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# Energy Efficiency Today: The 2015 Market Report

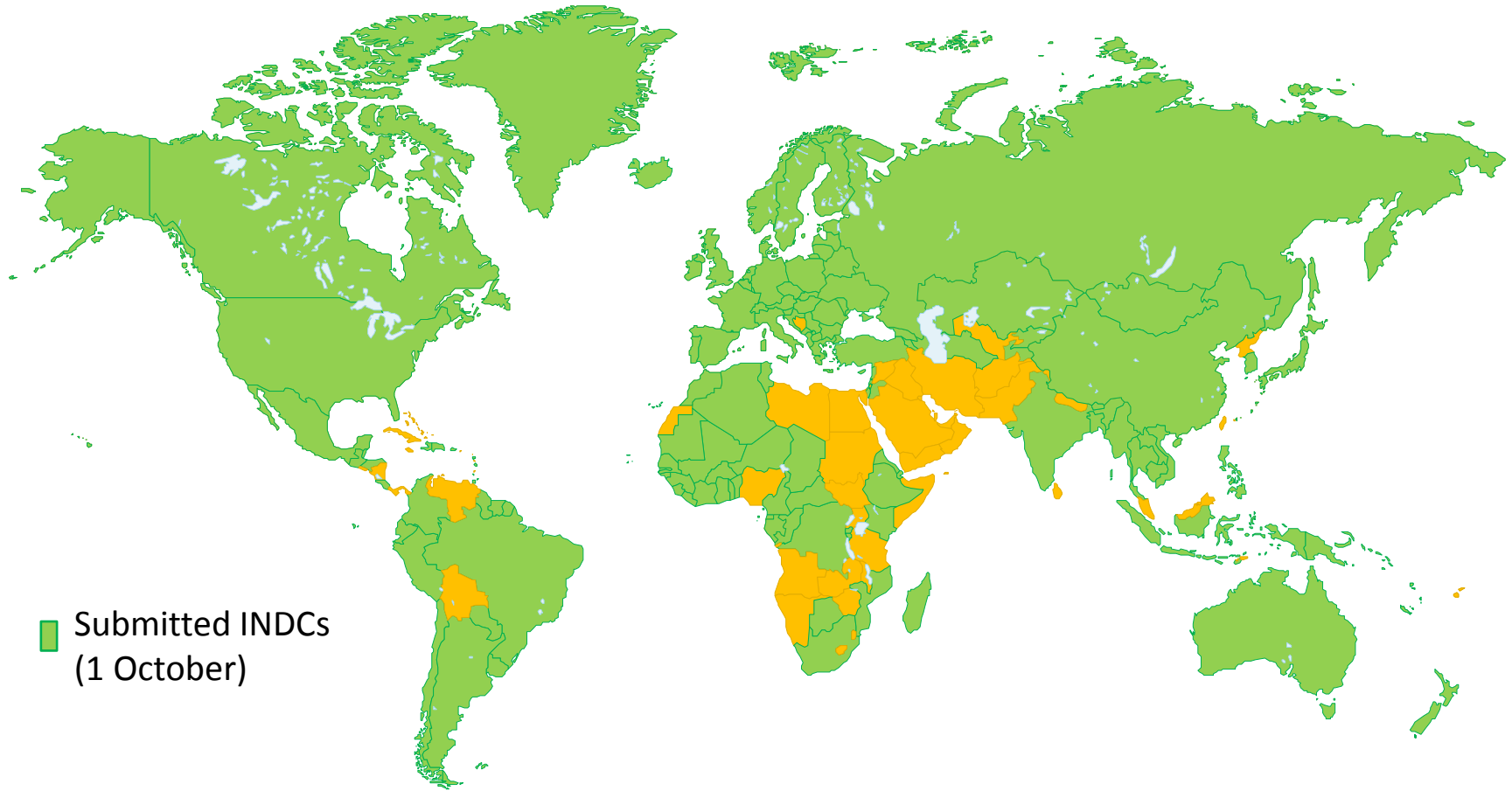
## Bright Business Conference

*Tyler Bryant*  
*International Energy Agency*

[www.iea.org](http://www.iea.org)

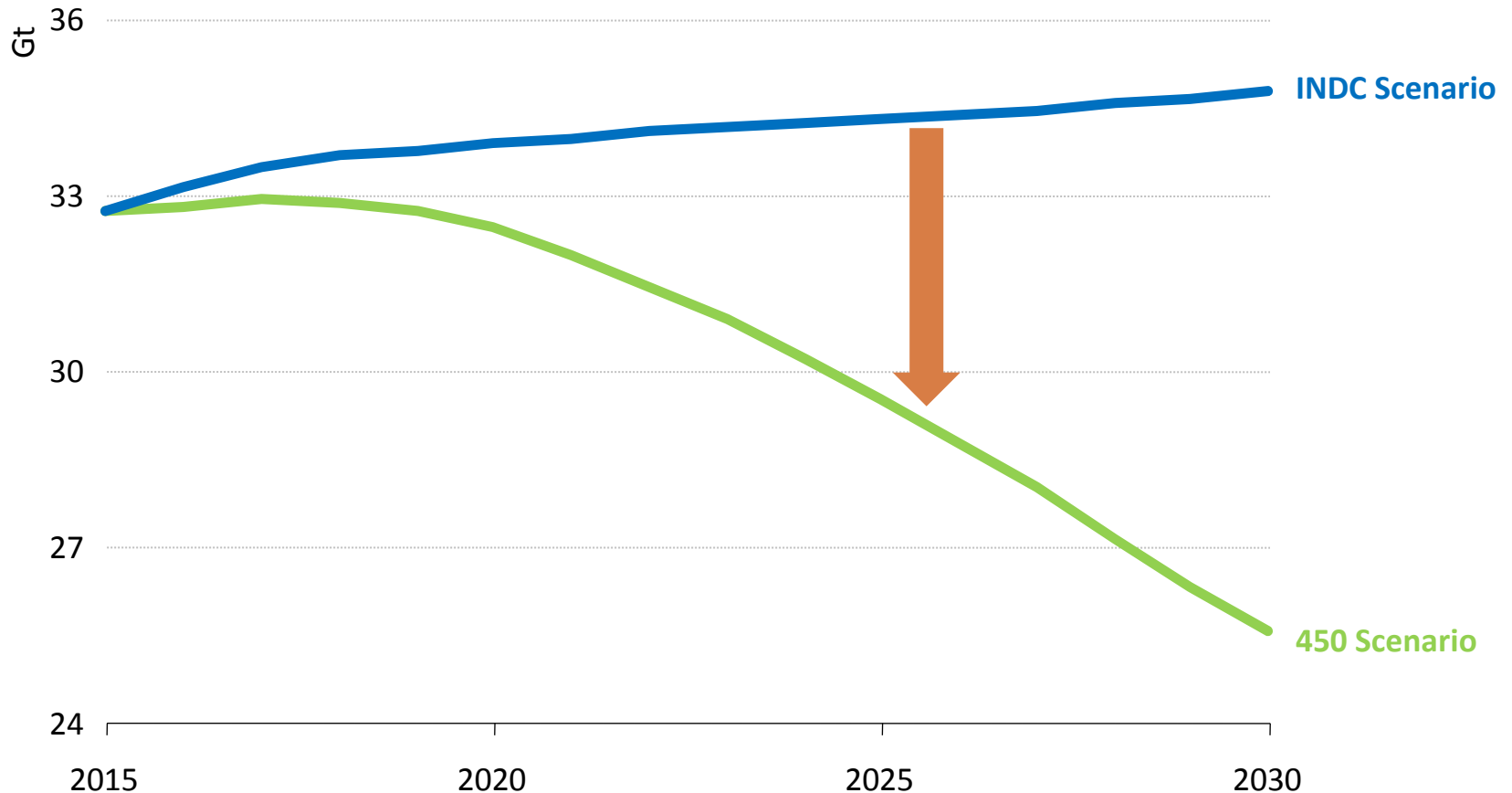
# *Prologue*

# Over 115 INDCs, over 140 countries Over 85% of energy related GHG



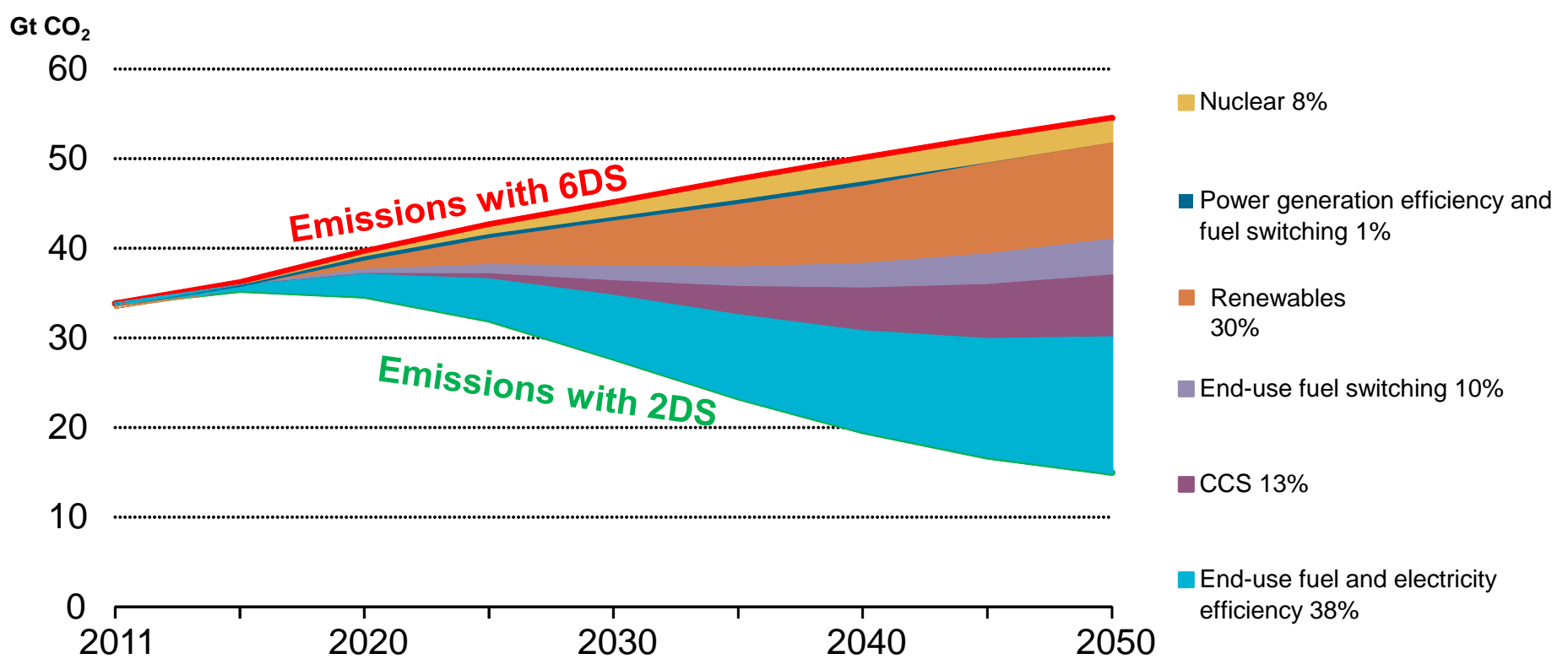
**Submitted INDCs as of early Oct cover over 85% of energy-related GHG emissions, with implications for future energy & emissions trends**

# INDCs and beyond . . .



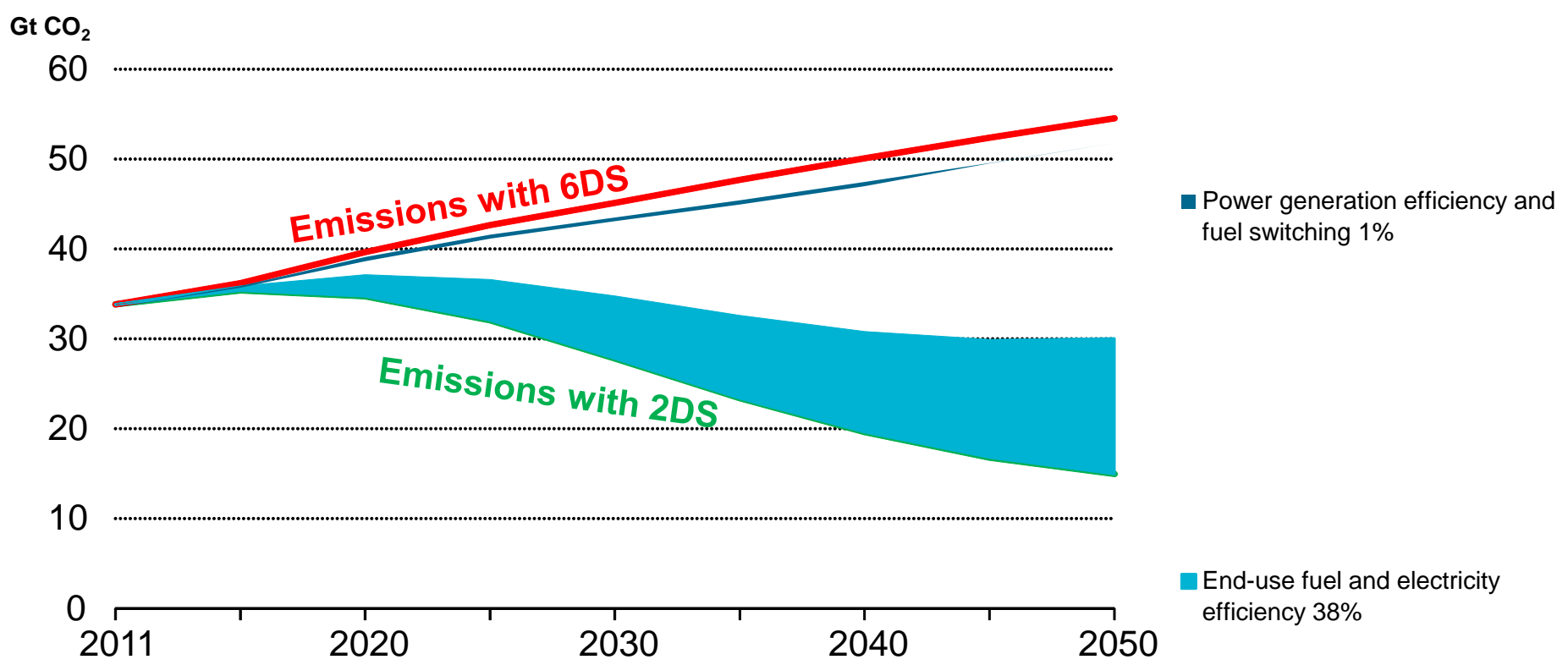
***INDCs are a first step but we need much more action –  
Energy efficiency is the key to COP***

# Portfolio of actions to reduce energy sector emissions



**Energy Technology Perspectives 2015**

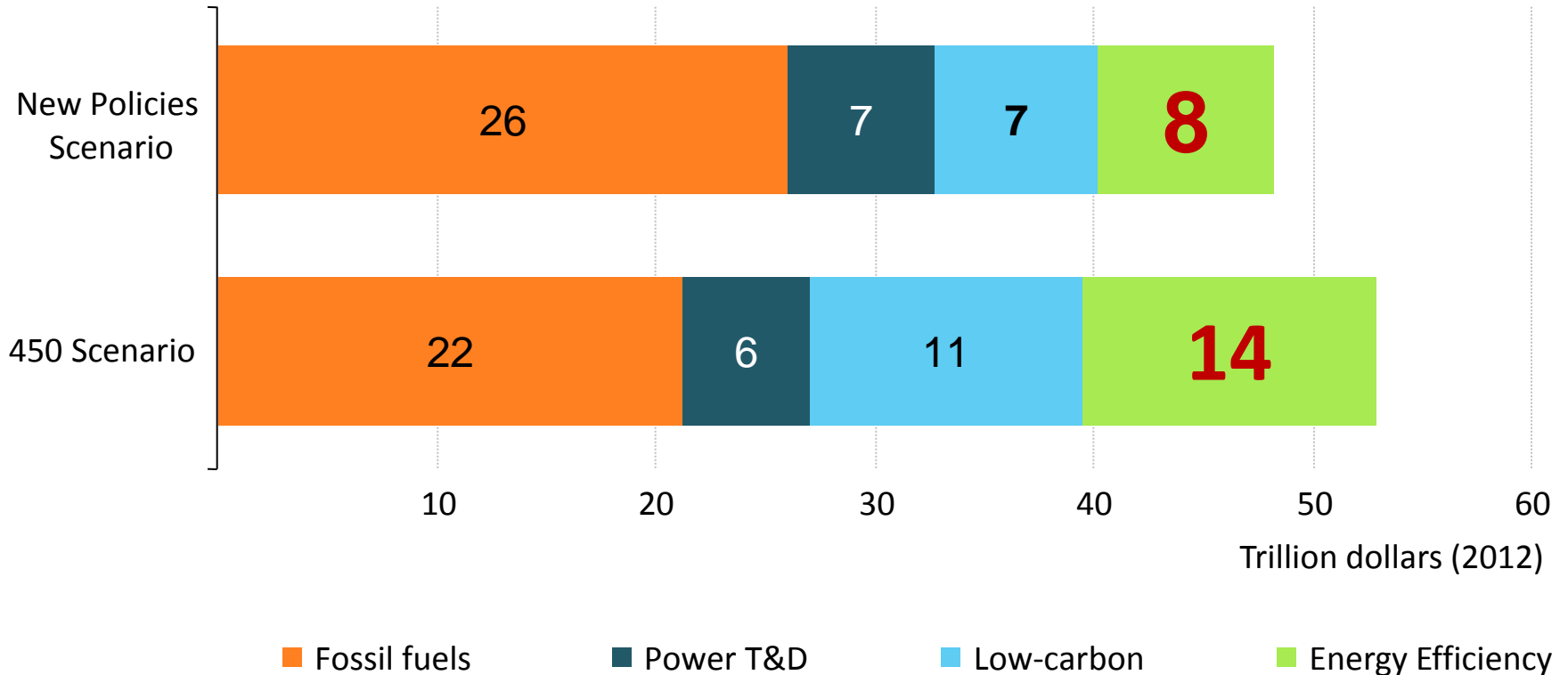
# Portfolio of actions to reduce energy sector emissions



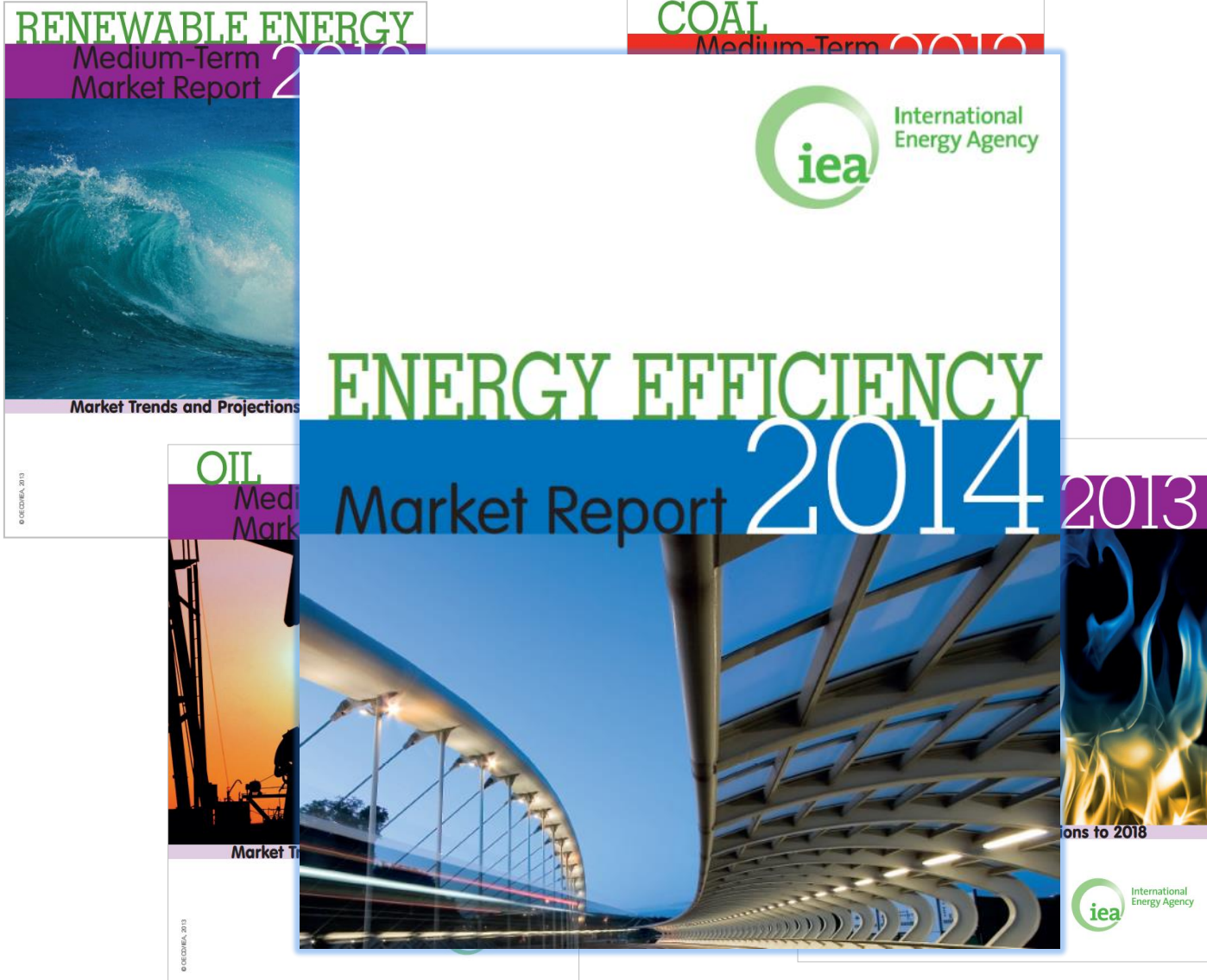
**40% of emissions savings to 2050 come from energy efficiency in IEA scenarios**

# Long term investment landscape for 2 degrees

## Cumulative Investment in the New Policies and 450 Scenarios, 2014-2035



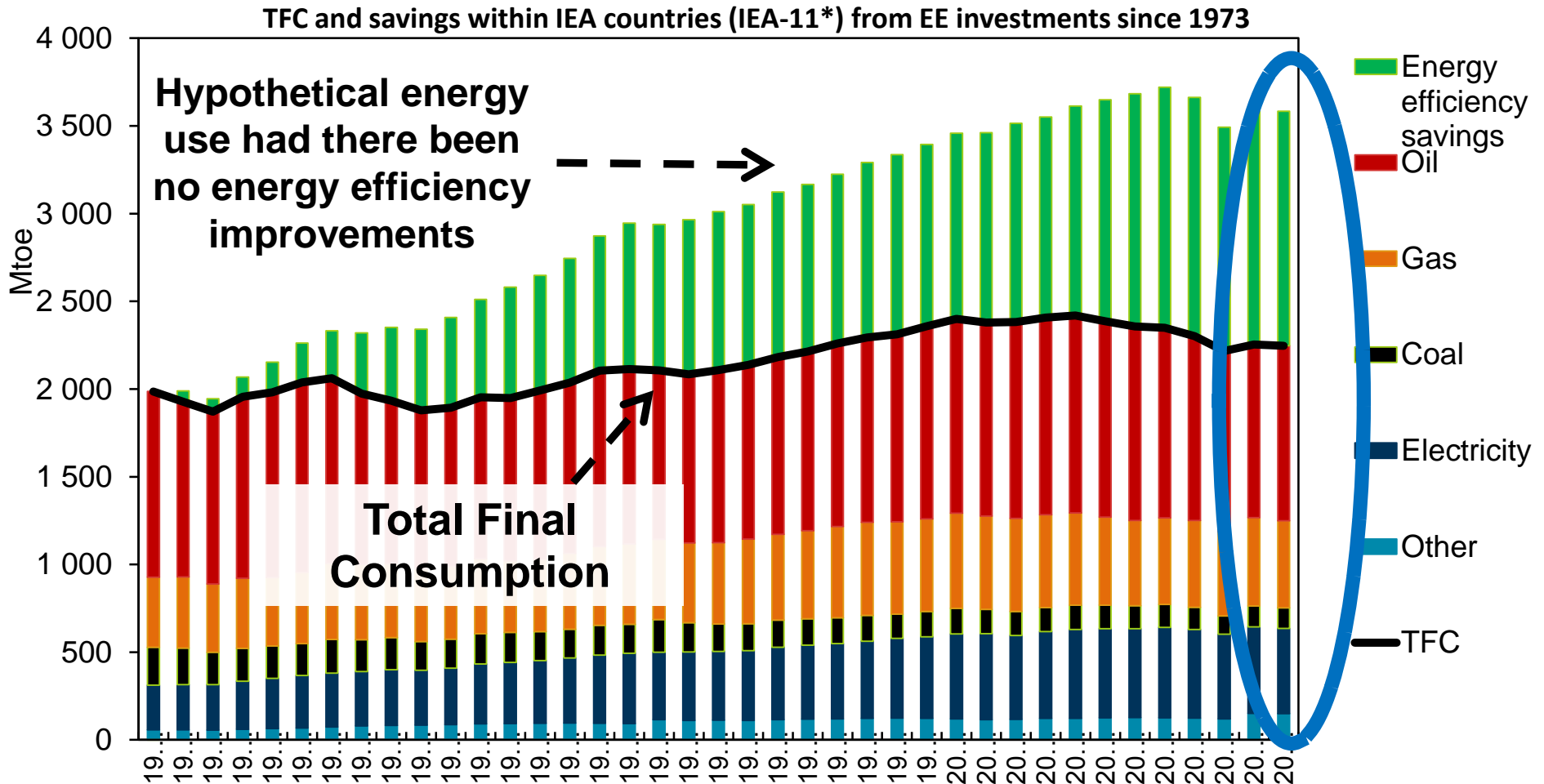
***Spending on energy efficiency is \$6 trillion higher in the 450 (2DS) scenario***





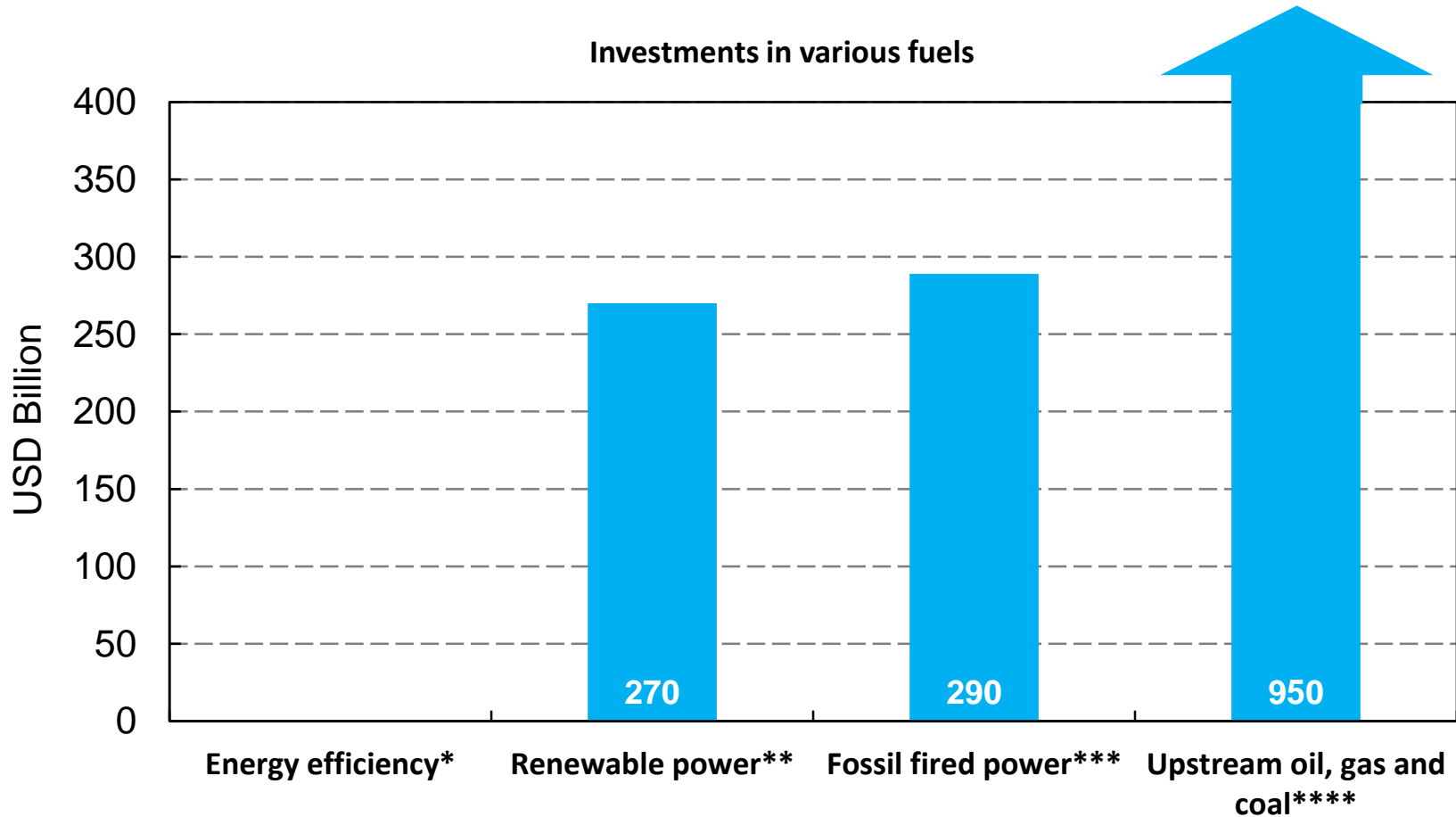
# Energy efficiency is the 'First Fuel'

*Savings from efficiency are larger than the final consumption of any other fuel*



\*IEA-11: Australia, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Sweden, United Kingdom, United States

# Energy efficiency investment: bigger than you might think

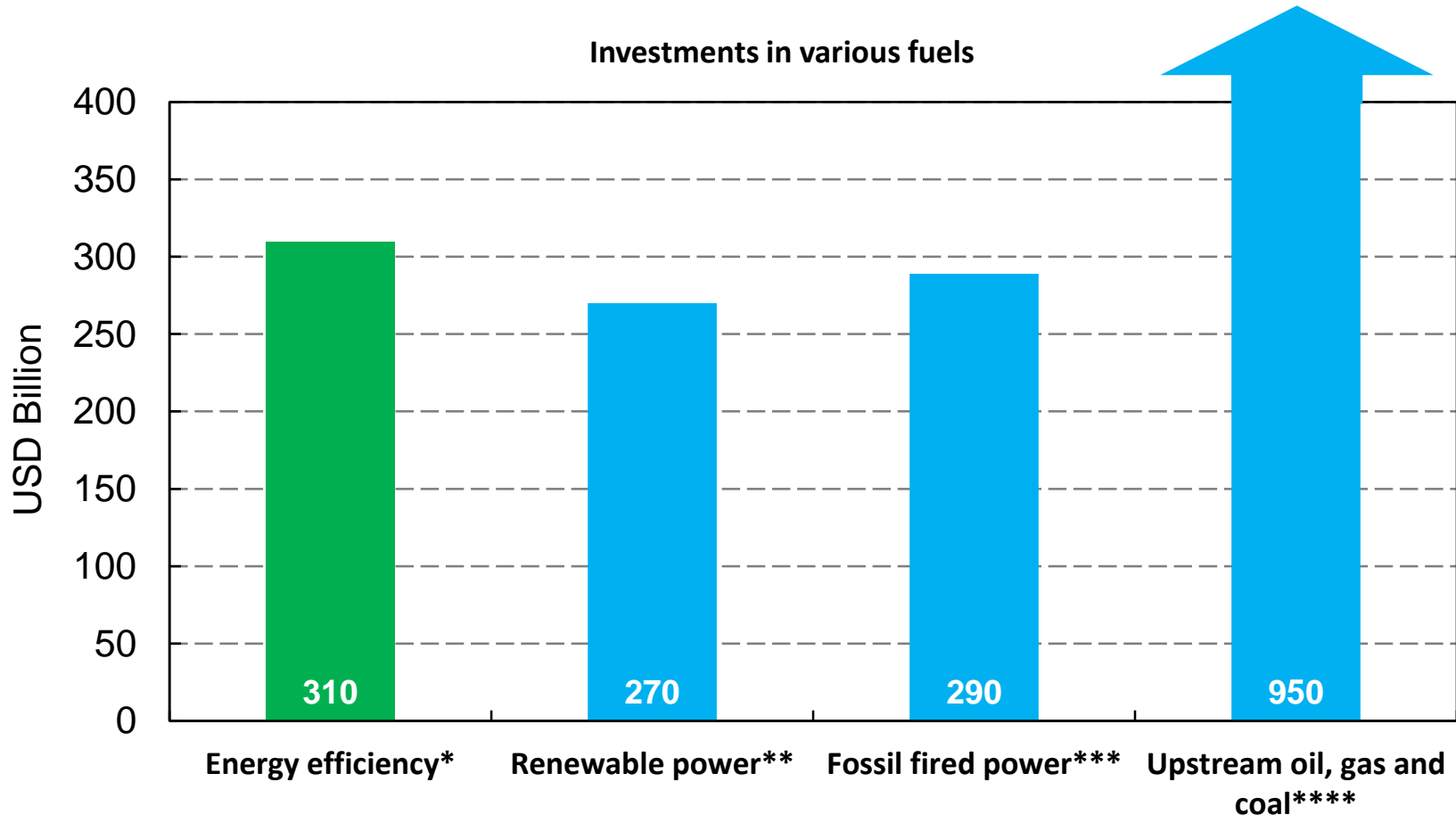


\* IEA (2014), Energy Efficiency Market Report, Paris: OECD/IEA. \*\* IEA (2015), Renewable Energy Market Report, Paris: OECD/IEA.

\*\*\* Frankfurt School-UNEP Center (2015), Global Trends in Renewable Energy Investment, Frankfurt: Frankfurt School of Management, UNEP and Bloomberg New Energy Finance.

\*\*\*\* IEA (2014), World Energy Investment Outlook, Paris: OECD/IEA.

# Energy efficiency investment: bigger than you might think

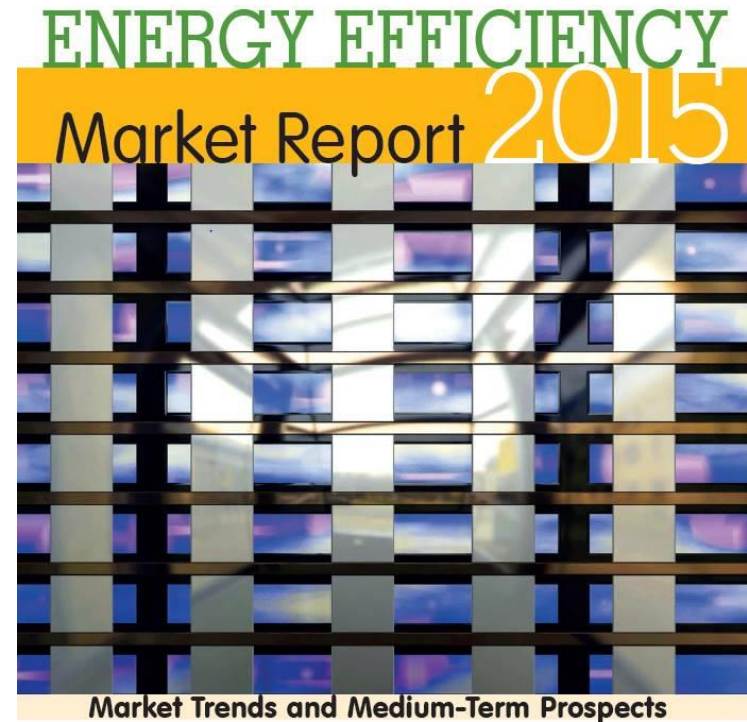


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\*\*\*\* IEA (2014), World Energy Investment Outlook, Paris: OECD/IEA.

# Energy Efficiency Market Report 2015

## Focus of the 2015 edition:

- The multiple benefits of energy efficiency investments
- Buildings efficiency market
- Relationship between energy efficiency and electricity markets

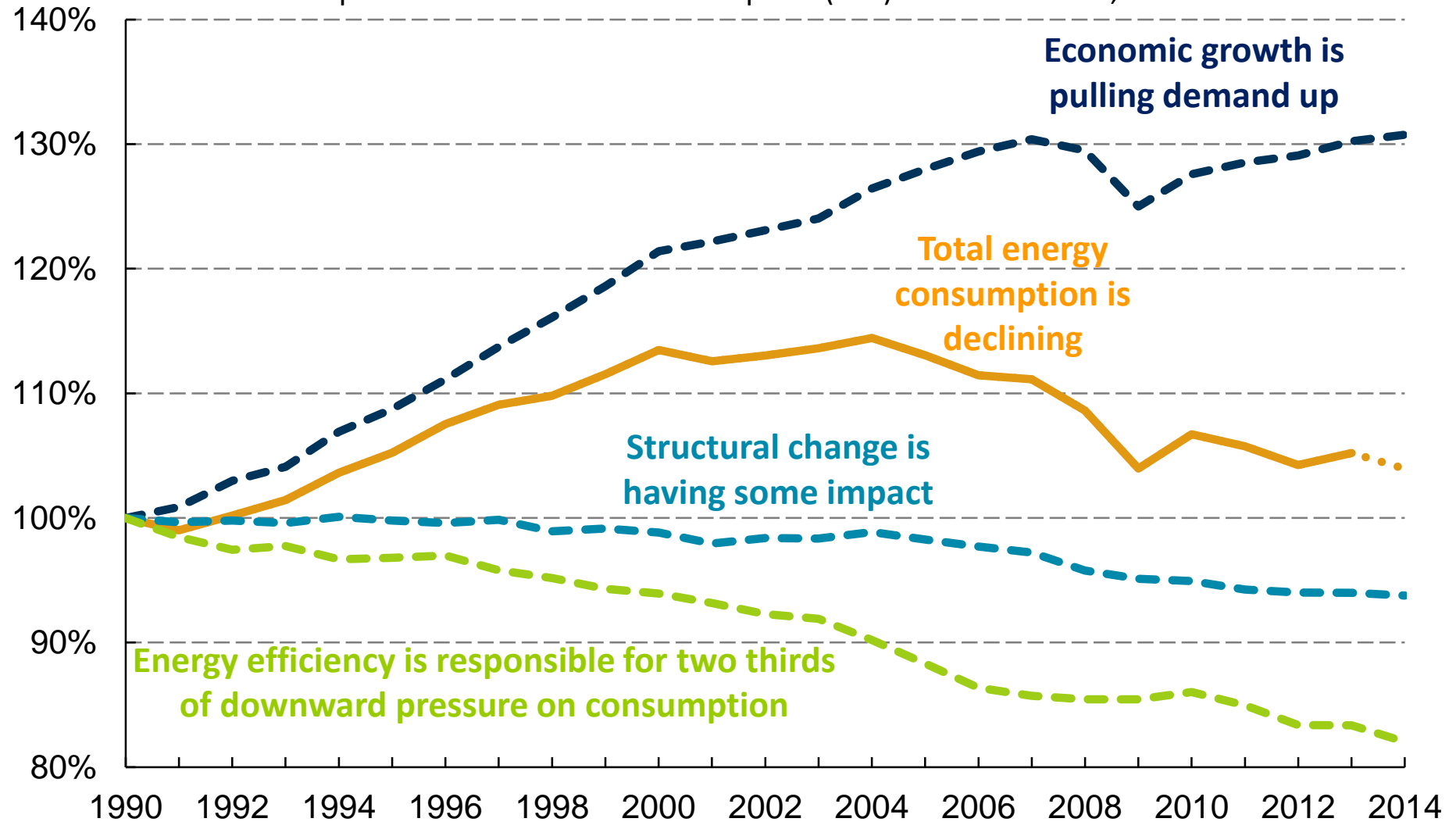


**Available to download for free at:**

**[http://www.iea.org/bookshop/709-Energy\\_Efficiency\\_Market\\_Report\\_2015](http://www.iea.org/bookshop/709-Energy_Efficiency_Market_Report_2015)**

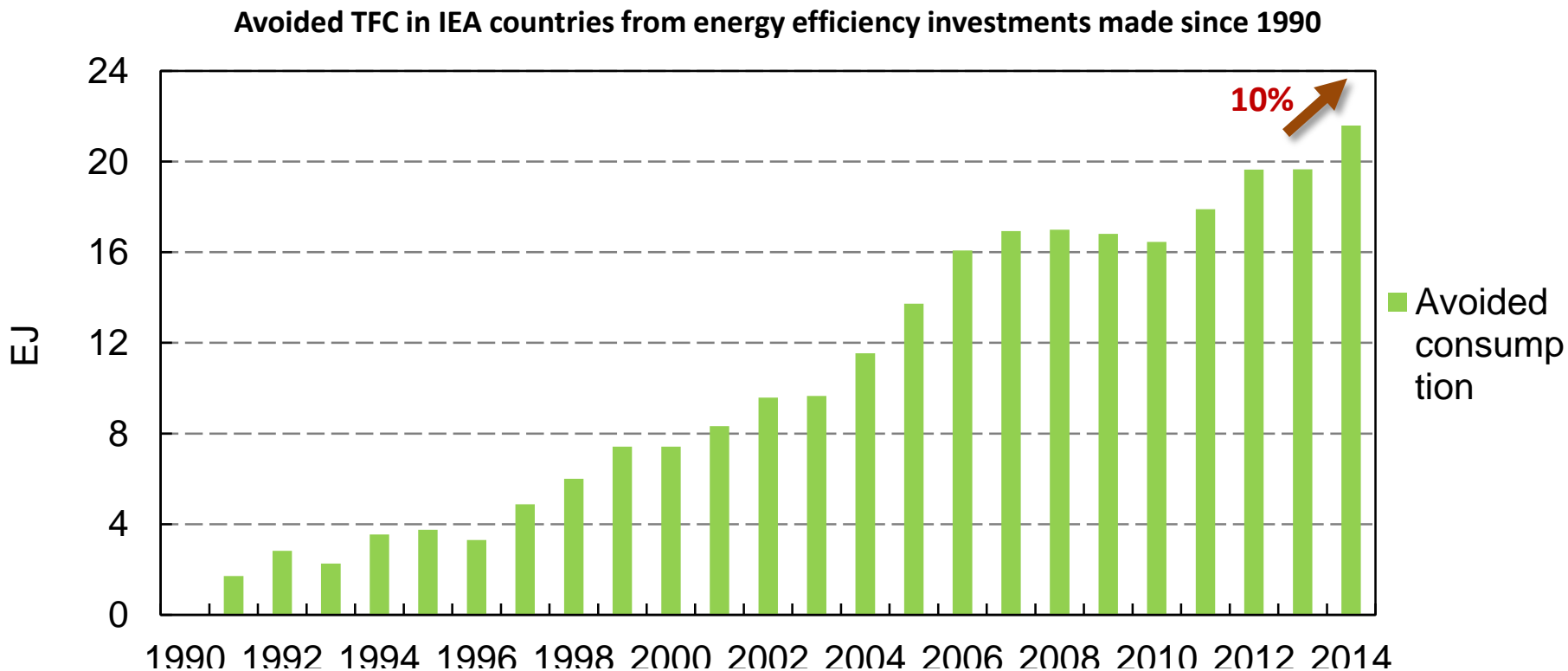
# Energy efficiency is driving sustainable growth

Decomposition of Total Final Consumption (TFC) in IEA countries, 1990-2014



# Avoided consumption topped 22 EJ (520 Mtoe) in 2014

- Avoided consumption generated by energy efficiency increased by 10% in 2014**

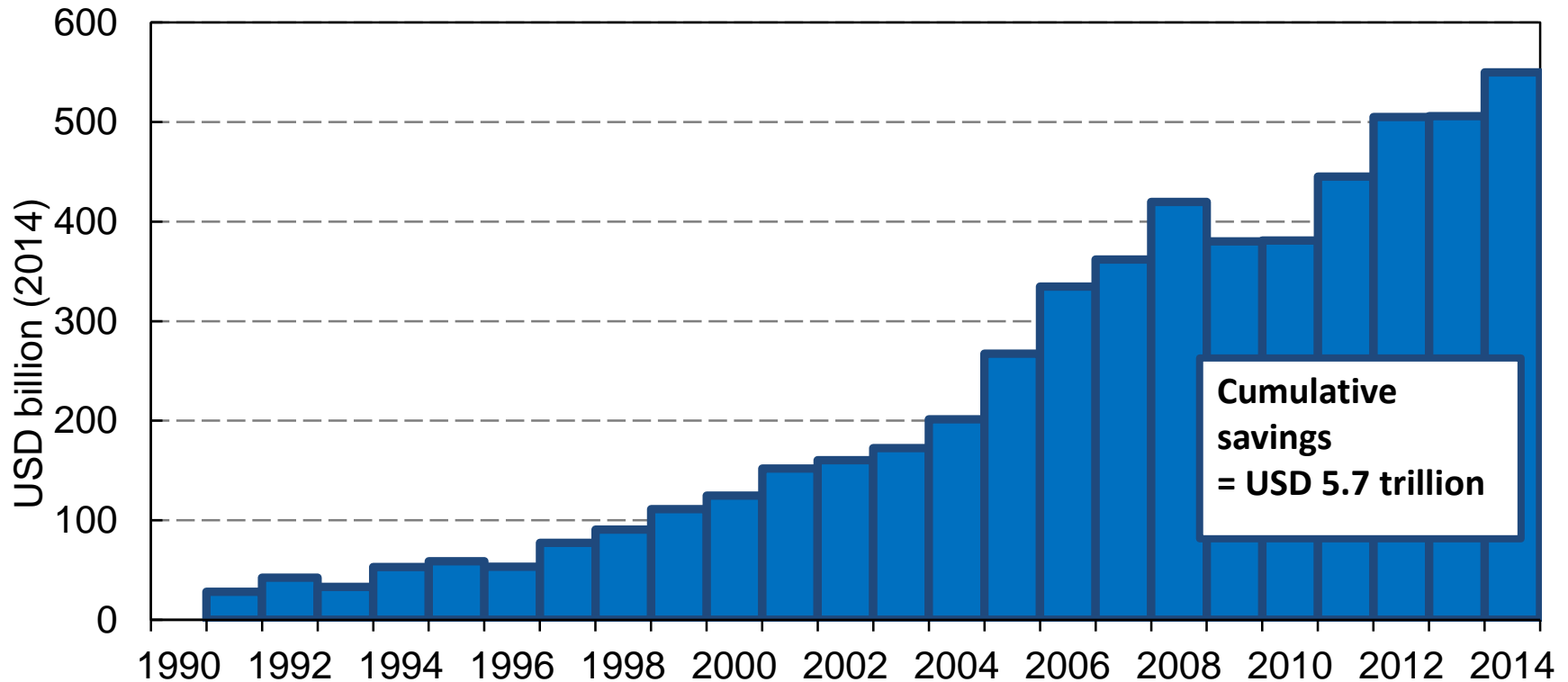


**Consumers saved USD 550 billion in 2014; USD 5.7 trillion since 1990**

# IEA consumers are saving hundreds of billions of dollars each year

- IEA countries saved USD 550 billion in 2014 as a result of energy efficiency investments since 1990

Avoided expenditure in IEA countries from energy efficiency investments made since 1990

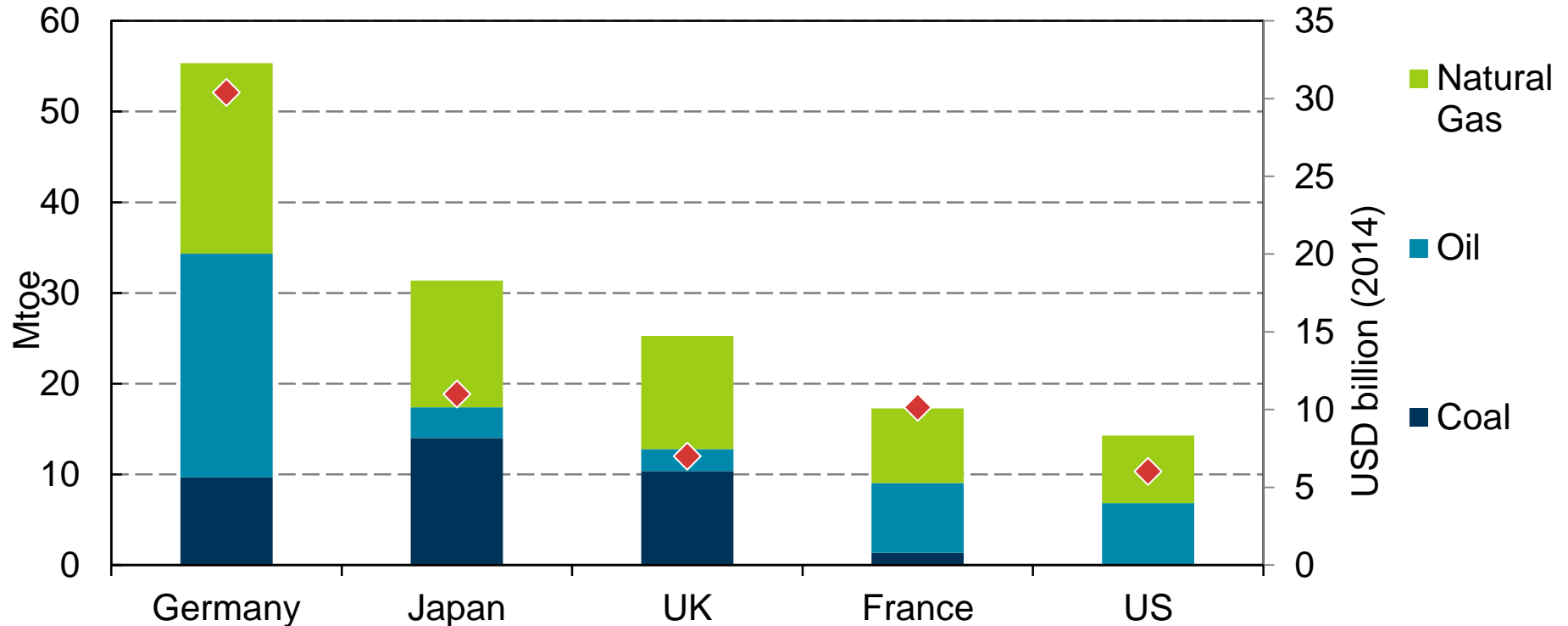


***Annual savings are greater than the EU's fuel import bill***

# Efficiency's domestic production substitutes for fuel imports

- In 2014, IEA countries avoided primary energy imports totalling 190 Mtoe, saving USD 80 billion in energy import bills and improving trade balances

Avoided imports in 2014, as a result of energy efficiency investments in IEA countries since 1990

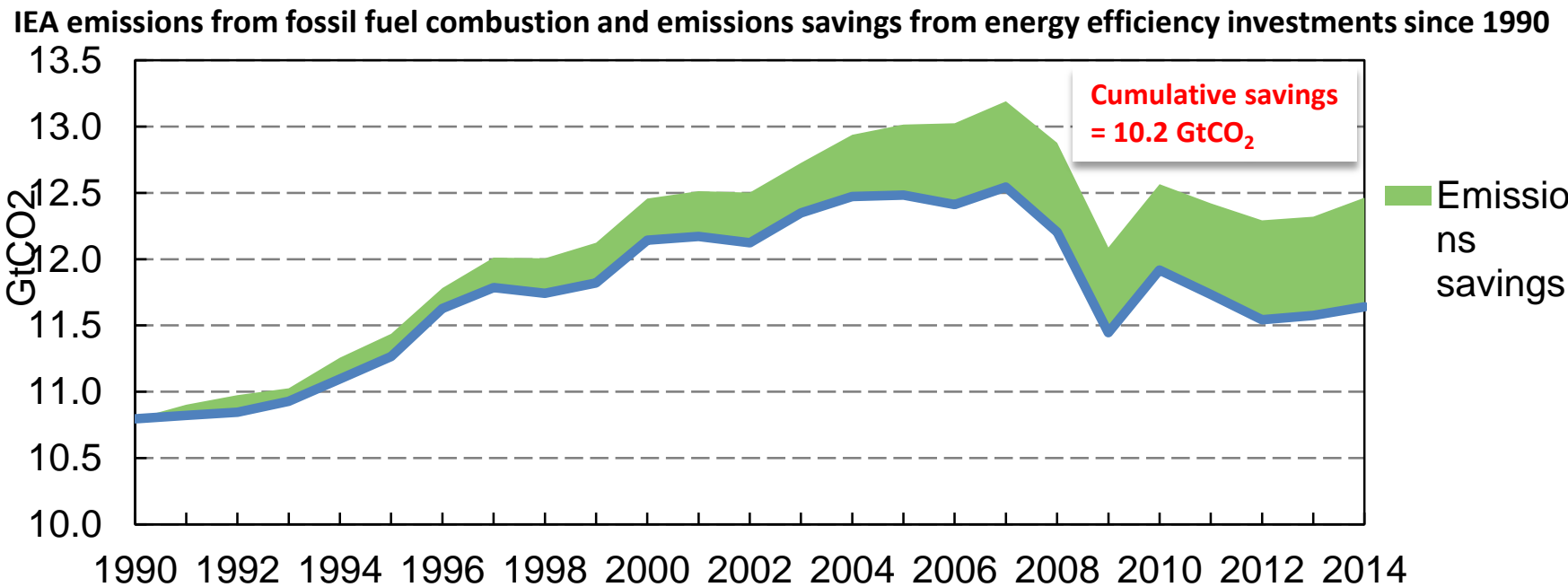


***Domestically produced, efficiency supports energy security***



# A clean energy source, efficiency reduces emissions

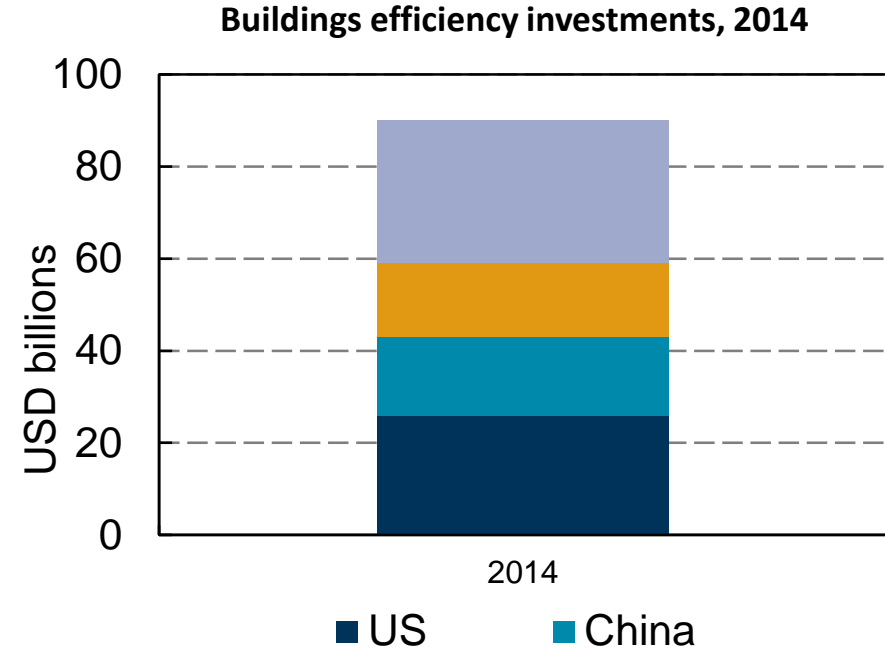
- Energy efficiency investments since 1990 have helped to reduce IEA country emissions to below 1996 levels
- In 2014 alone, 870 Mt CO<sub>2</sub> were avoided



***Almost one year's worth of end-use sector emissions have been avoided by efficiency investments since 1990 in IEA countries***

# Energy Efficiency in Buildings: Nearly a USD 100 billion market

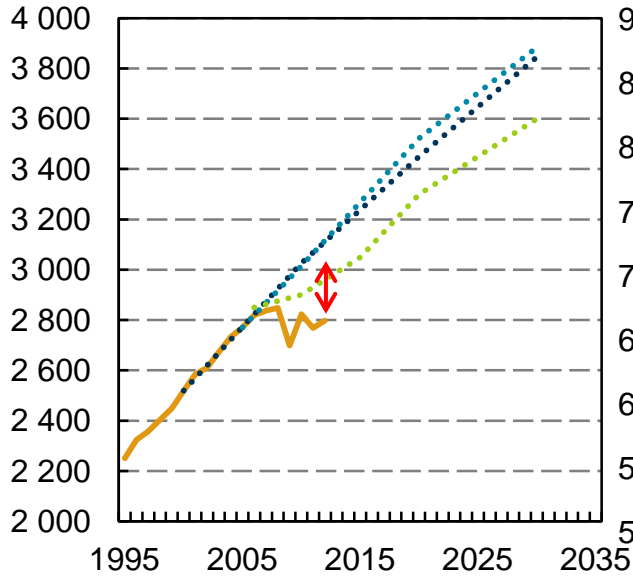
- **Energy Efficiency Investment in Buildings** estimated at USD 90 billion with 2/3 in the US, China and Germany
- In the US, and elsewhere, building efficiency investments are growing faster than total buildings investments



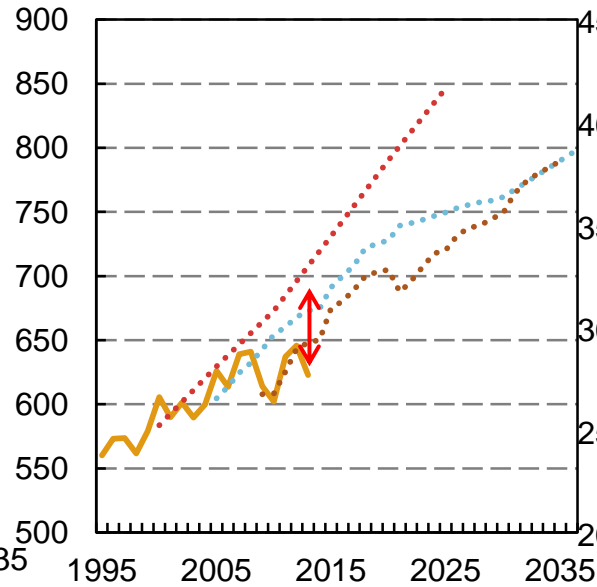
- **Current trends point to USD 120 billion by 2020**
- **But investment projections fall far short of the estimated USD 215 billion per annum needed to achieve the 2-Degree Scenario (2DS)**

# Electricity demand off projections in many OECD countries

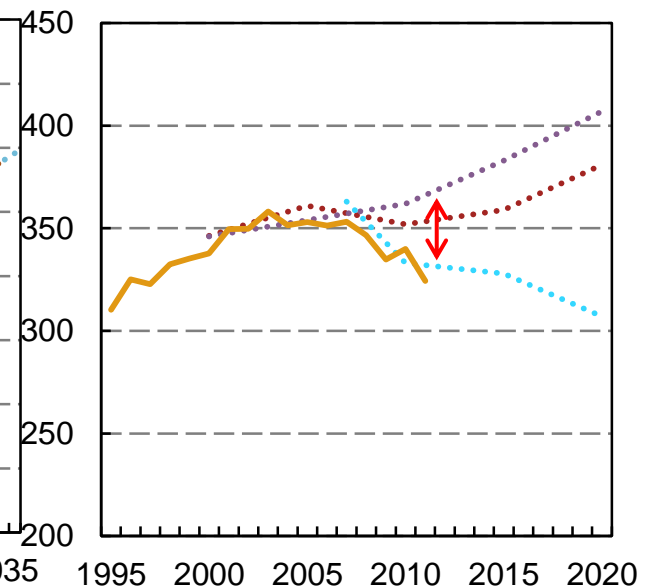
European Union



Canada



United Kingdom



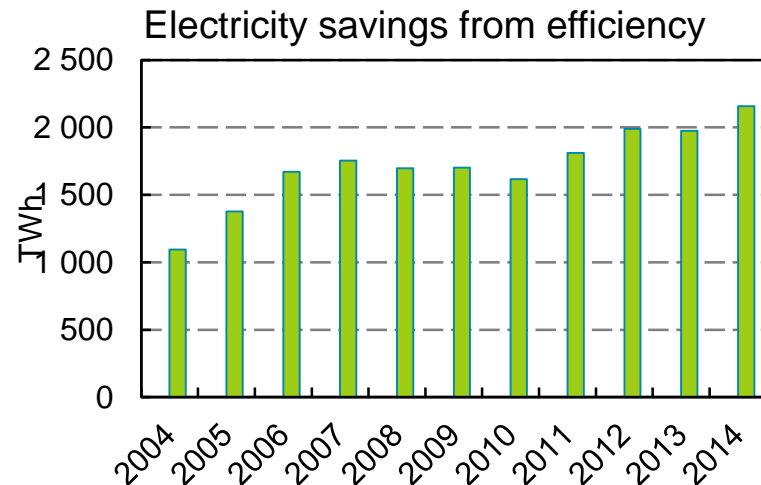
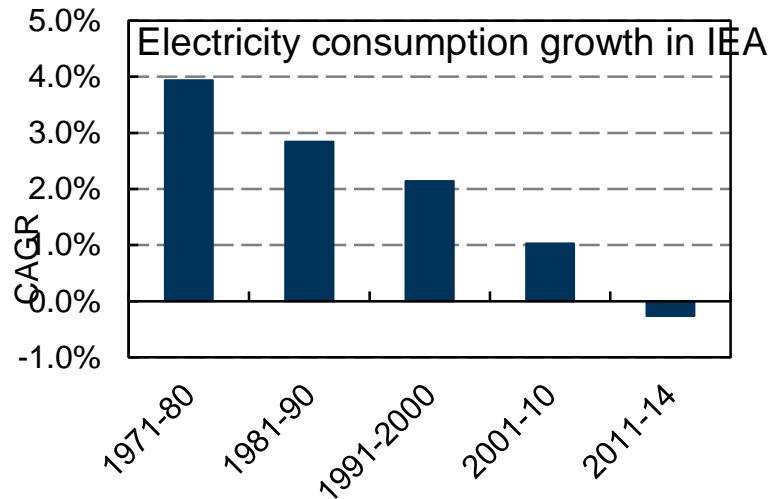
— TFC ..... 2003 ..... 2005 ..... 2009 — TFC ..... 1999 ..... 2007 ..... 2009 — TFC ..... 2004 ..... 2006 ..... 2009

- ***Demand outlook for electricity has significantly weakened with impacts across the electricity system***
- ***IEA has revised down its demand projections to 2020 forecasting no growth***

# Energy Efficiency: Flattening electricity consumption in IEA countries

- Electricity consumption in IEA countries has declined by 2% since 2010
- Energy efficiency has enabled businesses and households to meet their energy service demands with 2 200 fewer TWh of generation

Electricity consumption in IEA member countries and energy efficiency savings (from investments since 1990)



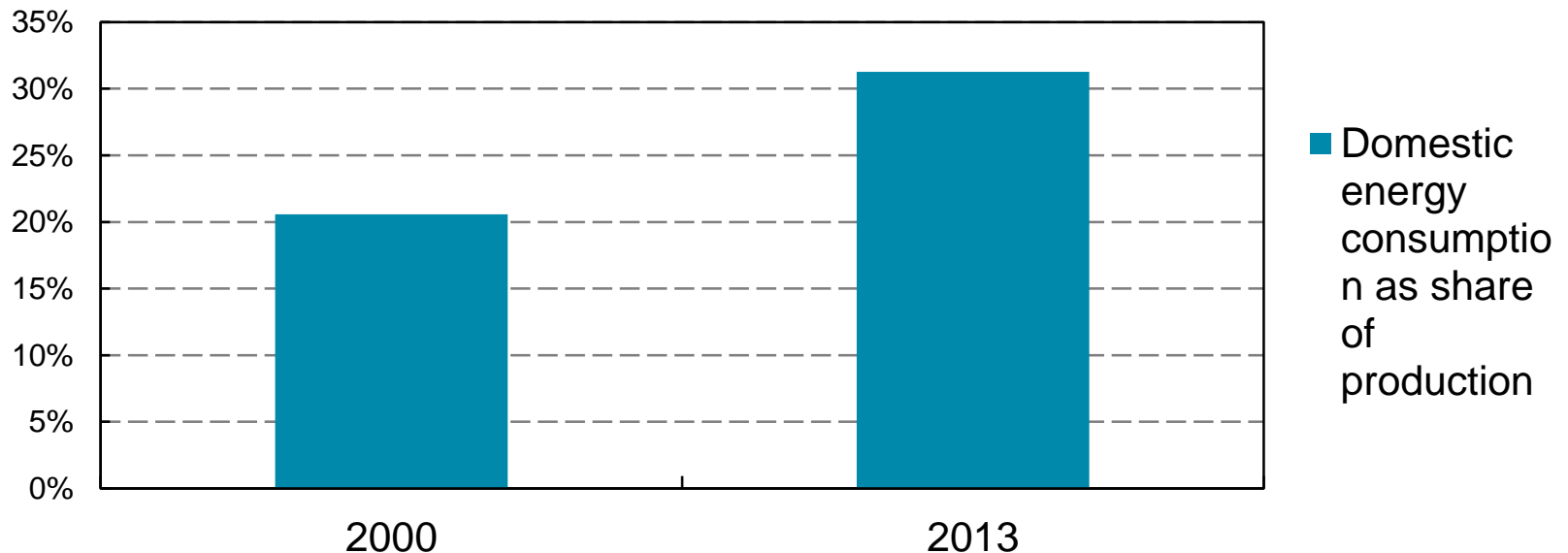
- *Low growth is pushing various energy utilities to shift from traditional generation to sale of energy efficiency services*
- *Energy efficiency is facilitating the achievement of renewables targets by decreasing the amount of additional GWh required*

# Market Profiles highlight the diversity of energy efficiency markets

Theme	Region	Findings
Energy exporters	Russia	Rising exports increasing income and domestic energy consumption
	Saudi Arabia	<b><i>Energy exporters increasingly looking to efficiency to boost export volumes</i></b>
Sub-national government	Tokyo	<b><i>Cities and sub-national governments major enablers of energy efficiency markets</i></b>
	Seoul	
	Paris	Eager to capitalize on multiple benefits of energy efficiency
	Massachusetts	
Latin America	Mexico	<b><i>Energy efficiency an important supporter of development objectives</i></b>
	Brazil	
IEA Member	United Kingdom	Using efficiency to adjust to net-energy importer status

# In Saudi Arabia, energy efficiency is increasing export revenues

- Domestic energy consumption has nearly doubled since 2000 reducing share of energy production going to exports:



- Saudi Arabia has implemented efficiency standards on key sources of domestic energy demand including vehicles and air conditioners

***Air conditioner standards alone are targeted to improve efficiency by 35%, saving 47 million barrels of oil and increasing export revenues by USD 2.4 billion***

# In Seoul, LEDs are substituting for nuclear power

- Seoul has adopted “One-Less Nuclear Plant” plan to reduce energy consumption equivalent of one nuclear plant (2 Mtoe)



<http://www.pennenergy.com/articles/pe/2013/10/>

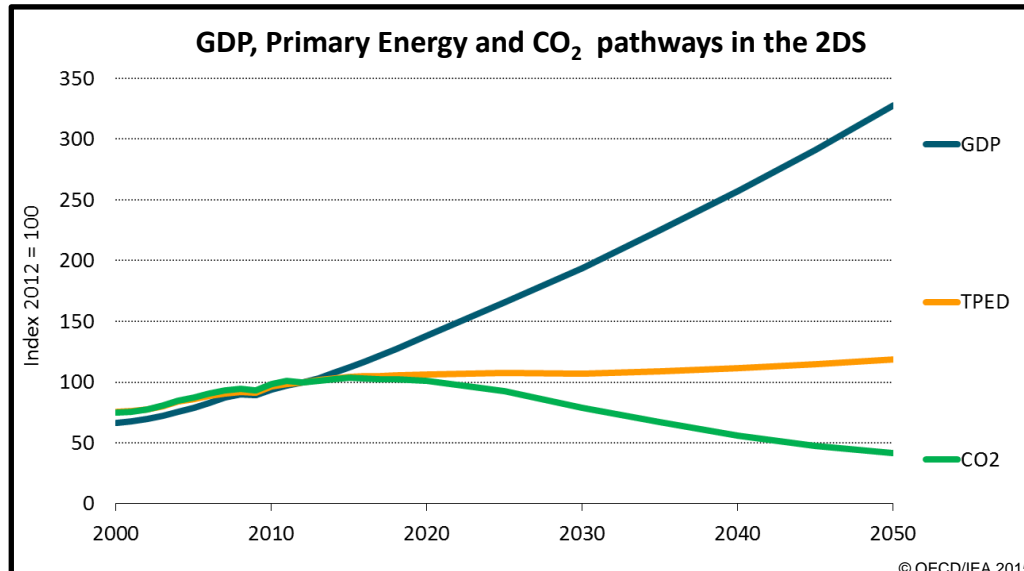
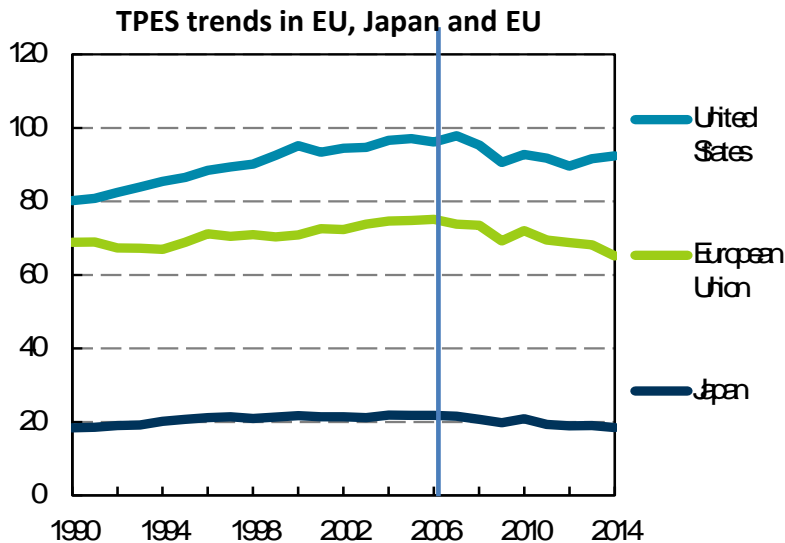


- Plan has retrofit 2 267 buildings – enabled market with low interest financing of up to USD 2 million per project
- Seoul’s lighting plan to go 100% LED replacing 2.2 million security and street lights

<https://upload.wikimedia.org/wikipedia/commons/>

# From 'Peak Oil' to 'Peak Demand'?

- **Over recent past: TPES peaked in US in 2007, EU in 2006, Japan 2004**
- **Policies are focusing on peaking demand:**
  - Germany to reduce TPES by 50% from 2008 levels by 2050
  - EE measures in Japan are forecast to decrease TFC by 13% by 2030
  - US aims to double energy productivity which would peak TPES even if GDP grew by 3.5% by 2030
- **Global TPES flattening in the 2DS scenario – decoupling from GDP growth**

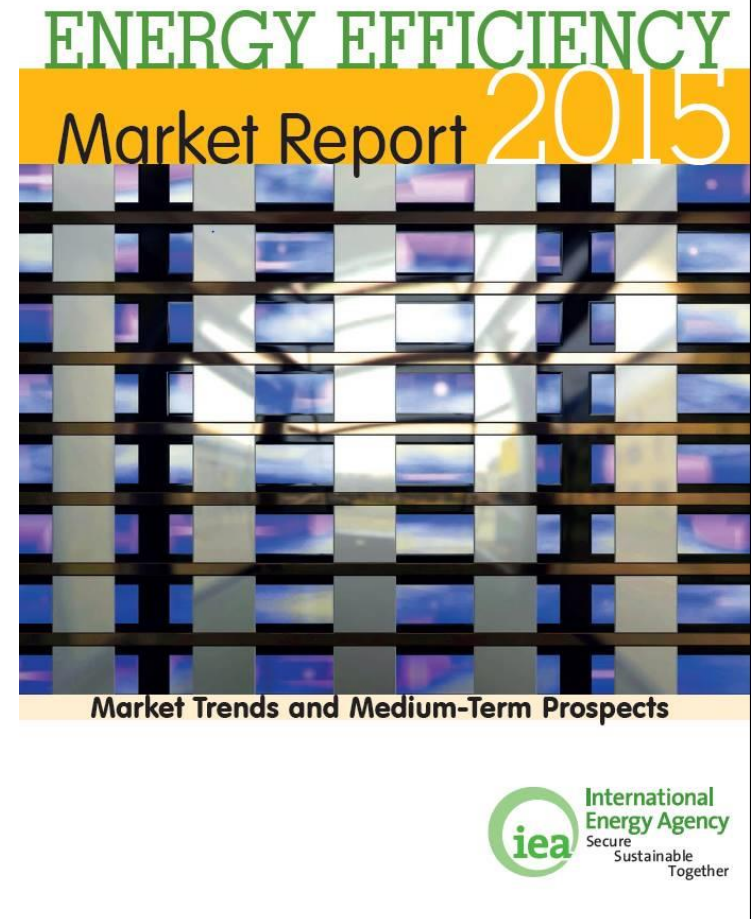




# Thank you

**In what ways does this report help policy makers?**

**What information would you like to see in future editions?**



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