



G8 Plan of Action and Energy Technology Perspectives 2008

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The Framework

- Response to GB and G8 request for advice on alternative energy scenarios & strategies
- Complements the *World Energy Outlook* – close cooperation with LTO
- Guided by CERT and in close cooperation with the IEA Working Parties and Implementing Agreements
- Builds on the success of ETP2006
- Supported by many member countries
- Due June 2008 (input for G8 Energy Ministers meeting and Hokkaido summit in July)

Gleneagles Communiqué

G8 serious and linked challenges

- Climate change
- Clean energy
- Sustainable development



Brazil, China, India, Mexico, South Africa

- Climate change is a threat to development



IEA Roles in the G8 Gleneagles Plan of Action

- Advise on alternative energy scenarios and strategies
- Transform the way we use energy
 - *Energy indicators*
 - *Buildings*
 - *Appliances*
 - *Surface transport*
 - *Industry*
- Powering a clean energy future
 - *Cleaner fossil fuels*
 - *Carbon capture and storage*
 - *Develop renewable energy IEA Implementing Agreements*
 - *Electricity grids*
- Promoting networks for research & development
 - *Enhance the Implementing Agreements and reinforce links with developing countries and industry*



Moving Ahead Vigorously: Partnerships

- **NEET IEA Technology Collaboration Network**
- **Major developing countries: Russia, India, China, Brazil**
- **Industry: WBCSD, Sector Workshops, MOMO**
- **United Nations CSD Cooperation: Case Studies, Analysis, Event**
- **World Bank and IFIs**
- **G8 Dialogue Meetings**



Workshops

- Using Long Term Scenarios for R& D Priority Setting
15-16 February 2007
- Towards Country Level Granularity,
4-5 June 2007
- Technology Learning and Deployment (Supply Side) 11-12 June 2007
- Tracking Industrial Energy Efficiency and CO2 Emissions: The Way Forward
1-2 October 2007.
- Technology Learning and Deployment (Demand Side) 8-9 October 2007



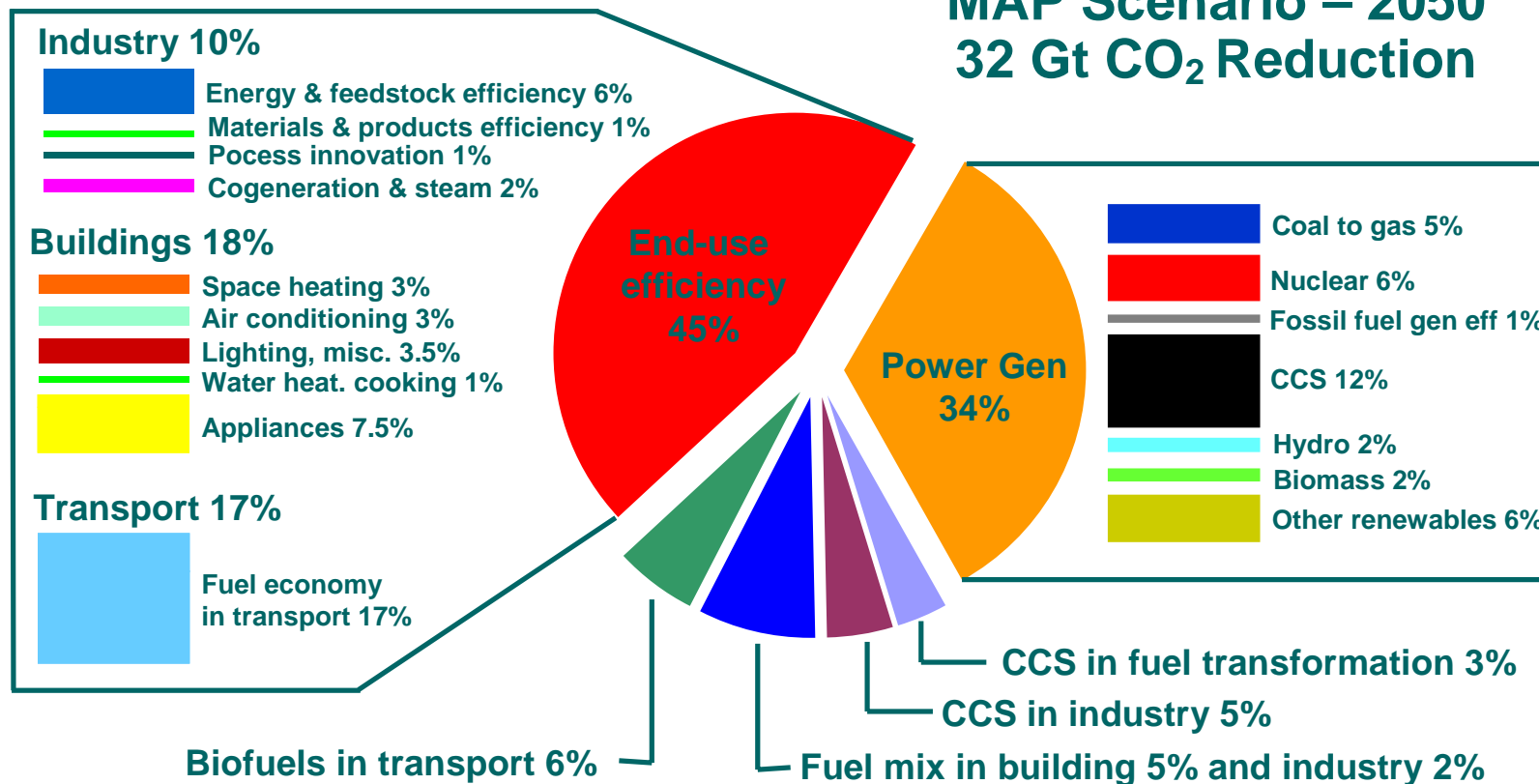
ETP2006 Scenarios

- **Scenarios analysed:**
 - ◆ **Baseline Scenario**
 - ◆ **Accelerated Technology Scenarios (ACT)**
 - ◆ **TECH Plus scenario**
- **ACT and TECH Plus scenarios:**
 - ◆ **Analyse the impact from R&D, Demonstration and Deployment measures**
 - ◆ **Incentives equivalent to 25 \$/tonne CO₂ for low-carbon technologies implemented world-wide from 2030 and on**
 - ◆ **Individual scenarios differ in terms of assumptions for key technology areas**

Emission Reduction by Technology Area

ACT Map Scenario

MAP Scenario – 2050
32 Gt CO₂ Reduction



Improved energy efficiency most important contributor to reduced emissions



Energy Technology Perspectives Publication 2008

- **How to get there:**
 - ◆ Research, Development and Demonstration policies
 - ◆ Technology learning and deployment
 - ◆ Technology transitions
 - ◆ Investment needs and policy cost
 - ◆ Energy and CO₂ emission indicators (efficiency)
 - ◆ Consequences for consumers
- **ACT and Blue scenarios**
 - ◆ Regional analysis (G8+5) for ACT
 - ◆ Look at more radical options

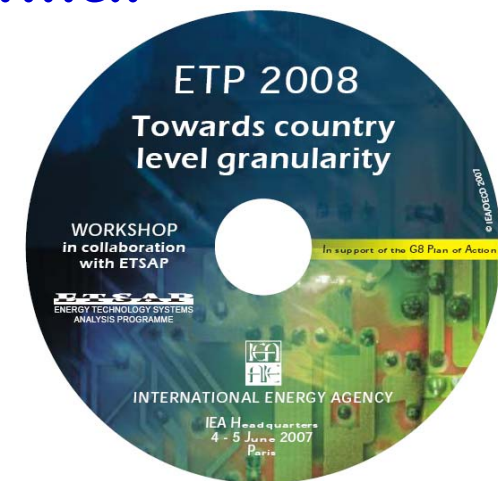


Energy Technology Perspectives Publication 2008 (contd.)

- **Special topic chapters:**
 - ◆ **Power sector**
 - **Clean fossil and CCS**
 - **Nuclear**
 - **Bioenergy**
 - **Wind**
 - **Solar**
 - **Systems optimization**
 - ◆ **Transport (efficiency, substitution)**
 - ◆ **Buildings and Appliances (efficiency, substitution)**
 - ◆ **Industry (efficiency, substitution, CCS)**
 - ◆ **Methane emissions**

Regional Analysis

- In close cooperation with ETSAP Implementing Agreement
- More regional granularity
- G8 + 5 countries (Brazil, China, India, Mexico, South Africa) + EU
- Use the ETP model and other similar models with more regional detail especially country models
- Deployment analysis needs regional detail





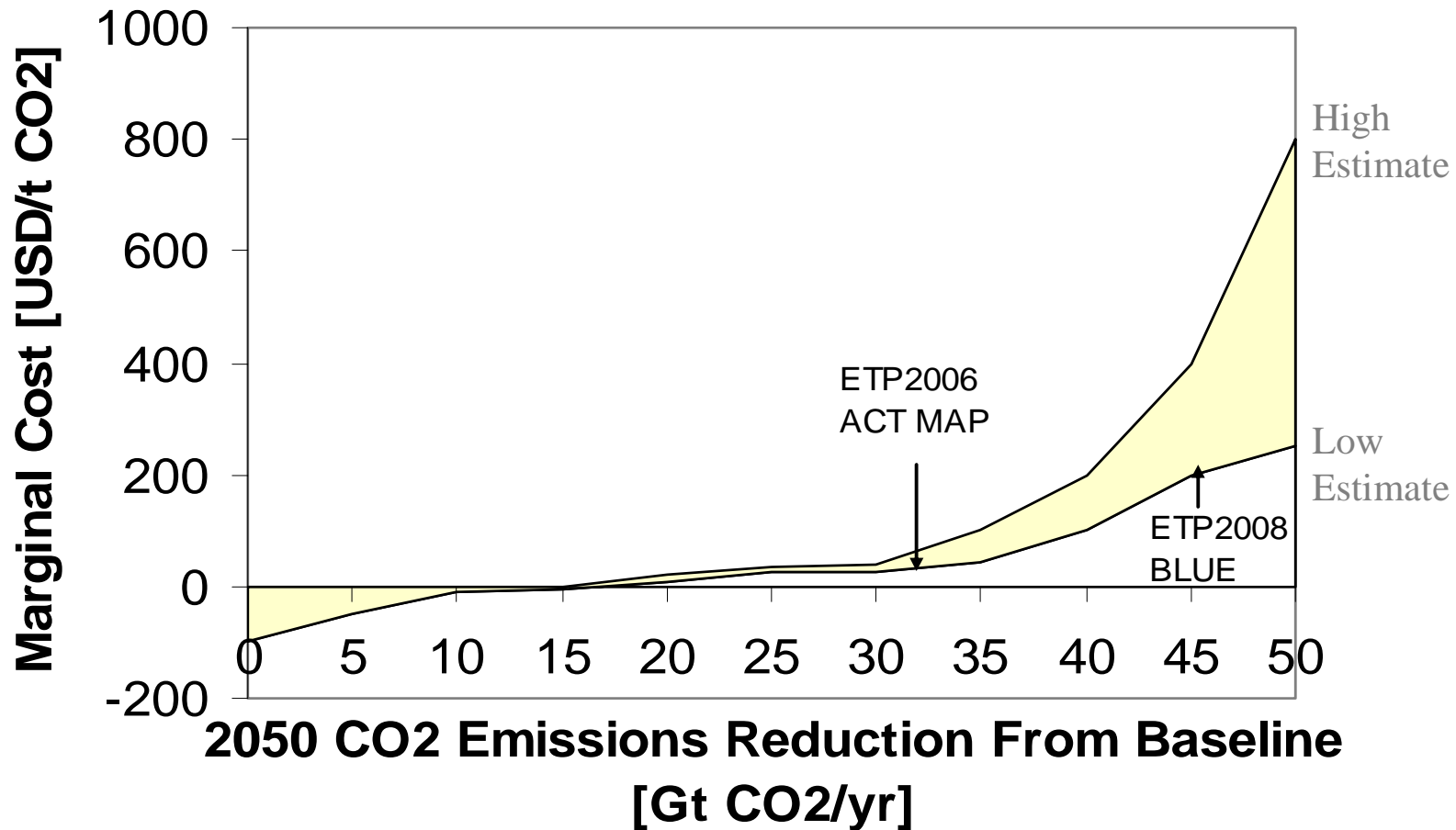
IPCC 4th Assessment Report

Need for a new Scenario/Case (Blue)

| Temperature increase | All GHG | CO ₂ | CO ₂ emissions 2050 (% of 2000 emissions) |
|----------------------|---------------------------|------------------------|---|
| (°C) | (ppm CO ₂ eq.) | (ppm CO ₂) | (%) |
| 2.0-2.4 | 445-490 | 350-400 | -85 to -50 |
| 2.4-2.8 | 490-535 | 400-440 | -60 to -30 |
| 2.8-3.2 | 535-590 | 440-485 | -30 to +5 |
| 3.2-4.0 | 590-710 | 485-570 | +10 to +60 |



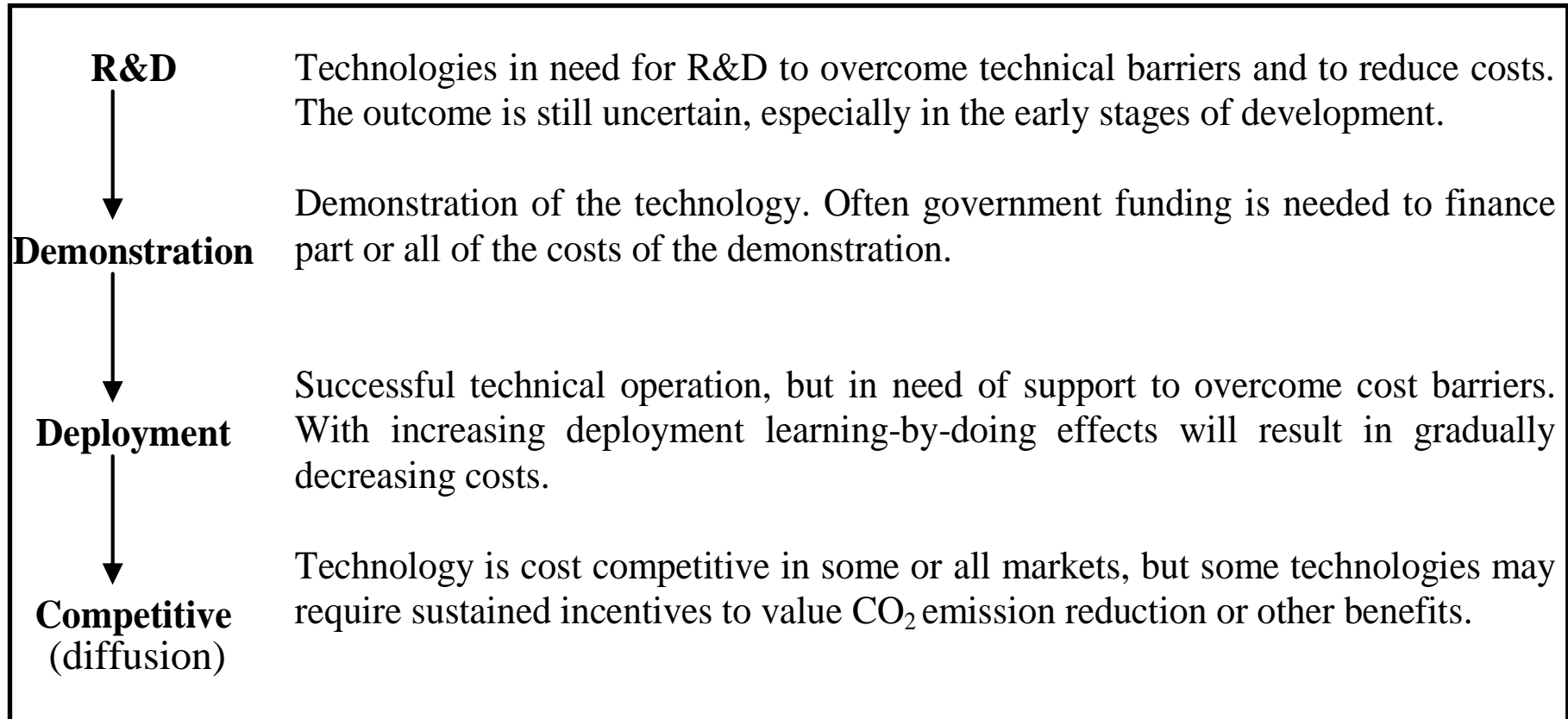
A Very Preliminary Estimate: USD 200/t CO₂ Incentive Needed



What Can Be Done ?

- **More of the same, such as:**
 - ◆ More efficiency/structural change (BAT everywhere)
 - ◆ More nuclear
 - ◆ More renewables, including biofuels
- **More expensive options, such as:**
 - ◆ Gas fired power plants + CCS
 - ◆ Retrofit + early replacement of buildings, power plants, factories
 - ◆ Better public transportation in cities
- **New technologies, such as:**
 - ◆ Transport sector options (plug-ins, freight & air options)
 - ◆ New heatpump technology

Technology Life Cycle





Technology Learning and deployment policies

- Cecilia Tam is leading this task
- Workshop on supply technologies June 11-12
- Match learning extrapolations and bottom-up engineering projections
- Consider external effects
- Focus on:
 - ◆ Financial support needs in coming decades
 - ◆ Role of industry and government
 - ◆ Benefits of international cooperation





This Workshop

- Focuses on the demand side
- Identifies key demand side technologies and application areas
- Aims to quantify demand side deployment investment needs
- Aims to establish if learning curves can be applied for demand side technologies
- Technology diffusion issues will be dealt with in the investment chapter



Time Path

- Final report May 2008
- Draft report ready February 2008
- Draft chapters ready December 2007
- Draft results results October 2007



Thank you