



# The Challenge of CCS Regulation

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**Swiss Re/IRGC Conference on Regulating and Financing CCS**  
**Zurich**

*7-8 November, 2007*

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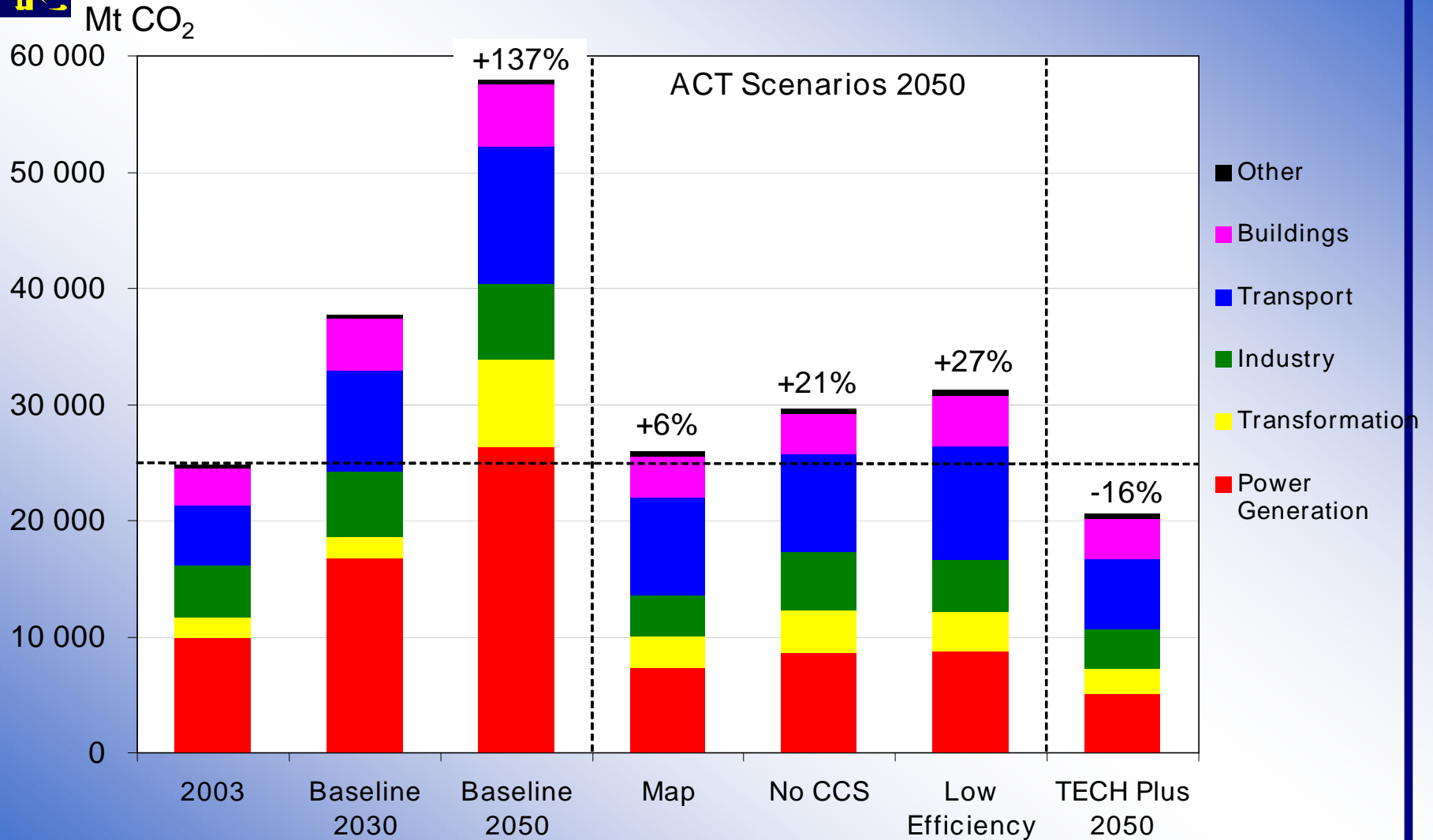


# Overview

- The role of CCS
- The challenge of CCS
- The challenge of CCS regulation
- A path forward



# IEA Energy Technology Perspectives Global CO<sub>2</sub> Emissions 2003-2050





# Emission Reductions by Sector

MAP Scenario:  
32 Gt CO<sub>2</sub> reduction in 2050

## Industry 10%

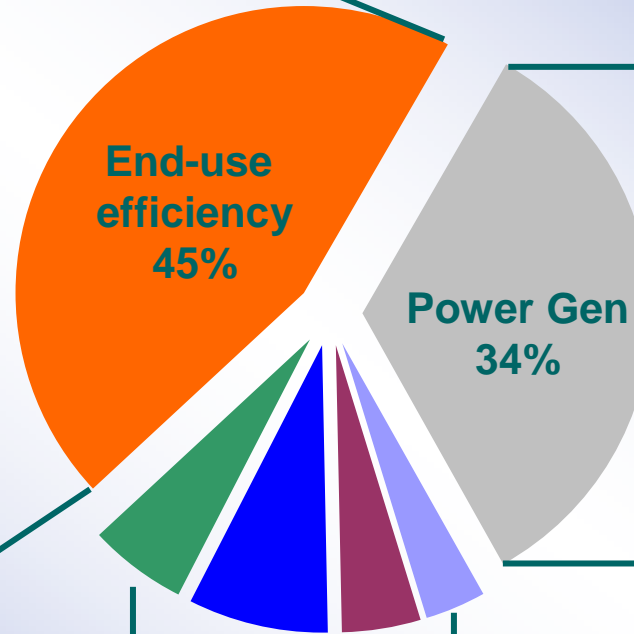
- Energy & feedstock effic. 6%
- Materials & products effic. 1%
- Process innovation 1%
- Cogen. & steam 2%

## 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%



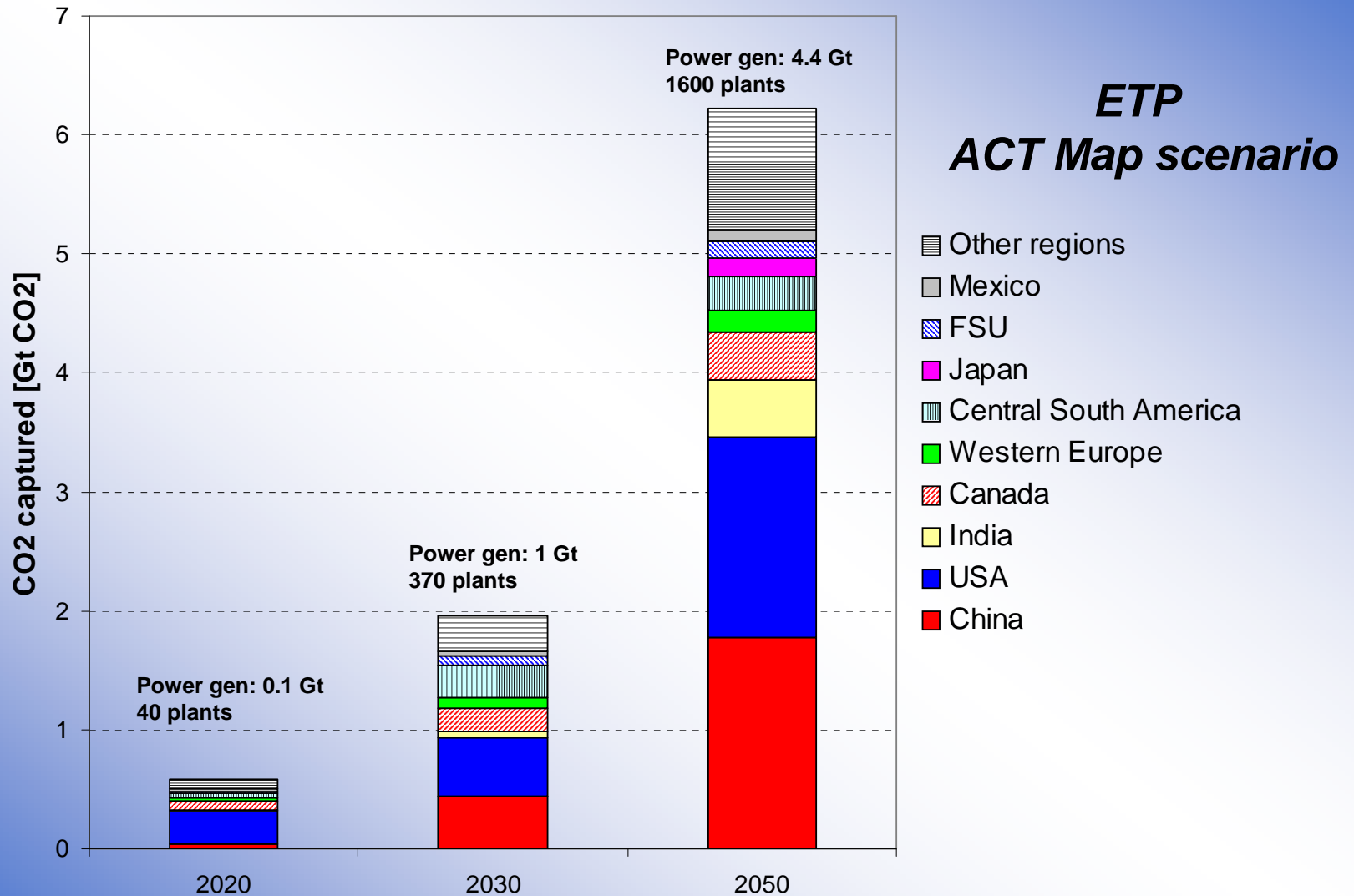
- Coal to gas 5%
- Nuclear 6%
- Fossil fuel gen. eff 1%
- CCS 12%
- Hydro 2%
- Biomass 2%
- Other renew. 6%

CCS in fuel transformation 3%  
CCS in industry 5%  
Fuel mix in building 5% and industry 2%

**CO<sub>2</sub> Capture & Storage (CCS) contributes 20% of total**



# Magnitude of the Problem





## The CCS Challenge – 6000 Sleipners by 2050

- Making new plants capture ready
- Predictable economic incentives in the medium and longer term
- Favourable public perception
- Relevant national and international legal and regulatory frameworks
- Technology development
- Building the infrastructure
- G8 work focusing on all of these aspects
  - ◆ Recommendations to Hokkaido summit due early 2008



# The CCS Regulatory Challenge

- Lack of financial incentives
  - ◆ Regulatory framework necessary but not sufficient
- Lack of urgency for demonstration
- Scope of stakeholders involved
- Time horizon
- The perfect is the enemy of the good



# The Path Forward

- **Incentives: urgently establish role of CCS within GHG schemes**
- **Fast track near-term demonstration projects**
- **Property issues, permitting, risk management**
  - ◆ **Much of the legal and regulatory structure already in place**
  - ◆ **Clarify government roles, identify and address gaps**
  - ◆ **Share examples internationally**
  - ◆ **Start now on capacity building in China, India**



# The Path Forward

- **Long-term liability, M&V**
  - ◆ **Flesh out options for governments, industry, insurance**
  - ◆ **Harmonise models internationally**
- **Develop near-term regulatory models and adapt as knowledge is gained**
- ***Local* public acceptance will come via consultation around actual projects**
- ***General* public acceptance more difficult**

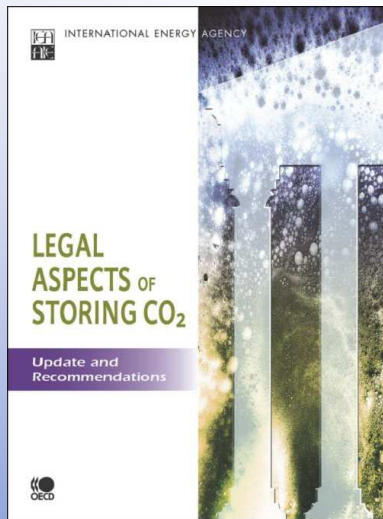


## Future IEA Work in this Area

- **Create and maintain CCS Regulators Network**
  - ◆ Host meetings/web conferences to share case studies, questions among technical staff
  - ◆ Document case studies
  - ◆ Provide up-to-date CCS regulatory status for key countries on website
- **Develop options paper for long-term liability**
  - ◆ Roles of various players
  - ◆ Models from other industries
- **Develop M&V “template” in an effort to harmonise regulatory approaches**
- **Feed this work into G8, other processes**



# *Legal Aspects of CO<sub>2</sub> Storage: Update and Recommendations*



- **Substantially expands 2005 publication**
- **Publication includes**
  - ◆ **Update on global CO<sub>2</sub> storage technology costs, status, government collaboration efforts**
  - ◆ **Overview of issues relating to**
    - **Adapting national legal and regulatory frameworks to include CO<sub>2</sub> storage**
    - **Amending key international marine environment protection treaties to allow for offshore CO<sub>2</sub> storage**
  - ◆ **Several case studies**
  - ◆ **13 Annexes with more detail on intellectual property, public awareness case studies, relevant treaty provisions**
  - ◆ **Resources/websites**



# Upcoming IEA Publications



- G8 Workshop reports
- January 2008: publish *CCS: A Key Carbon Abatement Option*



***Thank You!***

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