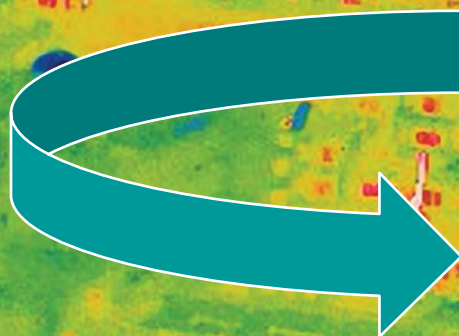


# ENERGY EFFICIENCY

## Market Report 2013

# Hidden Fuel

# First Fuel



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**Director Sustainable Energy  
Policy and Technology**

**18 October 2013**

### Market Trends and Medium-Term Prospects





# IEA fuel market reports

RENEWABLE ENERGY  
Medium-Term  
Market Report 2013



Market Trends and Projections

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COAL  
Medium-Term  
Market Report 2012



GAS  
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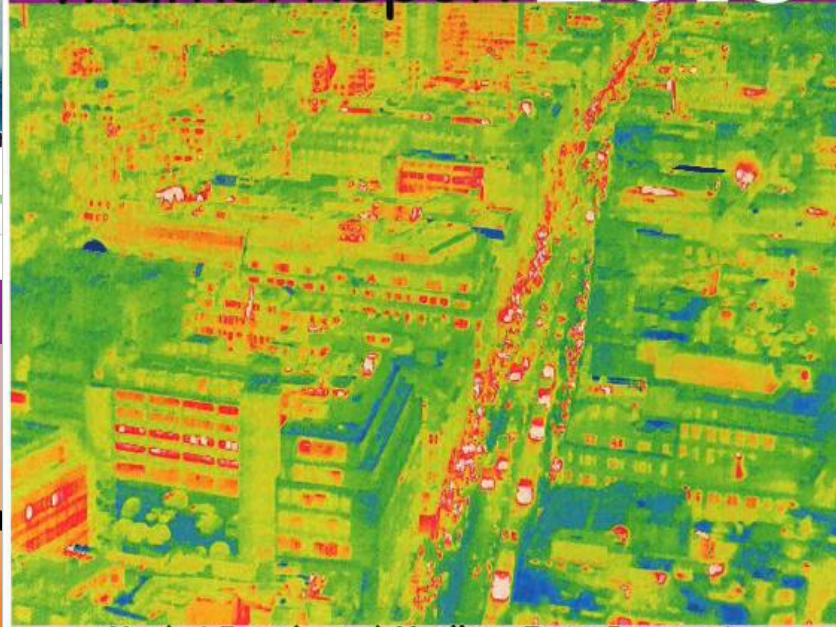


Market Trends and Projections to 2018



International Energy Agency

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Market Trends and Medium-Term Prospects

OIL  
Medium-Term  
Market Report



Market Trends and Projec

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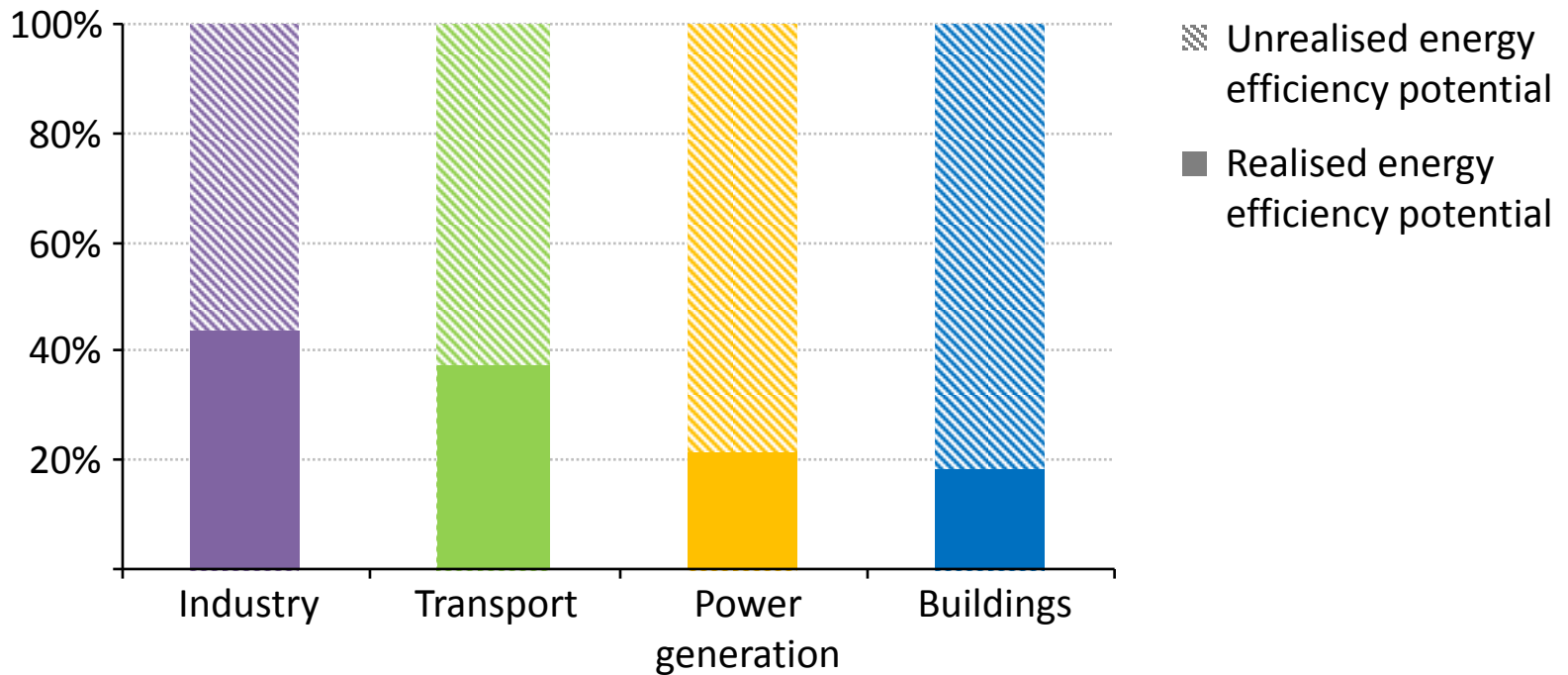


International Energy Agency



# Energy efficiency: a huge opportunity going unrealised

Energy efficiency potential used by sector in the WEO 2012  
New Policies Scenario



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



# A big market with bigger potential

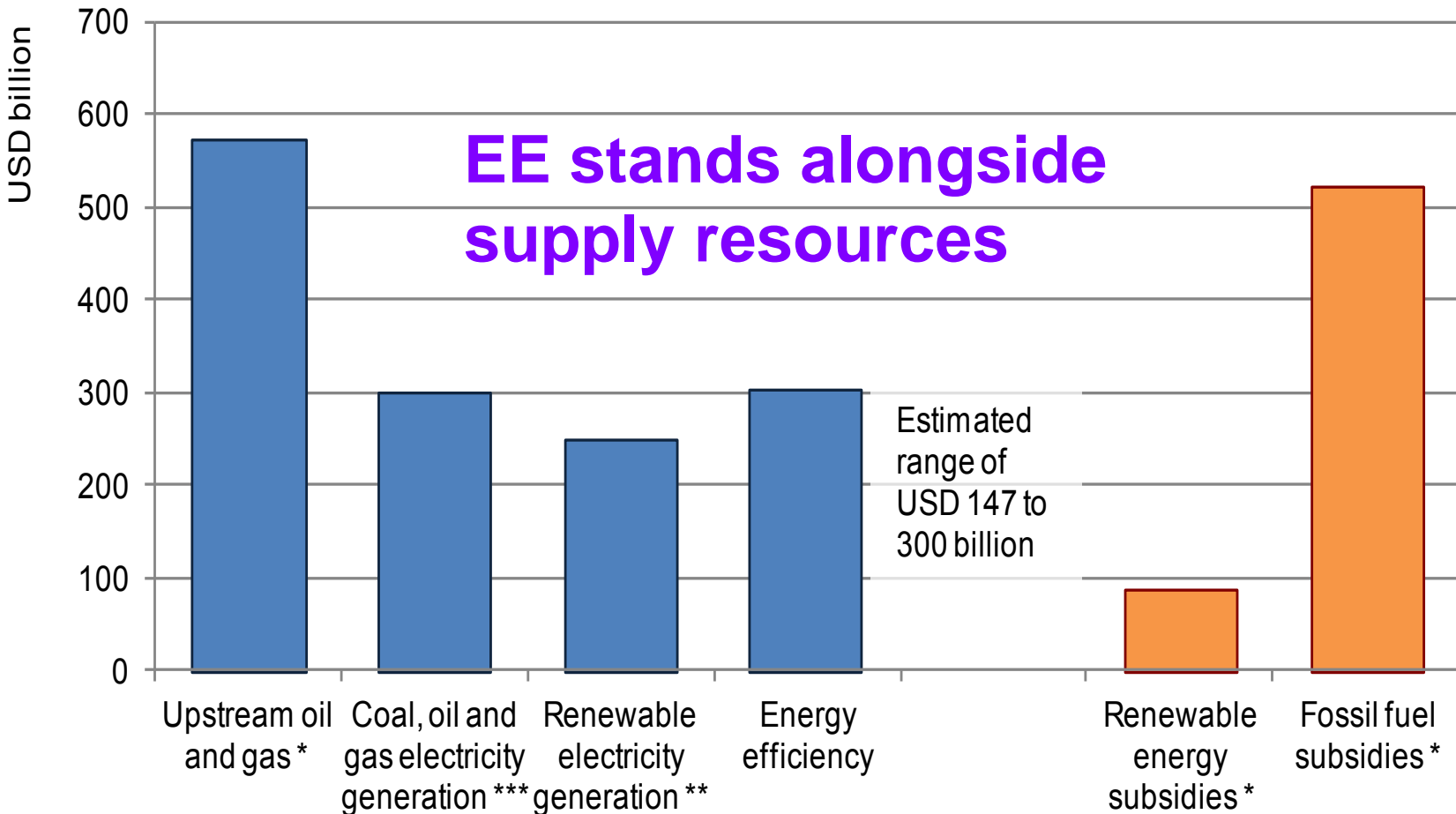
- **USD300 billion market**
- **Already delivers substantial reduction**
- **Recent growth driven by policy and high energy prices**
- **Bright national policy prospects**
- **Potential \$458 billion / year of savings by 2020**





# USD300Bn global EE market in 2011

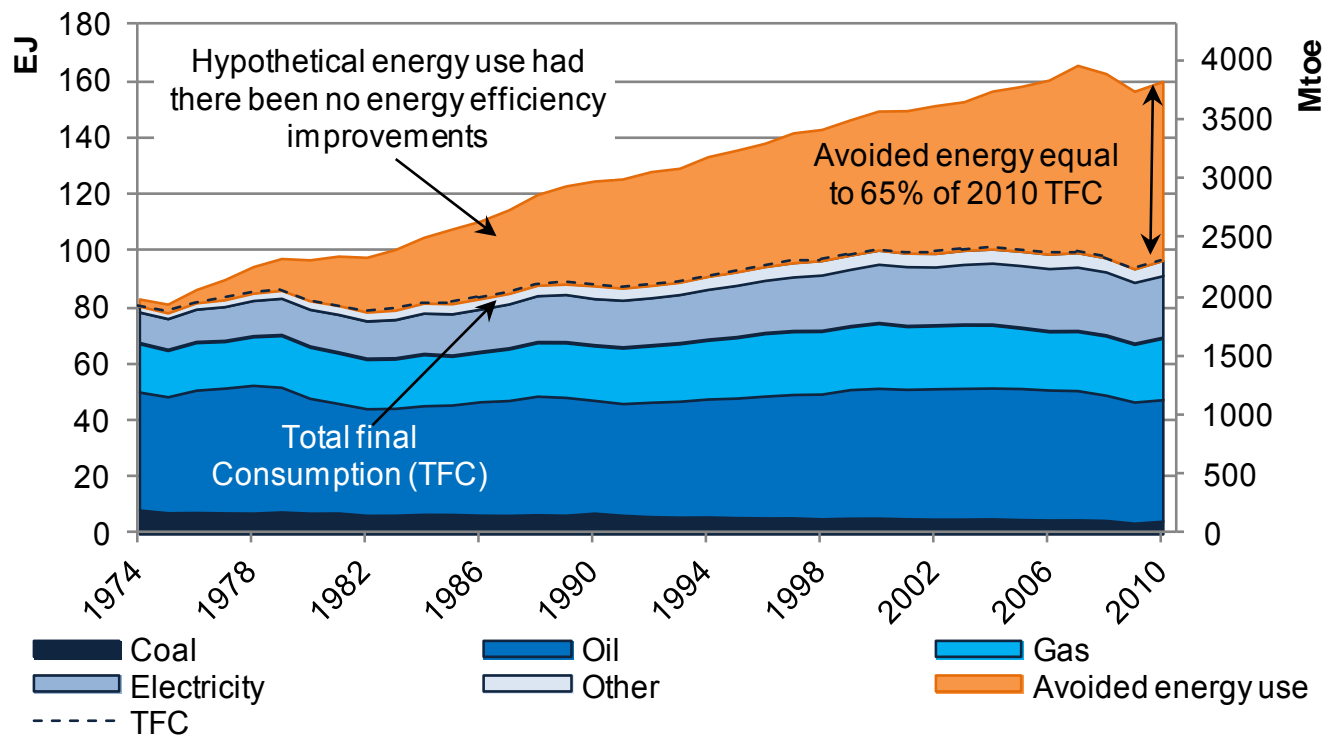
- Comparable to RE and fossil power generation investments
- BUT, investments in energy efficiency are still less than two-thirds of the level of fossil fuel subsidies





# IEA's first fuel?

- Between 1974 and 2010, energy efficiency was the largest energy resource
- Cumulative avoided energy consumption due to energy efficiency in these IEA countries amounted to over 1 350 EJ (32 billion toe)



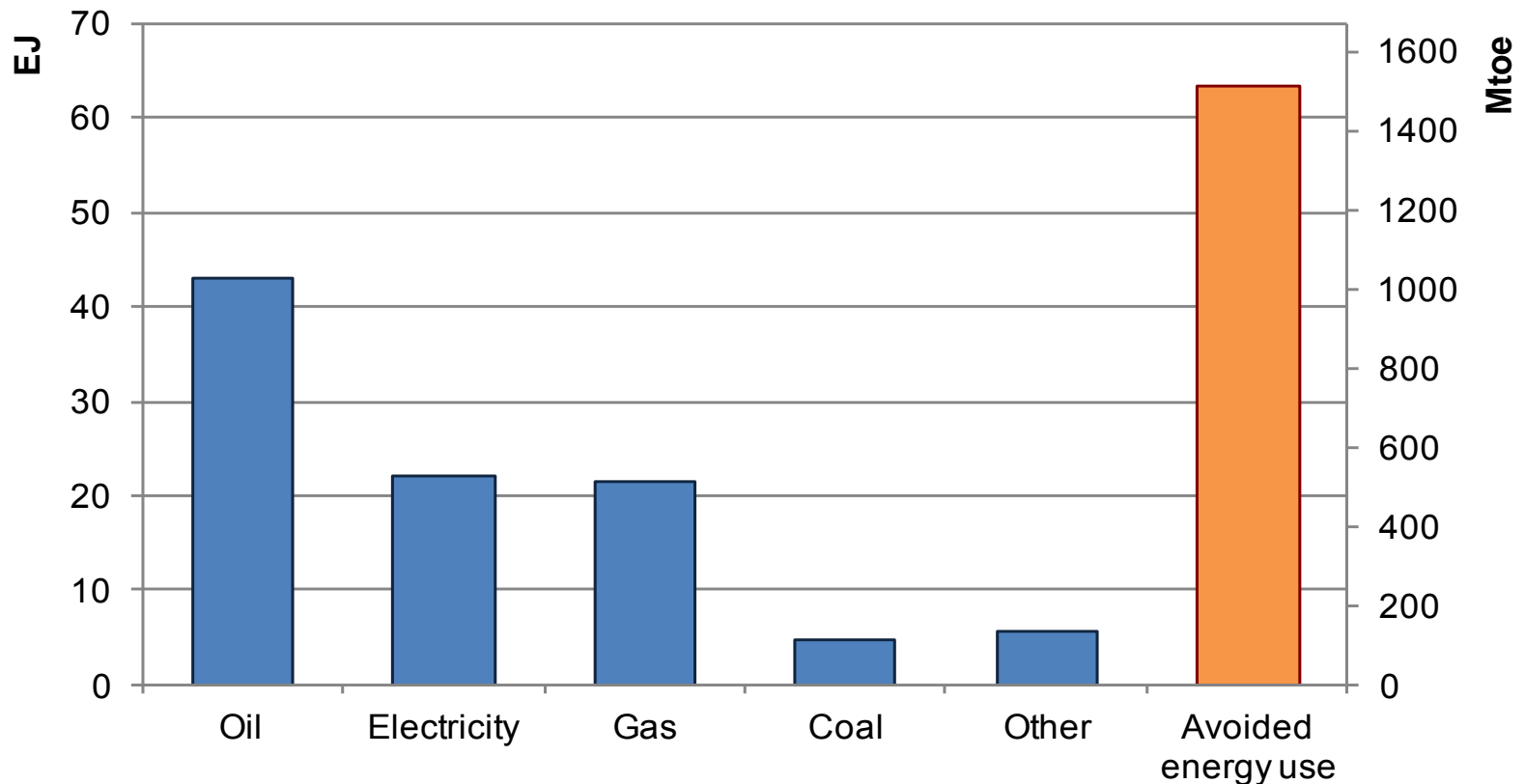
*Long-term improvements in energy efficiency in 11 IEA countries*



# In 2010 energy efficiency was the largest resource

- Energy efficiency contributed 63 exajoules (EJ) (1400mtoe) of avoided energy use in 2010

- larger than the supply of oil (43 EJ), electricity or natural gas (22 EJ each)

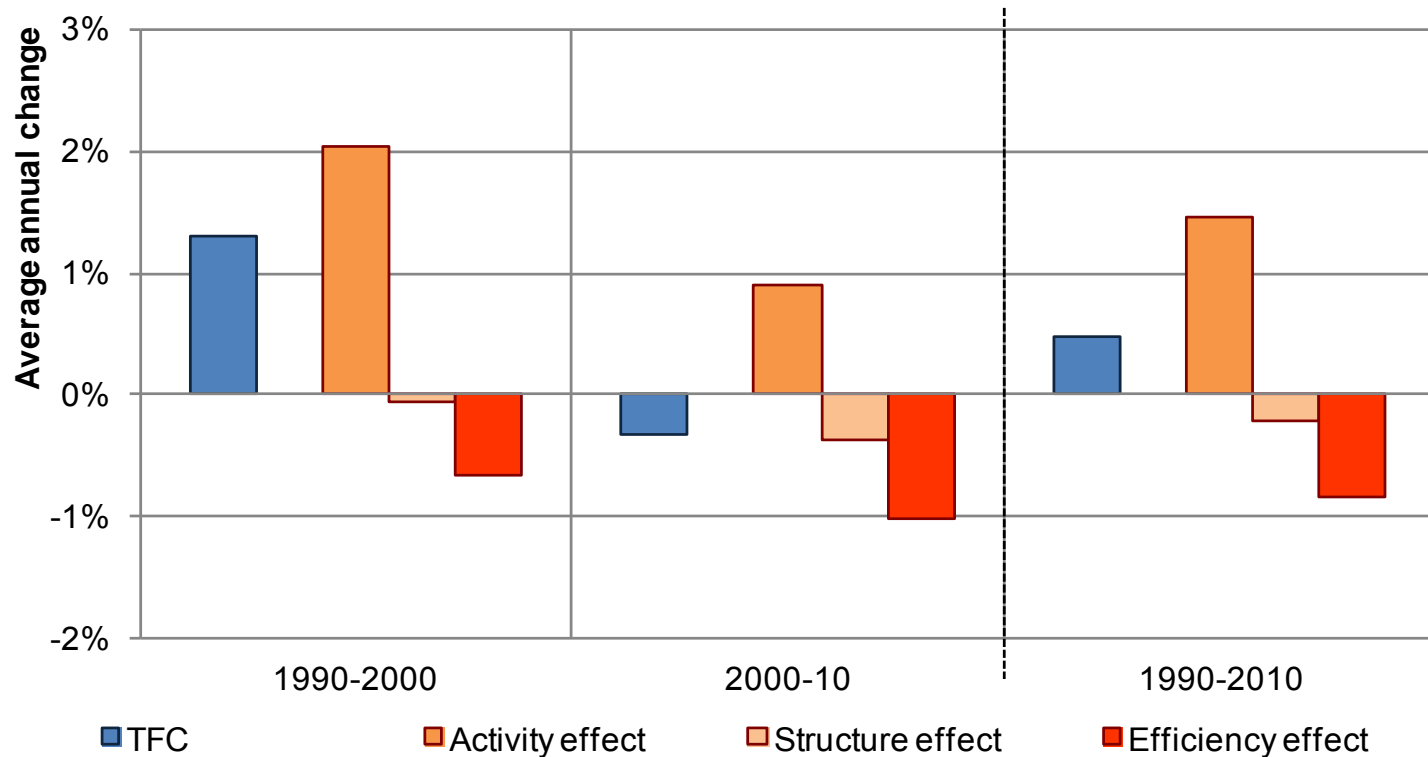


*Contribution of energy efficiency compared to other energy resources consumed in 2010 in 11 IEA countries*



# Energy efficiency has been the key factor restraining energy growth

- Final energy use increased by 0.5%/year between 1990 and 2010
- Efficiency effect is larger than the effect of structural changes in restraining energy growth



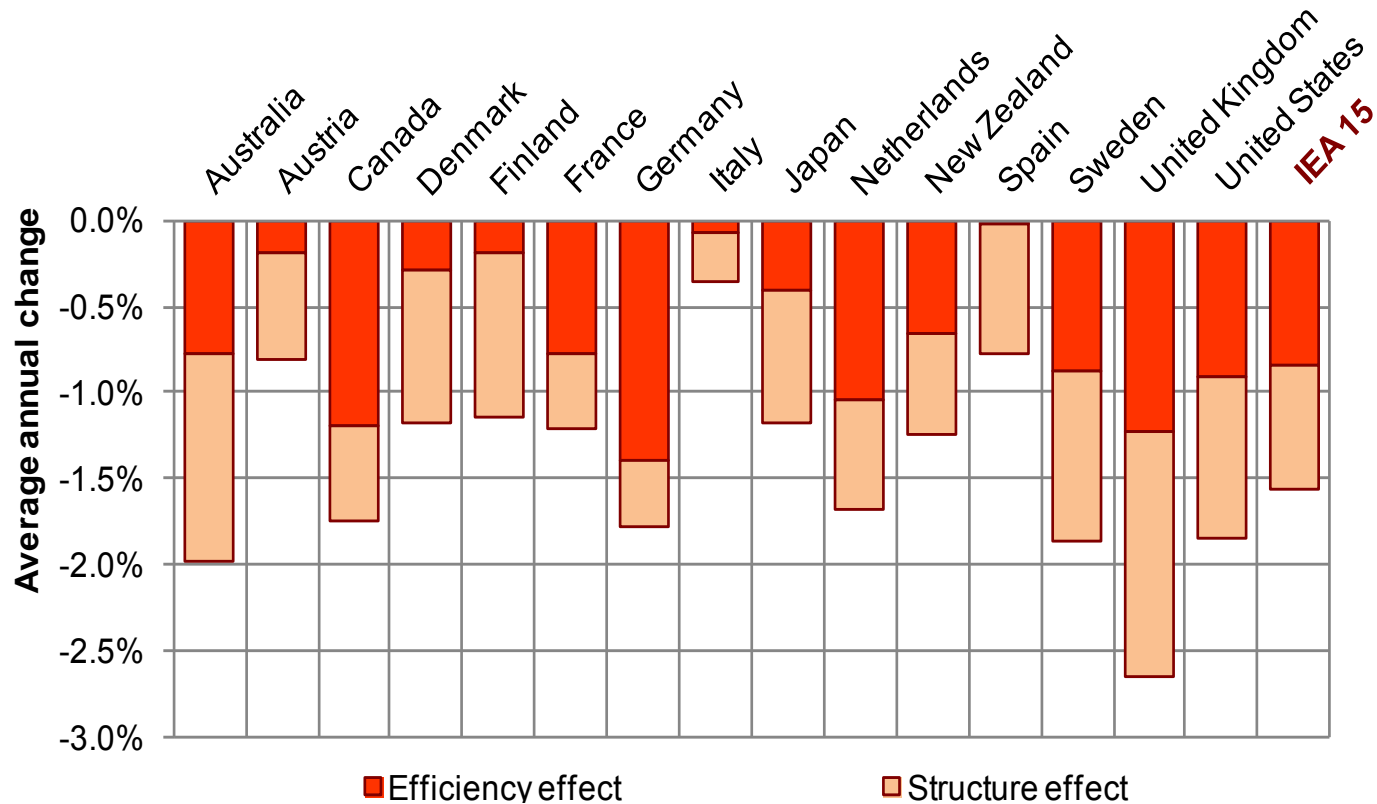
*Changes in TFC, decomposed into structure, activity and efficiency effects for 15 IEA countries*





# For 4 out of 15 countries energy efficiency was the dominant factor reducing energy intensity

- Overall, just over half (54%) of the average annual reduction in intensity was due to improved efficiency.
- 46% of the reduction was due to changes in economic structure.



*Changes in aggregate intensities of 15 IEA countries, decomposed into structure and efficiency effects, 1990-2010*



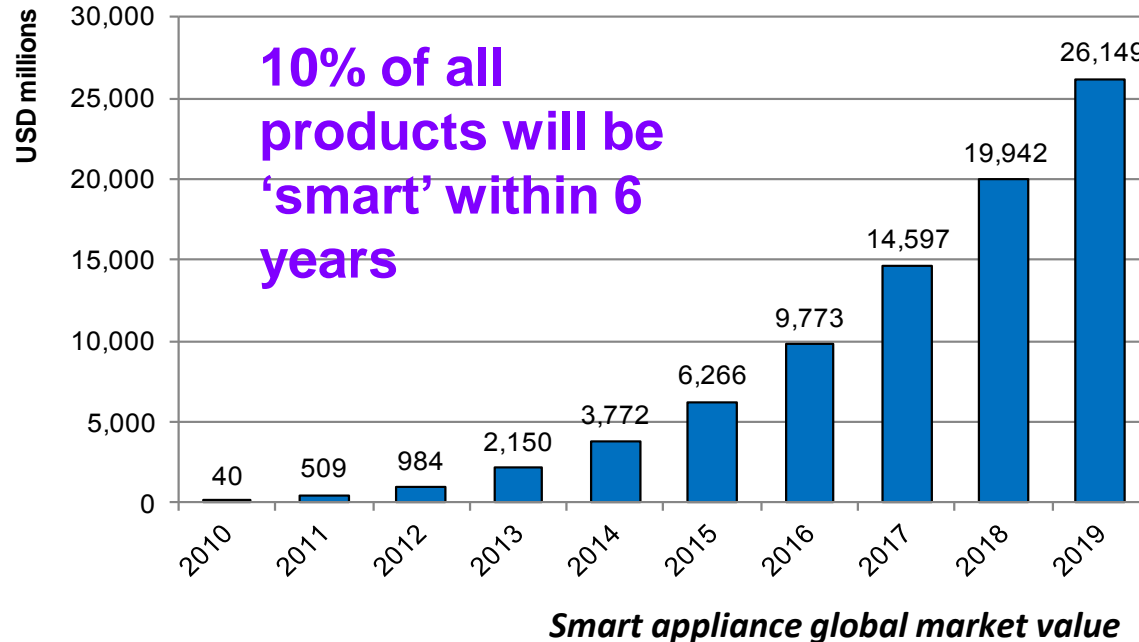
# Country case studies

- **Markets have distinctive characteristics related to country-specific socio-economic conditions and resource endowments.**
  
- **Information provision and regulation have played a leading role in stimulating the energy efficiency market**
  - standards and labelling
  - providing access to energy assessments and financing
  - energy efficiency obligations placed on energy suppliers
  
- **Utility and energy service company (ESCO) schemes have also driven growth, especially among large energy users.**



# Technology focus: the digital era is defining future appliance EE markets

- Appliances are increasingly becoming network-connected



- Network-connectivity and information communication technology can enable energy efficiency BUT they are also rapidly driving up energy demand
  - Network standby could be 550TWh/yr if we don't act
- Standards (Energy Star, Top Runner) are key





# Japan: a Top Runner in Energy Efficiency

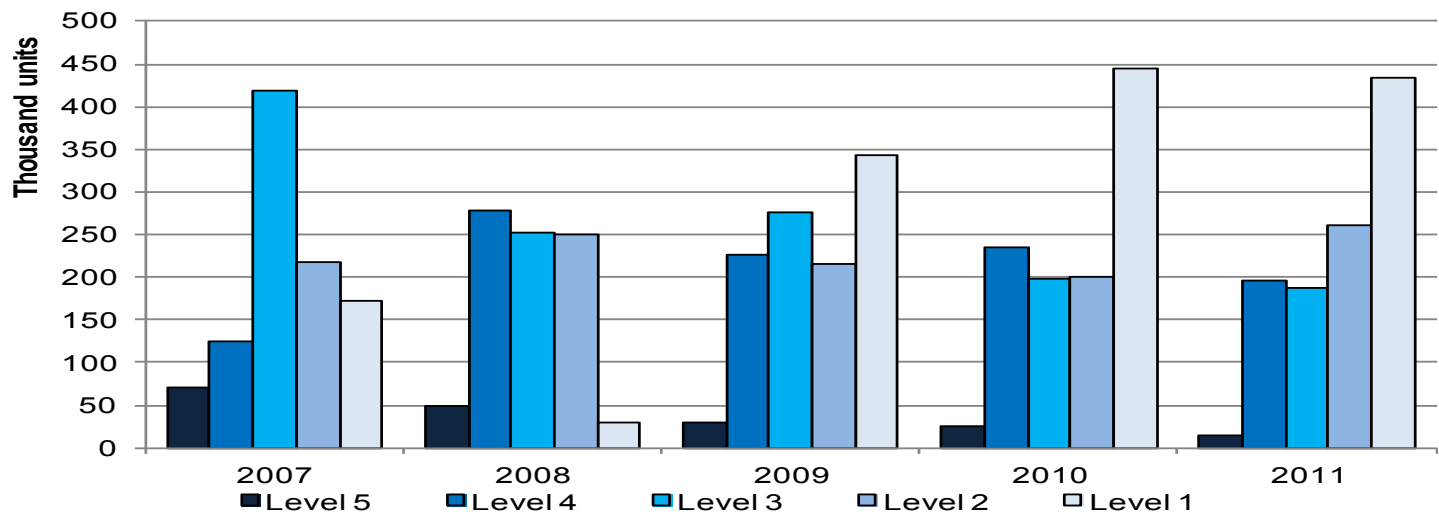
Products	Target year	Additional cost * (JPY billion)	Direct benefit ** (JPY billion)	Avoided energy demand
Lighting	2005	3.4	38.1	14 040 GWh (1.2 Mtoe)
Refrigerator	2004	19.0	80.7	29 749 GWh (2.6 Mtoe)
Gasoline vehicle (1 <sup>st</sup> regulation)	2010	41.5	107.6	7 654 ML (6.6 Mtoe)
Video tape recorder	2003	3.5	8.8	3 241 GWh (0.28 Mtoe)
Air conditioner	2004	29.1	63.7	23 483 GWh (2 Mtoe)
Electric rice-cooker	2008	2.1	2.4	888 GWh (0.08 Mtoe)
Gasoline vehicle (2 <sup>nd</sup> regulation)	2015	60.7	65.4	4 436 ML (3.9 Mtoe)
Warming toilet seat	2006	5.5	6.0	2 210 GWh (0.19 Mtoe)
Television	2003	28.1	23.9	8 819 GWh (0.76 Mtoe)
Personal computer	2005	48.0	17.9	6 611 GWh (0.57 Mtoe)
Microwave	2008	5.1	1.5	588 GWh (0.05 Mtoe)
<b>Totals</b>	-	<b>246.0</b>	<b>416.0</b>	-

- Expected to deliver USD 3 bn in consumer benefits for lighting, vehicles and appliances
- Broaden scope to cover three-phase induction motors, LEDs, heat pumps and printers in 2015.
- What is the energy efficiency spillover to international markets from Top Runner's stimulation of efficient technologies?



# Korea: accelerating high efficiency appliances

- Korean ESCOs reached USD 330 million in 2011, an increase of 63% from 2010. ESCO's avoided 1.3 Mtoe in 2011.
- The total number of high-efficiency products is increasing very fast in Korea.
- Fuel-efficient vehicles are accelerating rapidly in Korea from 30% to 100% compliance with 17 km/l by 2015.





# Prospects –looking forward

- **Energy efficiency markets are expected to grow in the medium term :**
  - Significant growth expected in private investment **enabled by government** policy rather than direct public investment.
  - **End-use energy price is also a key driver,**
  - but **analysis is limited by data availability** and relatively greater uncertainties in projecting future pricing trends.





# EEMR2013: Table of Contents

- **Executive Summary**
- **Introduction**
- **Part I: Framework**
  - **Measuring the market for EE**
  - **Understanding the market for EE**
  - **What the numbers say: EE and changing energy use**
  - **Technology Focus: appliances, lighting and ICT**
- **Part II: Country Review**
  - **Australia; Canada; China; European Union; France; Germany; India; Japan; Korea; Mexico; New Zealand; South Africa; South East Asian countries; United Kingdom; United States**
- **Part III: Selected Data**



# EEMR<sub>2014</sub>

## **EEWP support an EEMR in 2014 with:**

- **A focus on Electricity Efficiency**
- **Succinct country case studies—expand country base**
- **Global Technology focus on Buildings or Transport**
- **Improved data from countries**



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Thank You

**Market Trends and Medium-Terms Prospects**