



International  
Energy Agency

# Energy Technology Perspectives 2010

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**ETSAP Workshop**  
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# Purpose of Energy Technology Perspectives Project

- **IEA flagship publication on energy technology, complementing the WEO**
- **Provides impartial advice to decision makers on energy technology policy for:**
  - delivering affordable energy supply and use
  - enhancing energy security
  - protecting the environment
- **The main output is the Energy Technology Perspectives (ETP) publication - released every two years**
- **IEA's main input to high-level inter-governmental discussions on energy technology policy**



# History of Energy Technology Perspectives

- **Modelling work started in 2001**
- **ETP2006**
  - global analysis
  - ACT scenario aimed at CO<sub>2</sub> stabilisation by 2050
- **ETP2008**
  - global analysis, some regional detail
  - ACT plus new BLUE scenario aimed at halving global CO<sub>2</sub> emissions by 2050
- **ETP2010**
  - BLUE scenario
  - Analysis for key regions and countries
  - Sectoral deep dives
  - Roadmaps and transition pathways



# ETP2010: Approach

- Focus is on technology transitions for a more secure and sustainable energy future
- Not about target setting or burden sharing at country level
- Techno-economic approach used – emissions abatement at least cost
- BLUE scenario requires options with costs up to \$200/tCO<sub>2</sub>
- Financing and technology transfer will be discussed
- But economics only one criteria used in reality for deciding on emissions abatement
- Understanding role of advanced technologies is essential for policy-makers







# Timeline for Completion

- **Internal drafts of chapters by January 2010**
- **Expert review January / February**
- **Official IEA review in February / March**
- **Editing and approval in March**
- **Everything to the printers by early April**
- **Publication in June 2010**



# ETP Modeling Framework

- **Global MARKAL model supplemented with spreadsheet-based end-use sector models**
- **Time horizon: 2007-2050, time steps: 2007, 2015, 2030, 2050**
- **15 world regions/countries in MARKAL model, additional regional detail in end-use sector models**
- **Cooperation with ETSAP and several national/regional modelling teams, e.g. for:**
  - **China (ERI, Tsinghua University, Fudan University):**
    - ◆ Improvement of China region
  - **USA (BNL)**
    - ◆ Model comparison with 9-regional US MARKAL model
  - **Europe (IER, Germany)**
    - ◆ Model comparison with 30-regional TIMES model for Europe

# ETP Scenarios

## ■ Baseline scenario:

- Following the World Energy Outlook 2009 Reference Scenario
- World GDP grows by factor 2.75 between 2007 and 2050, India's GDP nearly by factor 8
- Energy prices: Oil USD 120/bbl in 2050, Coal USD 115/ton

## ■ BLUE scenario:

- 50% reduction of energy related CO2 emissions by 2050 compared to 2005
- Options with marginal reductions of up to USD 200/t CO2 are needed
- Due to uncertainties number of variants being considered

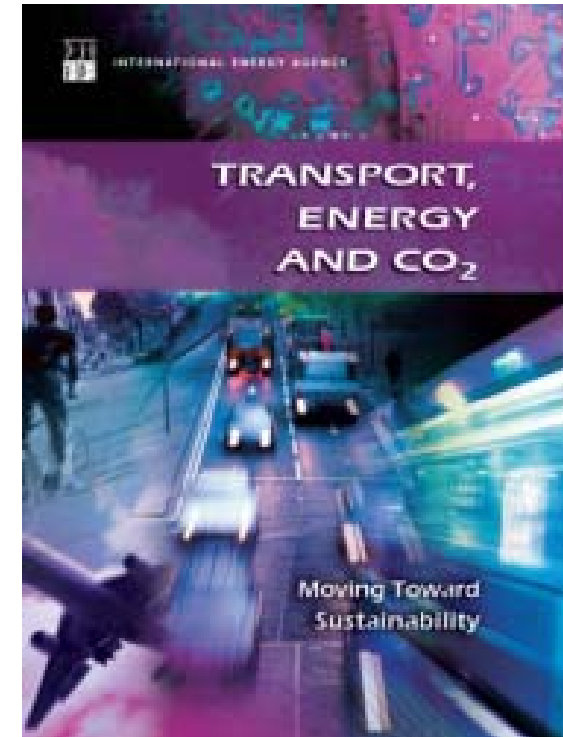
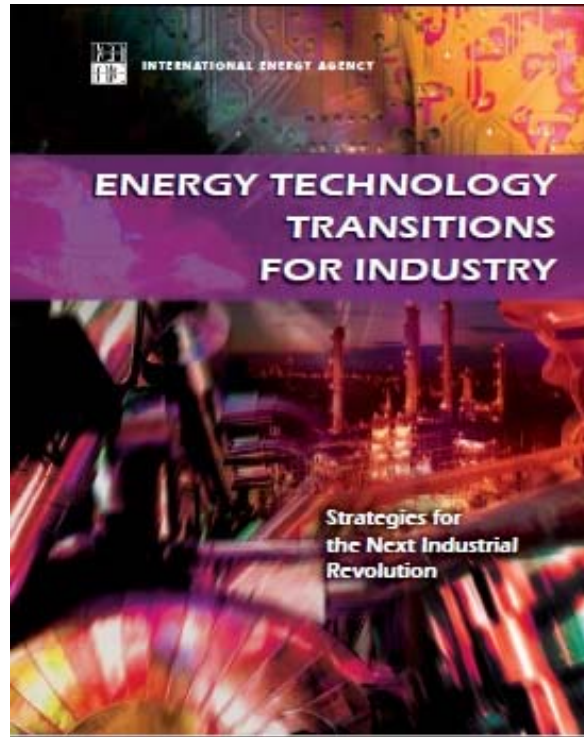


# Insights from analysis of Indian power sector

- **Electricity demand growth in relative terms much higher than in other regions**
- **Due to low coal quality indigenous coal not necessarily most economic option compared to import coal**
- **Indian renewable potential is limited with the exception of solar**
- **In addition to solar, nuclear and CCS as low-carbon supply options**
- **Improvement of transmission and distribution efficiencies plus maximisation of end-use efficiency**







**Thank you!**

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