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Energy Efficiency: From Barriers to Policy

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Why focus on energy efficiency?

- **Economic development**
 - ◆ reduced energy costs
 - ◆ improved private sector competitiveness
 - ◆ overall financial benefits
- **Energy security**
 - ◆ improved access to energy services
 - ◆ improved reliability of energy services
- **Environment protection**
 - ◆ reduction of emissions that affect humans, infrastructure and ecosystems



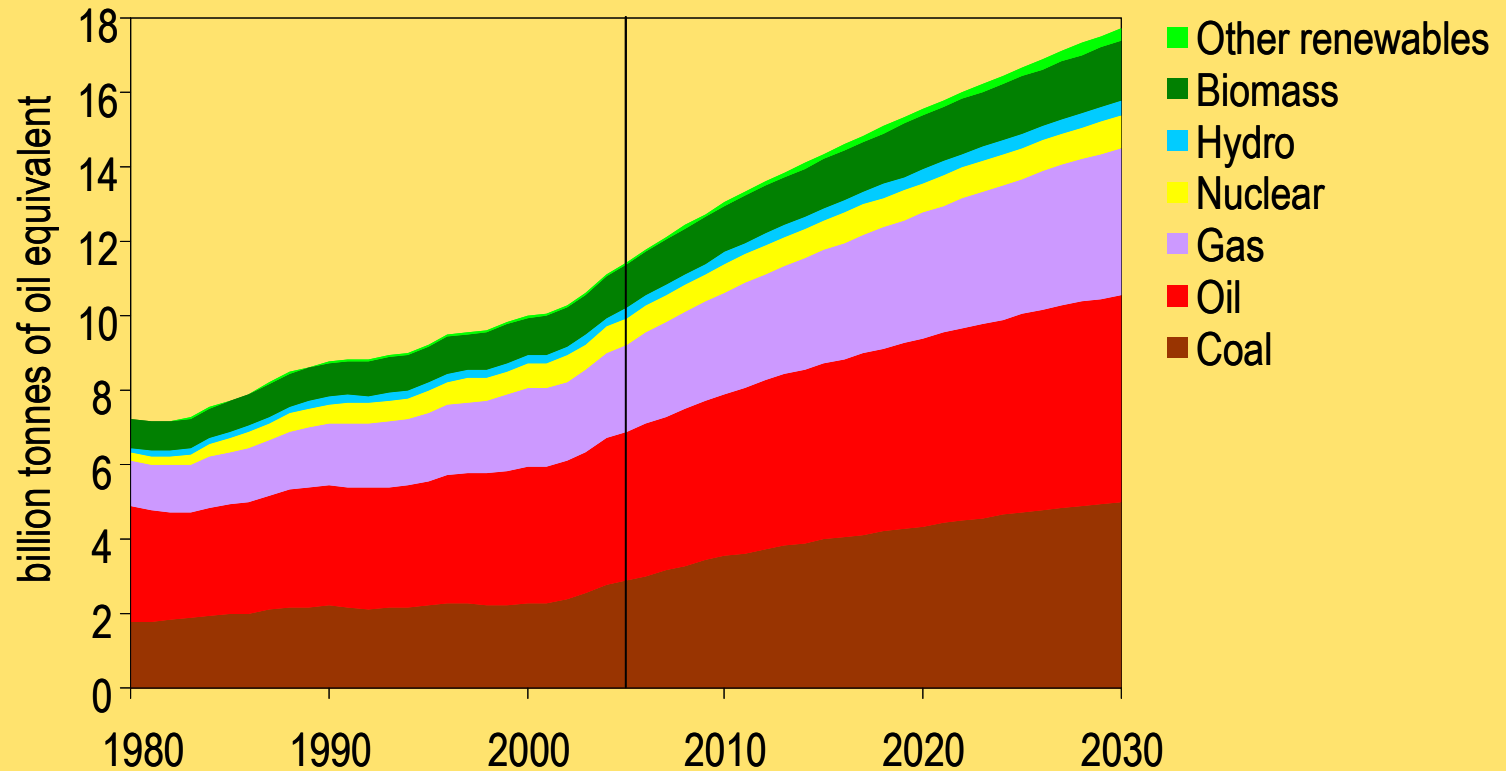
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Reference Scenario: World Primary Energy Demand



Global demand grows by more than half over the next quarter of a century, with coal use rising most in absolute terms

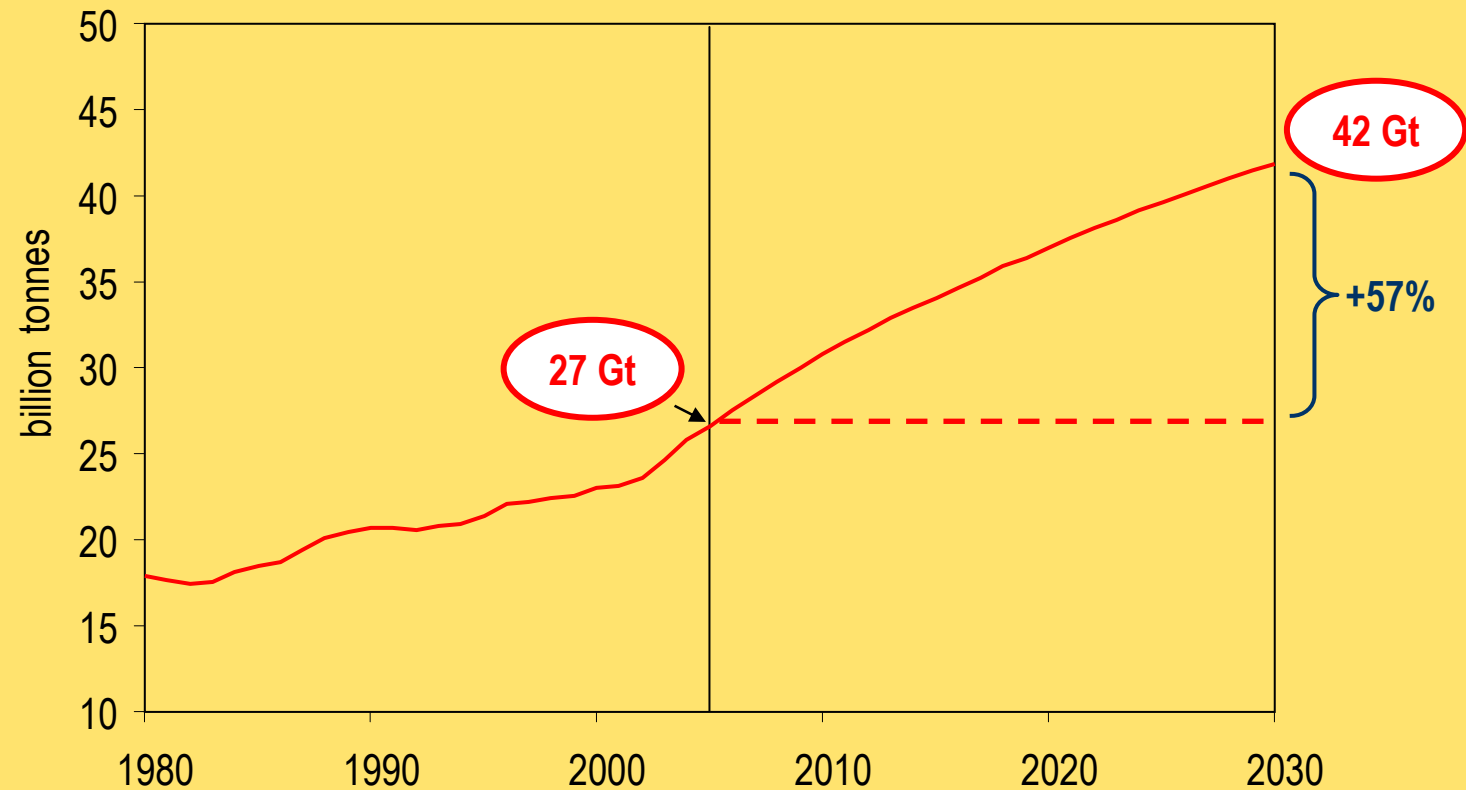


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Reference Scenario: Global Energy-Related CO₂ Emissions



Global CO₂ emissions rise to 42 gigatonnes in 2030, 57% above current levels and double the 1990 level



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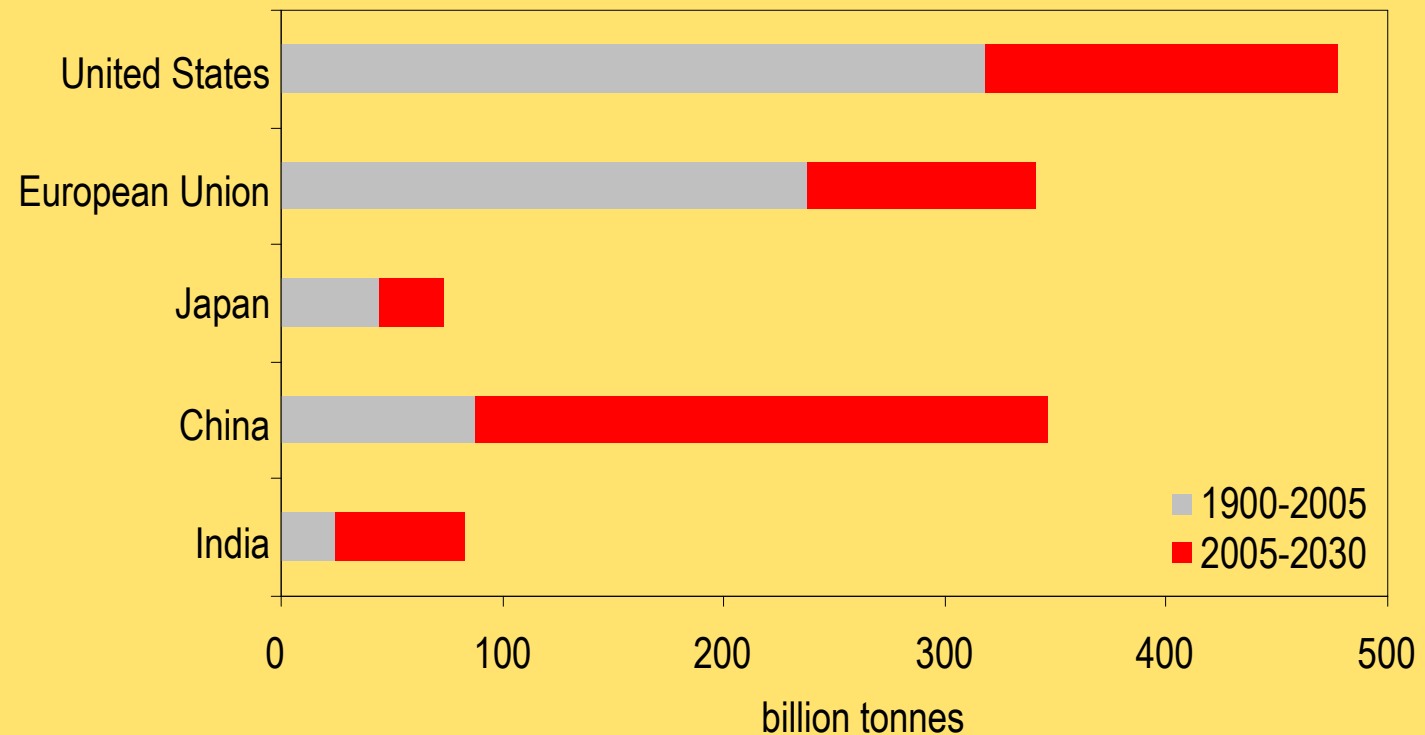
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China & India in Global CO₂ Emissions

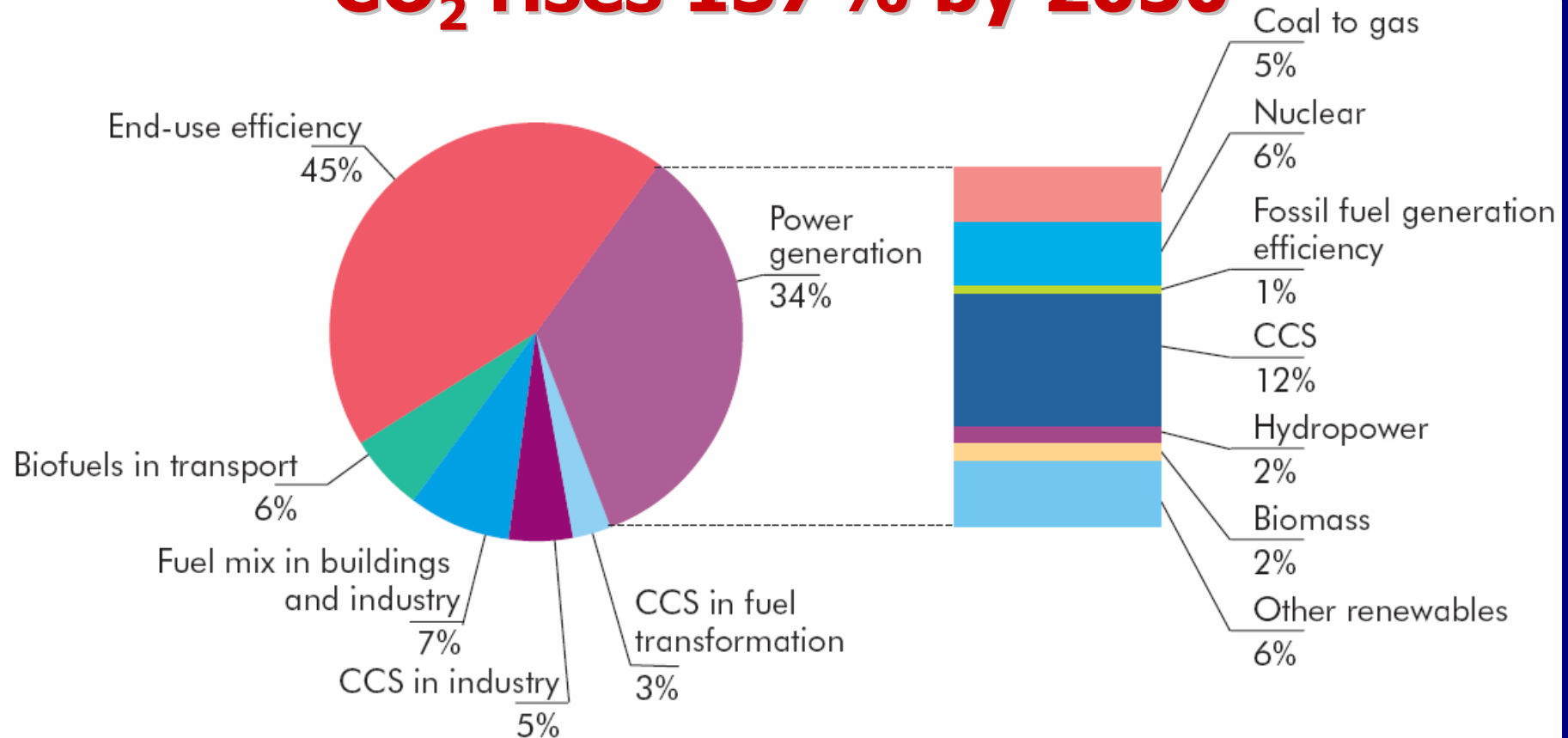
Cumulative Energy-Related CO₂ Emissions



Around 60% of the global increase in emissions in 2005-2030 comes from China & India



Business-as-usual: CO₂ rises 137% by 2050



A portfolio approach could bring CO₂ emissions back to today's level by 2050. End-use energy efficiency is an essential piece.

Source: IEA, 2006, Energy Technology Perspectives



Why doesn't the market take full advantage of this potential?



Barriers to EE

- Best policy practice
- Lack of awareness re cost-effective savings potentials
- Missing or partial information on energy performance and lack of common standards
- Split incentives
- Access to capital markets not well developed to support the efficiency market
- Inherent nature of the energy market
- Technology barriers
- Capacity building needs

Particularly in developing countries!

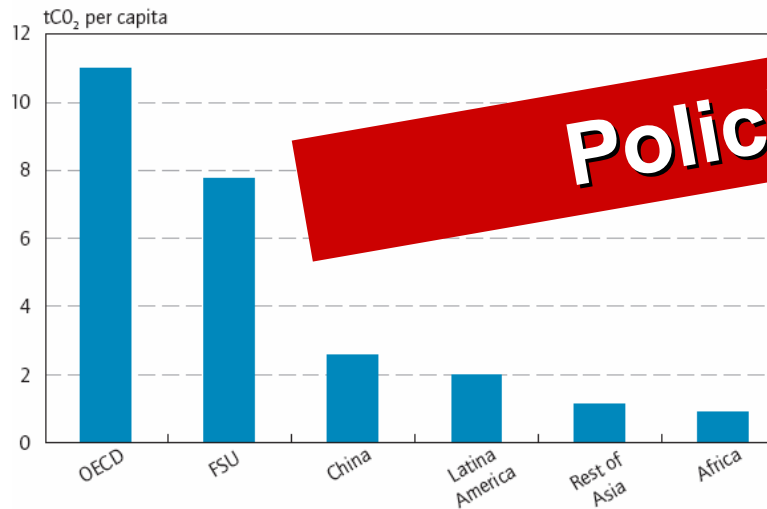
→ emphasis on upfront, not on life-cycle costs



Energy in Developing Countries

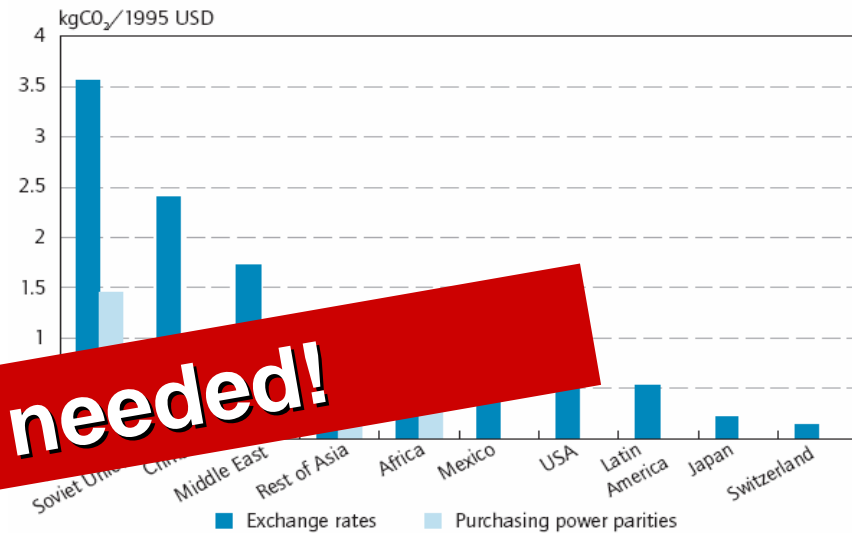
High CO₂ intensities and the development of infrastructure indicate opportunities for cheap reductions...

Per capita emissions (energy-related CO₂)



Source: IEA statistics

CO₂ intensities of GDP for selected countries and regions



Source: IEA statistics.

Policies needed!

... but low per capita emissions and poverty make them hardly affordable

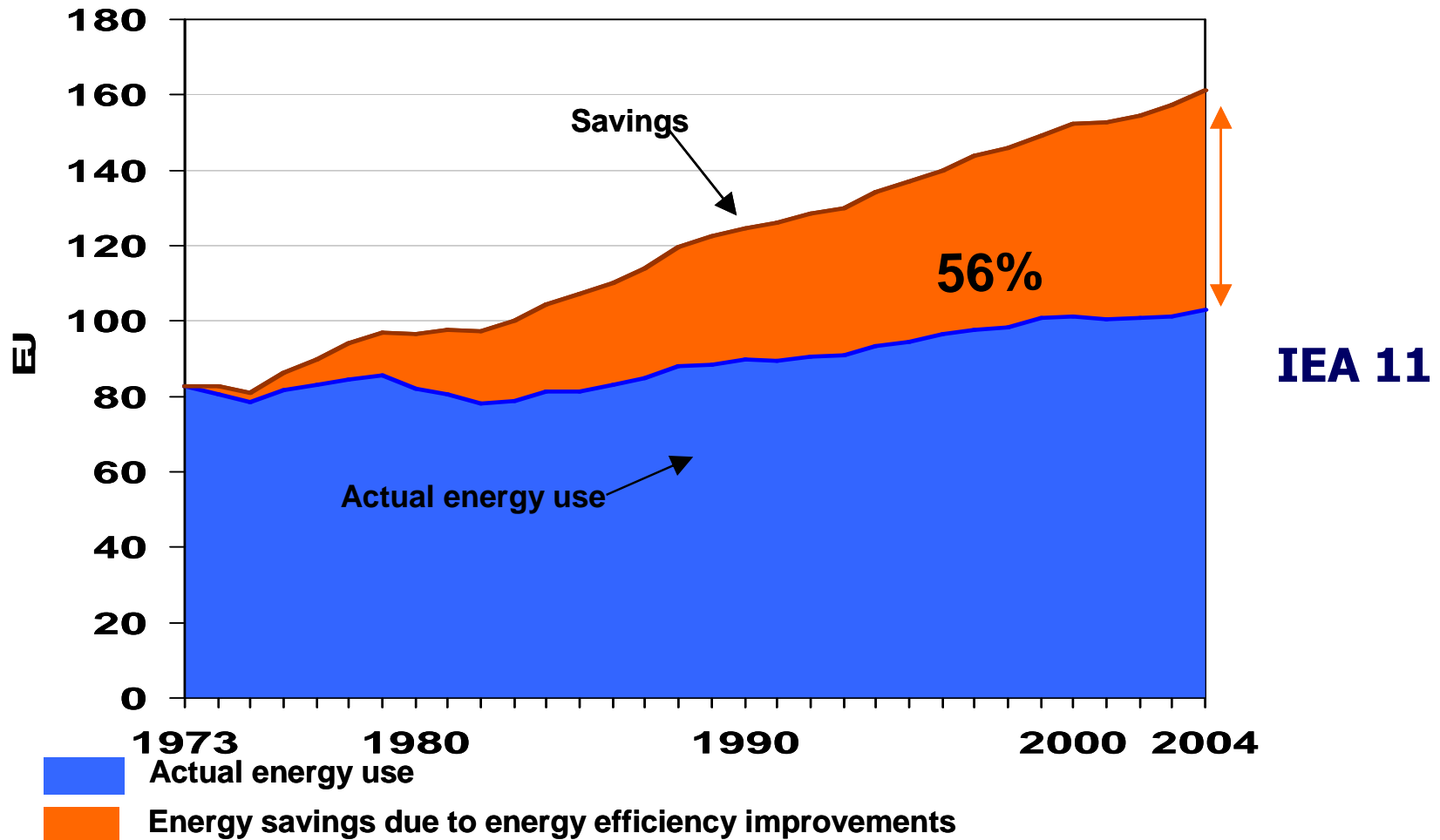


**But are energy efficiency
policies effective?**



Energy Efficiency: The Largest Fuel

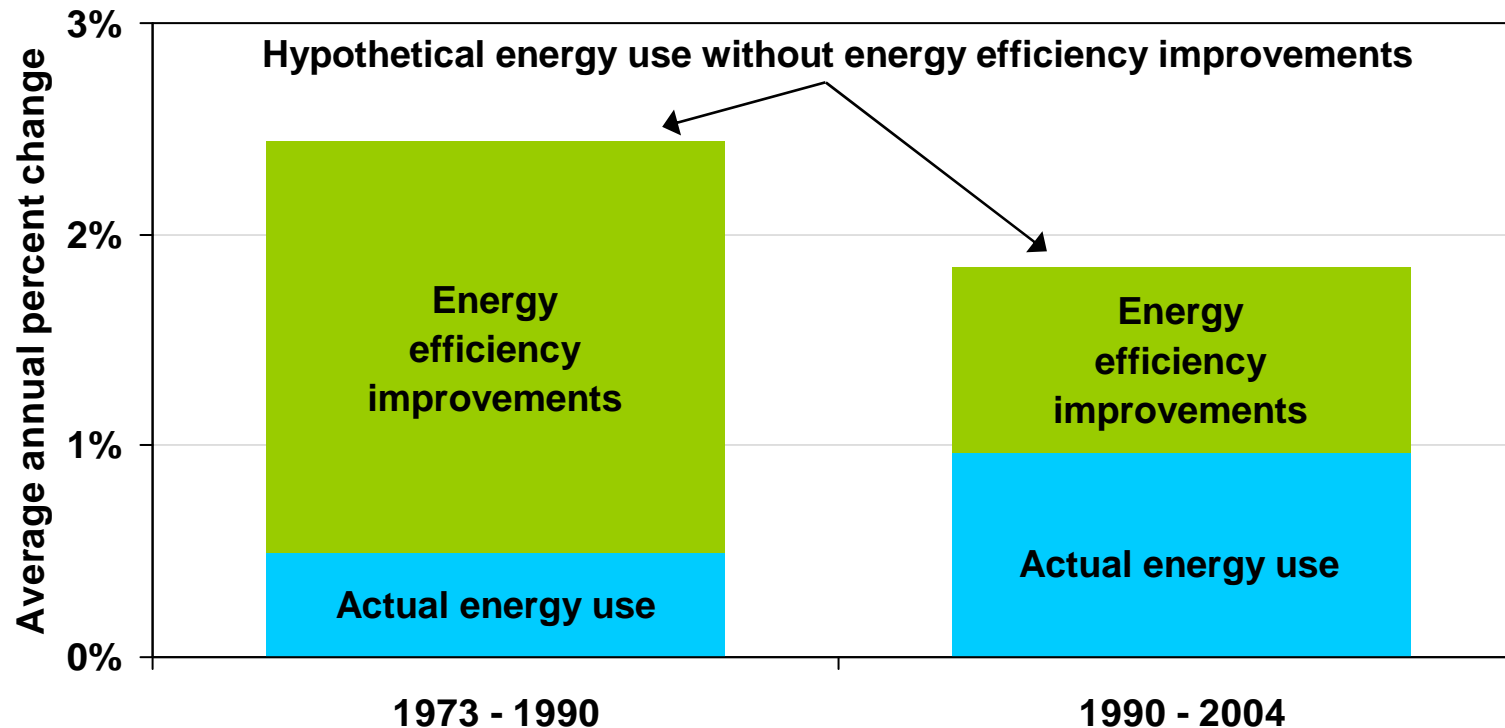
Hypothetical energy use
without efficiency improvements



Source: IEA, 2007, Energy Use in the New Millennium
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Energy efficiency: More policy is needed



Since 1990, the rate of energy efficiency improvement in IEA countries has been less than 1% per year – much lower than in previous decades.

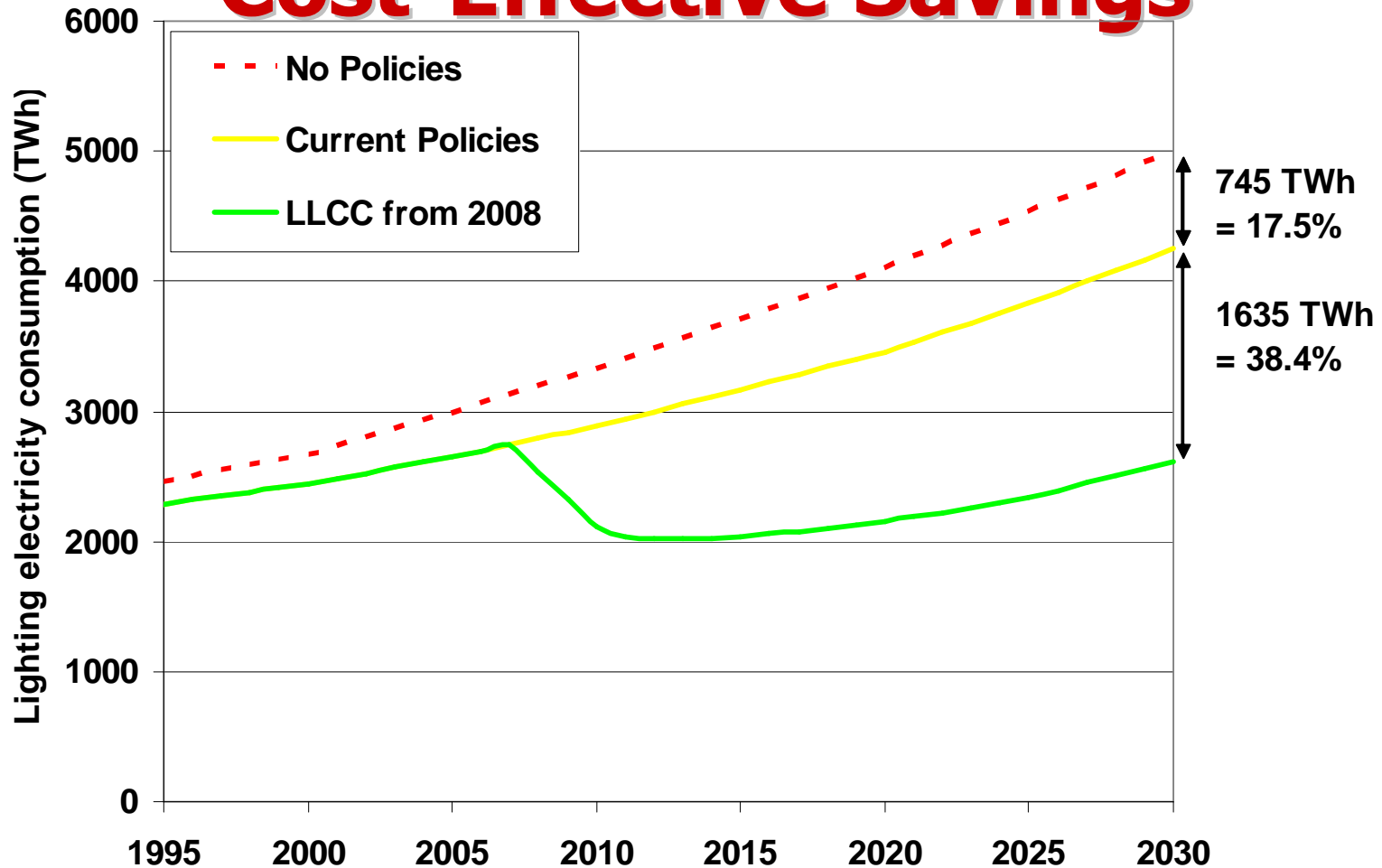
Source: IEA, 2007, Energy Use in the New Millennium

Technological Improvement Potentials: Industry

	[EJ/yr]	[Mt CO ₂ /yr]
Sector Process improvements	12-17	1150-1550
Systems Options	13-20	750-1650
Total	25-37	1900-3200
Industrial Improvement potential	18-26%	19-32%
World Improvement potential	5-8%	7-12%



Lighting, An Example of Cost-Effective Savings



**Global cost of lighting could be reduced by US\$ 2.6 trillion
16 billion tons of CO₂ could be saved**

Source: IEA, 2006, Light's Labour's Lost



G8 Process



● Gleneagles Summit

- ◆ Declaration recognises the threat of climate change
- ◆ Mandate (to World Bank and IEA) to identify best policy practice in energy efficiency
- ◆ «G8 plus Five» Dialogue

● Heiligendamm Summit

- ◆ IEA made 12 concrete EE policy recommendations – could save ~ 5.7 billion tons of CO₂ by 2030
- ◆ Topic-driven Dialogue between «G8 plus 5»
 - Promoting and protecting innovation; Enhancing freedom of investment; Defining common responsibilities for development; Sharing knowledge for improving EE and technology cooperation to reduce CO₂



Conclusions

- **A more sustainable energy future: possible with portfolio of clean & efficient technologies**
- **Policy needed to promote energy efficiency: targeted policy interventions**
- **How to enhance the role of carbon finance in energy efficiency investments?**