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The G8 Climate Change Initiative: What it means for building performance

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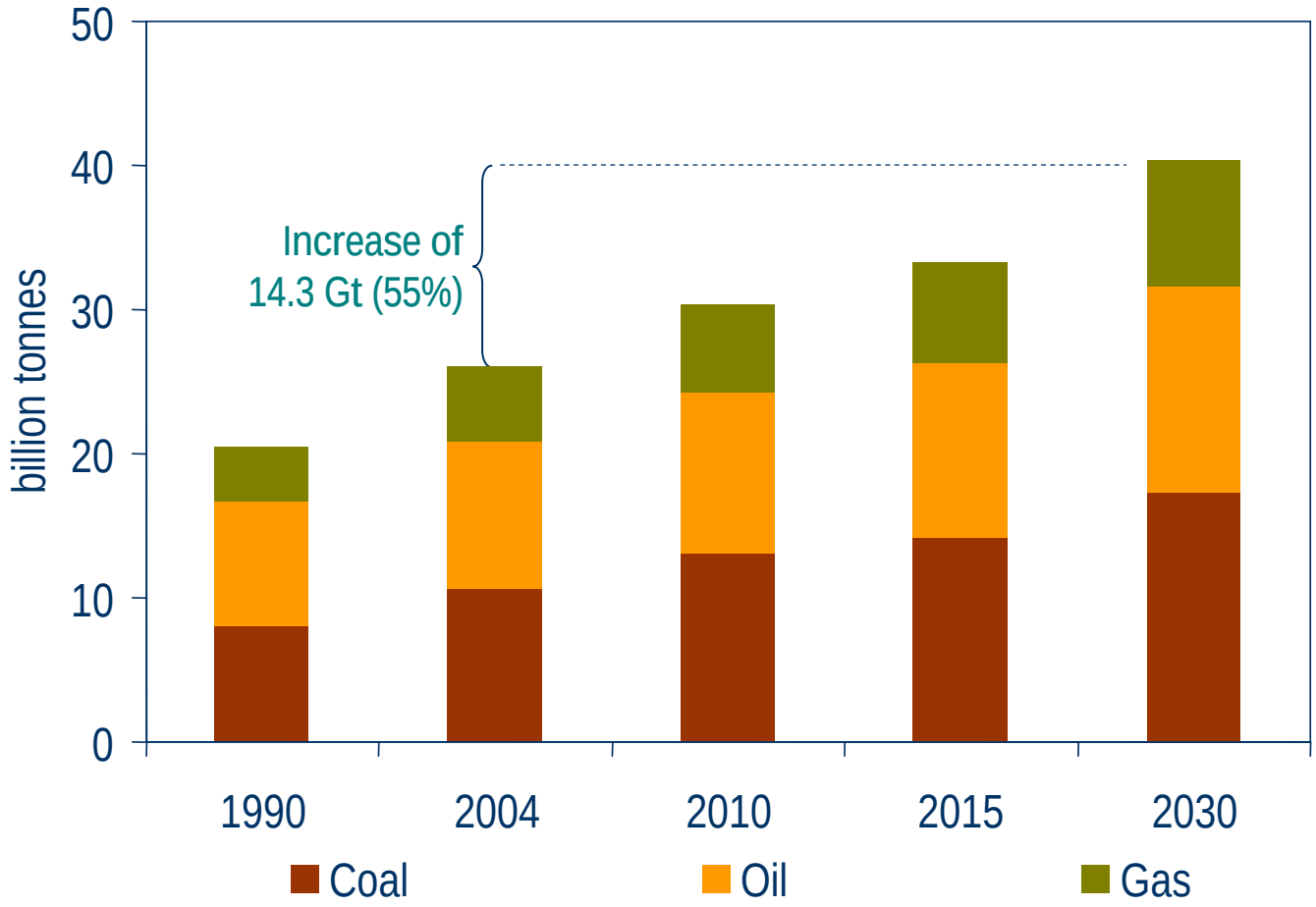
G8 Gleneagle's summit mandate to IEA on buildings

"To promote energy efficiency in buildings, we will Invite the International Energy Agency to:

- review existing building standards and codes in developed and developing countries
- develop energy indicators to assess efficiency
- identify policy best practices"

Reference Scenario:
Energy-Related CO_2 Emissions by Fuel



Buildings account for 37% of all emissions in 2030

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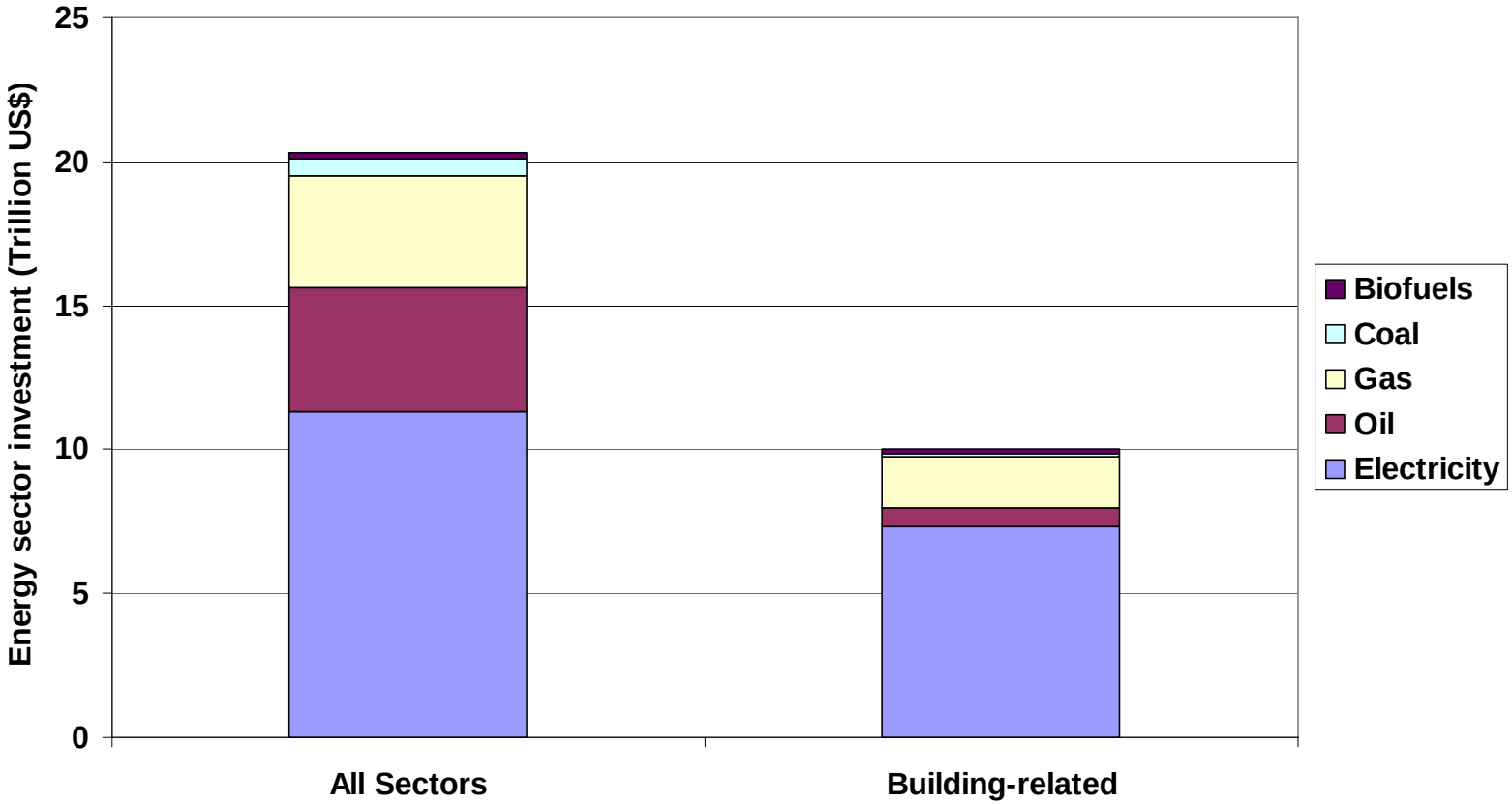
Reference Scenario
Cumulative energy supply investment, 2005-2030

$20.2 trillion (in $2005)



Buildings account for ~49 %

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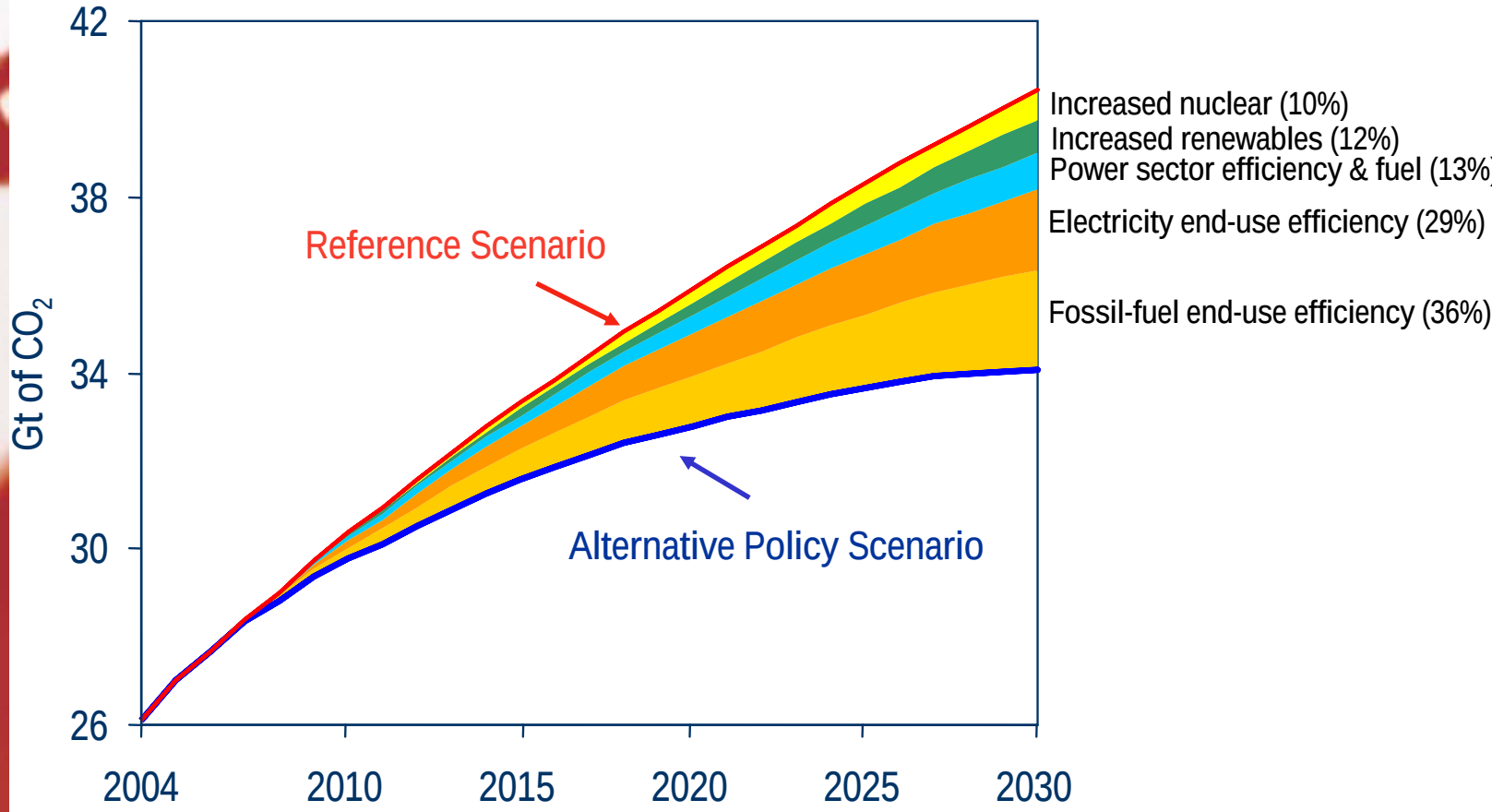
Alternative Policy Scenario: Key Policies for CO_2 Reduction



Improved end-use efficiency accounts for <u>two-thirds</u> of avoided emissions in 2030 in the APS

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Alternative Policy Scenario in 2030: Residential and Commercial Buildings

- Total demand is 444 Mtoe lower (11% less than RS; by region 7% in OECD, 13% in non-OECD)
- These sectors account for 40% of all WEO APS final energy savings in 2030 but 68% of electricity savings
- Residential sector accounts for 70% of the savings in the two sectors
- Electricity demand is 14% lower (12% OECD, 17% non-OECD) which produces savings of 2320 TWh in 2030
- This equates to 412 GW of capacity requirements ~ total capacity in China today
- Avoided energy investments to 2030 of > US$1.2 Trillion

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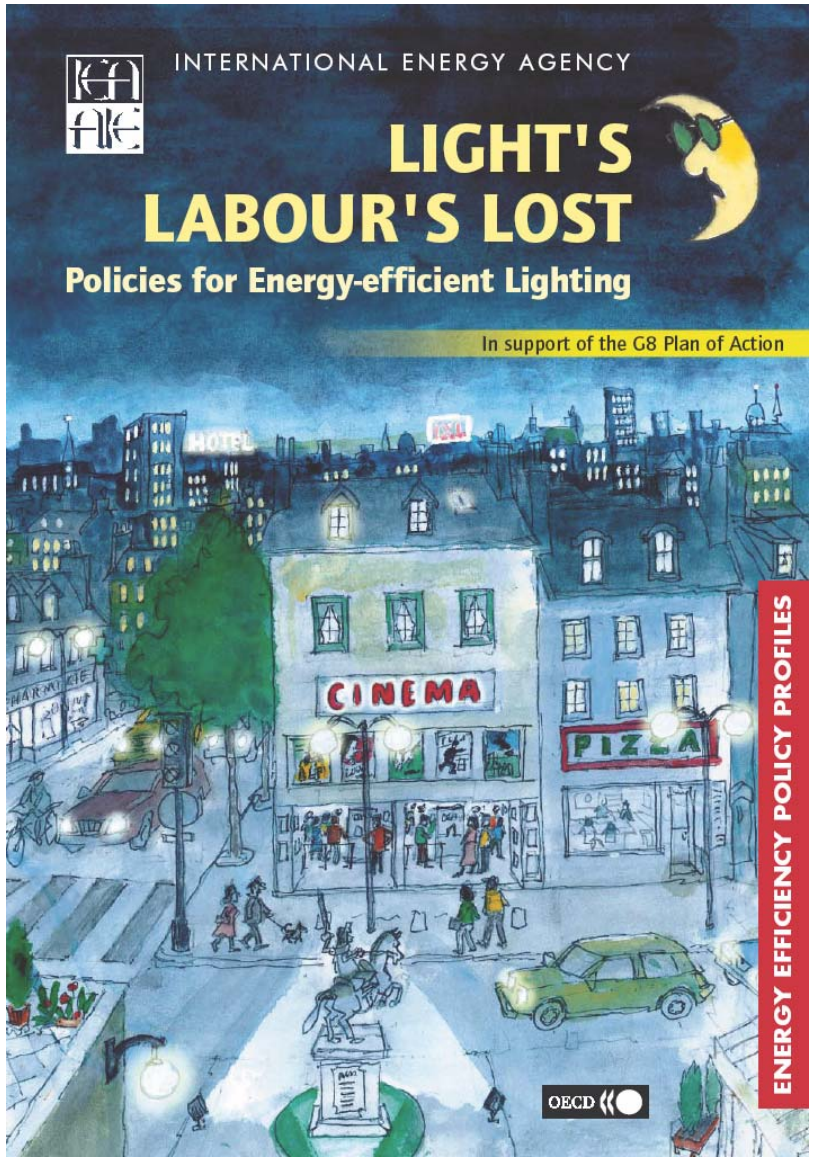
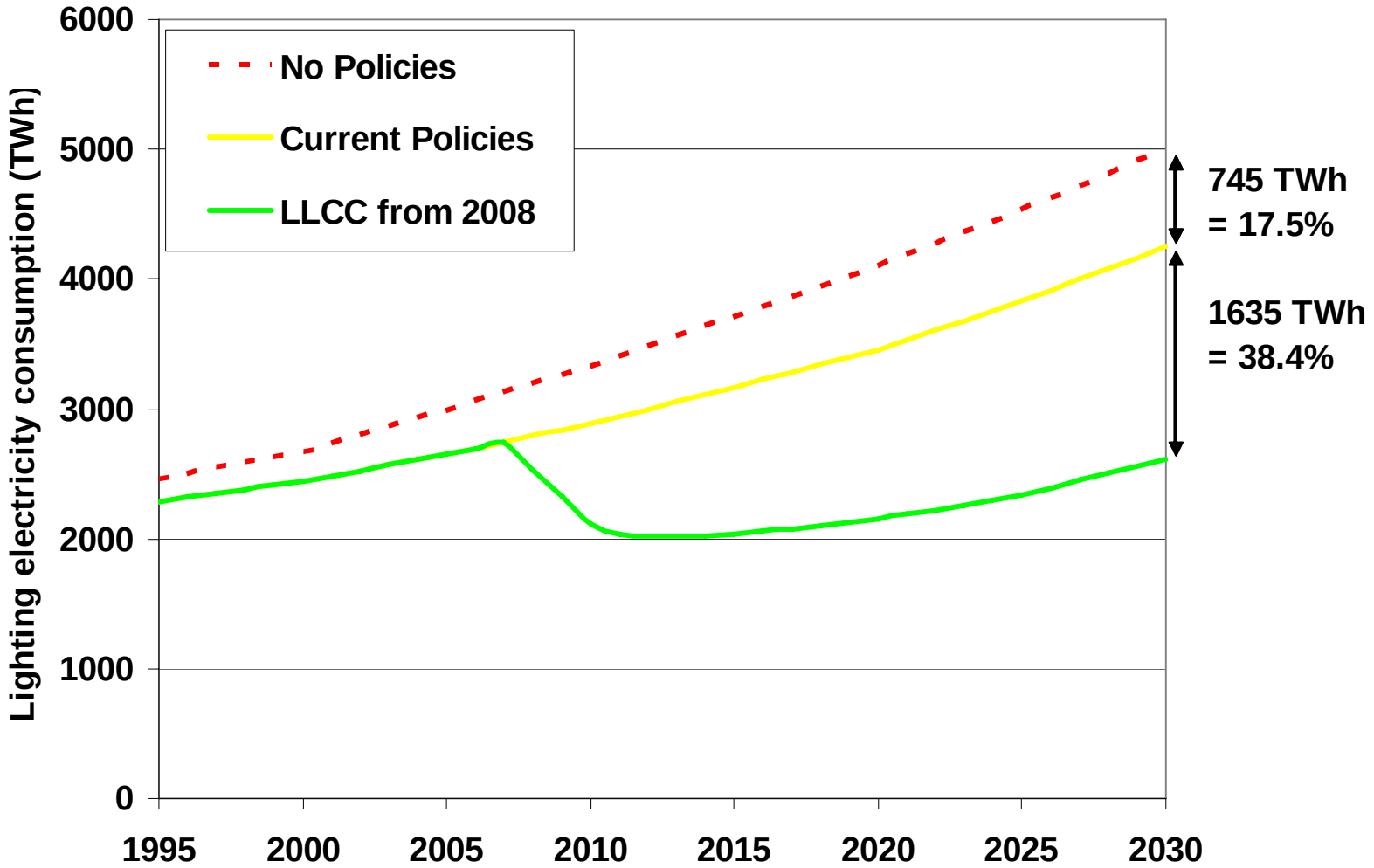
Light's Labour's Lost: Policies for Energy-efficient Lighting



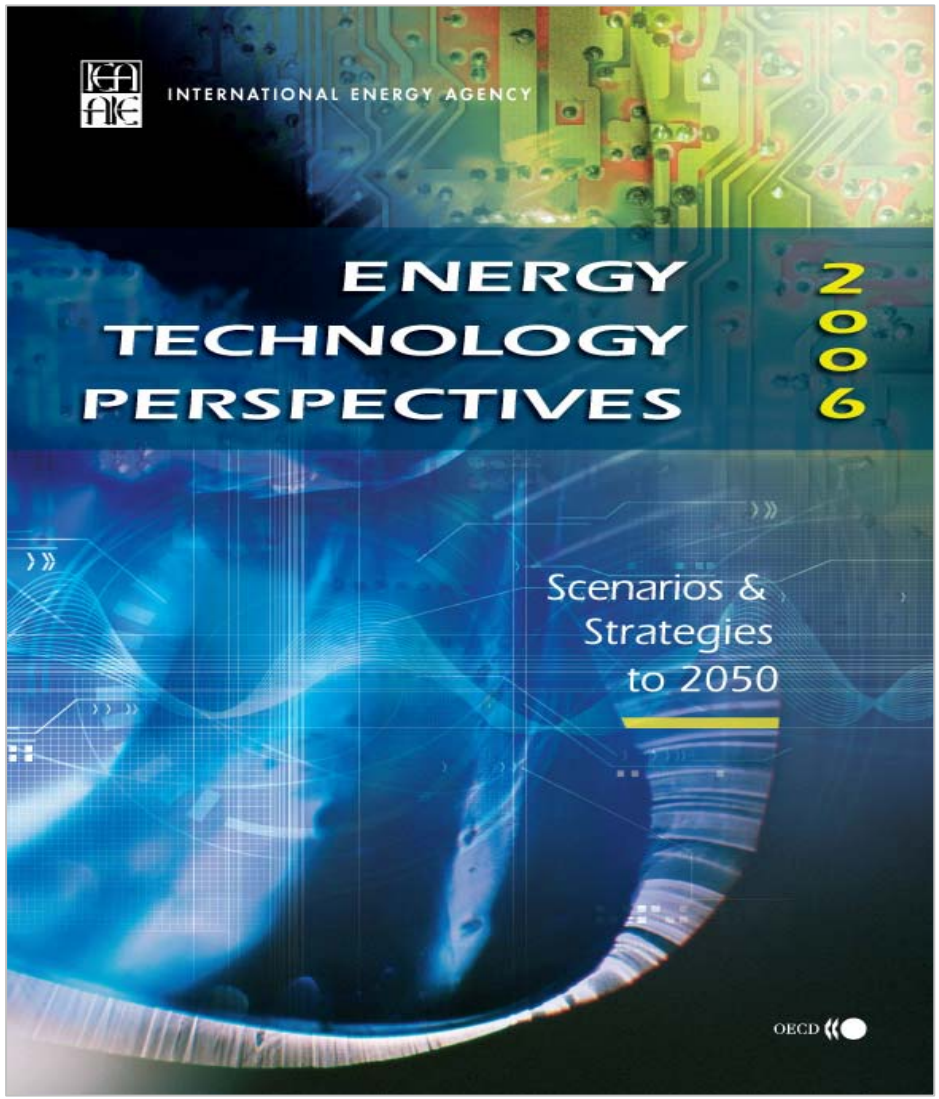
Global lighting energy consumption: no-policies, current-policies and least-life cycle cost scenarios



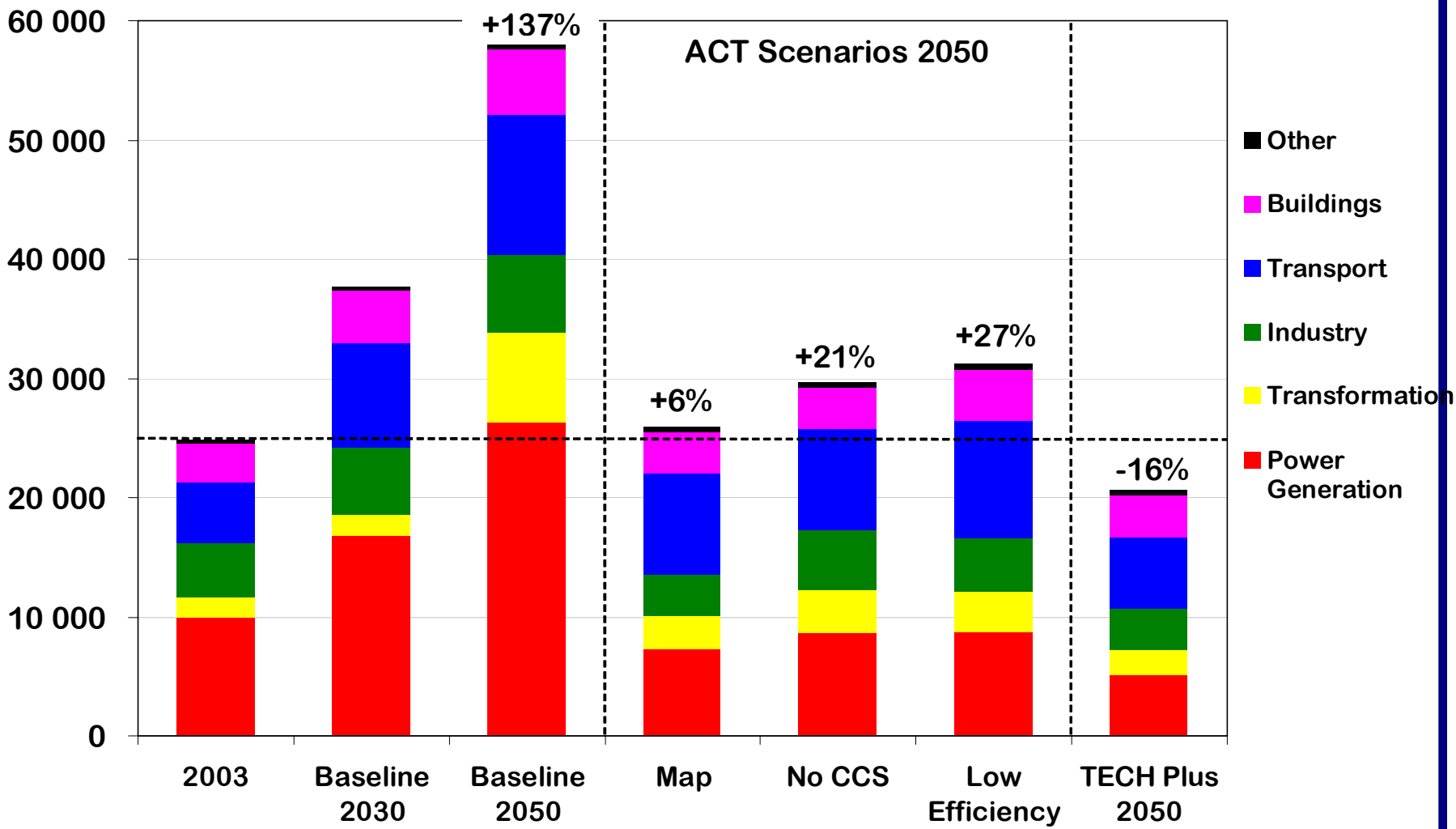
Cumulative benefits of the LLCC from 2008 scenario to 2030

- **Avoids 28000 TWh of electricity use (almost 6% of all electricity demand over the same timeframe)**
- **Total costs of lighting are US$2.6 trillion (1000 billion) lower**
- **Avoids 16 Gt of CO_2 emissions**
- **Net cost of avoided CO_2 emissions are negative at -US$161/tonne**

Energy Technology Perspectives
Scenarios and Strategies to 2050



Global CO_2 Emissions 2003-2050
Baseline, ACT and TECH plus Scenarios



IEA buildings work post Gleneagles

Current IEA activity for buildings includes:

- Development of energy performance indicators
- Compilation of building codes and standards, policies and measures
- Evaluation and identification of policy best practice
- Database on policies
- Assessment of policies and good practice for improvements of existing buildings
- Different papers and studies on:
  - High Rise Building Refurbishment
  - Energy efficiency in existing North American buildings
  - Financing energy efficiency in buildings
- A final buildings “end use assessment” book

Raising the profile of building energy efficiency among policy makers

- The Government of India and IEA held a workshop on best practice in building codes in October 2006
- In November 2006 IEA held a high-level workshop on: *Energy Efficiency in Buildings: Meeting the Gleneagles Challenge* in 2006
- Building energy efficiency will be a main theme of:
  - EU/G8 meeting: Berlin, April 2007
  - Biennial IEA Ministerial: Paris, May 2007
  - 2007 G8 Heiligendamm summit: Germany, June 2007
  - More workshops are planned for: China (March 2007), Brazil, Mexico, South Africa & Russia

IEA recommendations to G8

- IEA will make final report and policy recommendations to the G8 summit in Japan 2008
- Will also make recommendations to the Heiligendamm G8 Summit, Germany 2007 concerning:
  - The need for, stringency and enforcement of building codes and standards
  - Measures to support construction of Passive and Zero Energy Buildings
  - Implementing packages of policies to address energy efficiency in existing buildings
  - Systematic gathering of data and internationally standardised building energy performance indicators