

# **Capturing the Multiple Benefits of Energy Efficiency**

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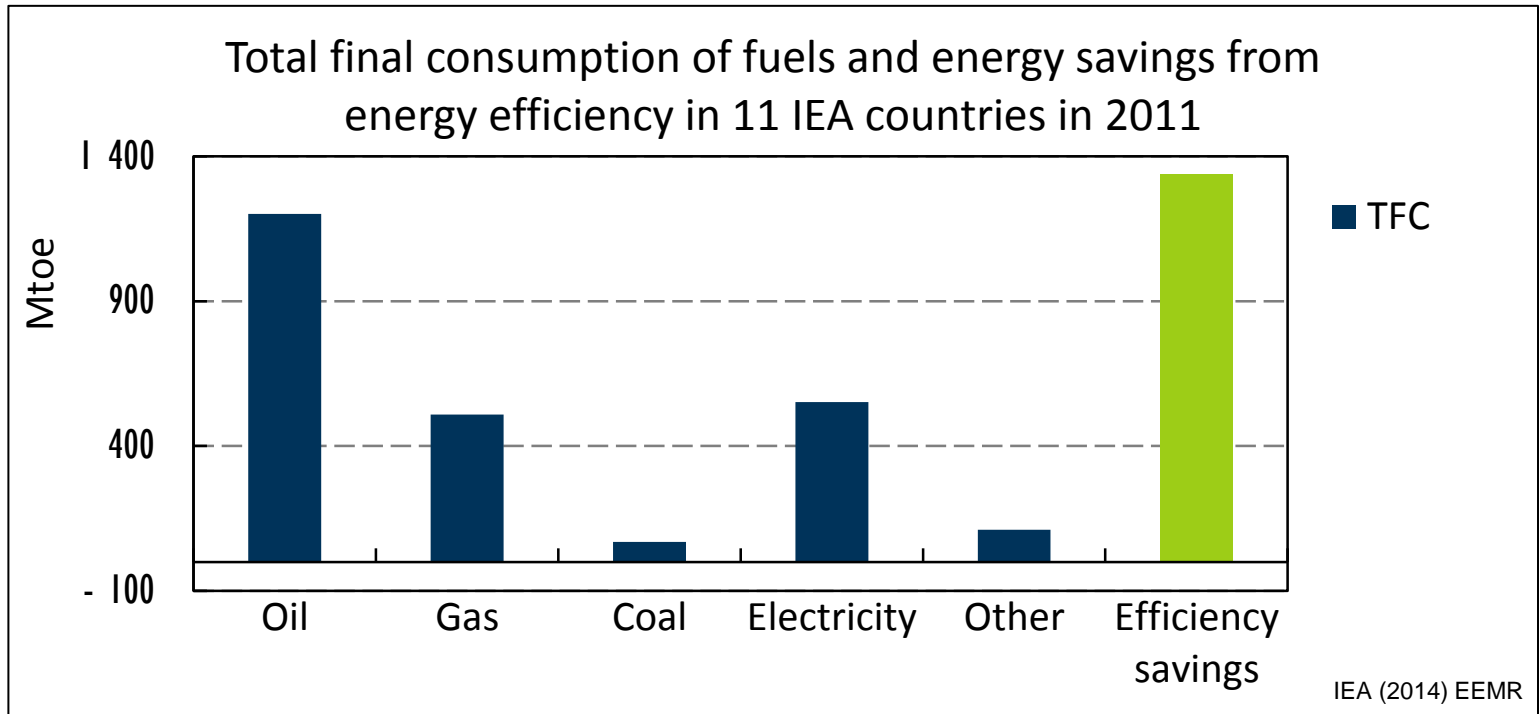
**International  
Energy Agency**

# Overview

- A new perspective on energy efficiency
- IEA study: *Capturing the Multiple Benefits of Energy Efficiency*
- Messages for the buildings sector
- Conclusions: implications for policymakers

# Energy efficiency – the first fuel

The scale of the energy efficiency market is comparable to the supply side energy market

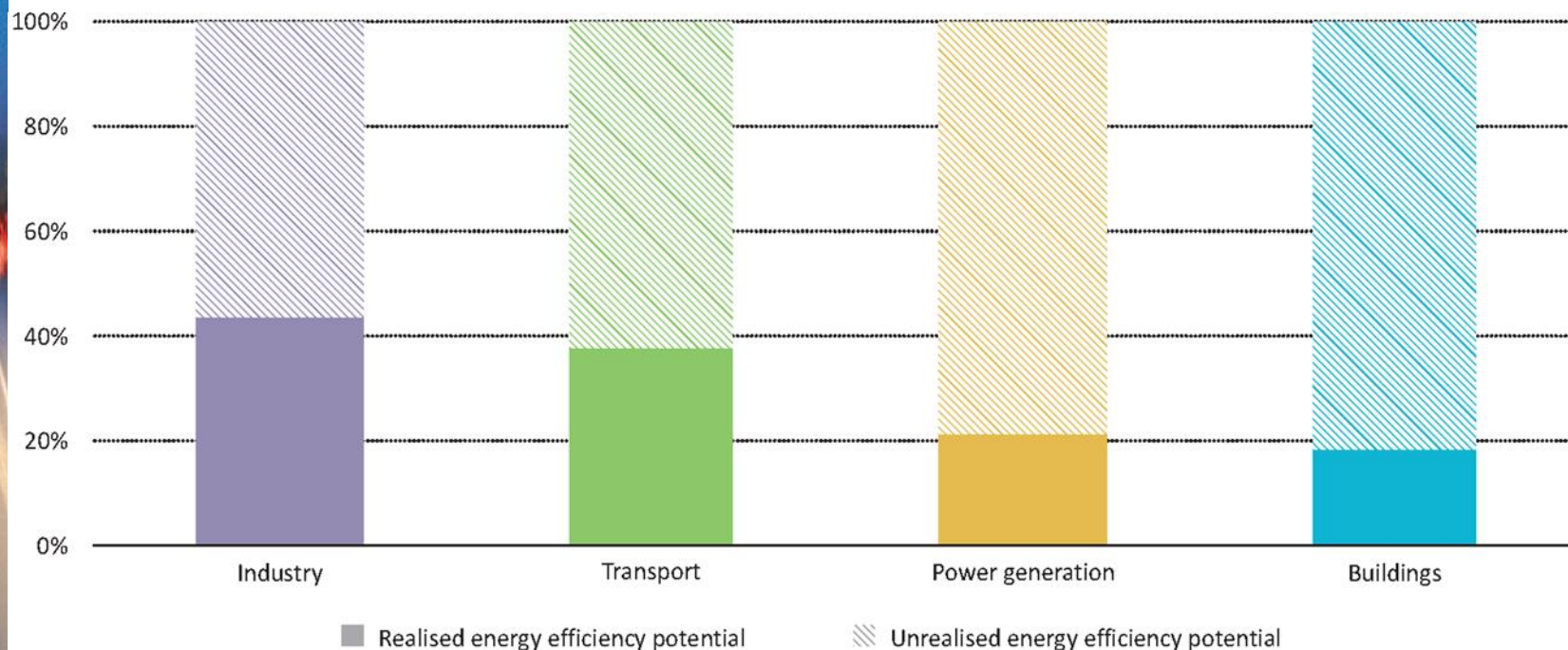


\*IEA-11: Australia, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Sweden, United Kingdom, United States

**Energy efficiency contributed 1336 Mtoe in avoided energy use in 2011 in 11 IEA countries**  
**... larger than supply of oil (1200), electricity (552) or natural gas (509)**

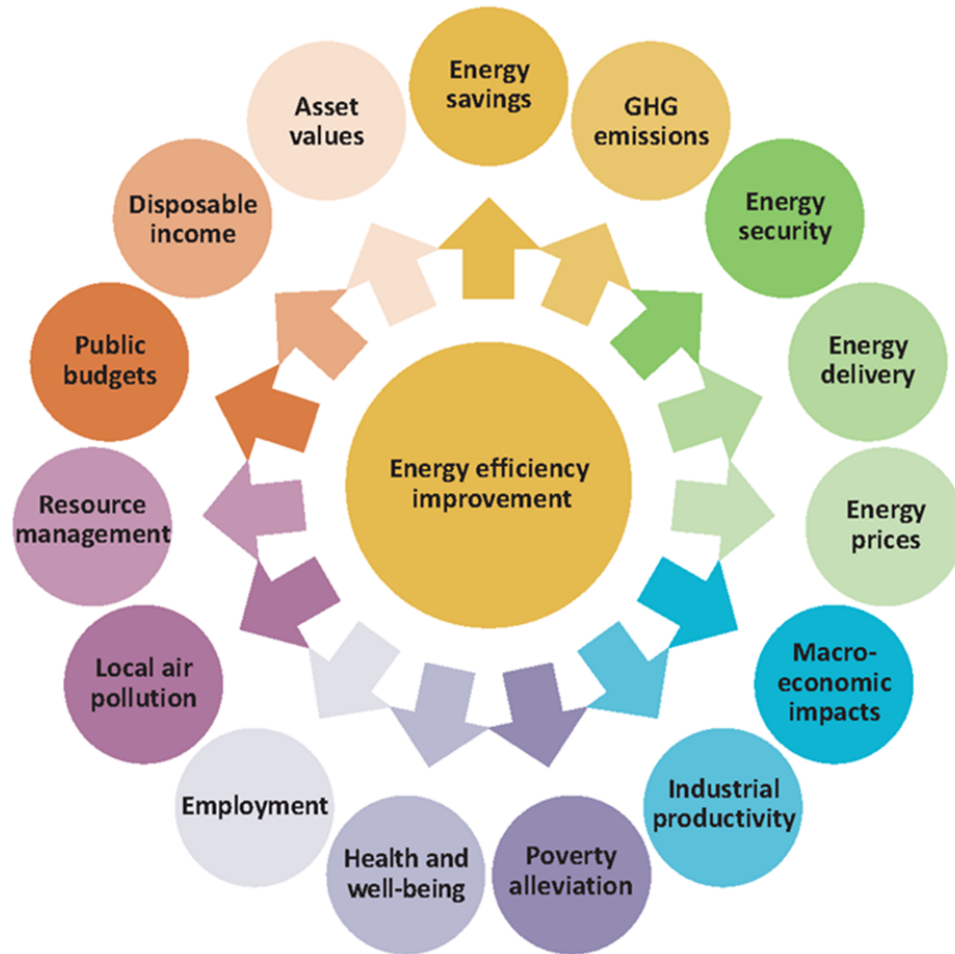


# A huge opportunity going unrealised



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

# EE generates multiple benefits



*Energy efficiency is a means to enhance energy security, support economic and social development, and promote environmental goals.*

# Objectives of IEA work on multiple benefits

- **Raise Awareness**
- **Increase Analytical Substance**
- **Identify Methodological Tools**
- **Build Capacity**





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# Capturing the Multiple Benefits of Energy Efficiency

Measuring the Positive Impacts

***Launched  
Sept 9 by  
the IEA  
Executive  
Director at  
the 2014  
IEPPEC  
Conference  
in Berlin***

# Multiple Benefits in buildings sector

## International

- Energy price reduction
- Greenhouse gas emissions reduction

## National

- Reduced energy demand and local price reduction
- Reduced public health spending
- Energy security
- Potential net increase in employment

## Sectoral

- Increase in re-sale value of home
- Improved bill payments for energy providers
- Jobs in installation and production of insulation materials

## Individual

- Lower energy bills (discretionary)
- Increased disposable income
- Warmer, drier, more comfortable home
- Improved health and well-being potential



# EE generates multiple benefits



# Overarching macroeconomic impacts

## Investment effects

- Increased investment in energy efficiency
- Higher production in energy efficiency sectors
- Lower production in other sectors

## Macroeconomic impacts

Employment  
Economic output  
Energy prices  
Trade balance

## Energy demand reduction effects

- Energy cost savings
- Increased disposable income
- Higher business profits
- Improved energy security

# Balancing public budgets

## Investment effects

Sales tax revenue from sales of energy efficiency products and services	↑
Sales tax revenue from other goods when crowded out by Energy Efficiency	↓
Initial costs of public investment in energy efficiency products and services	↑
Social welfare and unemployment benefits expenditures	↓
Real estate transaction revenues if properties become more valuable	↓

## Energy savings effects

Public expenditure on public sector energy	↓
Energy subsidies to final consumers	↓
Energy excise duty, emissions trading, and carbon tax revenues	↓
Sales and income tax revenues from sales of goods and services	↑
Public health or social welfare expenditure	↓
Public investment in energy supply infrastructure and subsidies	↓

***Integrating multiple benefits into the calculation can more than double the return on public investment in energy efficiency***

# ‘Warmth as medicine’: Health impacts

## Energy Efficiency Measures

- Weatherisation
- Heating & cooling systems
- Appliances



## Indoor Exposure Factors

- Warmer, cleaner, drier indoor environments
- Reduced energy bills



## Potential health improvements

- Physical health
- Mental health and well-being



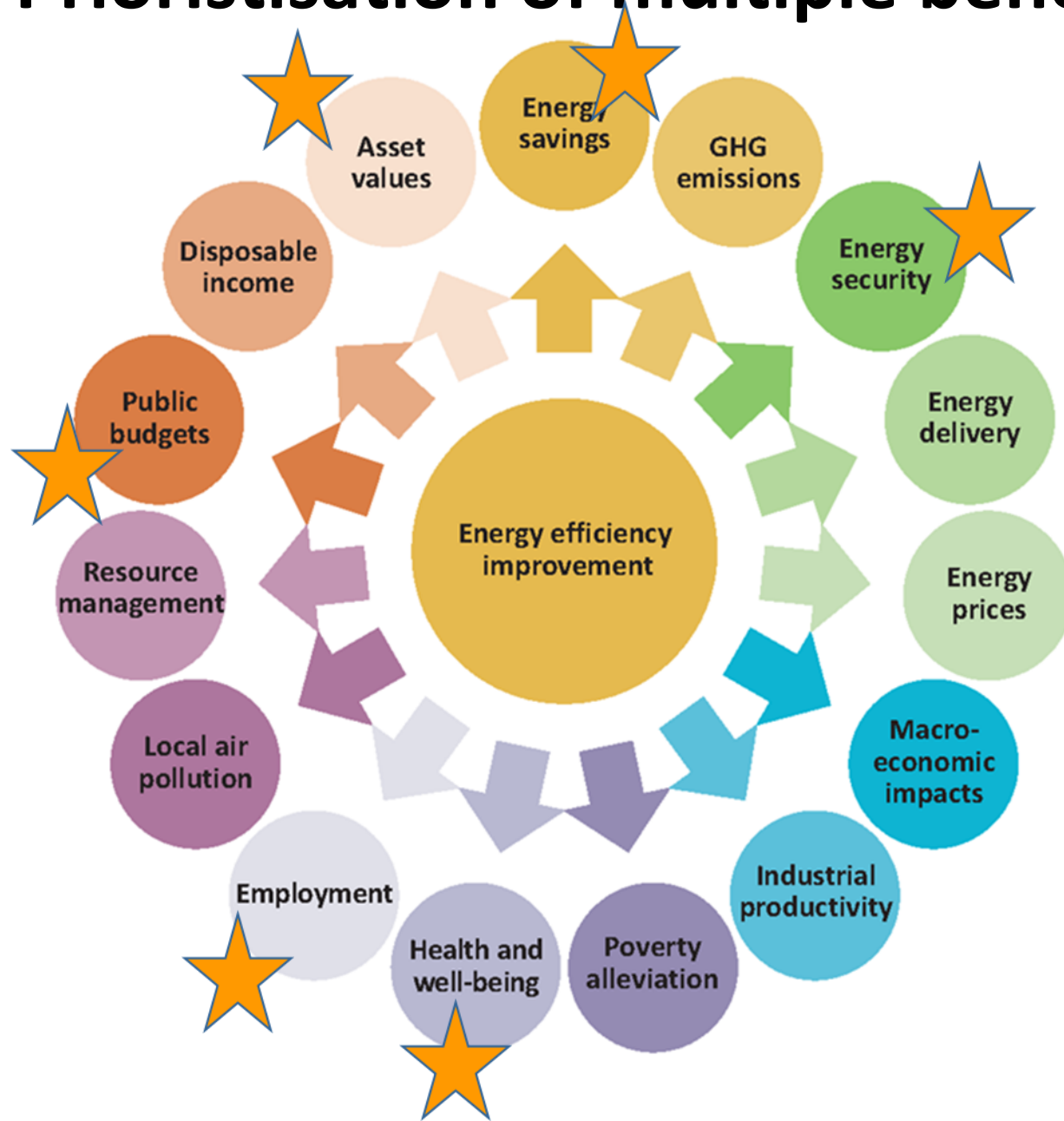
## Potential indirect social impacts



# Boosting industrial productivity: from savings to value creation

<b>Competitiveness</b>	Ability to enter new markets; reduced production costs etc.
<b>Production</b>	Capacity utilisation; improved product quality etc.
<b>Operations and maintenance</b>	Improved operation; reduced need for maintenance etc.
<b>Working environment</b>	Site environmental quality; worker health and safety etc.
<b>Environment</b>	Air pollution; solid waste; wastewater; reduced input materials etc.

# Prioritisation of multiple benefits



# Applying a multiple benefits approach

**The multiple benefits approach includes three key recommendations:**

- **Apply the multiple benefits approach to energy efficiency policy development**
  - **Consider which benefits are relevant in country context**
- **Pay more attention to impact assessment; take an innovative approach**
  - **Engage a range of stakeholders/ community level experts**
  - **Adapt existing tools to capture hard-to-measure impacts**
- **Build consensus on methods for data collection and assessment so that results are comparable across countries and experience can be meaningfully shared**

# Thank you

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