



**UNFCCC Side Event
Fourth Session of the AWG
Vienna, 27 August 2007**

**Energy Efficiency:
What role in the mitigation
potential?**

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G8 - Gleneagles Communiqué

July 2005



“We will act with resolve and urgency to meet our shared multiple objectives of reducing greenhouse gas emissions, improving the global environment, enhancing energy security and cutting air pollution in conjunction with our vigorous efforts to reduce poverty“

“The IEA will advise on alternative energy scenarios and strategies aimed at a clean, clever and competitive energy future”

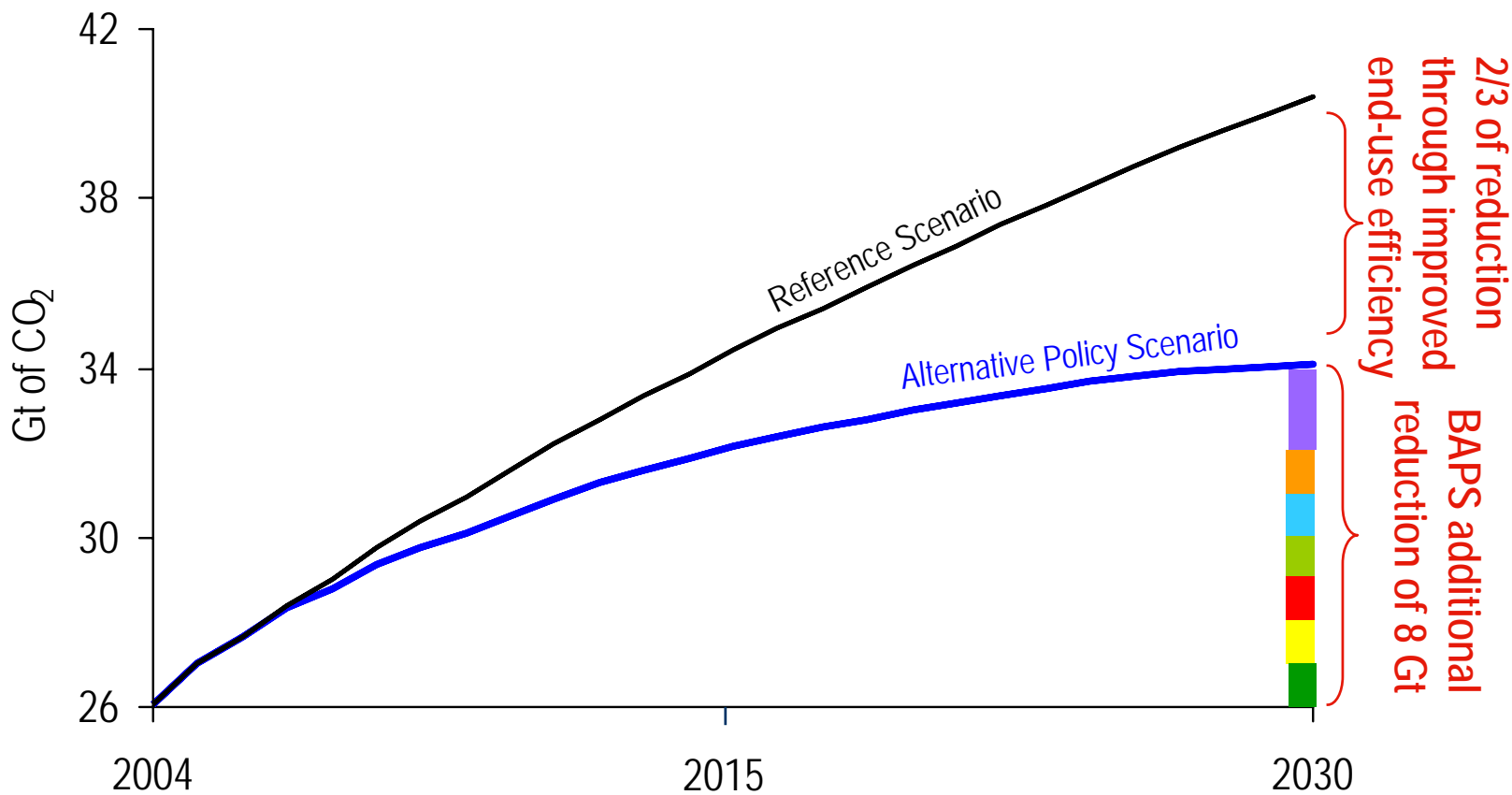
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Why focus on energy efficiency?

- **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

Going Beyond the Alternative Policy Scenario: The need for significant emission reductions

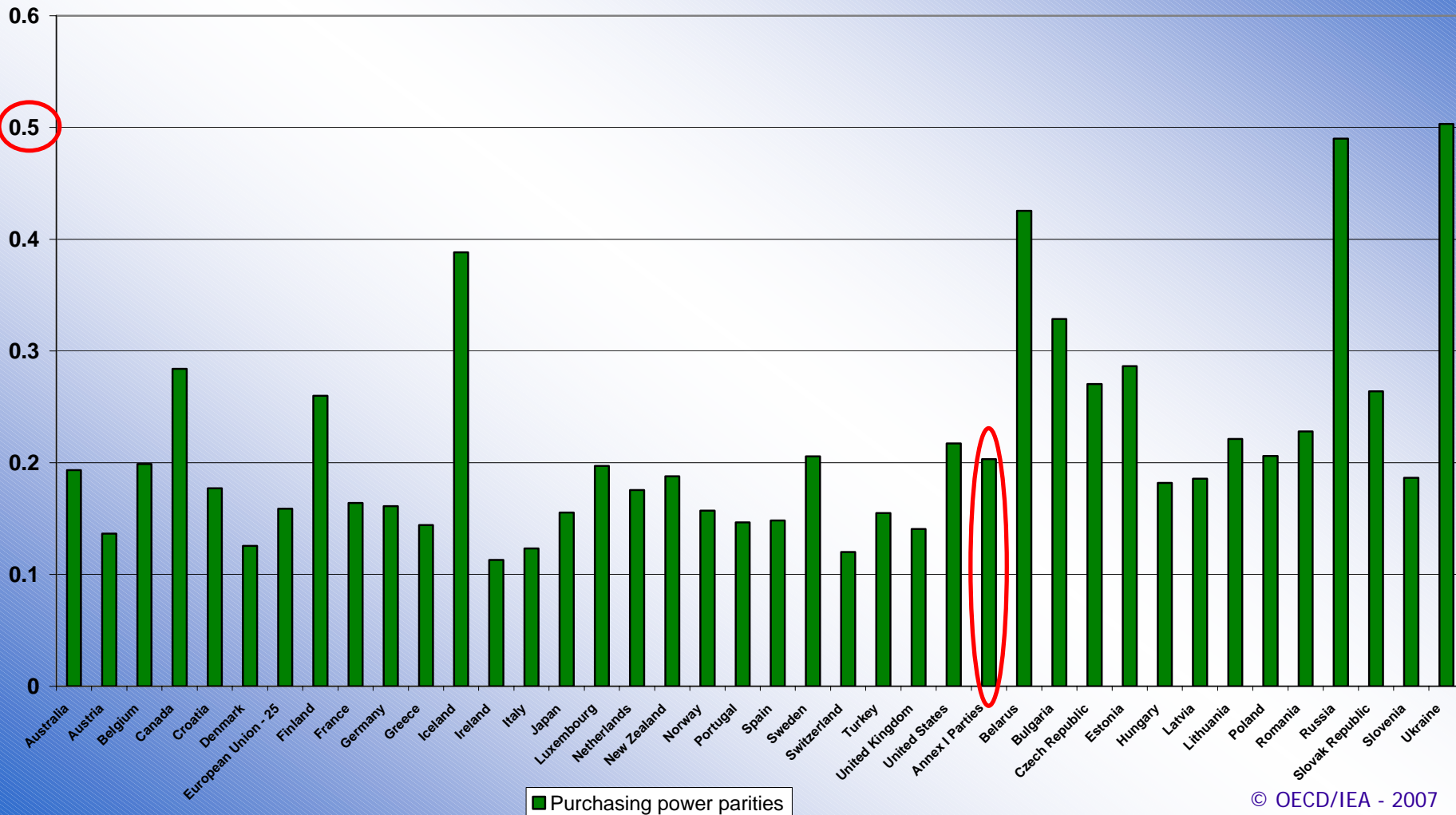


- CCS in power generation
- Efficiency of electricity use
- Efficiency of power plants
- Renewables-based generation
- CCS and efficiency in industry
- Biofuels and hybrids
- Nuclear power-plants



Energy intensity of the Annex I

Mtoe/US\$2000

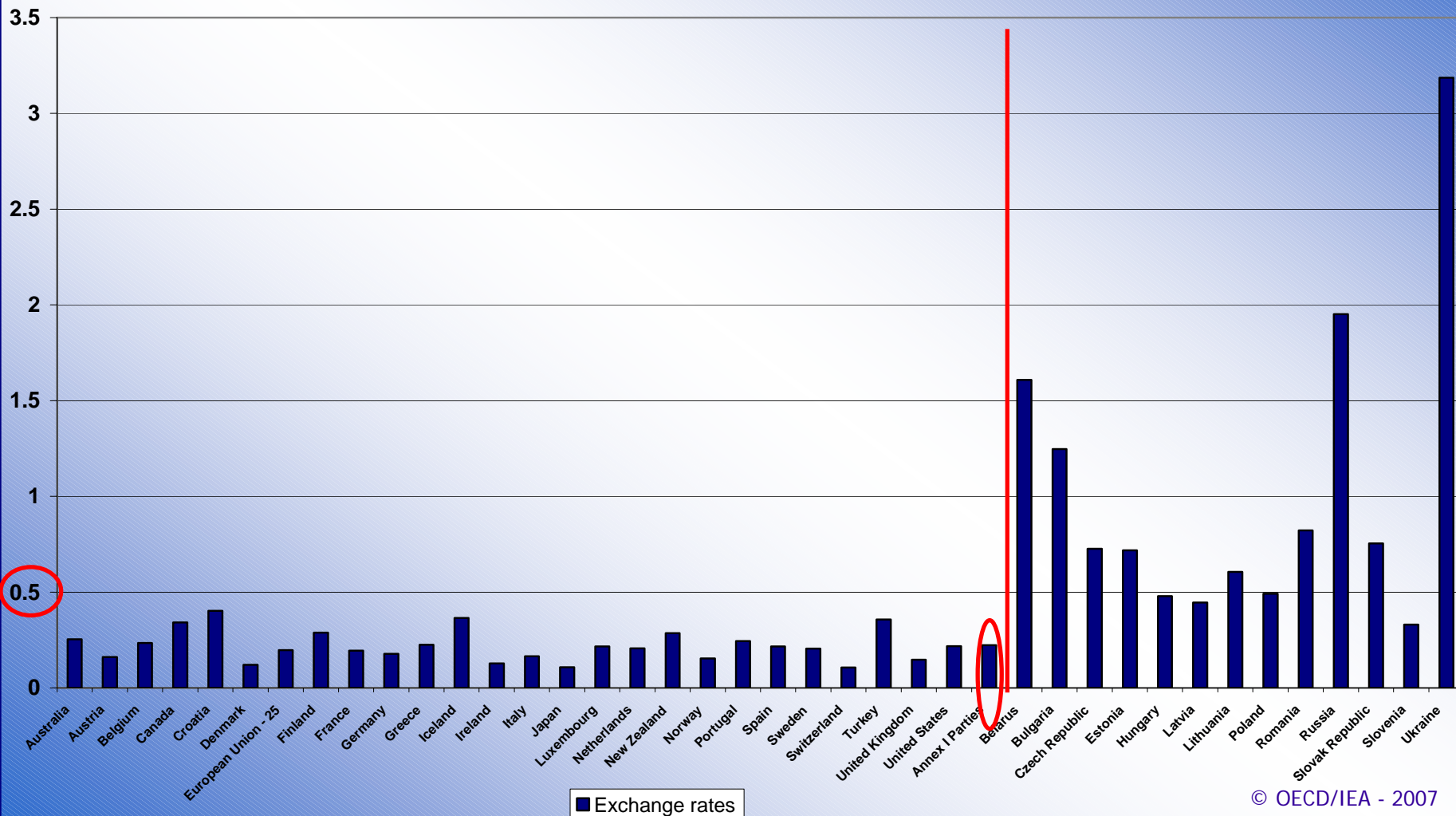


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Energy intensity of the Annex I

Mtoe/US\$2000



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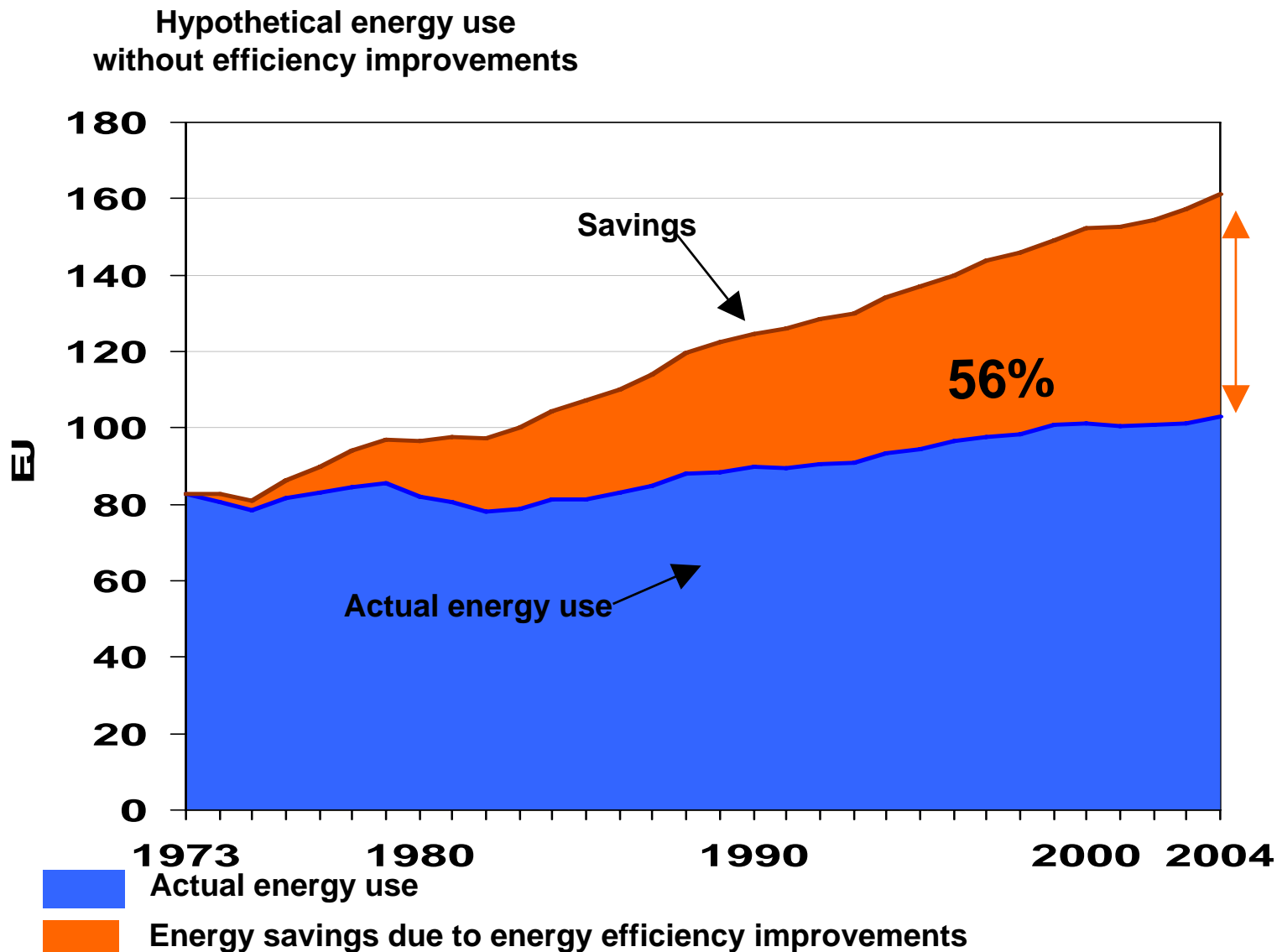


Energy Efficiency - The Largest Fuel

IEA-11

Energy Use
in the New
Millennium

Trends in IEA
Countries



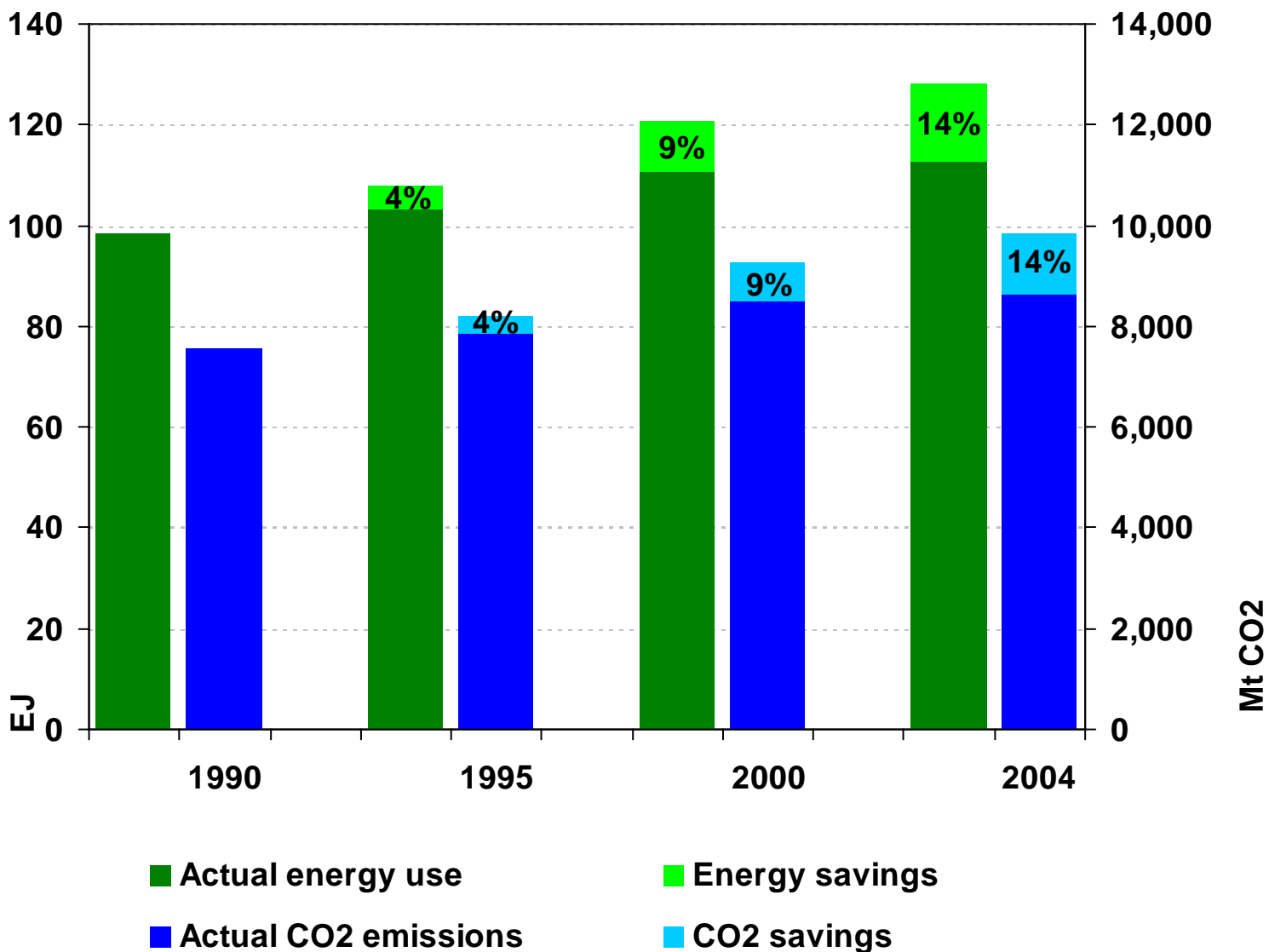
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IEA14 Energy & CO₂ Emissions Savings from Improvements in Energy Intensity

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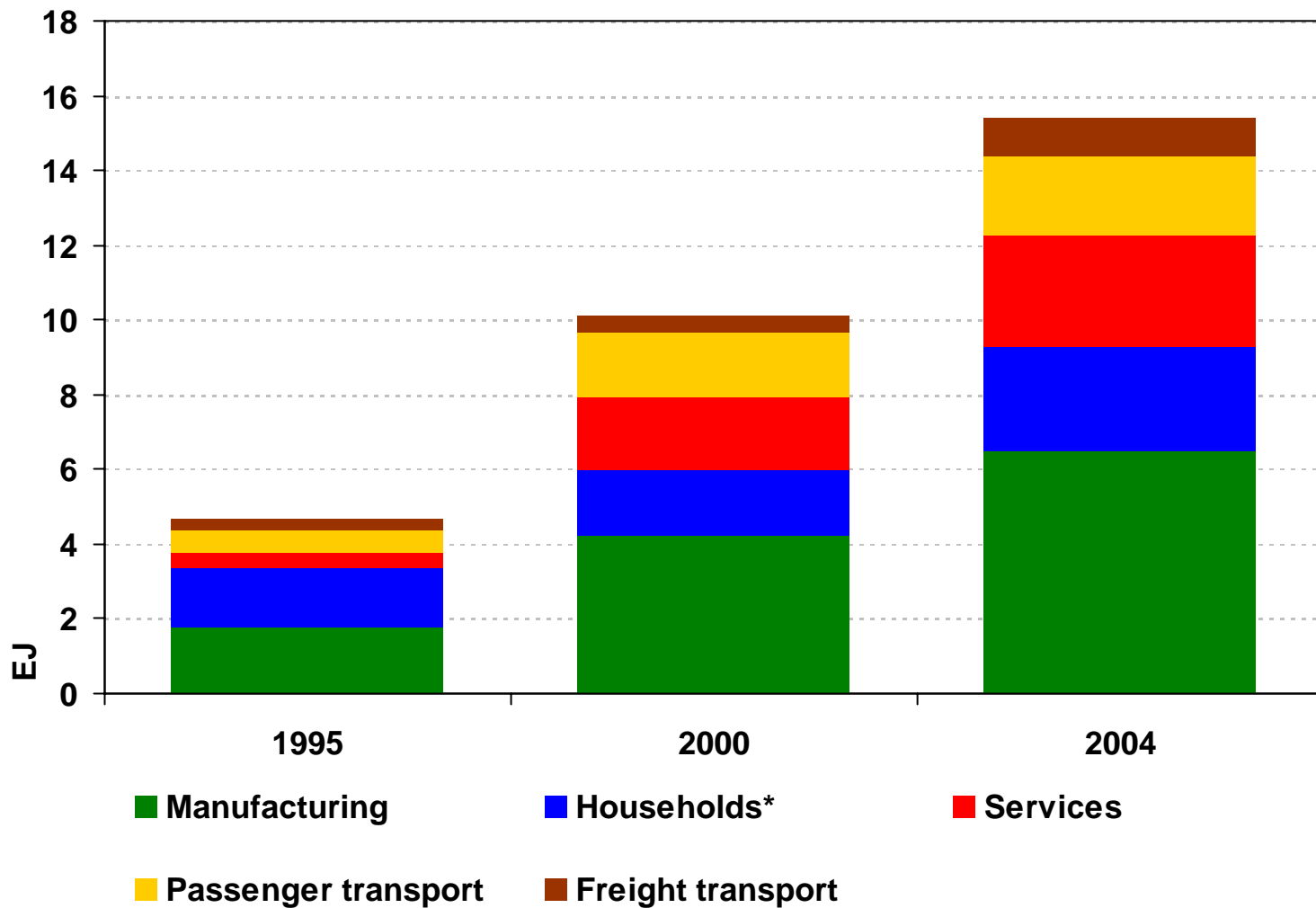
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Contribution to Energy Savings since 1990 from the End-use Sectors, IEA14

Energy Use in the New Millennium

Trends in IEA Countries



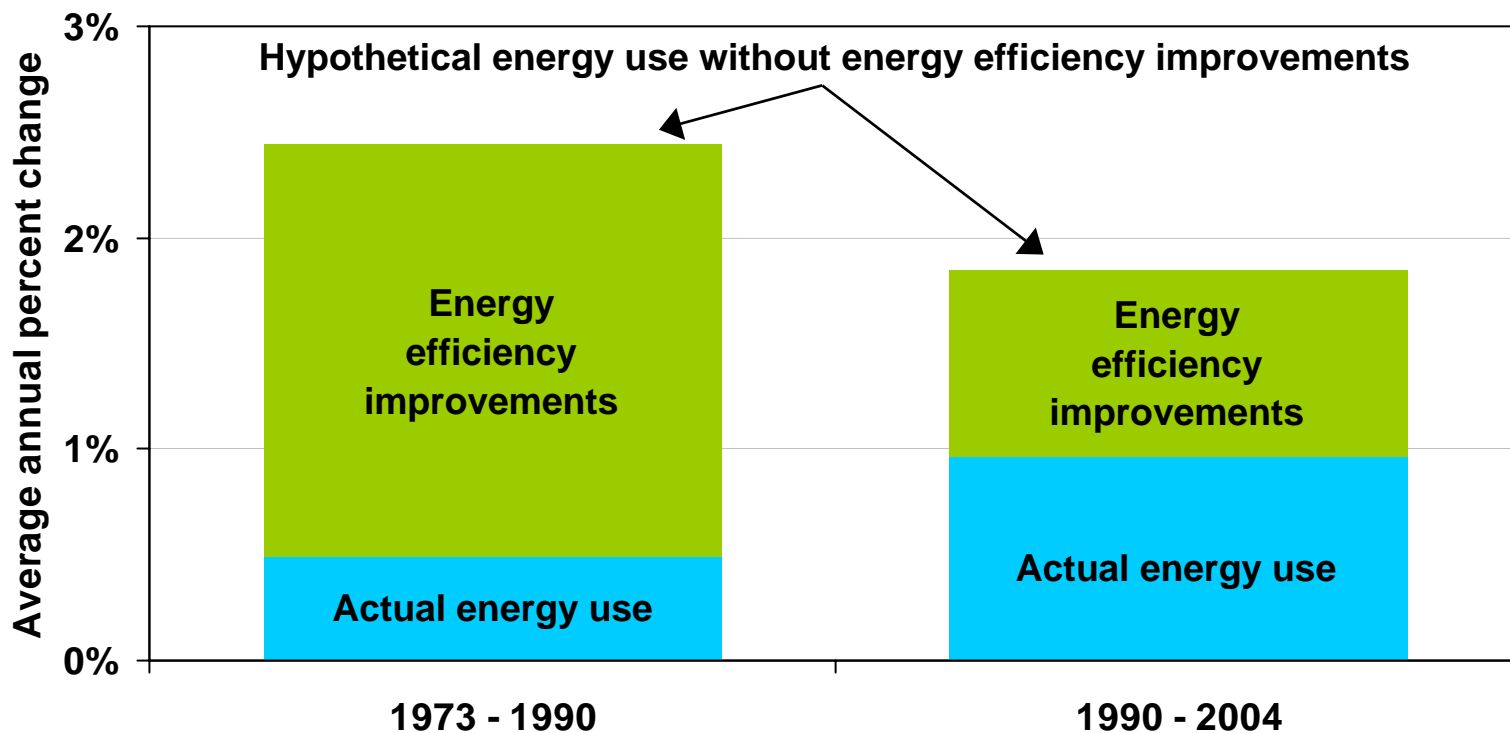
*Corrected for yearly climate variations.



Impact of Energy Efficiency Improvements on Final Energy Use, IEA11

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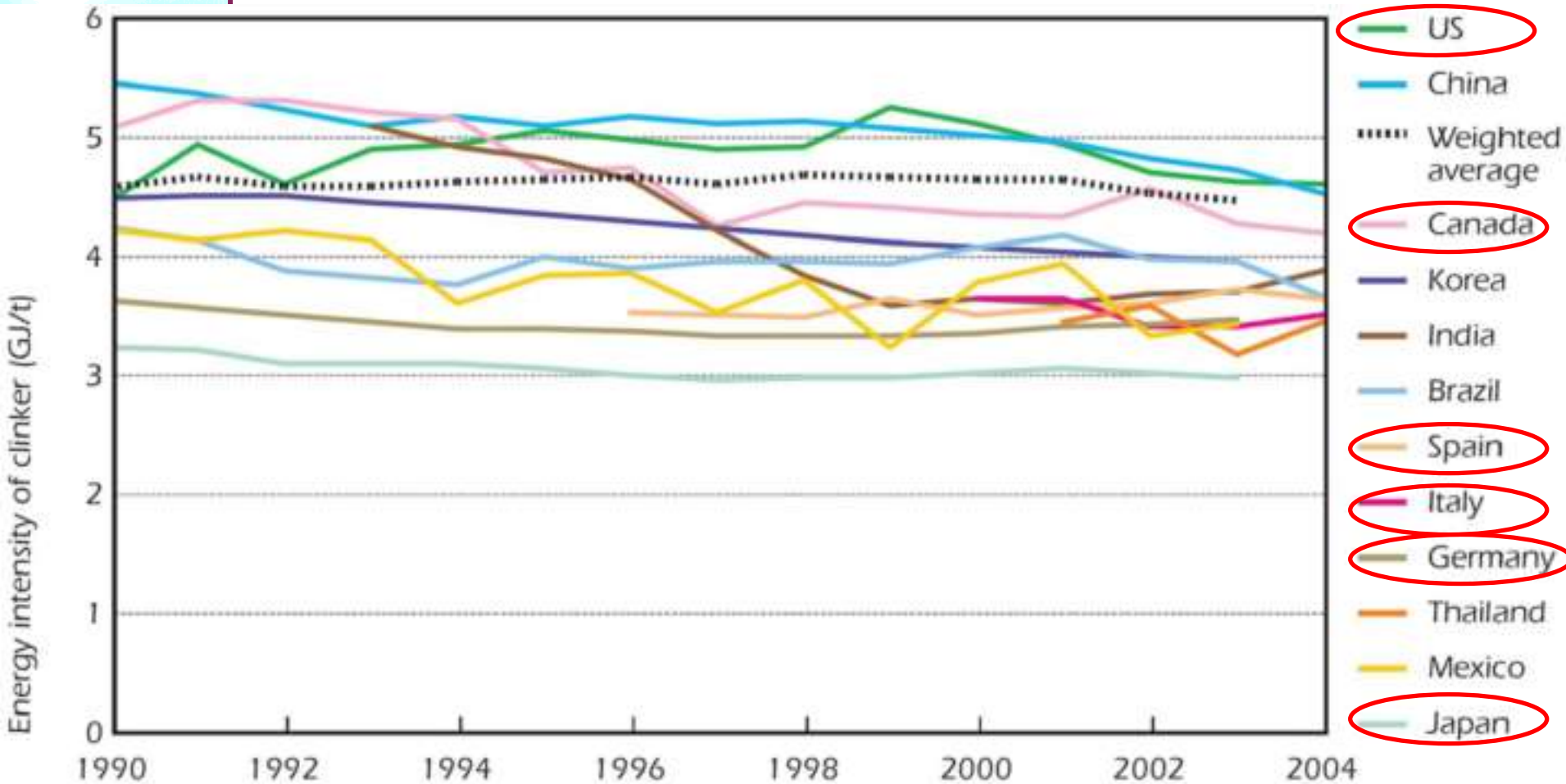


We must - and we can - do better!

Energy Use for Cement Clinker Production

Tracking
Industrial
Energy
Efficiency and
CO₂ Emissions

Japan is the most efficient clinker producer
World average has not improved



Technological Improvement Potentials

Tracking
Industrial
Energy
Efficiency and
CO₂ Emissions

	[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%

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



Barriers to EE

- Lack of awareness re cost-effective savings potentials
- Missing or partial information on EE performance and lack of common metrics
- Split incentives: Landlord-Tenant issue
- Access to capital – capital markets not well developed to support the efficiency market
- Inherent nature of the energy market
- Technology barriers
- Capacity building needs

→ All result in emphasis on 1st *not* Life-cycle costs

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How to use the mitigation potential offered by EE?

- Clarify potential and *concept*:
Mitigation potential is function of available technology potential and a cost
 - ◆ Cost defined depending on sector / policy
- The market base of our economies makes CO₂ pricing a central coordination tool
 - ◆ Works also for EE
 - ◆ Yet, other policy instruments and targeted policy interventions needed to overcome market barriers

→ *Energy efficiency is critical part of the mitigation potential*

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