



***Technology Partnership:
avenues for co-operation between
producing and consuming countries***

**IEF-IFB Symposium
Riyadh
December 15, 2008**

**Presented by
Dr. Taher M. Najah
Downstream Oil Industry analyst**

Role of Technology in the Petroleum Sector in Enhancing Global Energy Security

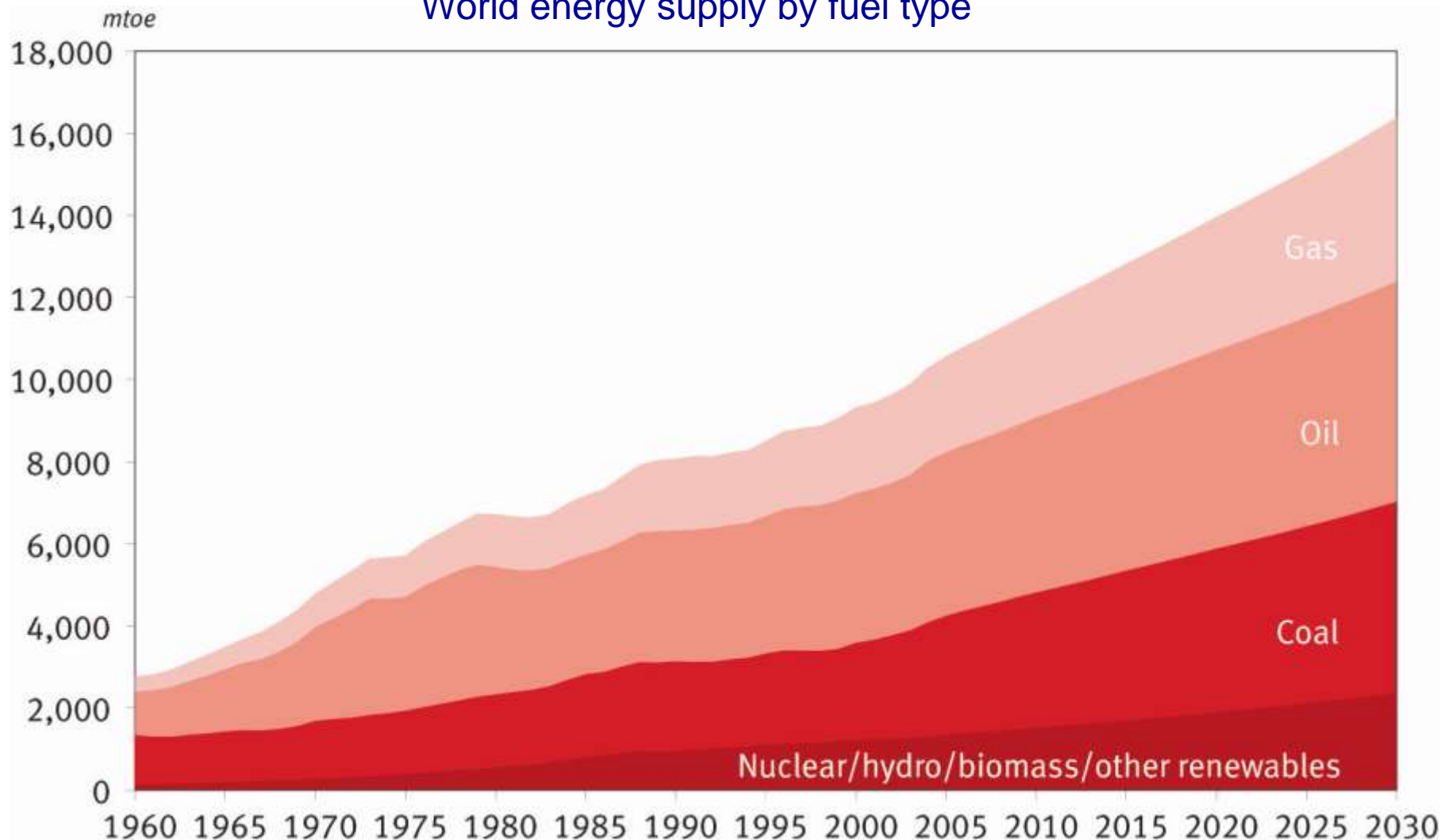


- **Oil Supply Demand Outlook**
- **OPEC R&D Coordination**
- **OPEC EU/IEA Cooperation**
- **More ...**

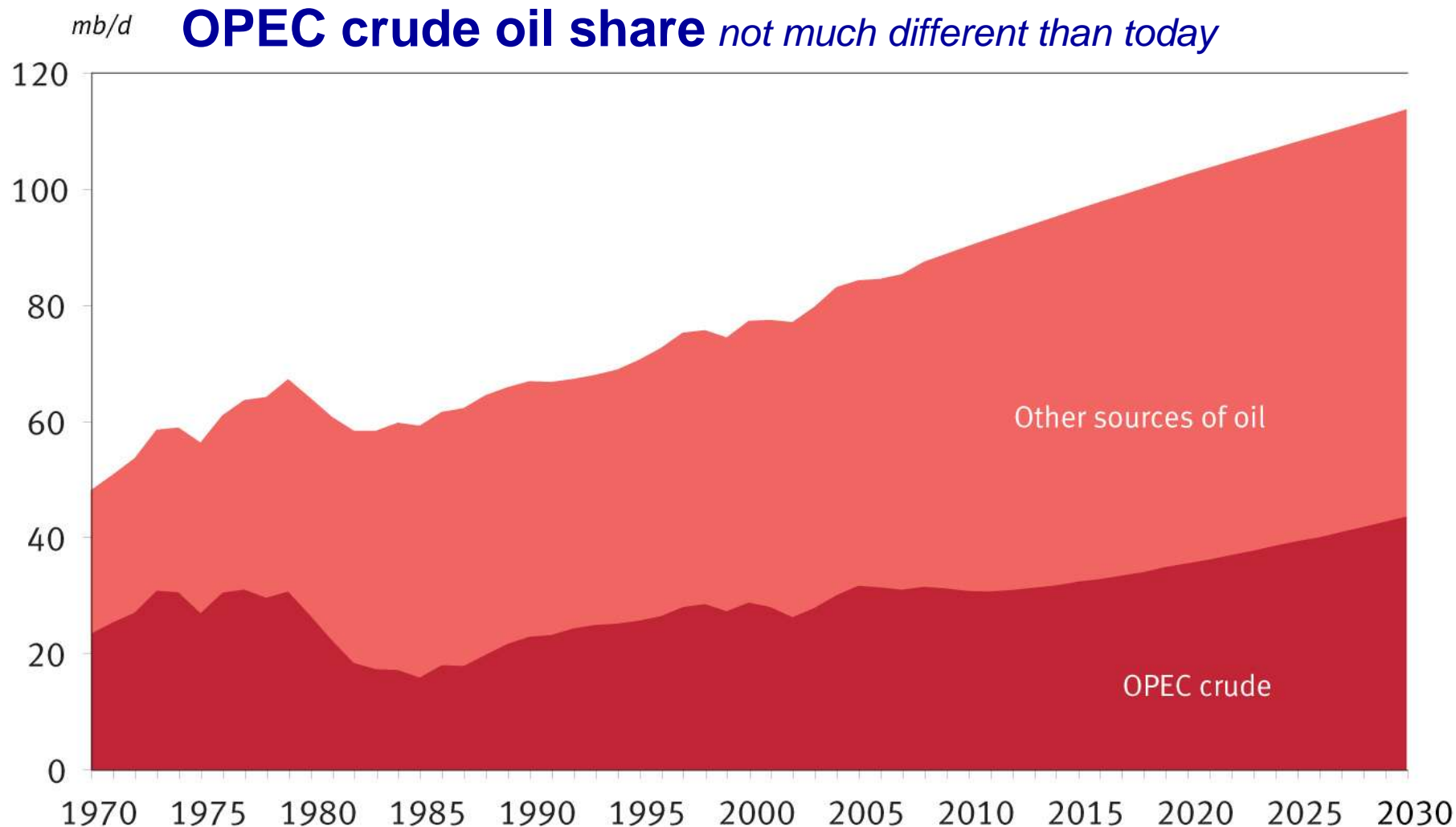
Role of Technology in the Petroleum Sector in Enhancing Global Energy Security



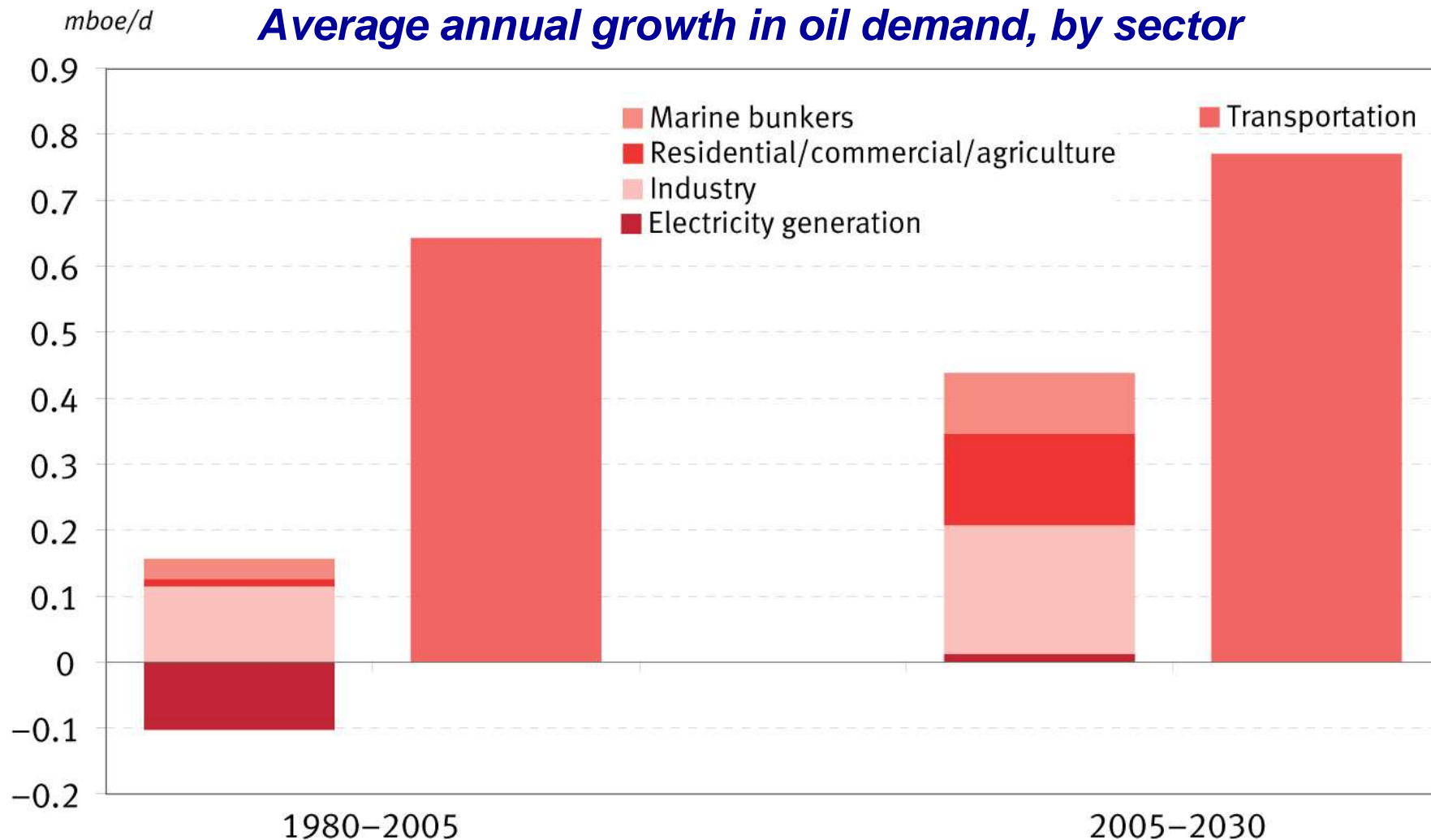
World energy supply by fuel type



Role of Technology in the Petroleum Sector in Enhancing Global Energy Security



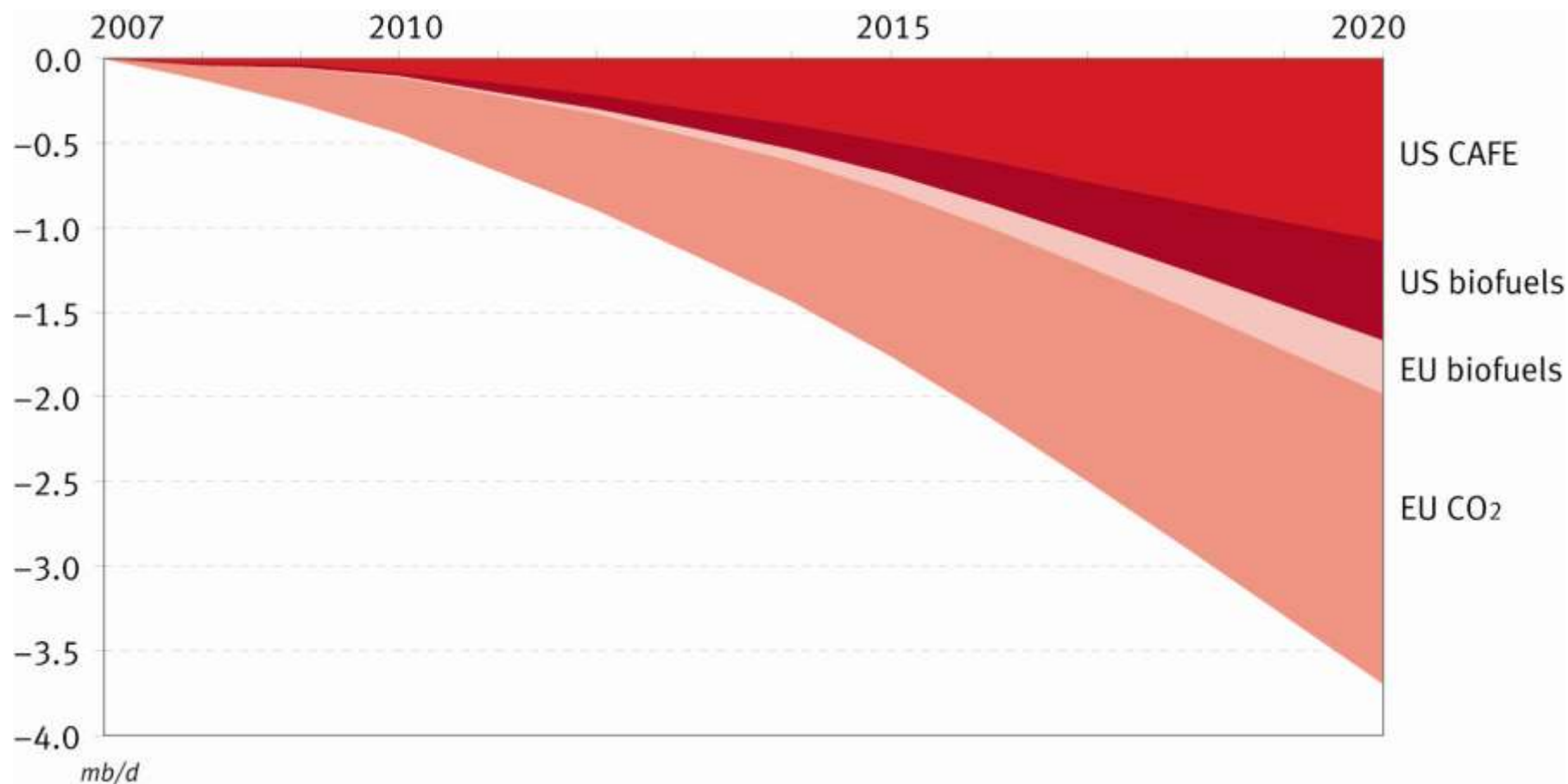
Role of Technology in the Petroleum Sector in Enhancing Global Energy Security



Role of Technology in the Petroleum Sector in Enhancing Global Energy Security



Lost demand for OPEC crude due to US and EU policies

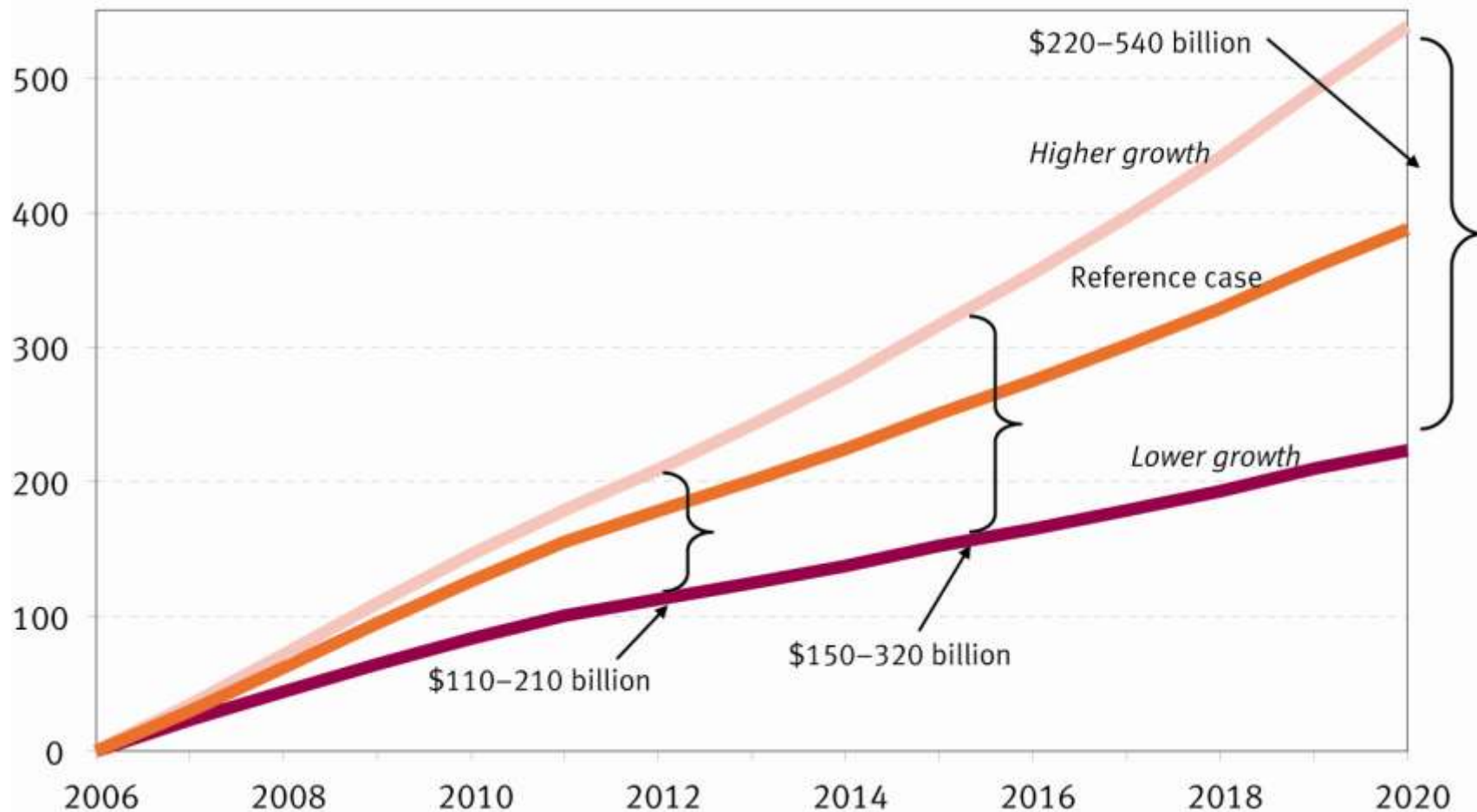


Role of Technology in the Petroleum Sector in Enhancing Global Energy Security



Cumulative OPEC investment Requirement: How much is needed?

\$(2007) billion



World Oil Outlook

2008



ORGANIZATION OF THE PETROLEUM EXPORTING COUNTRIES

For More details
World Oil Outlook 2008

Released in July 2008

www.opec.org

Collaboration in R & D in the petroleum field among OPEC Science and Technology centres

- **OPEC Summit II Solemn Declaration (Caracas, 2000):**
 - Acknowledged vital role of scientific and technical research
 - Called for establishing links among research centres
- **OPEC Summit III Riyadh Declaration (November 2007):**
 - *“Promote collaboration in research and development in the petroleum field among OPEC science and technology centres, as well as collaboration with other international centres and the industry, with the objective of increasing the petroleum resource base, producing it more efficiently and continue introducing cleaner fuels”*
- **Research Division Medium-Term Plan 2003-2007: Reiterated in MTP 2008-2012**
 - *“The Secretariat to act as a forum for Member Countries to strengthen their co-operation in science and technology development related to oil and energy issues in particular”*



● **Meetings of Officials of Petroleum R&D Institutions**

● **R&D Brainstorming Meeting (Vienna, April 14th-15th, 2004)**

- Laid down overall objectives
- Agreed on R&D co-operation

● **1st Annual Meeting of Officials of Petroleum R&D Institutions (Doha, May 2nd-3rd, 2005)**

- Formation of Working Groups
- Secretariat to develop a legal framework agreement and play a stronger role

● **Decisions of 117th Meeting of the Board of Governors:**

- Reaffirming Secretariat role as a facilitator
- Annual Meeting of Officials and WG Leaders should co-ordinate R&D collaboration
- “R&D Co-ordinator” position
- Development of Legal Agreement WGs

Role of Technology in the Petroleum Sector in Enhancing Global Energy Security



● Meetings of Officials of Petroleum R&D Institutions

● 2nd Annual Meeting of Officials of Petroleum R&D Institutions (Venezuela 31st October – 2nd November 2006

● Outcomes:

- Continue with the same focus areas as agreed previously (new members joined existing focus areas)
 - Decided upon a structure consisting of the Annual Meeting of R&D Officials, a Steering Committee, and the Working Groups
 - Secretariat to develop a governance document defining the roles and responsibilities of each component of the structure
 - Funding to be defined on a case-by-case basis within each project collaboration agreement
 - Customised legal agreements specific to each Working Group to be developed
- ### ● 3rd Annual Meeting of Officials of Petroleum R&D Institutions (Vienna 8-9 April 2008)



Key Areas for Long-Term R&D Co-operation Among Member Countries

- Carbon management / CO2 EOR
- Clean fuels
- EOR
- GTL
- Oil to hydrogen
- Oil to power



OPEC-EU Energy Dialogue

Roundtable on CCS Sep 2006 Riyadh

- Technology, Costs, Policies, Regulations
- Factors for Substantial Expansion
- Demonstration Projects
- CCS-EOR

Roundtable on CCS Oct 2008 Brussels

- Cost, Public Acceptance,
- OPEC welcomed to EU R&D (FP7)
- CCS Eligible to CDM
- Need Policy initiatives
- EU-OPEC Energy Technology Centre
- Biennial meeting for CCS progress



IEA Greenhouse gas programme OPEC membership Dec 2007

Terms

- OPEC has one representative on the Programme Executive Committee
- A Member Country representative could attend the Executive Committee meetings as an observer; the BOG decided that this person should be from the Member Country currently holding the chairmanship of the BOG
- OPEC gains access to all previous studies and reports after paying a joining fee
- The Secretariat can distribute copies of studies and reports to Member Countries
- One half of OPEC's yearly contribution may be recycled by being spent on specific OPEC-defined studies or activities



IEA Greenhouse gas programme OPEC membership Dec 2007

Typical Projects:

- **Capture from LNG production facilities**
 - Identify technical features on LNG process that restrict/benefit application of capture
- **Assessment of CO₂ capture for alternative locations**
 - Qualitative review of factors influencing choice of capture technology
- **Integration of post combustion CCS in existing industrial sites**
 - Examine optimisation of hot utilities where capture is an option
- **Natural analogues for CO₂ storage**
 - Report on state of knowledge on natural CO₂ accumulations
- **Relative merits of GHG abatement options – methodologies and criteria**
 - Focus on energy supply and conversion



IEA Greenhouse gas programme OPEC membership Dec 2007

- **Organization of a summer school for OPEC Member Country professionals /students on Carbon Capture and Storage in a member country where IEAGHG provides instructors**



Other issues of interest to OPEC

- The developments in Climate Change Negotiations
- The developments in Emissions, Fuel quality Policies and regulations
- Renewables and their contribution to Global energy demand mix
- Technological innovations in all stages of oil industry
- Developments in transportation sector and automotive industry
- All issues contributing to oil demand and supply



OPEC

Thank you



Stability in the oil market