



# Update on CCS International Legal & Regulatory Issues

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# Overview

- **The role of CCS in a clean energy future**
- **Challenges to wider use of CCS**
- **International legal frameworks**
  - ◆ **Marine Environment Protection Instruments**
  - ◆ **UN Framework Convention on Climate Change**
- **The IEA's role**



# International Energy Agency

Created in 1973; currently 27 member countries

## Goals:

- energy security
- environmental protection
- economic growth

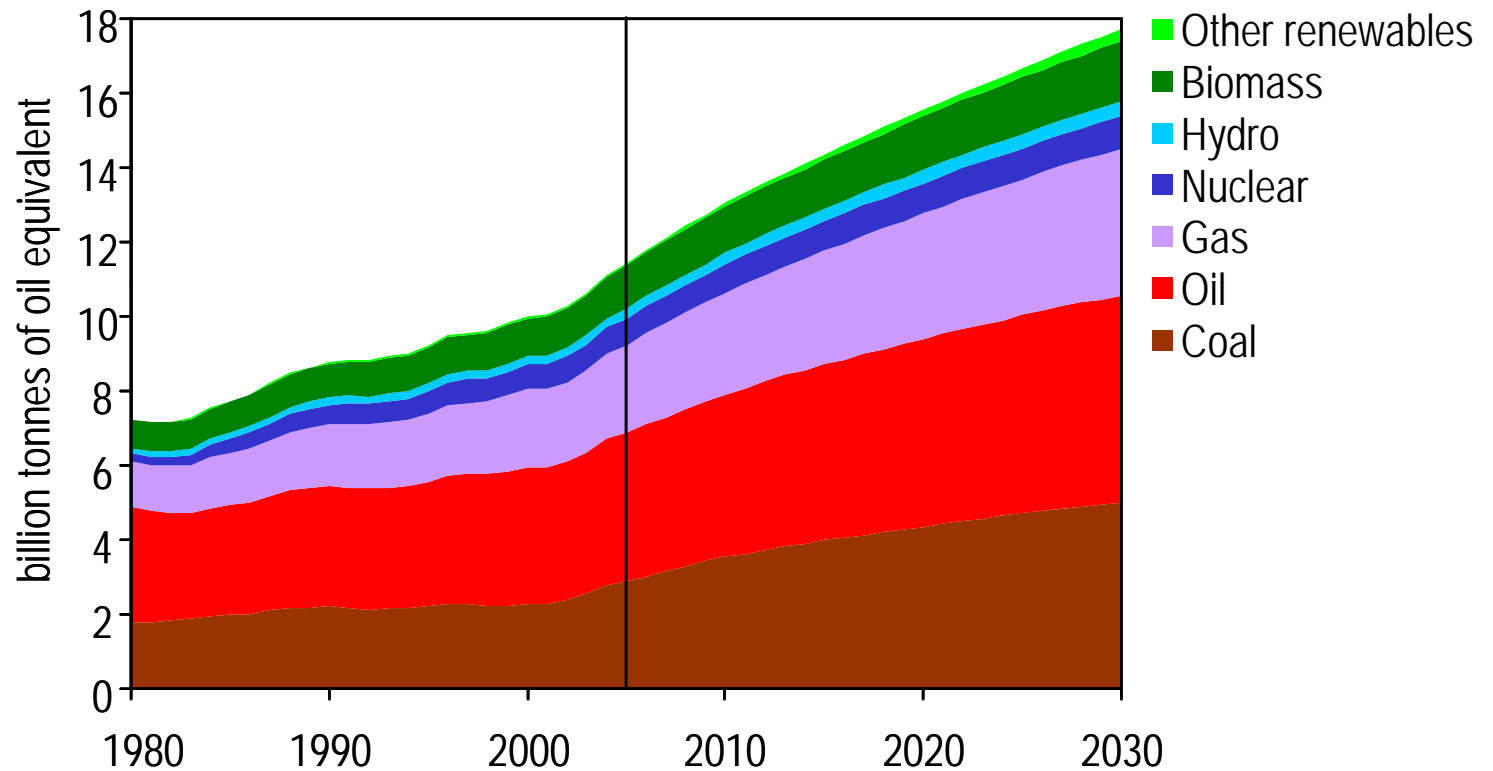


## Activities:

- co-ordinates efforts to ensure energy security
- conducts policy analysis
- compiles energy statistics
- reviews energy policies & programs
- links research activities and governmental directives
- convenes, mobilizes science & technology experts



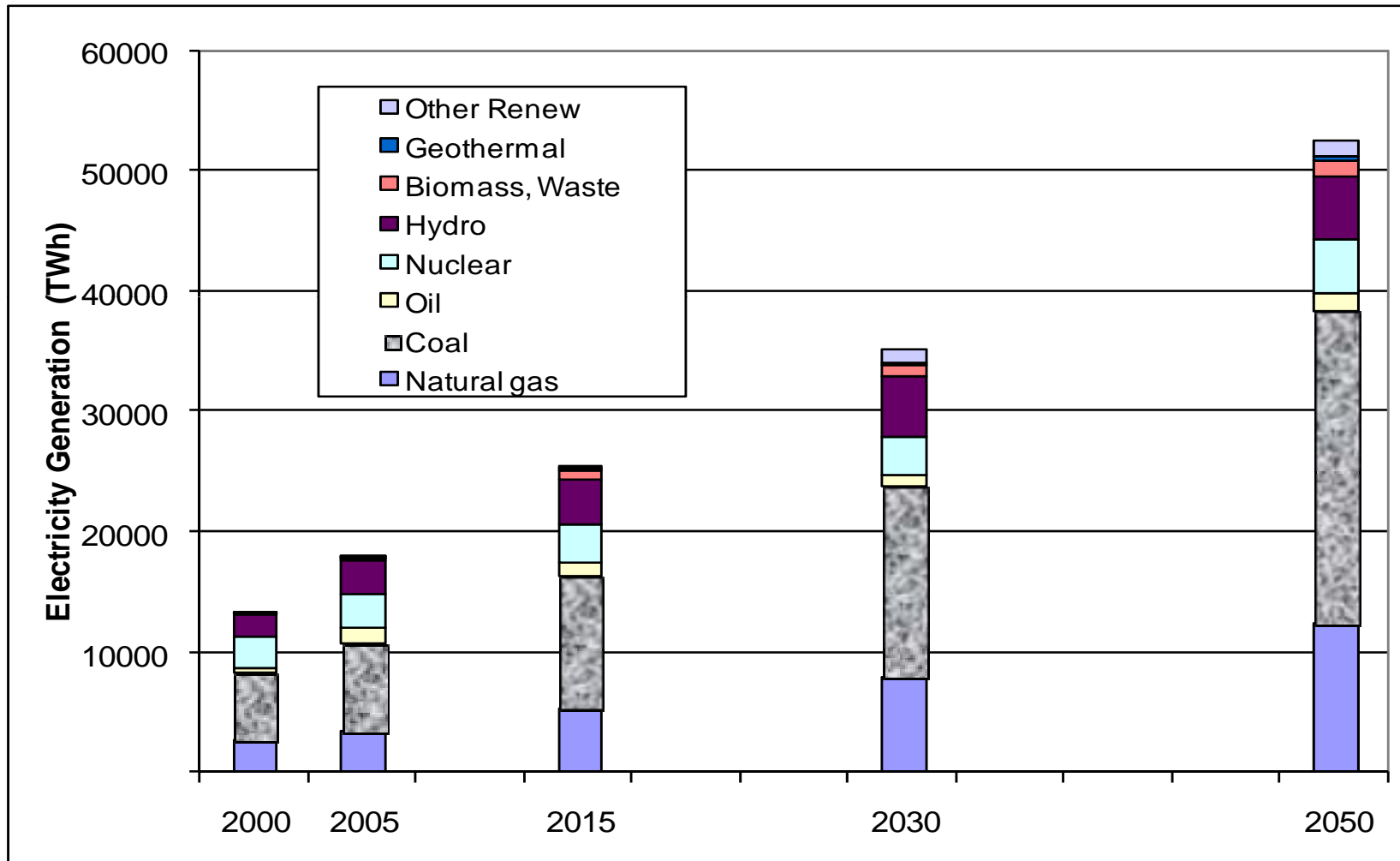
## Reference Scenario: World Primary Energy Demand



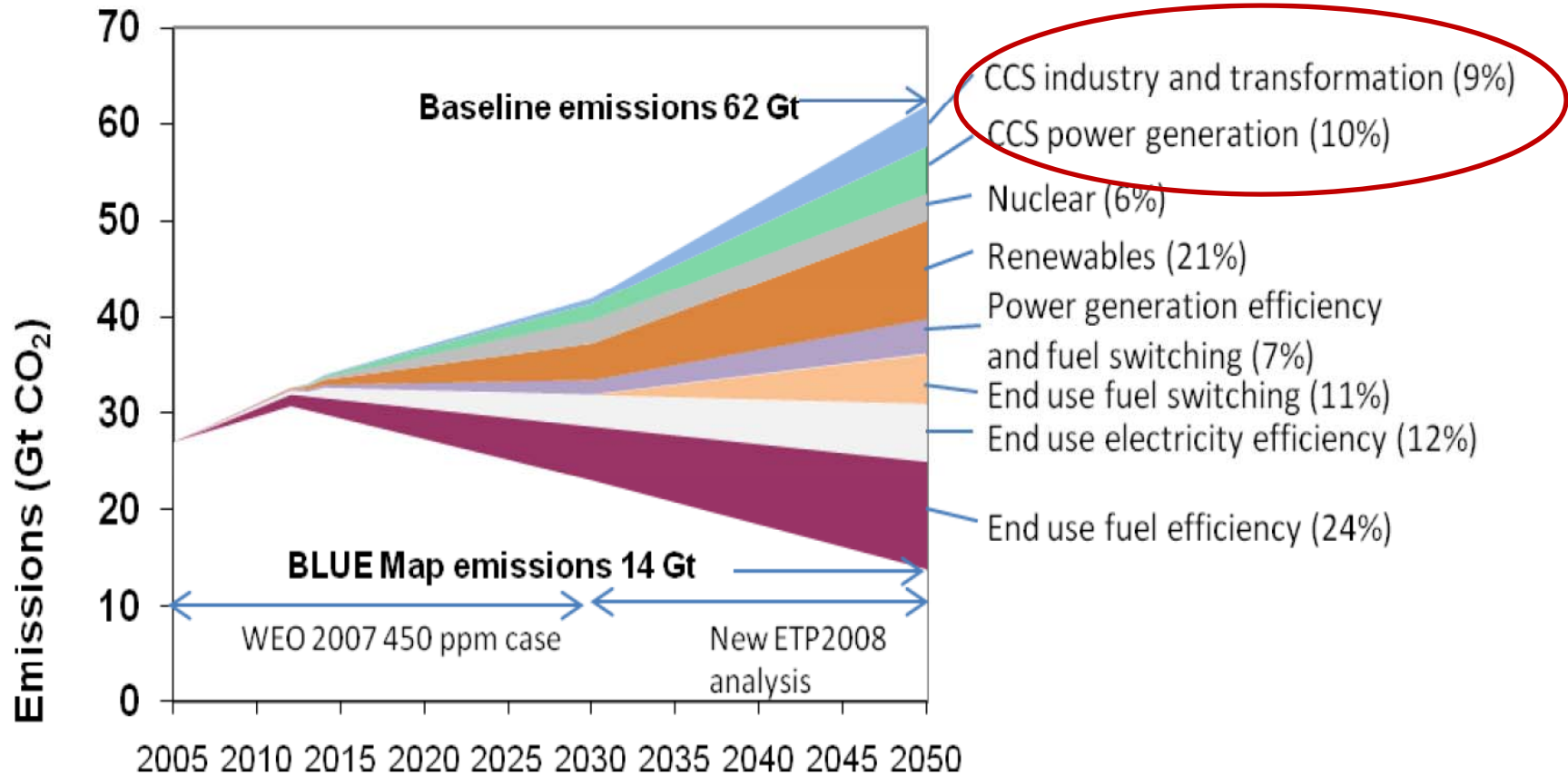
Source: IEA/OECD, World Energy Outlook 2007

**Global demand grows by more than half over the next quarter of a century, with coal use rising most in absolute terms**

# Electricity Generation in the Baseline Scenario

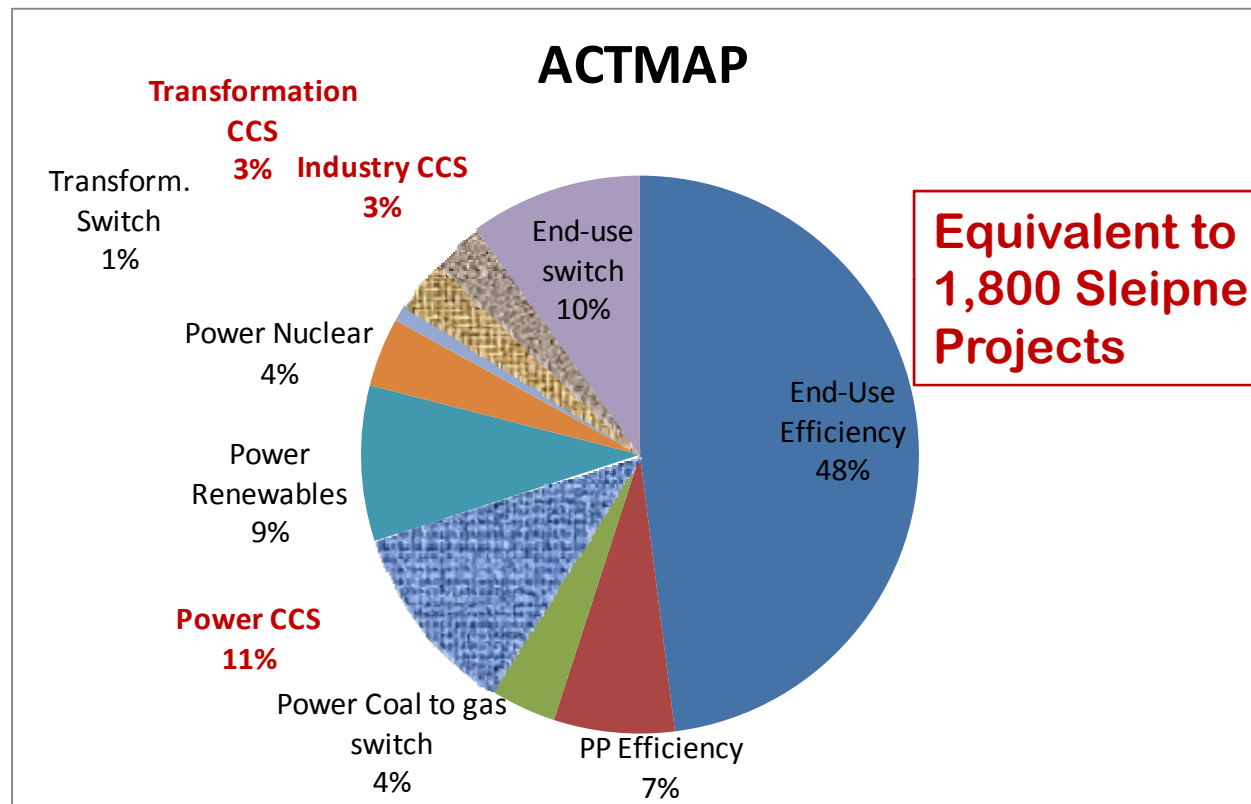


# Climate Change Pathways



Source: IEA, *Energy Technology Perspectives* (2008).

# \$50 USD Incentive for CO<sub>2</sub> Abatement = 5.1 Gtpa CCS potential by 2050



**Equivalent to  
1,800 Sleipner  
Projects**

Total CO<sub>2</sub> abated: 35 Gtpa; source: IEA, *Energy Technology Perspectives* (2008).

# Challenges to CCS Deployment

- **Commercial and financial**
  - ◆ Need a firm, long-term price for CO<sub>2</sub>
  - ◆ Need significant government, industry financing
- **Public awareness and acceptance**
- **Advances in R&D are needed**
  - ◆ To advance geologic mapping and monitoring
  - ◆ To reduce costs and improve efficiency
- **Legal and regulatory**
  - ◆ National frameworks for capture, transport & storage
  - ◆ **International frameworks for offshore storage**

# International Legal Issues Affecting CCS Development

- **International Marine Environment Protection Instruments**
  - ◆ UN Convention on the Law of the Sea (UNCLOS)
  - ◆ The London Convention of 1975 and London Protocol of 1996
  - ◆ Convention for the Protection of the Marine Environment of the North East Atlantic (OSPAR) 1992
- **UN Framework Convention on Climate Change**

# International Marine Treaties

- **Need to take holistic view: treaties, regional agreements and domestic legislation**
- **UNCLOS**
  - ◆ **Explicit provisions for protection of marine environment**
    - **States must ensure that dumping of wastes or other matter does not adversely affect marine environment**
  - ◆ **Does not expressly prohibit CO<sub>2</sub> storage**
    - **Uncertainty as to whether UNCLOS applies to activities underneath the sea's subsoil**

## The London Convention

- Convention bans the deliberate disposal at sea of wastes or other matter
- CO<sub>2</sub> is not referred to in the Convention, so disposal may implicitly be allowed
- Does not refer to seabed; suggests sub-seabed CO<sub>2</sub> storage is not covered by the Convention
- Convention will eventually be replaced by the London Protocol of 1996

## The London Protocol

- More restrictive measures on waste dumping
- Dumping of materials listed in Annex 1 requires a permit
- 2007 Amendment on CCS
  - ◆ Inserts CO<sub>2</sub> into the Annex 1 category of wastes and other matter that may be dumped, but:
    - Disposal must be into a sub-seabed geological formation
    - Disposed matter must be “overwhelmingly” CO<sub>2</sub>
    - No wastes or other matter may be added
    - Disposal must be permitted by national authority

## The London Protocol - II

- **Permits for CO<sub>2</sub> dumping at sea must contain the following data and information:**
  - ◆ The type of material to be dumped
  - ◆ The location of the proposed dump site
  - ◆ The method to be used for dumping
  - ◆ Proposed monitoring and reporting requirements
- **Permits must be reviewed regularly**
- **Transboundary CO<sub>2</sub> transport and/or migration also an issue**
  - ◆ Article 6 bans export of wastes or other matter
  - ◆ Proposed amendment to allow CO<sub>2</sub> export if disposal is not feasible within the state of origin

## The London Protocol - III

- **CO<sub>2</sub> Storage Permit Guidelines:**
  - **Characterization of CO<sub>2</sub> stream**
  - **Characterize sub-seabed geological formations**
  - **Determine potential impacts**
  - **Issue permits**
  - **Implement project, monitor compliance**
  - **Field monitoring and assessment**
  - **Mitigation or remediation**

Source: London Protocol CO<sub>2</sub> Working Group, *Specific Guidelines for Assessment of Carbon Dioxide Streams for Disposal into Sub-seabed Geological Formations* (Nov. 2007)

- **Developing guidance for identifying CO<sub>2</sub> sequestration opportunities in sub-seabed geological formations - due later in 2008**

# OSPAR

- Covers NE Atlantic and North Sea
- Generally goes farther than the London Convention/Protocol in protection requirements
- Covers seabed and subsoil
- June 2007- OSPAR Commission adopted an amendment to allow for CO<sub>2</sub> storage in geological formations
  - ◆ Expressly prohibits CO<sub>2</sub> storage in water column
  - ◆ Otherwise, mirrors London Protocol amendment
  - ◆ Will come into force when ratifications completed
  - ◆ Parties required to notify OSPAR when they issue a CCS permit, who will then notify all Parties
  - ◆ Parties also required to report on projects on regular basis

## Domestic Implementation

- **Example: Japan's implementation of London Protocol 2007 Amendments**
- **May 2007: Japanese legislation passed**
  - ◆ **Requires offshore CO<sub>2</sub> storage permit applications to the Ministry of Environment**
  - ◆ **5-year permits will be granted**
  - ◆ **Parties must evaluate proposed storage sites, present monitoring plan, including proposed leak mitigation measures**
  - ◆ **Sets standard for CO<sub>2</sub> "purity" at 99%+**

## UNFCCC and CCS

- UNFCCC does not explicitly reference CCS
- Two accepted methodologies for measuring GHG reductions made by the Parties
  - ◆ National inventories
  - ◆ Reductions made under Kyoto Flexible Mechanisms
- In 2006, the IPCC adopted Guidelines for national inventories which included for the first time CCS methodology

# Kyoto Protocol and CCS

- **The focus has been on including CCS in the Clean Development Mechanism (CDM)**
  - ◆ **CDM Executive Board and the COP/MOP have not yet taken a decision on the inclusion of CCS**
  - ◆ **May 2006 Workshop highlighted following issues**
    - **Project boundary concerns –**
      - ◆ **Spanning international boundaries**
      - ◆ **Mixing multiple projects in 1 storage reservoir**
    - **Accounting for leakage resulting from the additional energy required to capture, transport and store CO<sub>2</sub> effectively**
    - **Ensuring the permanence of stored CO<sub>2</sub>**
  - ◆ **Series of consultations with Parties, NGOs in 2007**
  - ◆ **Final submissions due in June 2008 at SBSTA session**



## IEA Work on CCS Legal Issues

- 2005, 2007 workshops and publications:  
*Legal Aspects of CO<sub>2</sub> Storage*
- IEA Greenhouse Gas Implementing Agreement, IEA Clean Coal Centre
  - ◆ Technical expertise, M&V techniques, financing
- May 2008: launch of the IEA *International CCS Regulators Network*
  - ◆ National regulatory updates
  - ◆ Targeted web conferences on specific issues
- Summer 2008: Options paper on long-term liability schemes



## For More Information

[www.iea.org/Textbase/subjectqueries/  
ccs\\_legal.asp](http://www.iea.org/Textbase/subjectqueries/ccs_legal.asp)

**Thank you!**

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