



Energy Efficiency: Switzerland in an International Comparison

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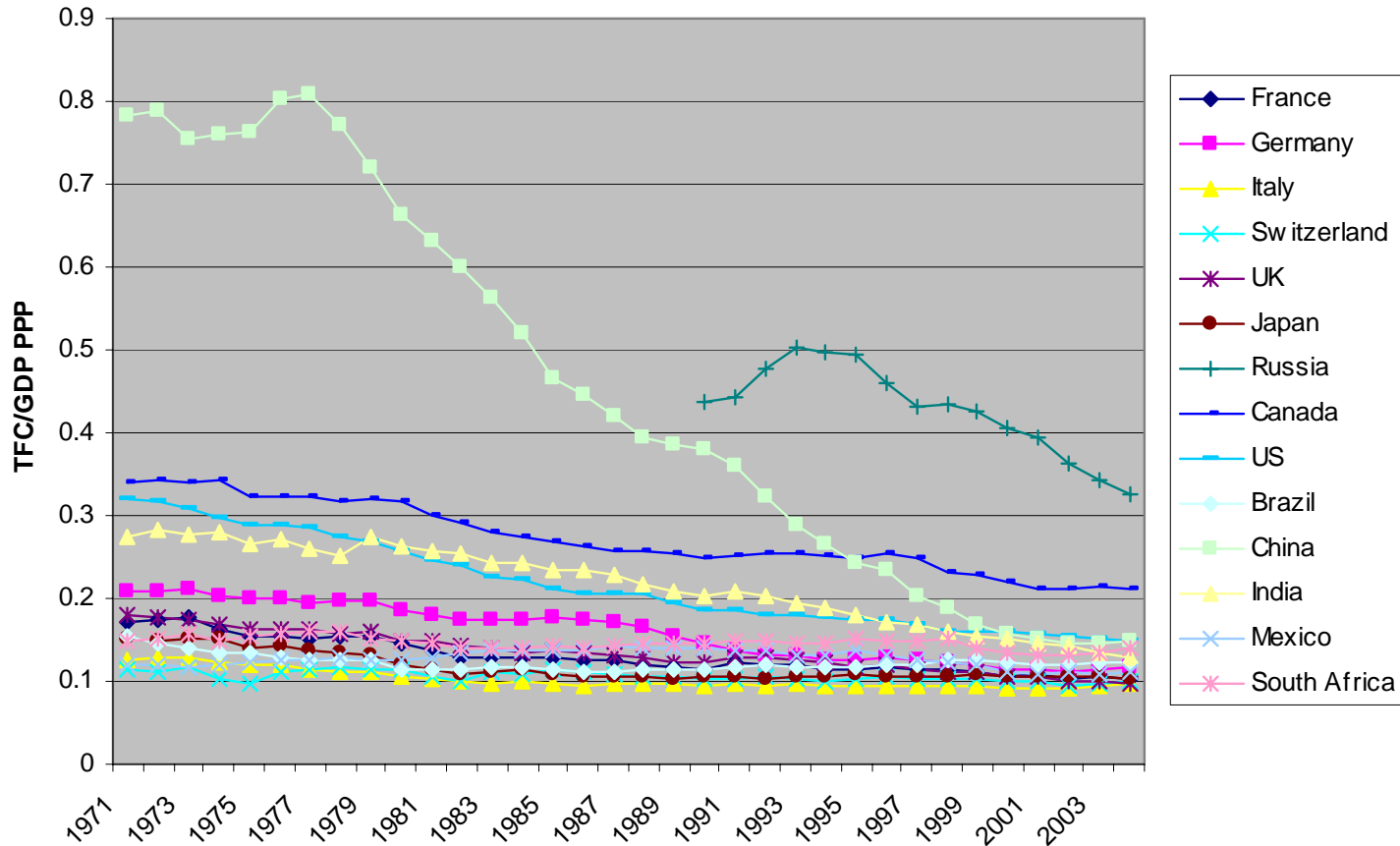
Energie Dialog, Villingen, Switzerland, 20-22 June 2007

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Contents

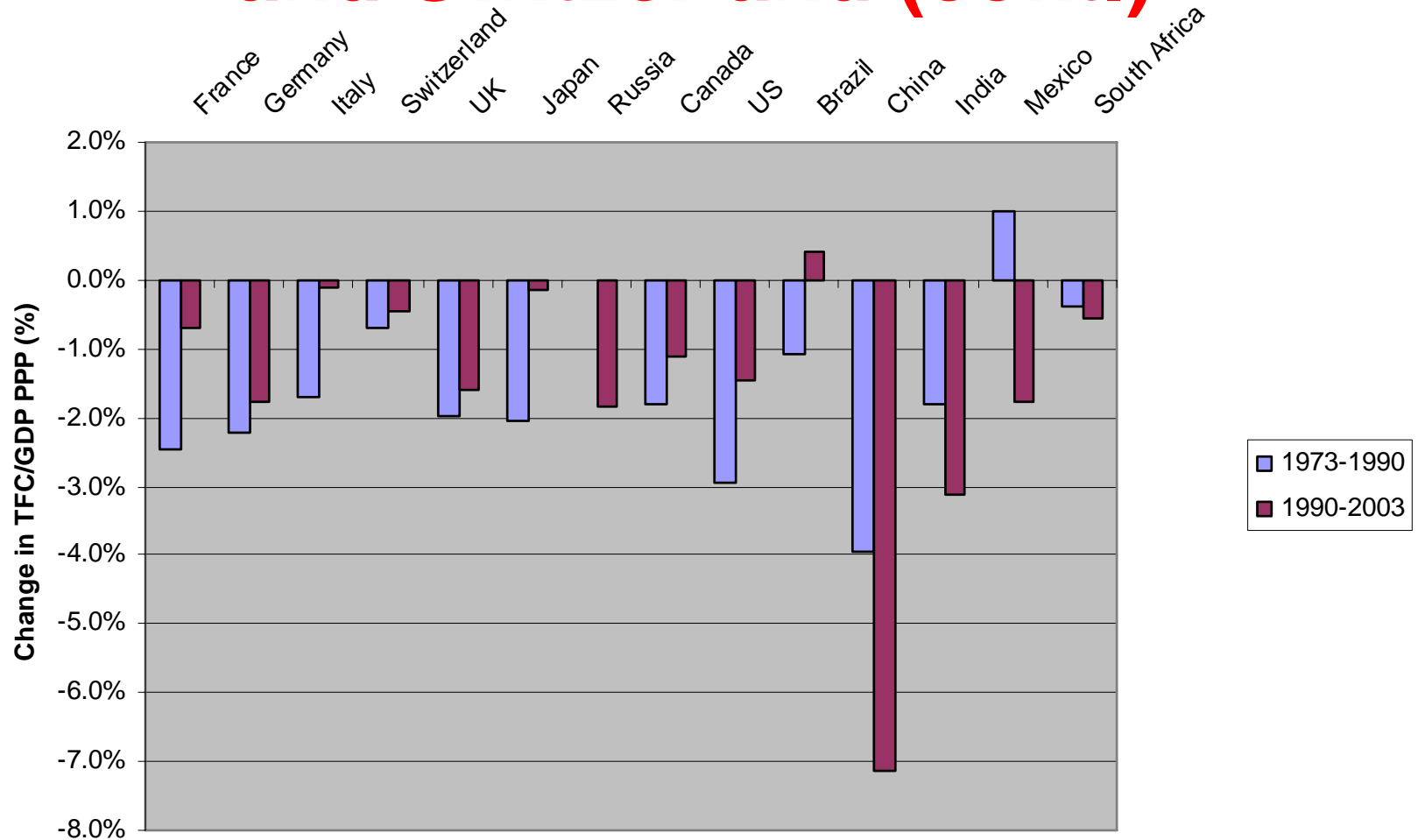
- **Historical energy intensity of G8+5 (1970-2004)**
- **Projected energy intensity of G8+5 to 2050**
- **Quantifying structural change versus energy efficiency**
- **ETP2006 assumptions and results**

Historical energy intensity of G8+5 and Switzerland



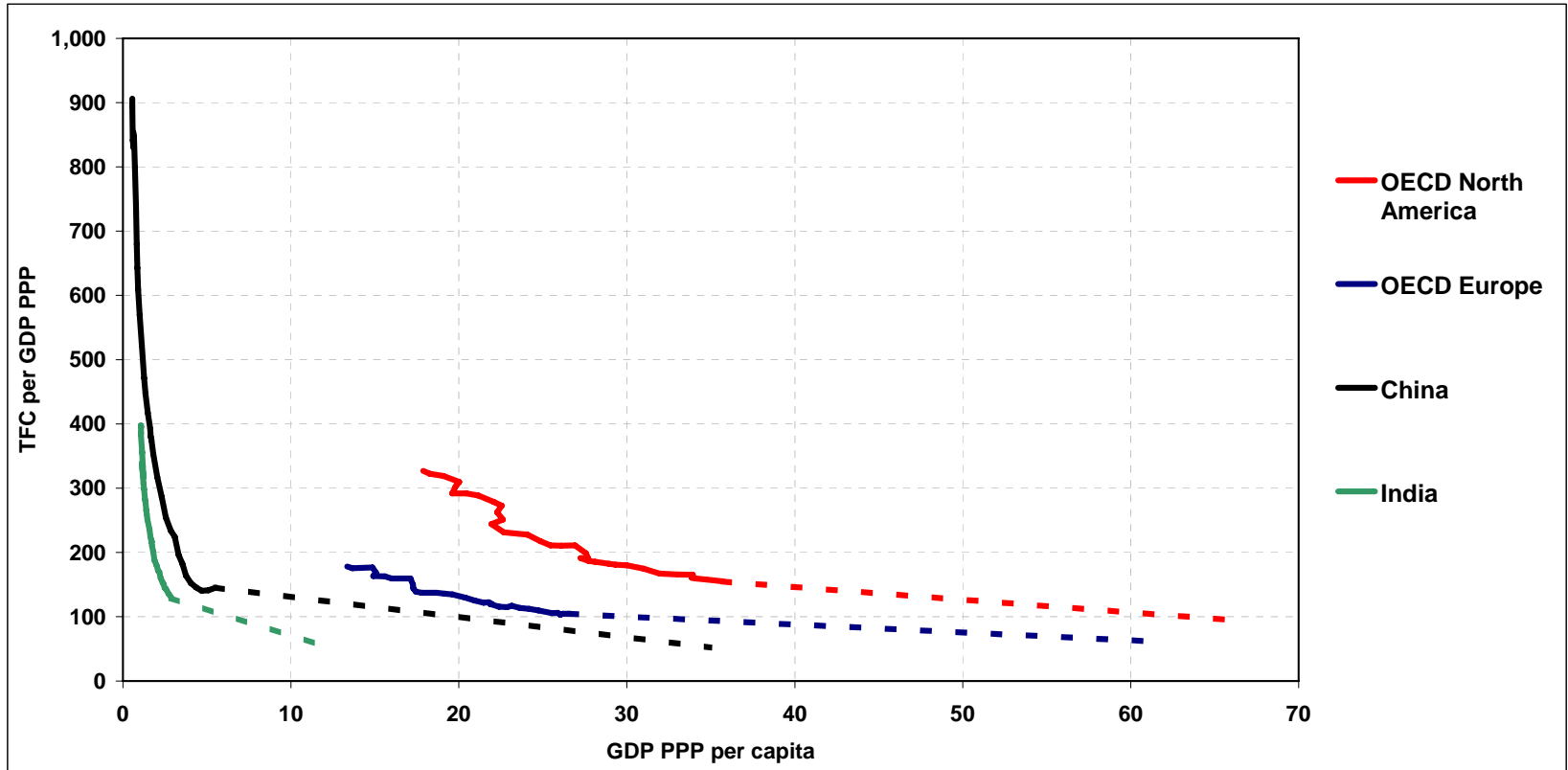
- TFC/GDP has declined in all G8+5 countries
- Countries with higher intensity/lower GDP have faster reductions

Historical energy intensity of G8+5 and Switzerland (cont.)



Rate of decline of energy intensity differs between countries; OECD countries slowing and +5 mostly growing

Energy intensity and GDP per capita

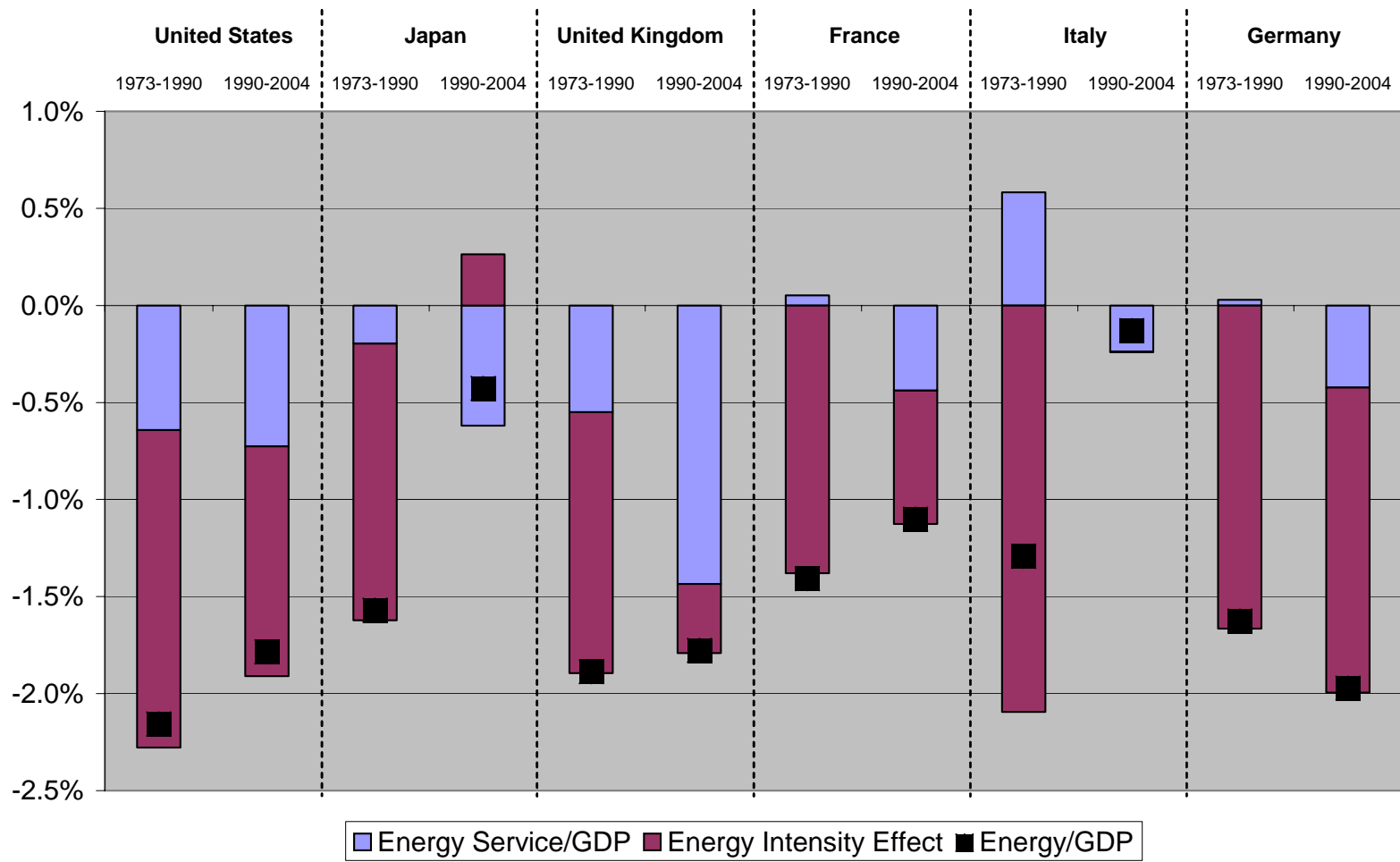


- Many OECD countries now around 100 toe/\$M
- Is there a lower limit where convergence might occur?

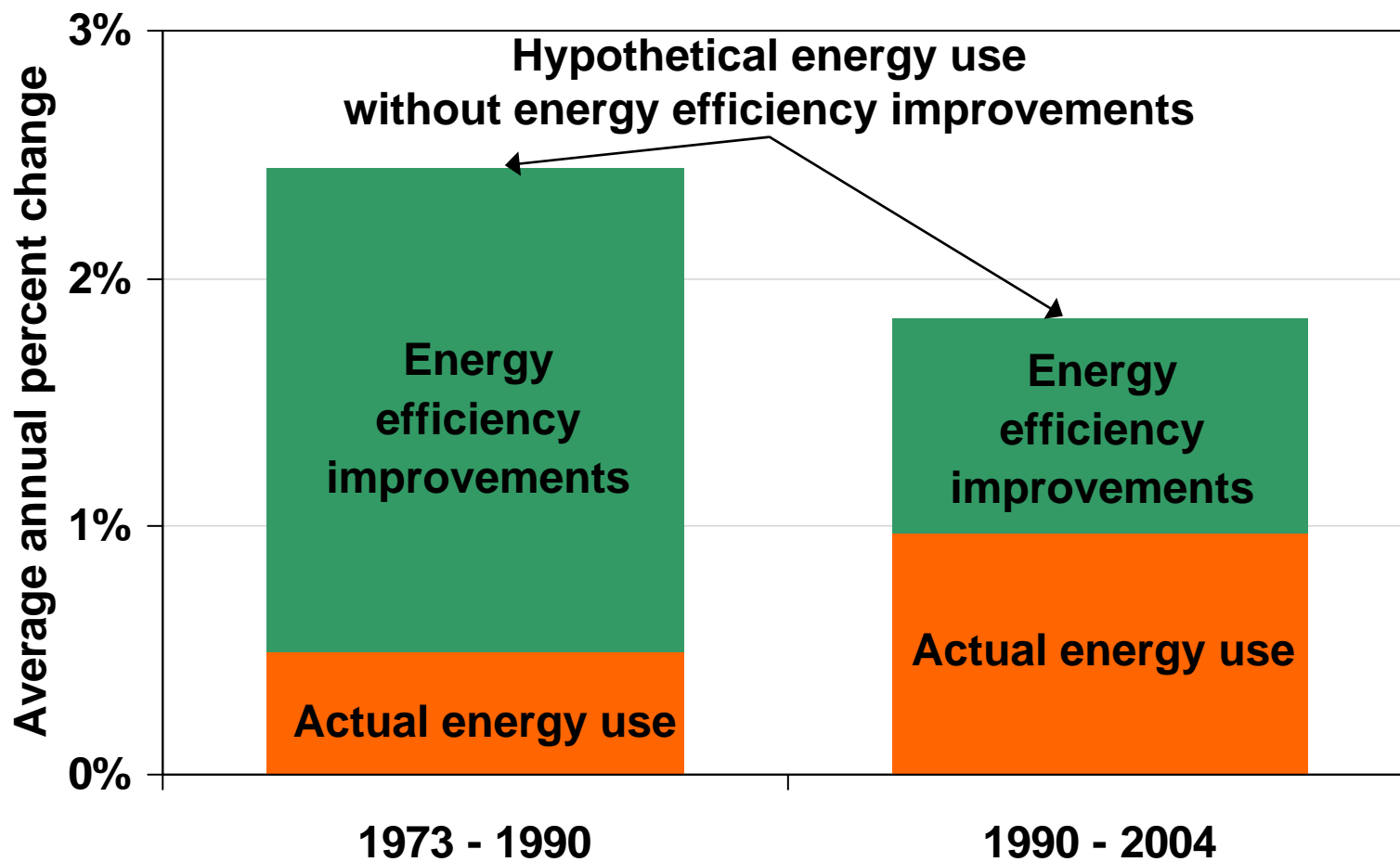
Quantifying structural change versus energy efficiency

- Large variations in how much energy intensity has fallen over time
- Next step is to understand how much this reflects differences in energy efficiency developments
 - ◆ Use a simple decomposition approach to separate effects of changes in energy efficiency from changes in structure
 - ◆ Detailed data for non-OECD countries not available

Example for selected OECD countries



We must - and we can - do better!



ETP2006 assumptions and results

- Improved energy efficiency in the ACT scenarios increases the decline in global energy intensity to an average 2% per year between 2003 – 2050 (-1.4% under baseline).
- Model assumes differences between regions
 - ◆ OECD -1.7% (-1.1%)
 - ◆ Transition economies -3.1% (-2.5%)
 - ◆ Developing Countries -2.6% (-2.1%)
- Structural change versus energy efficiency not quantified

Emission reduction by sectors

**MAP Scenario:
32 Gt CO₂ reduction in 2050**

Industry 10%

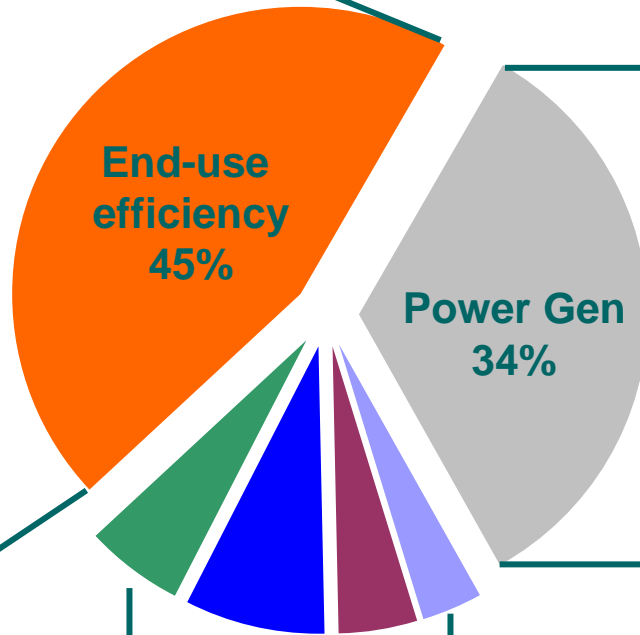
- Energy & feedstock effic. 6%
- Materials & products effic. 1%
- Process innovation 1%
- Cogen. & steam 2%

Buildings 18%

- Space heating 3%
- Air conditioning 3%
- Lighting, misc. 3.5%
- Water heat., cooking 1%
- Appliances 7.5%

Transport 17%

- Fuel economy in transport 17%



- Coal to gas 5%
- Nuclear 6%
- Fossil fuel gen. eff 1%
- CCS 12%
- Hydro 2%
- Biomass 2%
- Other renew. 6%

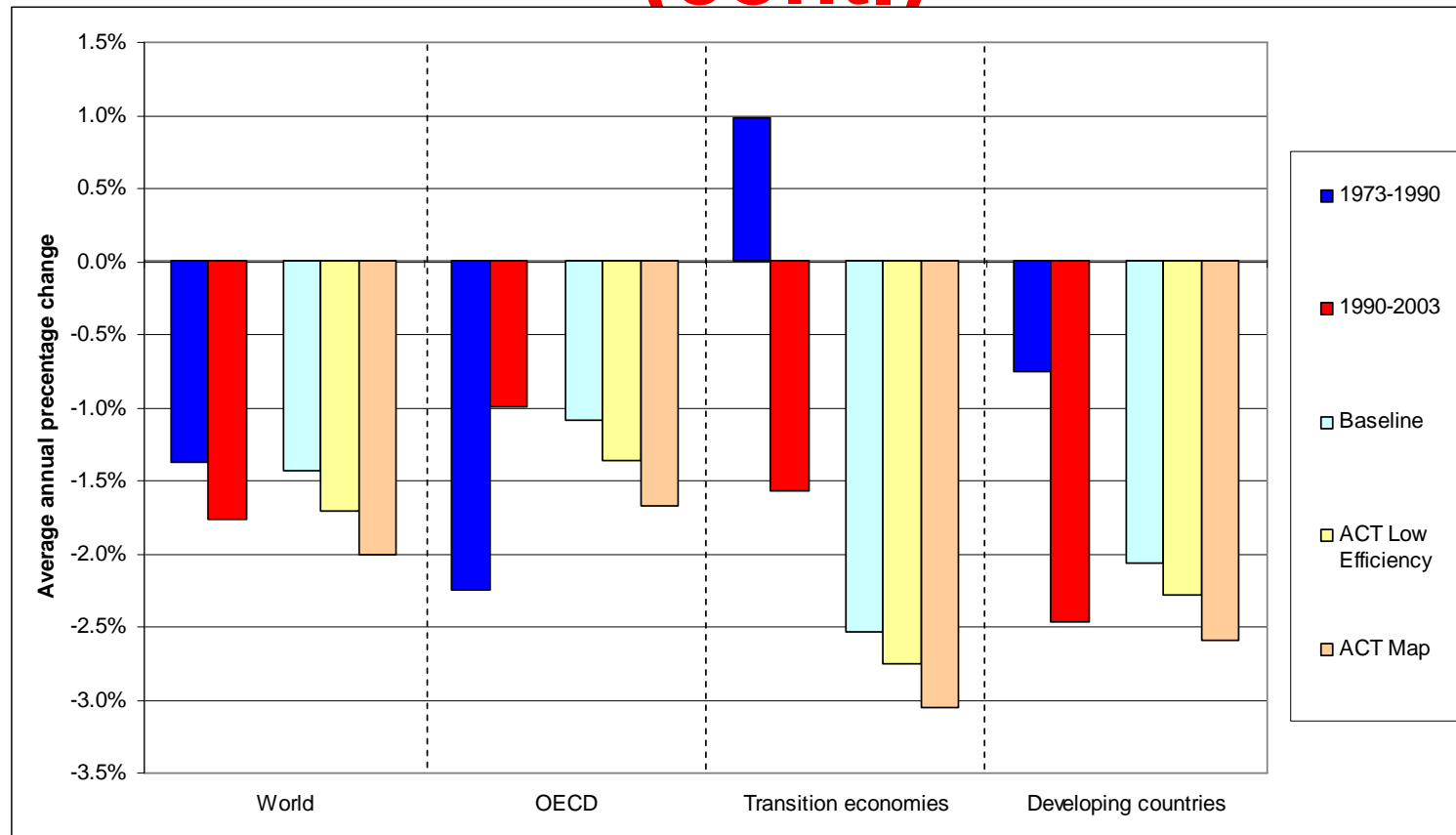
Biofuels in transport 6%

CCS in fuel transformation 3%

CCS in industry 5%

Fuel mix in building 5% and industry 2%

ETP2006 assumptions and results (cont.)



Outside the OECD, the decline in final energy intensity in the Map scenario exceeds historical reductions



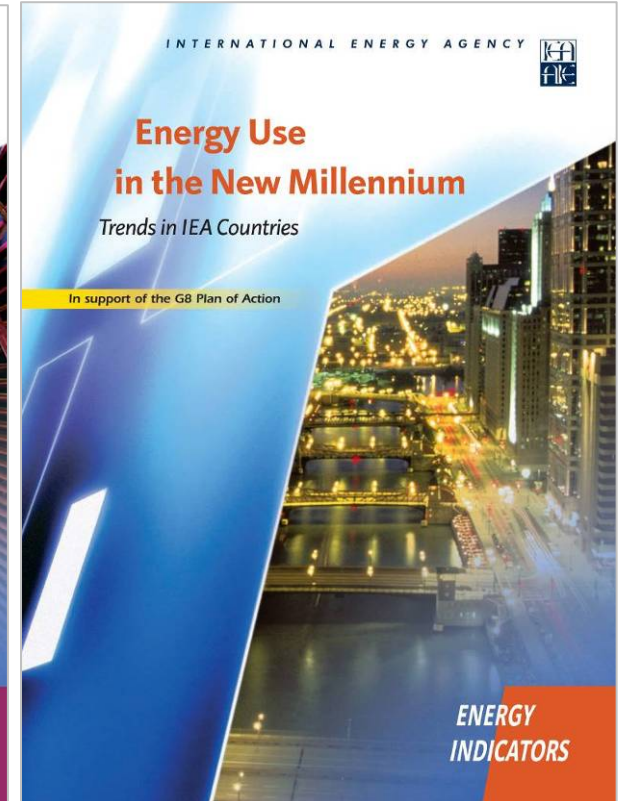
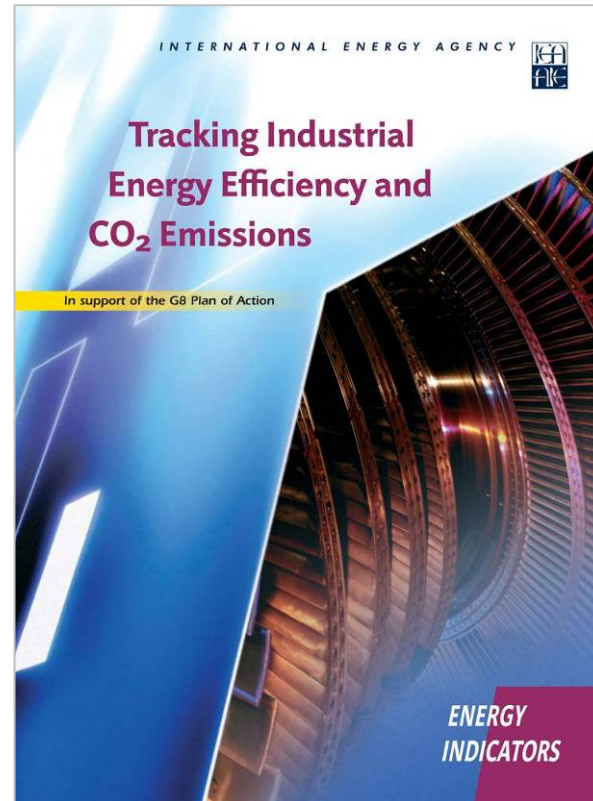
Energy Indicators Project in IEA

In support of the G8 Plan of Action

2004



2007





Thank you !

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