



OLJE- OG ENERGIDEPARTEMENTET

*Ministry of Petroleum and Energy*

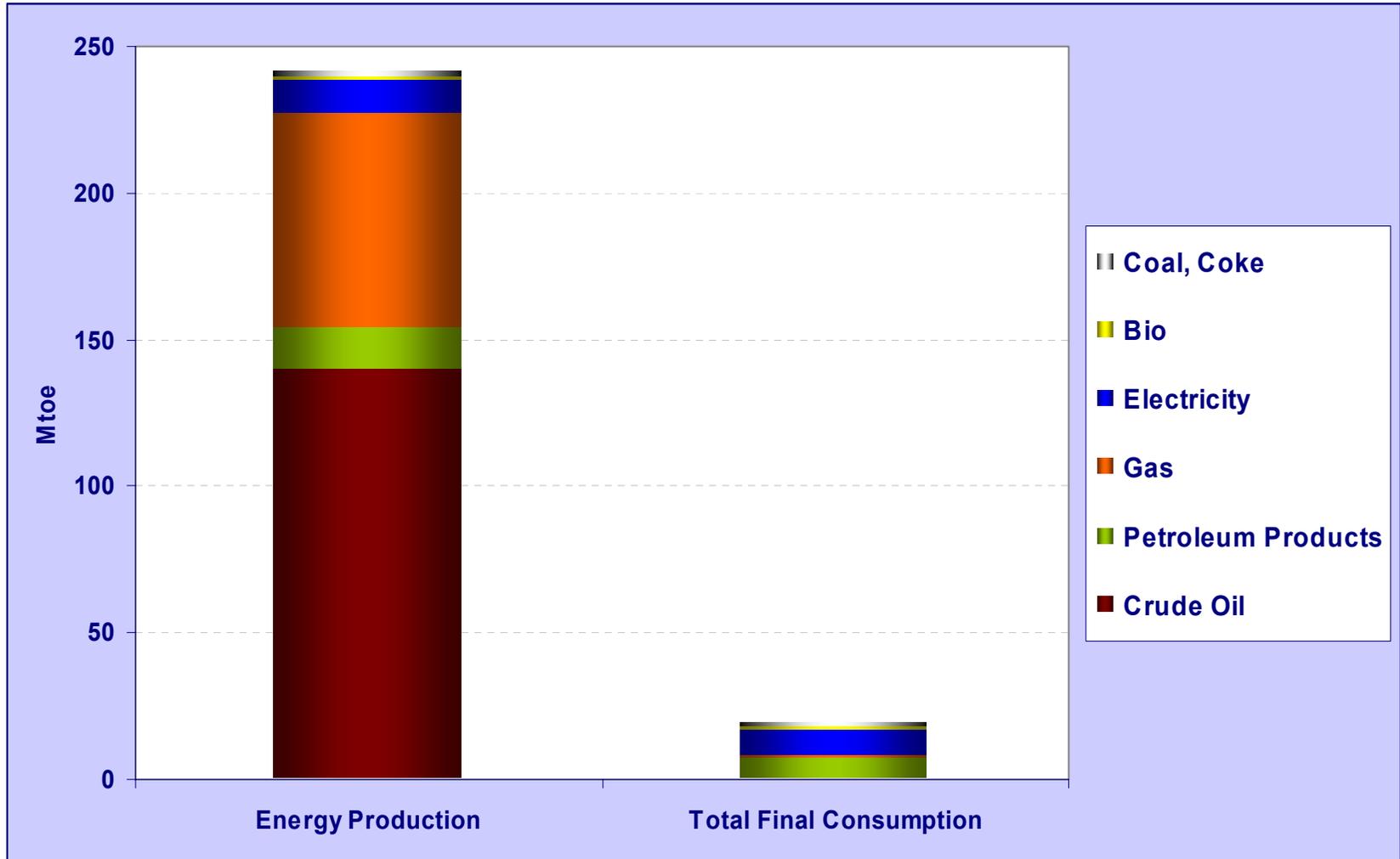
# **Norwegian Minister of Petroleum and Energy, Einar Steensnæs**

## **Norwegian Energy Scene**

### **Global Energy Foresight Seminar Norwegian Academy of Technological Sciences**

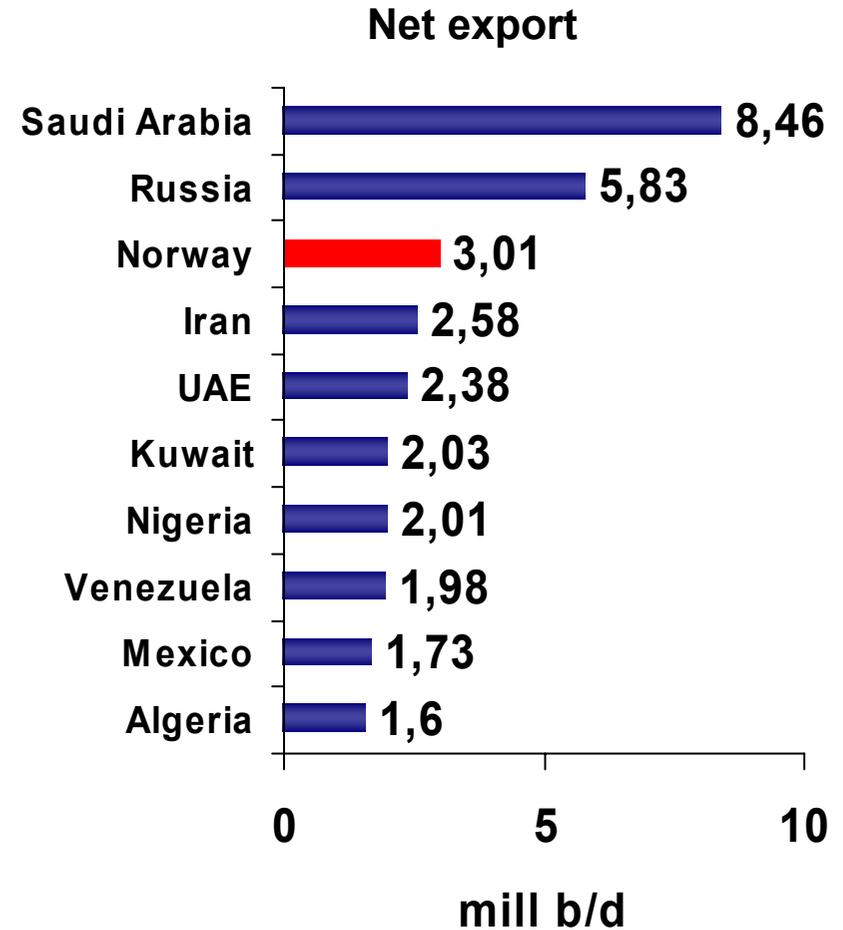
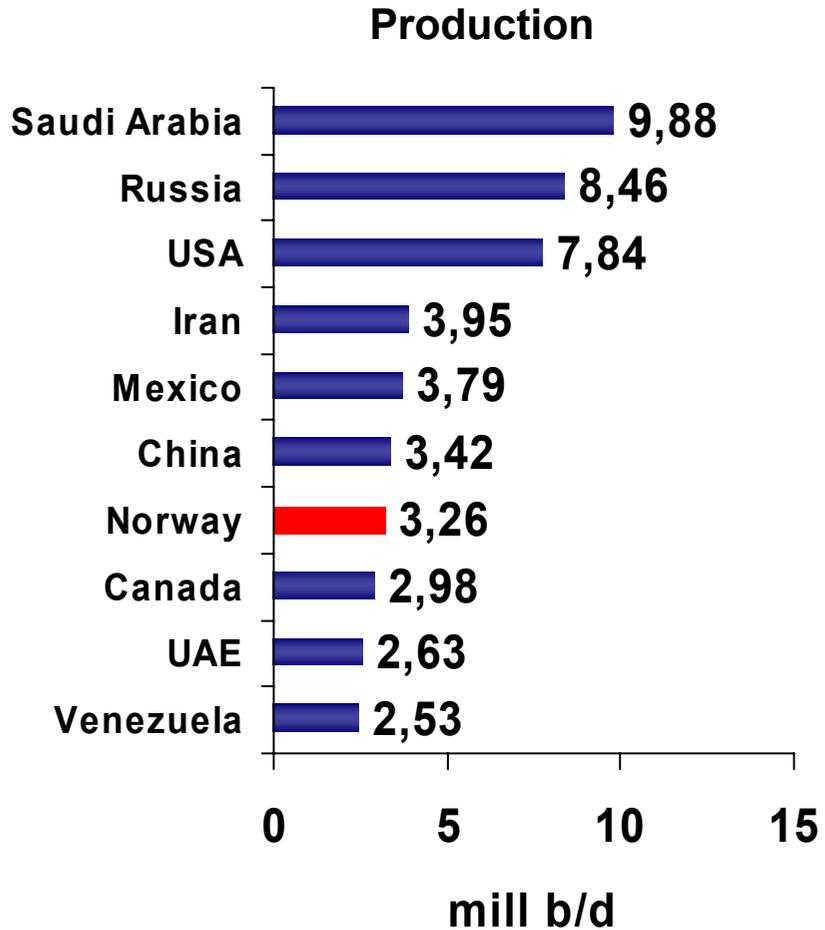
**Stavanger 26 May 2004**

# Energy Production & Total Final Consumption, 2003



# Production and Net Export of Liquids\* 2003

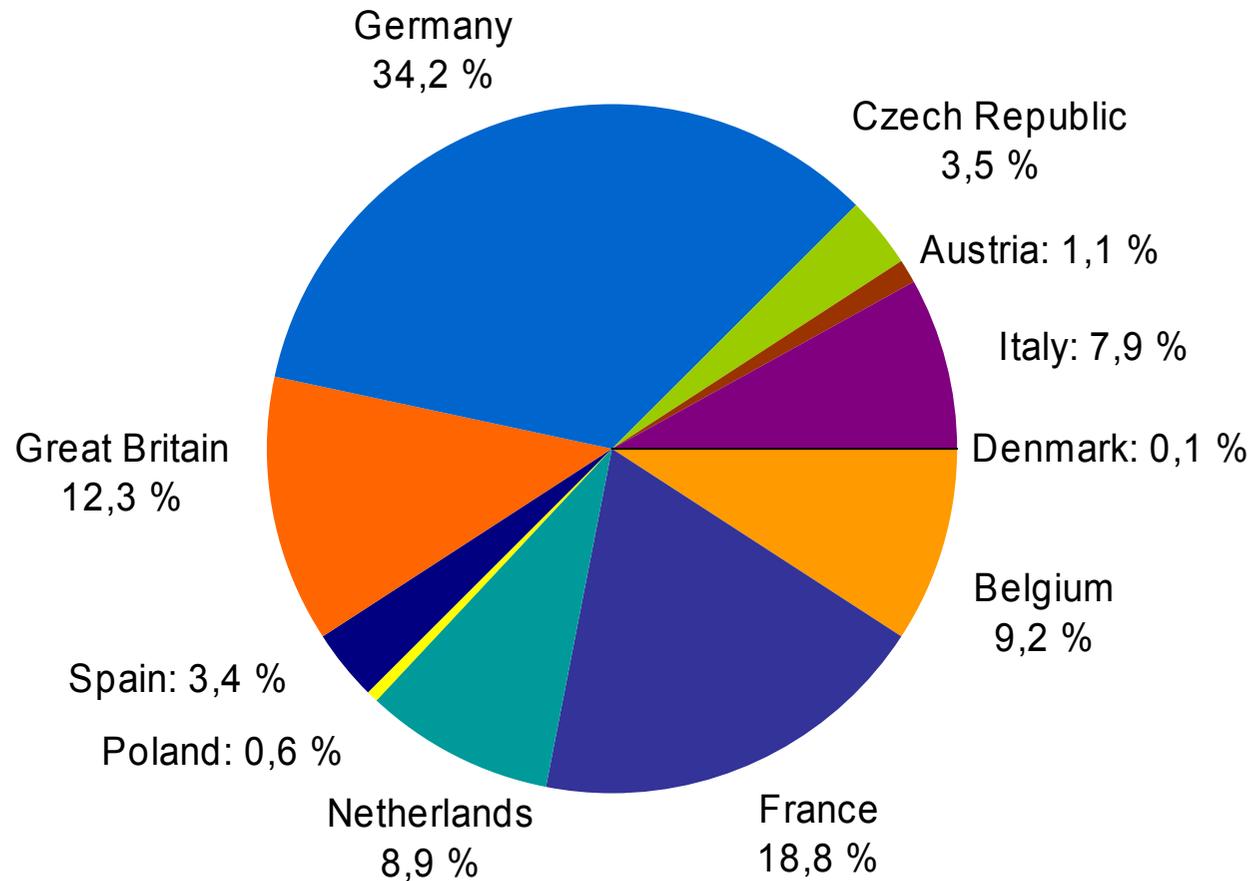
(kilde: Petroleum Economics Ltd)



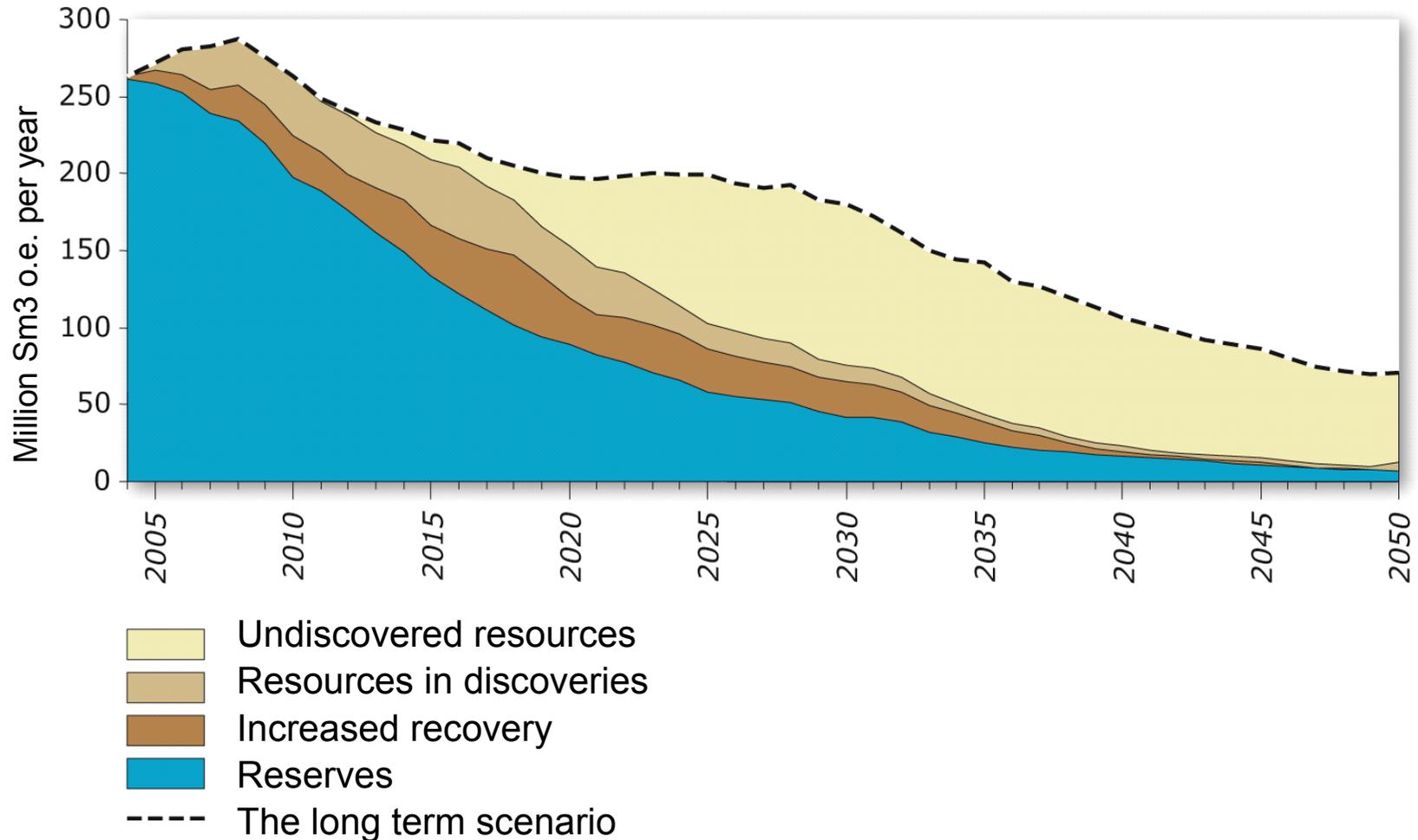
\* includes both crude oil and NGL

# Norwegian Natural Gas Exports 2003

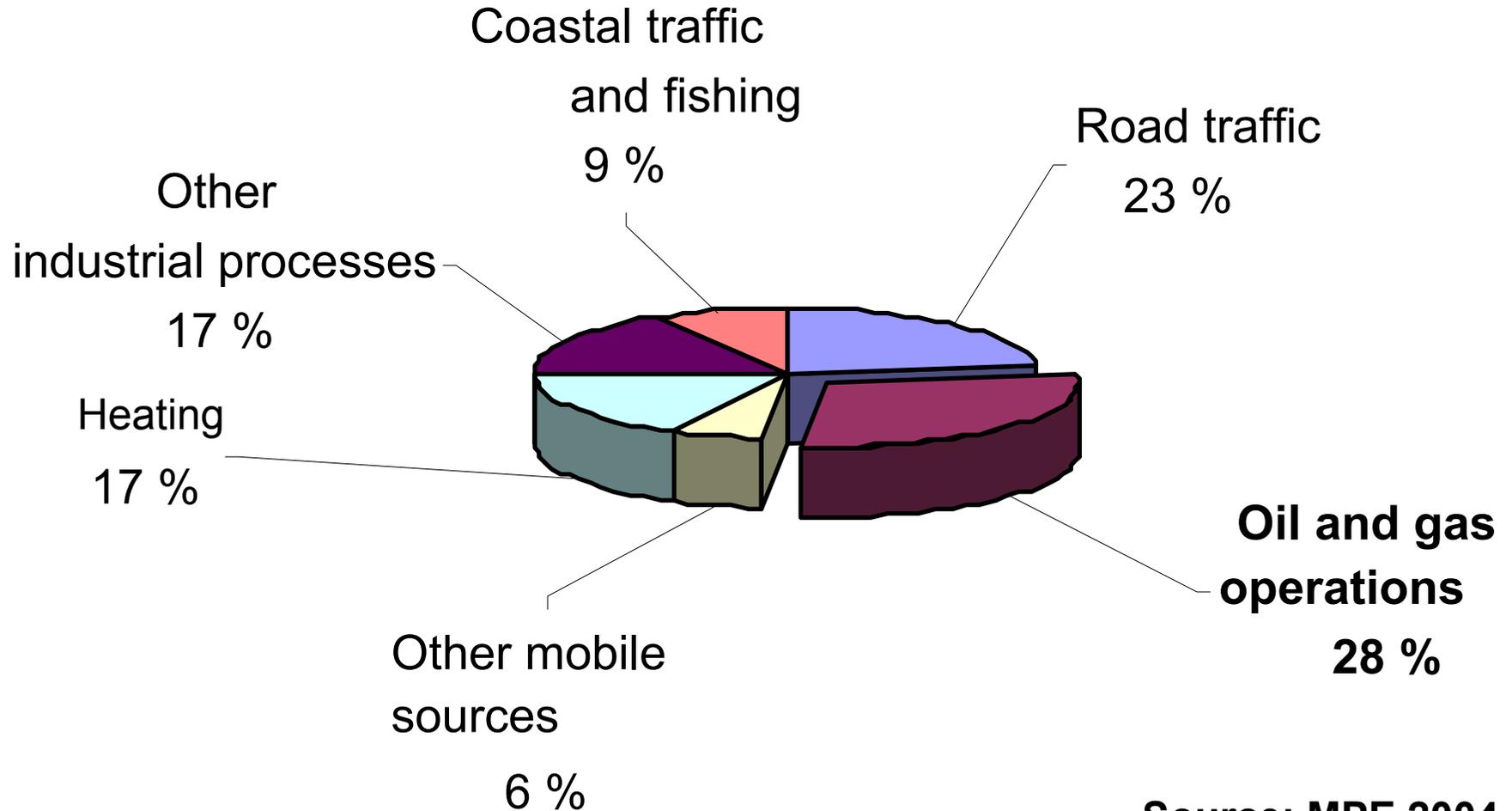
Total exports: 71,1 BCM



# The Long Term Scenario

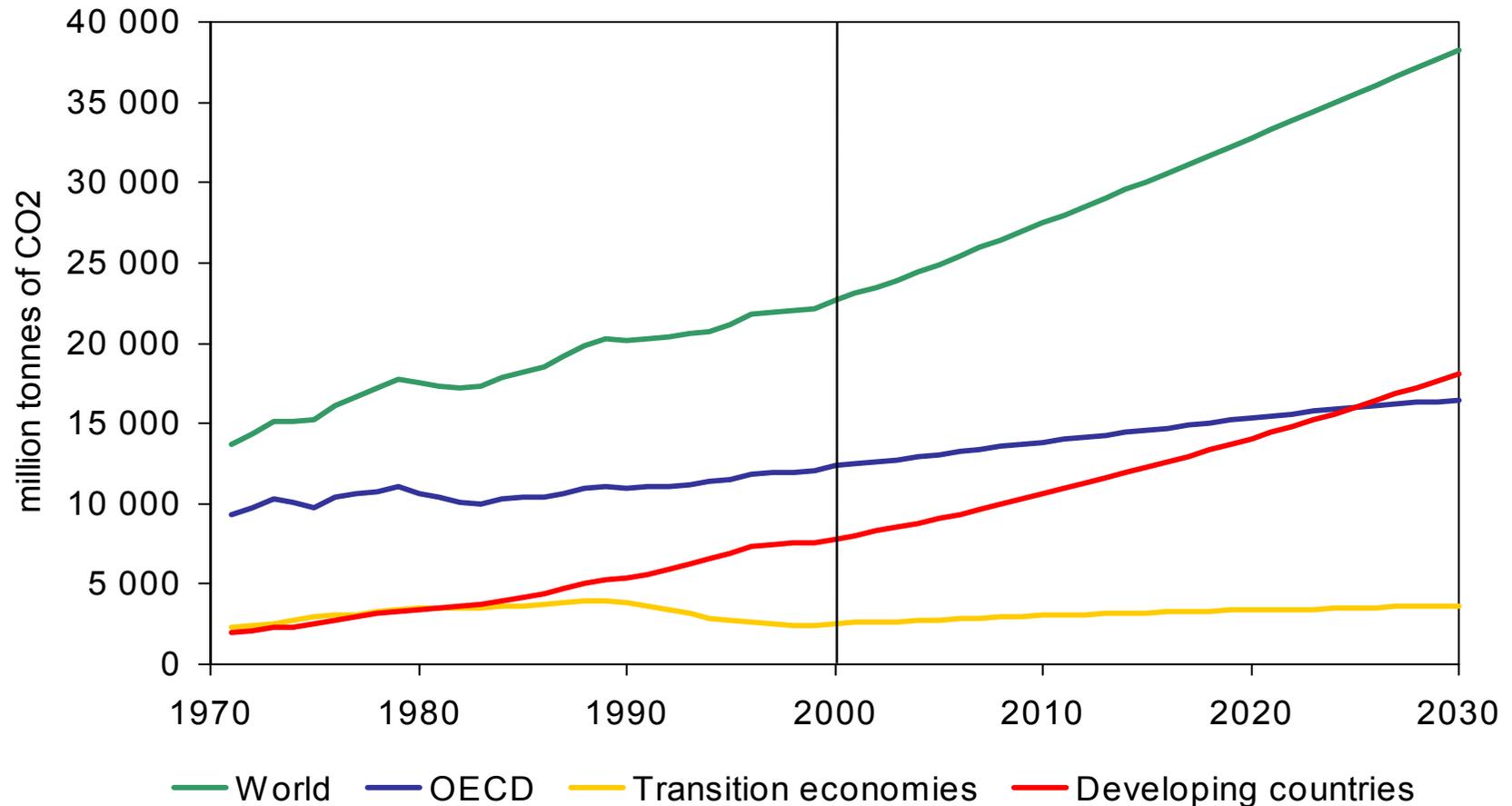


# Sources of National CO<sub>2</sub> Emissions by Sector



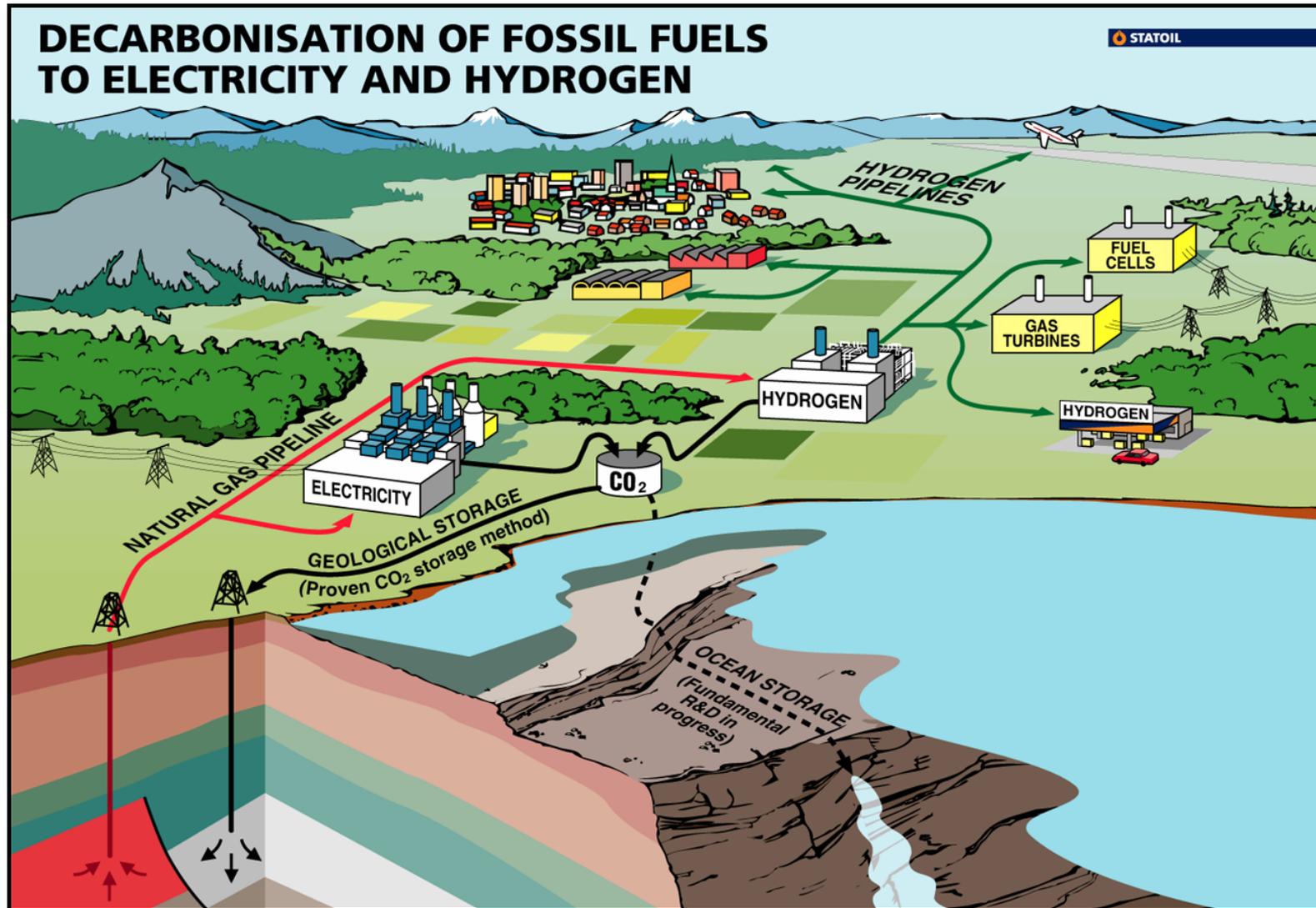
Source; MPE 2004

# World Energy-Related CO<sub>2</sub> Emissions

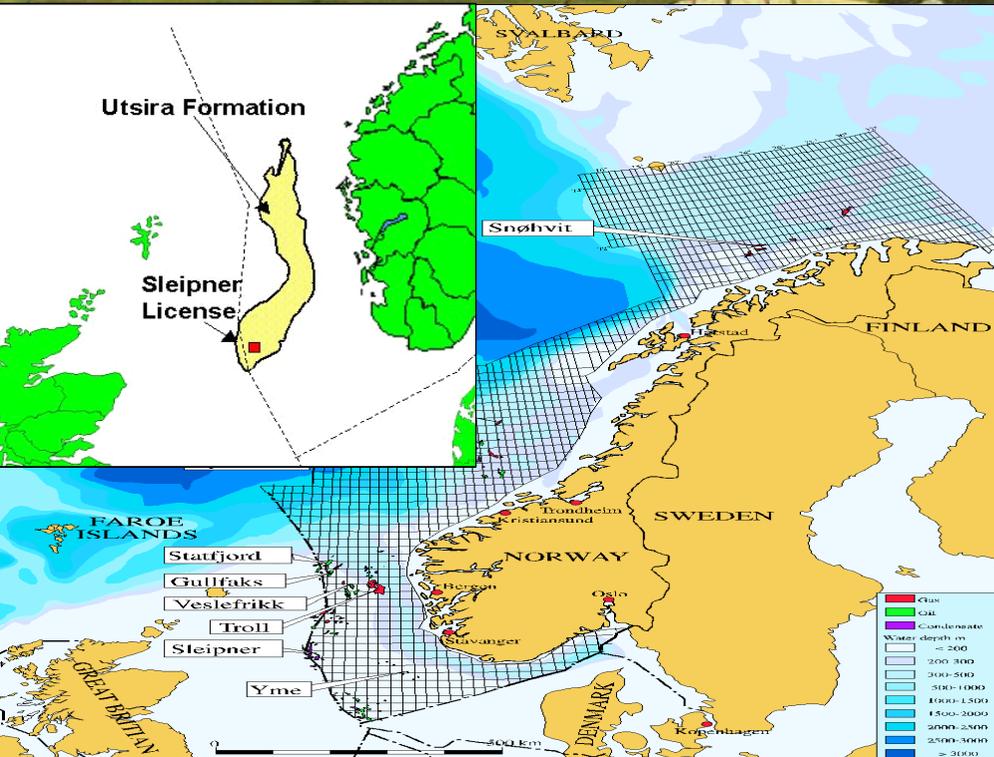
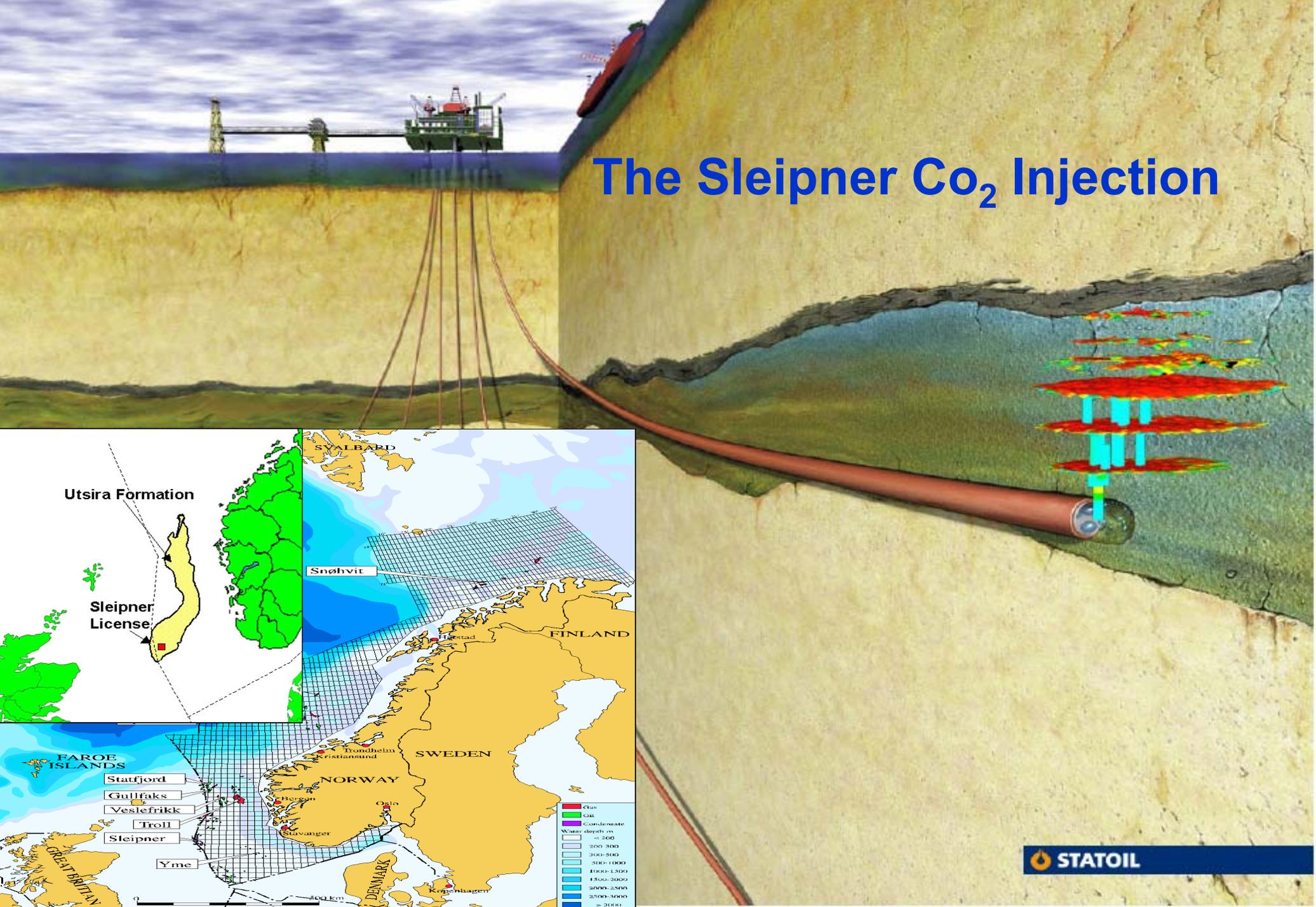


***World emissions will increase  
to 70% above 2000 levels in 2030***

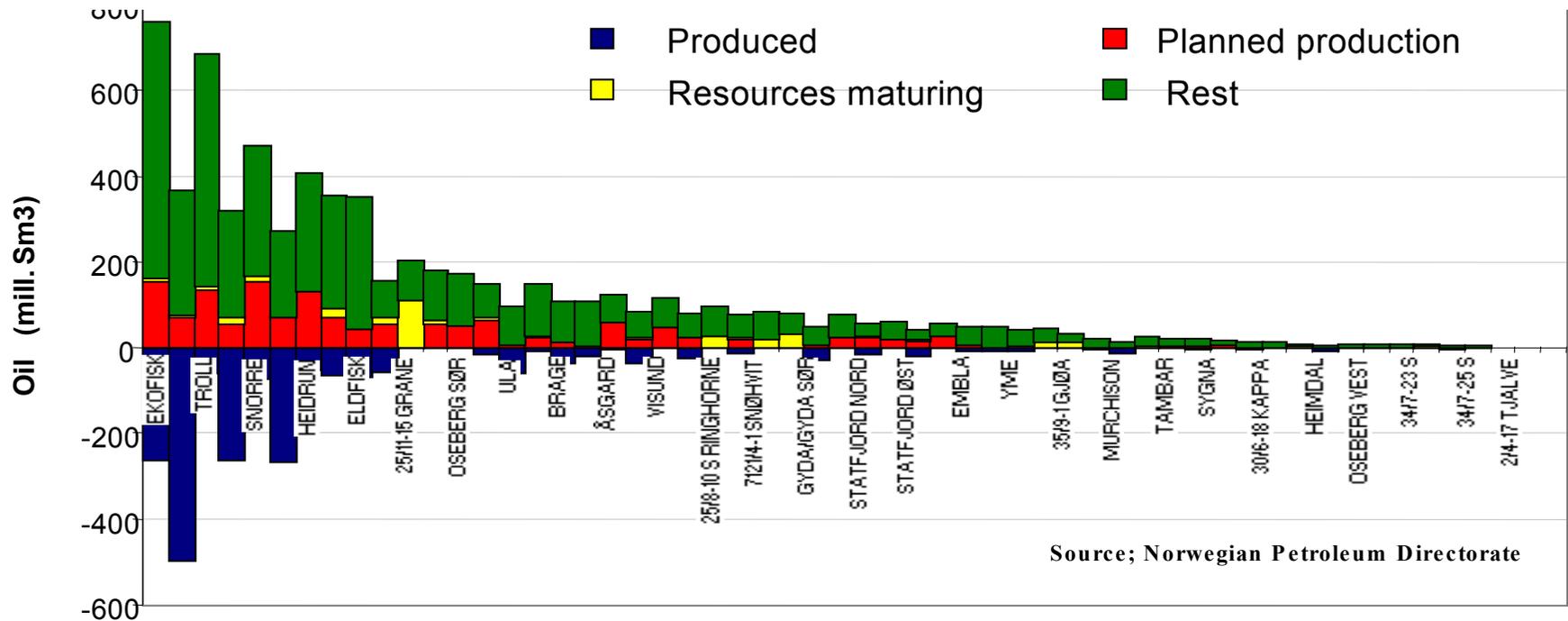
# Carbon Sequestration and Hydrogen



# The Sleipner Co<sub>2</sub> Injection



# EOR and the Norwegian Resource Base



# Policy for Realization of Gas-Fired Power Plants with Carbon Capture and Storage

A strategy for more cost effective solutions, which may lead to an earlier realization of full scale gas-fired power plants with carbon capture and storage:

- Government grants for R&D
- Investment support from 2006
- Establishment of a innovation company
- Facilitating the use of carbon dioxide for EOR





# Increased Efforts to Develop Carbon Capture Technologies

- The Norwegian Government increases the efforts to develop carbon capture technologies to gas-fired power plants
- A fund of NOK 2 billions (\$ 290 mill) to support pilots and demonstration projects.

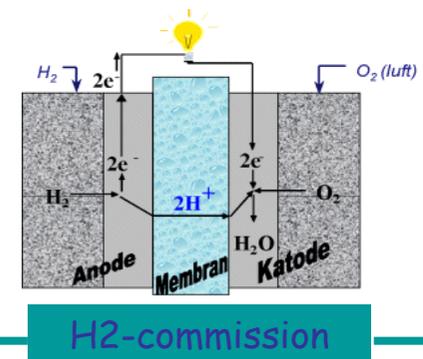
# Increased Renewable Energy Production

The Government's objectives are to:

- Increase annual use of central heating based on new renewable energy sources, heat pumps and waste heat of 4 TWh by the year 2010
- Install wind power capacity of 3 TWh by the year 2010
- Limit energy use considerably more than if developments were allowed to continue unchecked

# The Norwegian Hydrogen Commission

- Appointed by the Norwegian Government
- Is to formulate national goals, actions and incentives in order to develop hydrogen as an energy carrier.
- The Commission shall elaborate a national program covering
  - production,
  - storage,
  - distribution and
  - use of hydrogen in the transport sector and in stationary applications.



H2-commission

# The Norwegian Hydrogen Commission

- Should cover institutional organization of the program
- Legal and administrative terms shall be raised
- The Commission will present its report to the Minister of Petroleum and Energy and the Minister of Transport and Communications by 1 June 2004.

# Oil and Gas Innovation in Norway

## Main Instruments



### 5 Focus Areas

- Environment
- Increased recovery
- Deep water
- Small fields
- Gas value chain



### Coordinated R&D

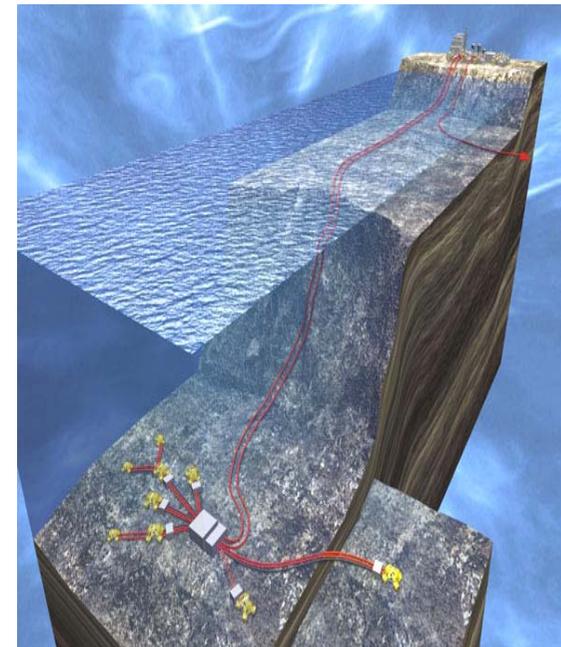
Energy industry

Service and supply comp.

Institutes and universities



### New technology

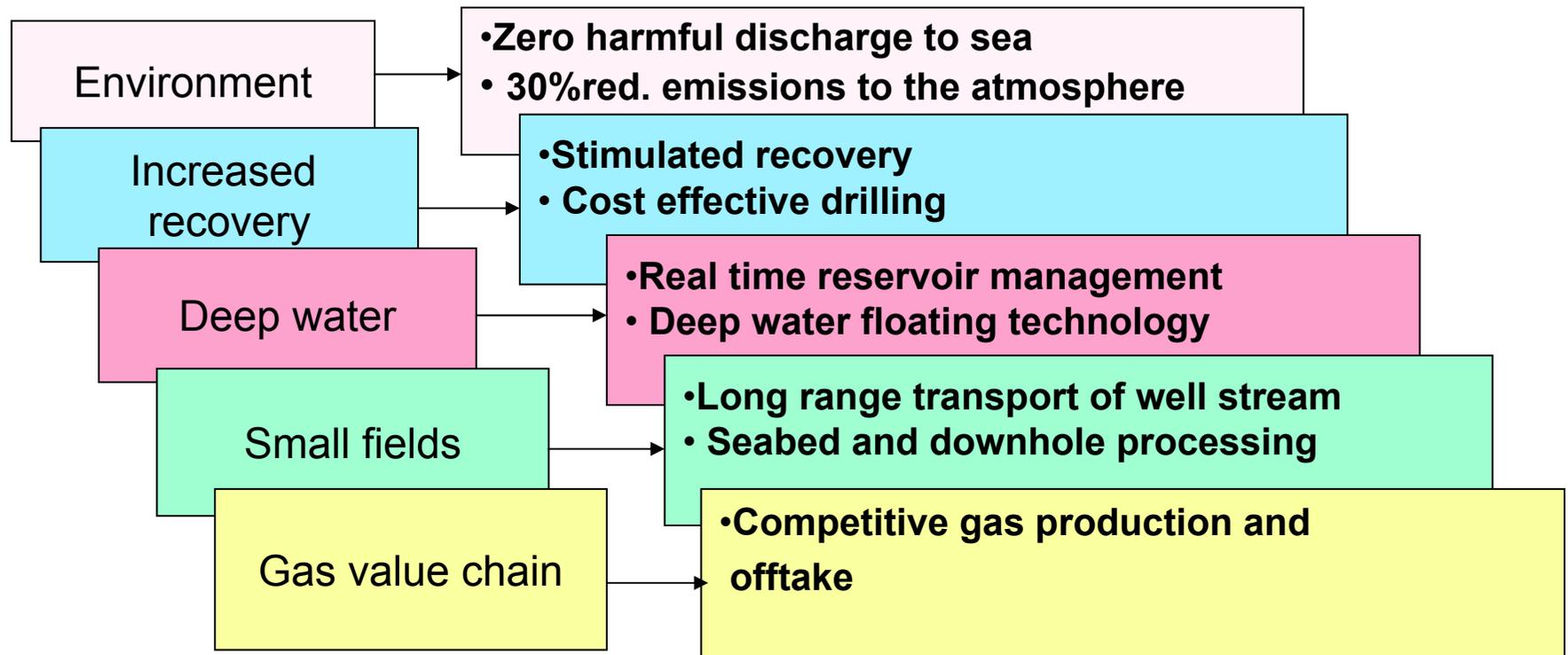


# OG21 Priorities & Technology Targets Areas (TTAs)



## OG 21 Priorities

## Technology Target Areas





# **Carbon Sequestration Leadership Forum**

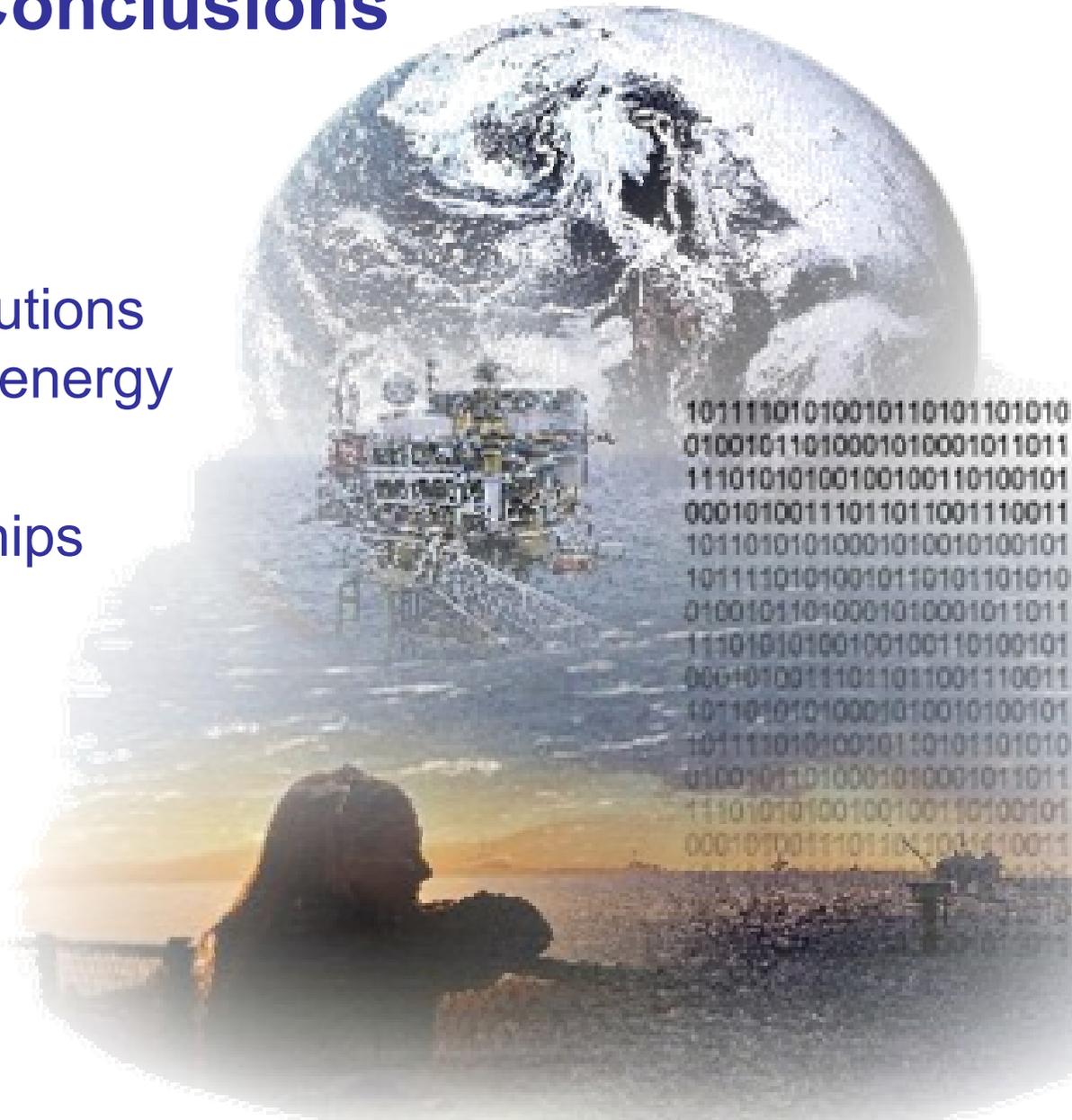




**International Partnership of the Hydrogen Economy**

# Conclusions

- New technological solutions required to shape our energy future
- International partnerships important



# Internet address



[www.oed.dep.no](http://www.oed.dep.no)



[www.mpe.dep.no](http://www.mpe.dep.no)

