy tool
- Cornerstone:
  - mandatory regulations
  - S & L combination
- Must regularly update requirements in line with international best practices



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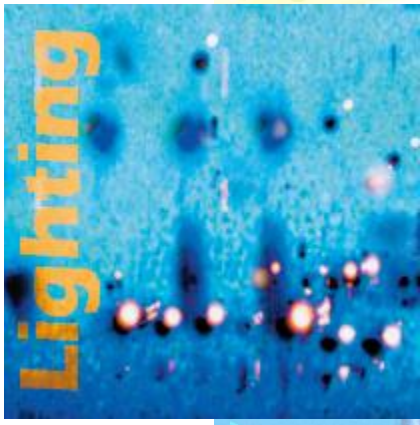
Lighting

14 Phase-out of inefficient lighting products

15 Energy-efficient lighting systems



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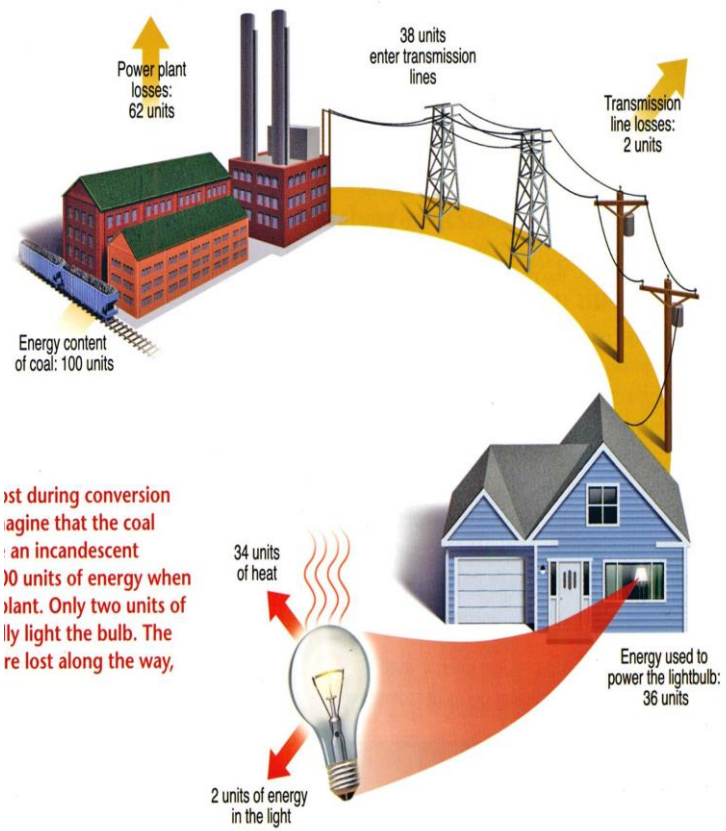
14. Phase out of inefficient lighting systems

- CFLs use ¼ the electricity of incandescent lamps for the same amount of light.
- Since 2007, all IEA countries and many others are in the process of phasing-out incandescent lamps.
- Global savings potential of 5.5% of all electricity & 500Mt CO2 is currently half way towards being achieved.

Overall efficiency of an incandescent lamp = 2%



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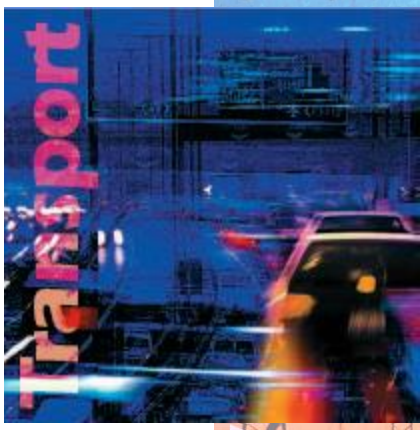
Transport



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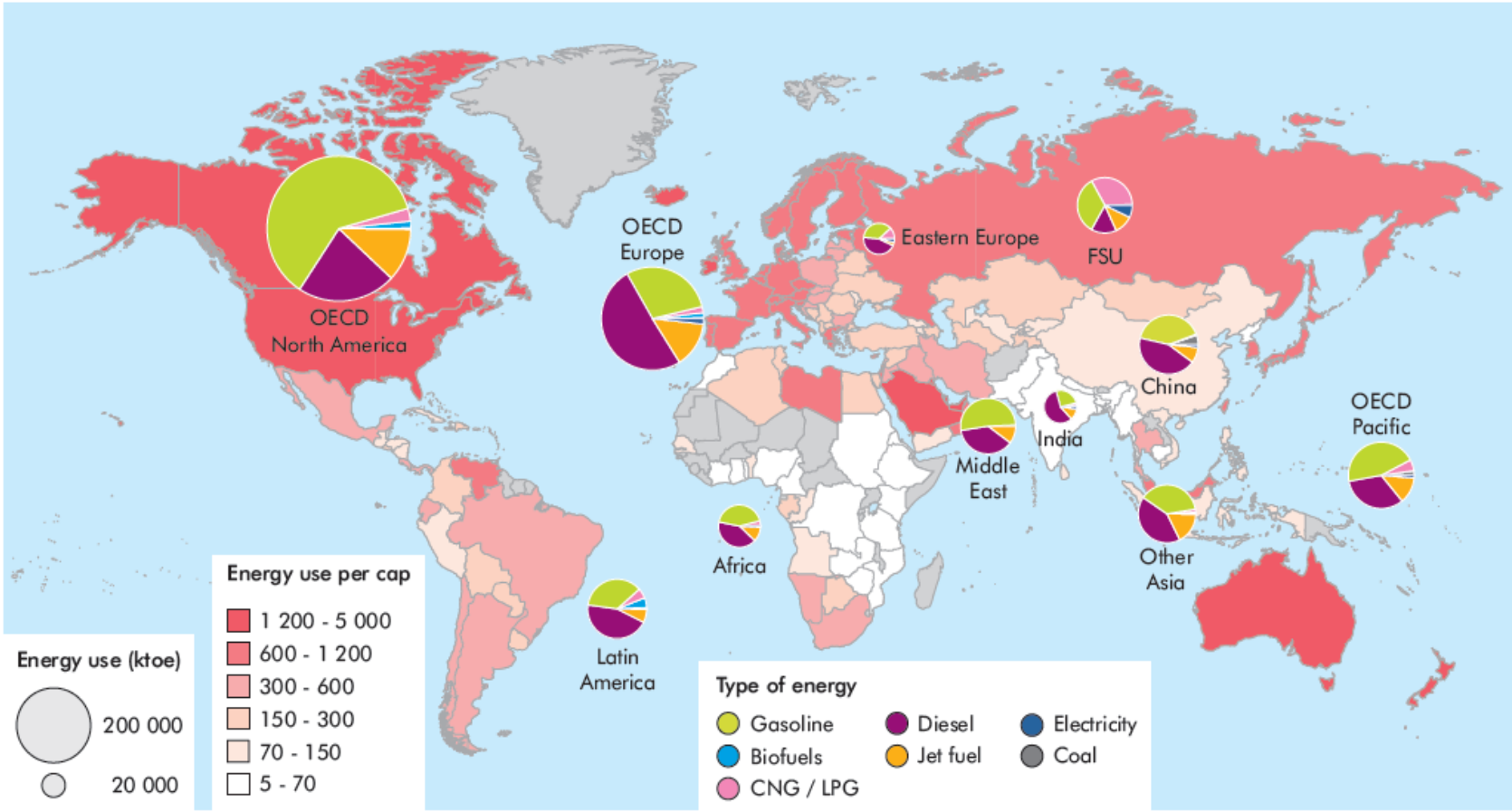
Global trends in transportation energy use



The boundaries and names shown and the designations used on maps included in this publication do not imply official endorsement or acceptance by the IEA.

Note: Does not include international shipping.

Source: IEA statistics.

2006 data

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16. Mandatory Fuel Efficiency Standards for Light and Heavy-duty Vehicles

- Introduce and strengthen Fuel Economy standards for vehicles
- Harmonise vehicle fuel efficiency test methods across countries

Source: JARI

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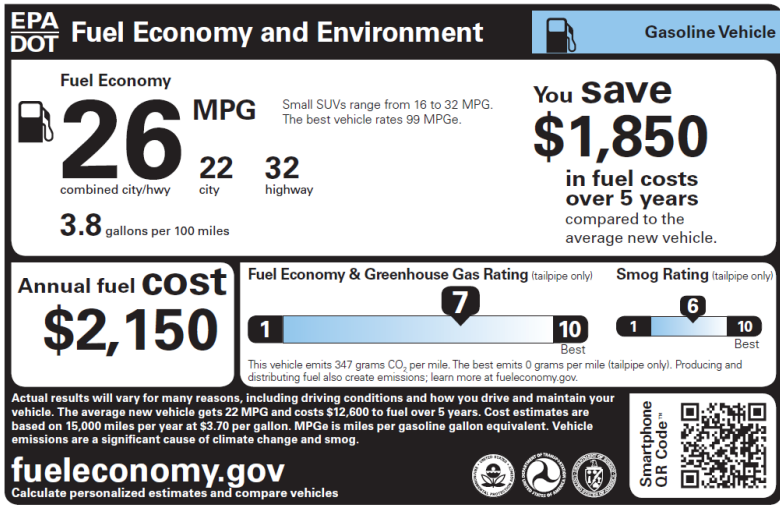
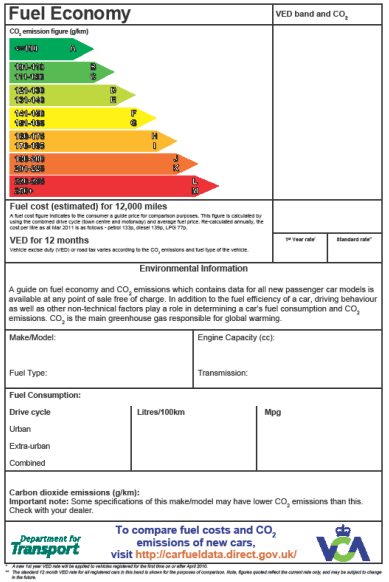
17. Encourage demand for fuel efficient vehicles

- Vehicle fuel economy labels
- Progressive vehicle taxes (engine size or fuel economy)
- Infrastructure and incentives for low CO2-emitting vehicles (electric and CNG vehicles)



Source: US DoE



Source: UK Department of Transport

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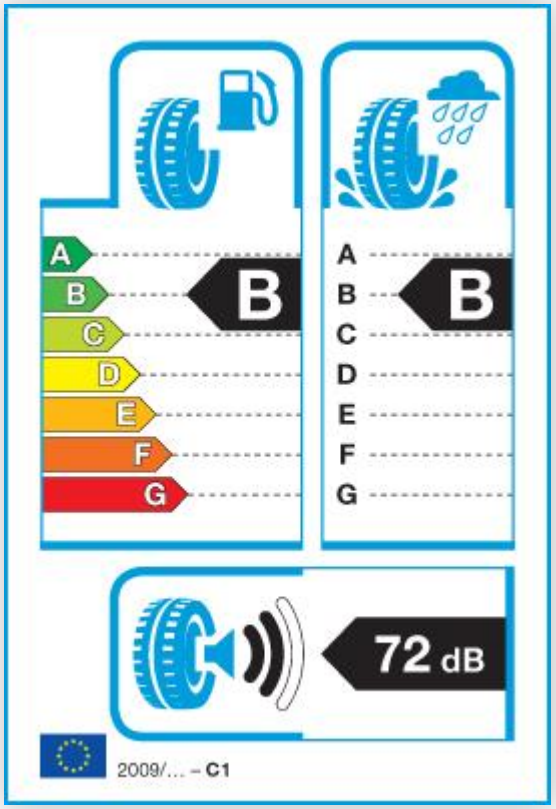
18. Fuel-efficient non-engine components



Fuel efficient tyres can reduce a motor vehicle's fuel consumption by as much as 5%.

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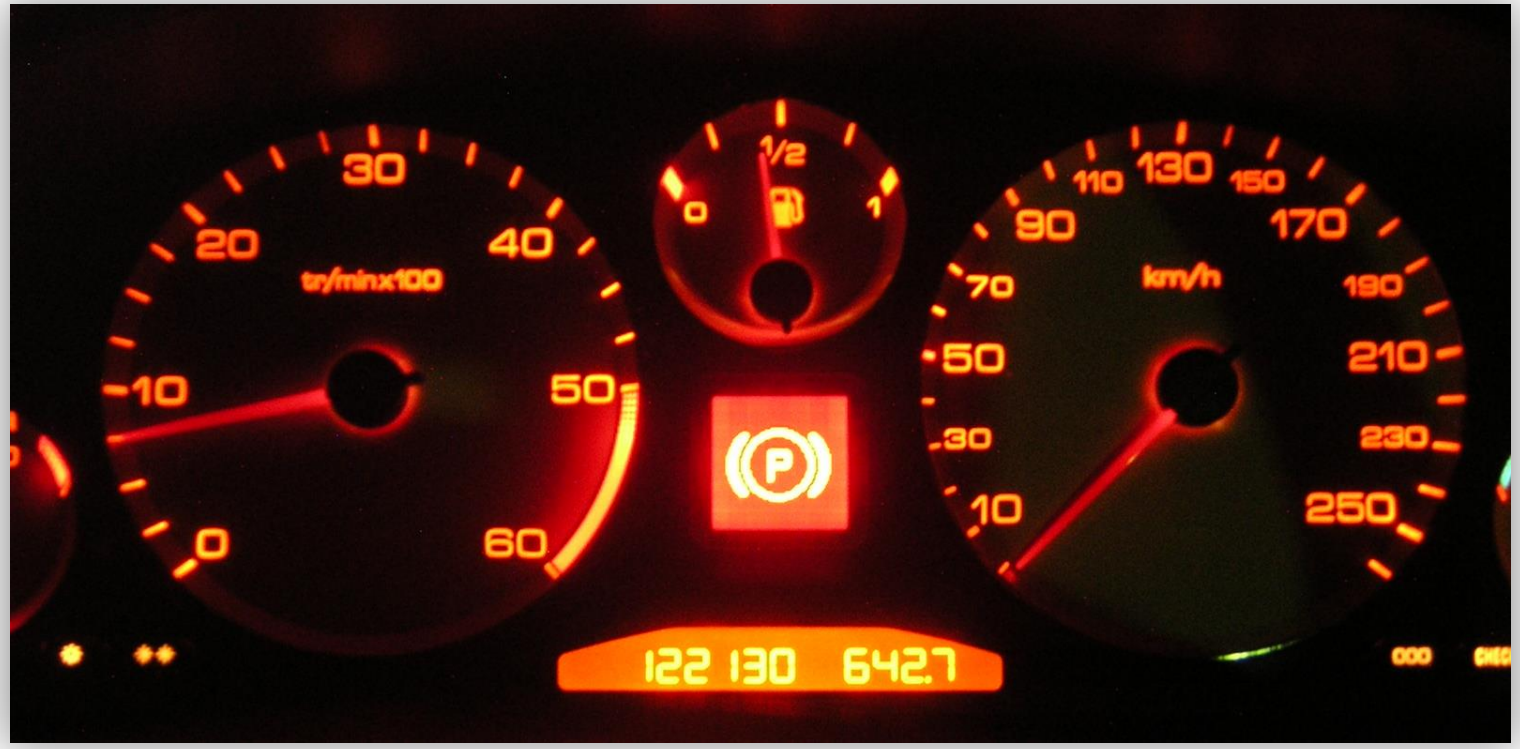
19. Eco-driving



Eco-driving has the potential to reduce fuel consumption by around 10%.

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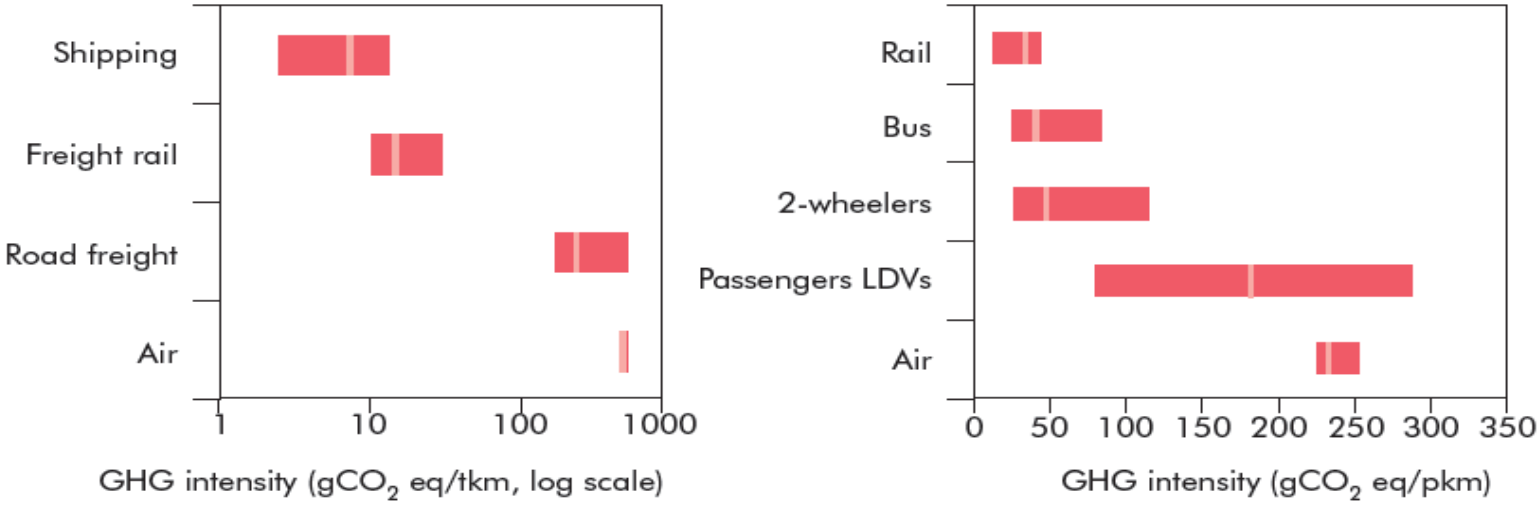
20. Improve transport system efficiency

Figure 1.6 ▶ GHG efficiency of different modes, freight and passenger, 2005



Note: The clear line indicates world average, the bar representing MoMo regions' discrepancy.

Sources: IEA Mobility Model database; Buhaug (2008).

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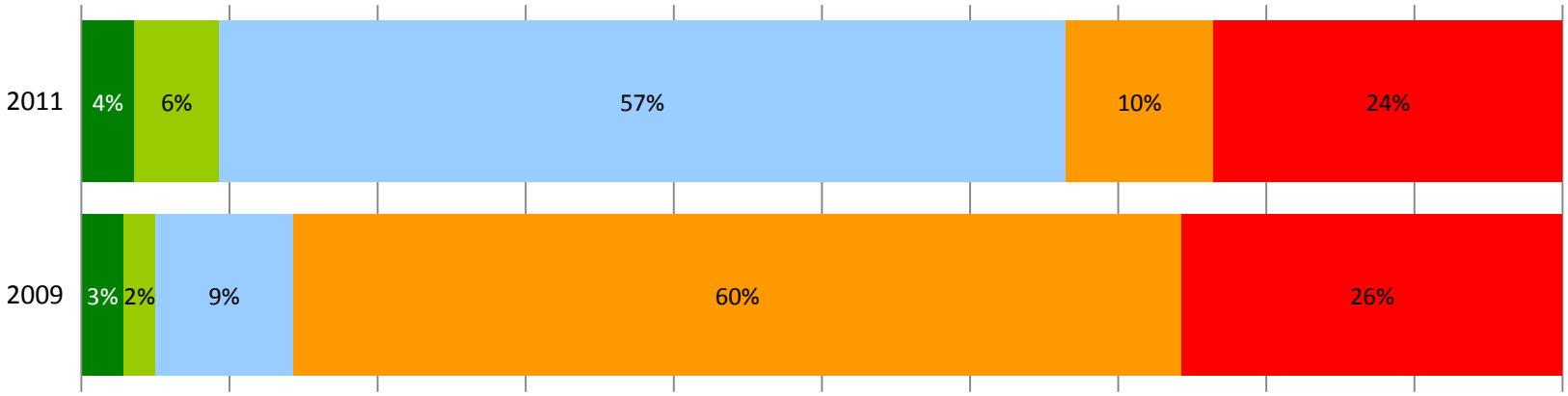
Progress in Transport Policies 2009-2011



Developments since 2009

- EU adopted regulations for TPMS, tyre rolling resistance and labelling.
- Japan started voluntary tyre labelling scheme.
- EU adopted a regulation for CO2 emissions for passenger cars.
- US tightened CAFE standards for MY 2012–2016 and introduced HDV standards.
- Gear-shift indicators mandatory (all new manual passenger cars) in EU.

Areas for improvement

- Fuel efficiency standards and labelling for heavy-duty vehicles not implemented in many countries.
- Implementation of planned policies needed.
- Eco-driving should be systematic - driving education.

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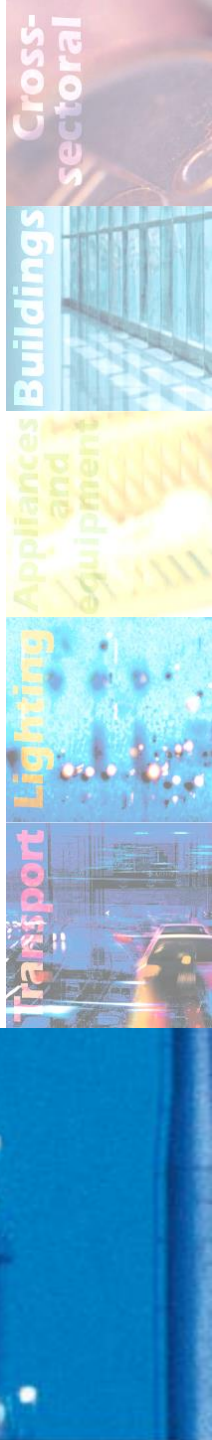
Industry



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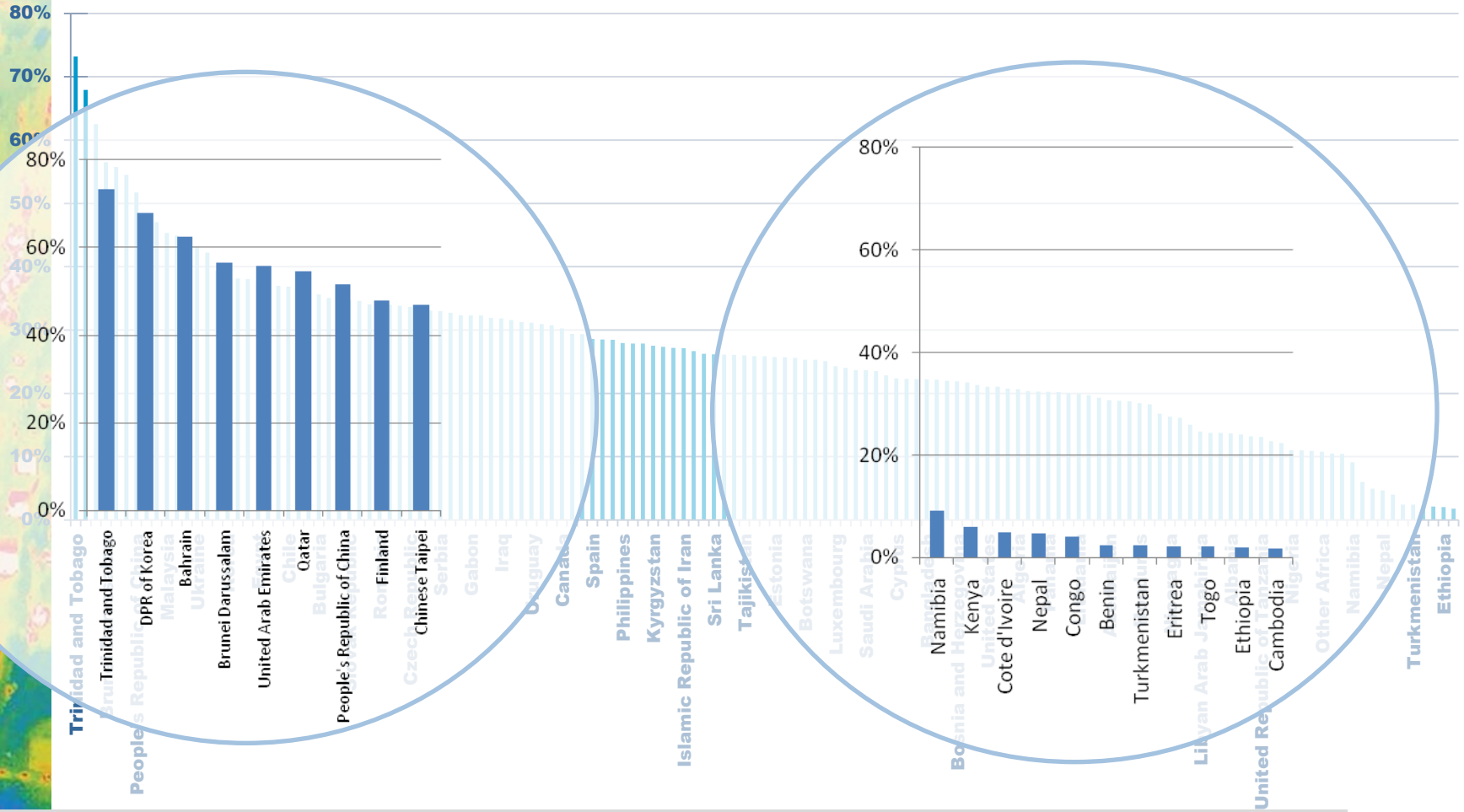
Why is the Industry Sector Important?

The share of industry in total final energy consumption is comparable across most countries



The tails of the distribution do vary greatly – from above 60% to below 5%

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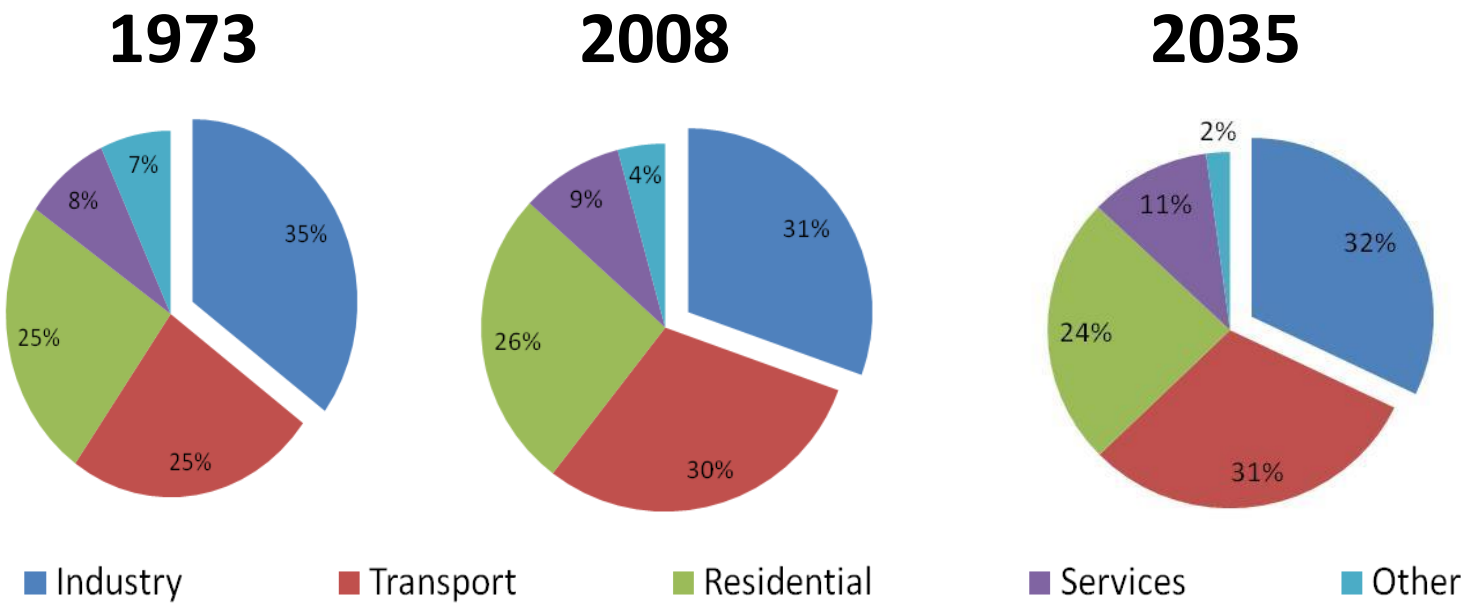
The industrial sector accounts for a third global total final consumption. This share has remained quite stable.



Industry will continue to be the largest energy consuming sector

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21. Energy management in industry

- **Role of energy management systems**
  - **Enable continuous energy performance improvement**
- **Role of energy management programmes**
  - **Overcome barriers and provide guidance and support for the implementation process**

ISO 50001 has now established international standards for energy management

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23. Energy efficiency services for small and medium-sized enterprises (SMEs)

1. **Capacity and audits**
2. **Information and tools**
3. **Access to finance**

Not all countries are supporting SMEs in implementing energy efficiency actions. A holistic/package approach is needed.

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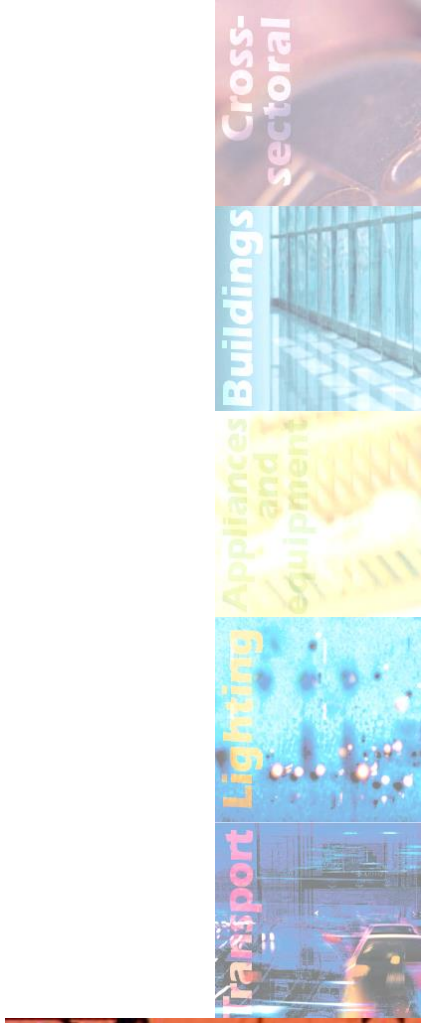
Energy utilities

25 Utility end-use energy efficiency schemes



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IEA's energy efficiency policy recommendations for energy utilities

- Provide a level playing filed for energy efficiency and energy supply options in resource procurement and wholesale markets;
- Oblige energy providers to deliver cost-effective energy efficiency to end-users;
- Require energy customers be provided with cost-reflective pricing and other information they need to manage their energy use; and
- Consider utilizing revenues from end-use energy consumption to fund energy efficiency

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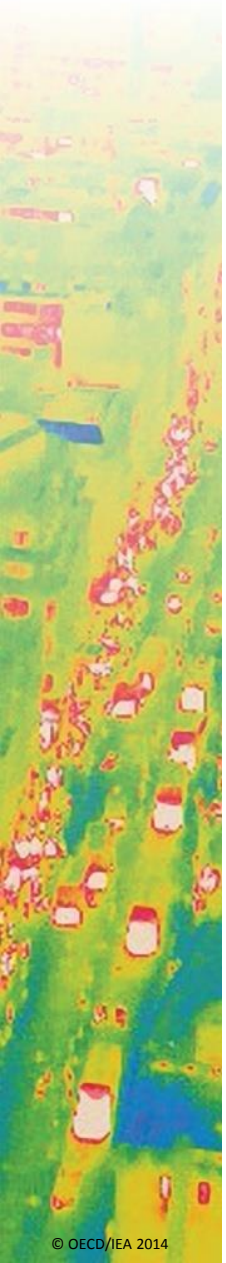

Appendix 2

Other Examples of ICIs

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Super-Efficient Equipment & Appliance Deployment (SEAD)

SEAD accelerates the pace of market transformation for energy efficient products

- **Awards** — Showcase leadership in energy efficiency
- **Incentives** — Increase demand for energy efficient products
- **Procurement** — Lead by example, with tools & best practice
- **Standards & Labels** — Ensure energy efficiency performance
- **Technical Analysis** — Provide foundation for policy success

Technical Assistance — Support implementation

CLEAN ENERGY MINISTERIAL
Accelerating the Transition to Clean Energy Technologies

Global Superior Energy Performance (GSEP) Energy Management Working Group

GSEP accelerates the adoption and use of energy management systems in industrial facilities and commercial buildings

Set Policy	Provide Support	Make the Case
ISO 50001 Auditor Scheme: Establishing consensus-based, internationally relevant certification scheme for ISO 50001 auditors.	**EnMS Practitioner's Toolbox:** Developing a toolbox containing a suite of proven and cost-effective energy management tools, measures, and activities.	**Energy Performance Database:** Collecting energy performance data into a secure portal; analyzing to demonstrate the value of energy management and identify strategies for implementation.
EnMS Pilot Projects: Sharing information and technical expertise to support pilot projects.	**Measurement and Verification:** Conducting activities to improve measurement and verification of energy management results.	**EnMS Case Studies:** Producing suite of energy management system case studies to develop a compelling business case based on real-world data and experiences.

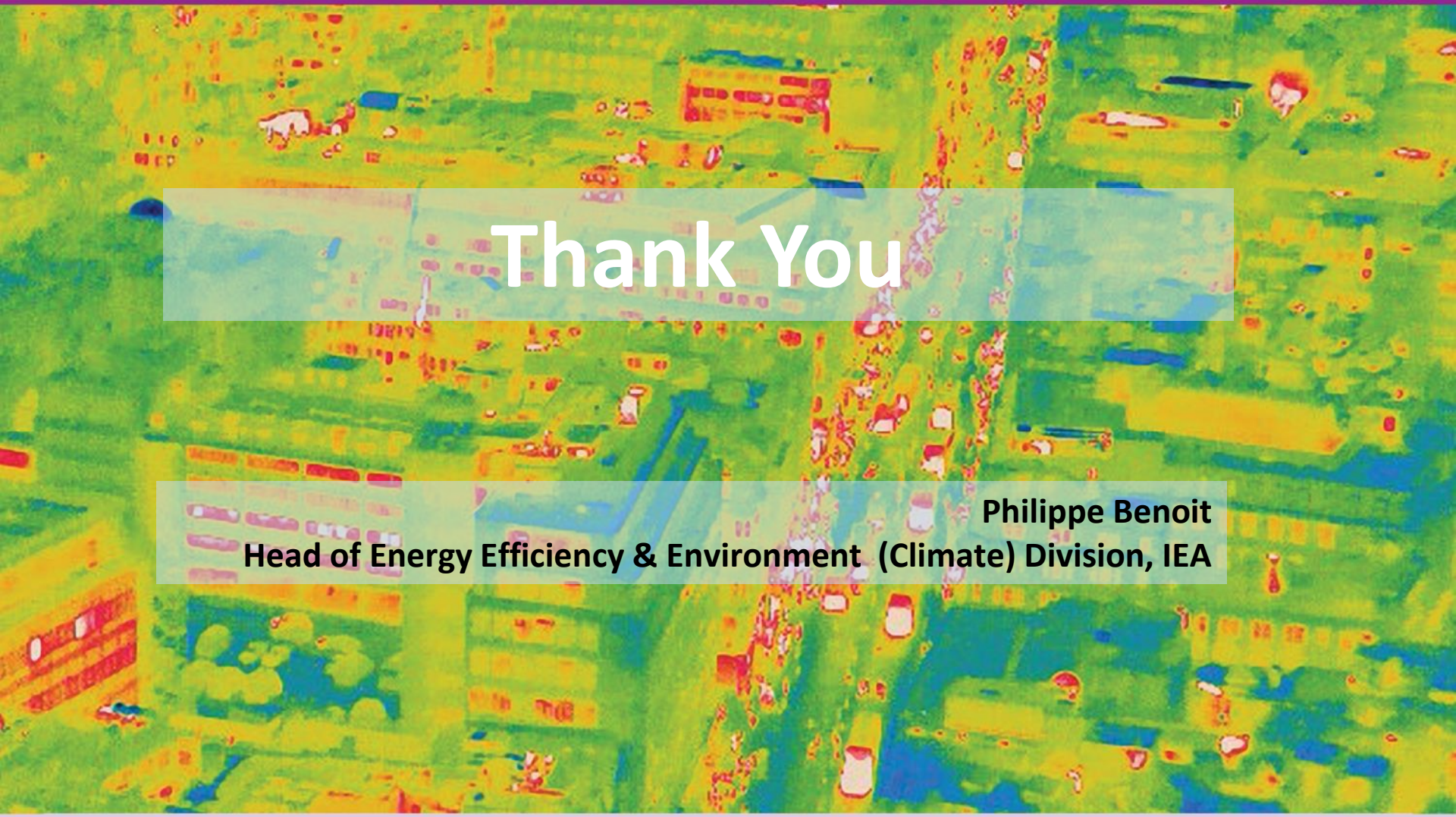
Global Superior Energy Performance (GSEP) Cool Roofs Working Group

GSEP cool roofs working group works to improve building efficiency and comfort and address urban heat and climate change

Demonstration Projects	Workforce Development	Market Infrastructure, Standards, and Codes	Studies of Deployment Potential
- Conducting pilot demonstrations of cool roofs on low-income homes to support skill set development and to inform efforts to improve low-income housing programs.	- Developing cool surface workforce training center and certification programs. - Conducting capacity-building sessions with technical experts on cool roof implementation.	- Supporting governments in development of voluntary standard for cool roofs. - Building support for cool surface materials testing labs to enable product labeling and build consumer confidence in cool surface products.	- Conducting studies on energy savings potential of cool roof deployment for residential and commercial buildings to help lay the groundwork for cool roof policy.

ENERGY EFFICIENCY

International Energy Agency



Thank You

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