

BACKGROUND

The 11th IEF (Rome, April 2008) concluded that “a sustainable energy future implies efficiency improvements, technological advances in both production and consumption of fossil fuels, and development of alternative low-carbon energy sources”.

The International Energy Forum and the IFP convened a symposium on technology in the petroleum sector in Riyadh in December of 2008. The symposium was held with the participation of international oil companies, technology and service providers, and international organizations as well as representatives from producing and consuming countries in both the developed and developing world. The participants discussed technological developments in the upstream sector and the role of technology in increasing fossil fuel supply. They exchanged their views on how to promote technological developments and deployment, as well as the best means to enhance cooperation among stakeholders.

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IEF - IFP SYMPOSIUM TECHNOLOGY IN THE PETROLEUM SECTOR

RIYADH, 15 DECEMBER 2008

AN IEF EVENT IN COOPERATION WITH THE IFP



The International Energy Forum (IEF) is the world's largest gathering of Energy Ministers. IEF Countries account for more than 90% of global oil and gas supply and demand.

In addition to IEA and OPEC countries, transit states and key energy players, including Brazil, China, India, Mexico, Russia and South Africa, participate in the Forum. The magnitude and diversity of this engagement is a testament to the IEF's position as a neutral facilitator. Through the Forum and its associated events, IEF Ministers, their officials, energy industry executives, and other experts engage in a dialogue of increasing importance to global energy security.

The IEF and the global energy dialogue are promoted by a permanent Secretariat of international staff based in the Diplomatic Quarter of Riyadh, Saudi Arabia.

IEF - IFP Symposium

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

Agenda

08.30-09.00: Registration

09.00-09.30: Opening remarks

Noé Van Hulst, Secretary General, IEF

Olivier Appert, Chairman and CEO, IFP

Moderator: Said Nachet, Energy Director, IEF Secretariat

09.30-11.00 Session 1: Technology development in the upstream sector

- Pushing the limits; impact of upstream technological advances on future oil supply.
Maurice Bouteica, Director Exploration & Production, IFP
- A technology user perspective: the case of Saudi Aramco.
Nabeel A. Al-Afaleg, Chief Technologist, EXPEC Advanced Research Center, Saudi Aramco
- Technology developments to foster oil resources in difficult access regions.
Mohamed Hashem, Regional Technology Manager, Middle East, Caspian & SE Asia, Shell
- A technology provider perspective.
Mahmut Sengul, Vice President Middle East and Asia, Schlumberger Carbon Services

Roundtable discussion: issues related to technological challenges in the upstream sector will be discussed in this session: development opportunities to meet supply needs over the 50 years ahead, future oil supply, enhanced oil recovery, fields with extraction difficulties (access, drainage, architecture, geology), complex crudes (high viscosity crudes, heavy crudes, sour gas).

11.00-11.15 **Coffee break**

11.15-12.45 Session 2: CCS, reducing GHGs and enhancing oil recovery

- Enhancing oil recovery: what role for CCS?
Francois Kalaydjian, Deputy Director Sustainable Development, IFP
- Australia's Global Carbon Capture and Storage Initiative.
Michael Sheldrick, General Manager, Global CCS Initiative, Project Team, Department of Resources, Energy and Tourism, Australia
- CO₂ geological storage in In Salah, Algeria, a sustainable development project.
Noureddine Bounoua, Manager, Upstream Activities, Sonatrach
- European Union CCS activities.
Derek Taylor, Energy Advisor, Directorate General for Transport and Energy, European Commission

Roundtable discussion: the 11th IEF Ministerial noted that carbon capture and storage is an important option to reduce greenhouse gases emissions from fossil fuels. CCS development and deployment will play a crucial role in delivering a sustainable energy future. How to accelerate R&D and deployment of CCS, in connection with enhanced oil recovery?

12.45-14.00 *Lunch*

14.00-15.30 Session 3: Producer-consumer cooperation in technological developments

- Technology developments, challenges and opportunities for a global energy security.
Antonio Pflüger, Head, Energy Technology Collaboration Division, IEA
- Technology partnership versus joint technology development: avenues for co-operation between producing and consuming countries.
Taher Najah, Downstream Oil Industry Analyst, Energy Studies Department, OPEC

Roundtable discussion: supplying energy in the context of climate change: technological challenges, hurdles and opportunities (technology, policies, regulation), regional versus global strategies. Possible avenues for cooperation in the field of technology between producers and consumers.

15.30-15.45 *Coffee break*

15.45-17.00: Session 4: Wrap-up

Panel: Noé Van Hulst, Secretary General, IEF
Olivier Appert, Chairman and CEO, IFP

- What are the main technological challenges for the petroleum sector over the next three decades?
- Will public and private R&D be up to these challenges?
- What incentives could be implemented by governments in order to encourage R&D as well as deployment of technology?
- How can technological cooperation between producing and consuming countries help improve global energy security?
- What hurdles should be removed to facilitate cooperation and partnership in technological development?

Conclusion of the symposium

Notes..

IEF - IFP Symposium

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

Concluding Statement by IEF Secretariat and IFP

The IEF-IFP symposium was held in Riyadh, 15 December 2008, with the participation of representatives from oil companies, technology and service providers, international organizations and representatives from producing and consuming countries, from developed and developing countries. “Enhancing global energy security, role of technology in the petroleum sector” was the central theme.

This symposium is held following the recommendations of the 11th IEF which concluded that “a sustainable energy future implies efficiency improvements and technological advances in both production and consumption of fossil fuels” and advocated renewed energy technology collaboration between producing and consuming countries.

The participants discussed technological development in the upstream sector and the role of technology in increasing fossil fuels supply. They exchanged their views on how to promote technological development and deployment and ways and means to enhance cooperation between all stakeholders.

The discussion covered several issues including technological development, deployment of carbon capture and storage and cooperation and partnership.

Technological development

- The participants affirmed that fossil fuels are expected to remain the main source of energy supplies, for the coming decades, with oil continuing to be dominant in the global energy-mix, and underlined the need to focus on technological advances that allow for sustained supply of petroleum and the continued use of oil in a carbon-constrained world.
- While acknowledging that hydrocarbon resources are amply available, the participants noted that technology development and deployment will provide solutions to explore, produce and deliver in an efficient and timely manner, the resources to end-consumers.

- The participants noted that technology is and has always been a fundamental force driving the oil and gas industry and will continue to play a key role to meet the challenges of securing the world's growing energy needs in an environmentally responsible way. They observed that technology helps pushing the boundaries of production, as it improves production rate, extends projected field life and increases ultimate hydrocarbons recovery.
- The participants affirmed that improvement in the global recovery rate - estimated to average 35 % today - through innovation and technology advances helps increasing oil and gas reserves. They observed that in some oil fields companies are already producing at a recovery rate of over 50 %, and that according to available estimates, an increase of one percentage point in the average recovery rate of existing oilfields would be equivalent to two years world oil consumption, at current rates.
- The symposium discussed how to sustain continuous technological development to find, develop and produce oil in an increasingly harsh environment. The industry will need to drill deeper and extract oil and gas in severe conditions (high temperature and high pressure) while containing operational costs at a level compatible with economic environment.

Carbon Capture and Storage

- The participants noted that carbon capture and storage development and deployment can play a crucial role in delivering a sustainable energy future and called for CCS to be included, as soon as possible, in the Clean Development Mechanism.
- They affirmed that CCS technology used in conjunction with CO₂ enhanced oil recovery is a “double-win” option as it reduces greenhouse gas emissions while at the same time increases recoverable reserves in mature fields and hence contributes to global energy security. According to IEA – WEO 2008, EOR technology is projected to contribute 6.4 mb/d to world oil supply in 2030 - with CO₂-EOR accounting for most of the increase - and a cumulative production of 24 billion barrels over the period. About 9.8 gigatonnes of CO₂ are captured and stored in CO₂-EOR projects over the projection period.
- While acknowledging that CCS technology offers a huge potential to tackle climate change, they noted that there is still a long way to go before it makes a significant impact on greenhouse gases emissions.

- The participants discussed the obstacles that CCS technology still has to solve, such as cost of implementation and the need to reduce energy consumption of transporting and storing CO₂, and underlined the need for more commercial-scale demonstration projects and international partnerships to help CCS become commercially viable.
- The symposium welcomed all initiatives aiming at making CCS technology deployment economical at large scale.

Cooperation and partnership

- The participants noted that best practices and experience sharing among governments and industry players could help enhancing environmental sustainability and energy security and could be beneficial for both producing and consuming countries.
- The participants affirmed that partnership between NOCs and IOCs in technological development and implementation is a win-win situation and called for a renewed collaboration and a strengthened cooperation. Developed and deployed with an open and collaborative approach, technology is fundamental to tackle the increasing challenges facing the oil industry, the participants said.
- There was a wide-ranging discussion in the symposium on how energy security can be improved and participants underlined the need to expand cooperation and partnership between NOCs, IOCs, service companies, universities and research centers to develop human resources and encourage R & D for technological advances that will reduce costs, improve efficiency and increase output.
- The participants observed that until recently R & D and technological developments are undertaken mostly within international oil companies and service providers, but national oil companies are entering the game, setting up R & D centers and making significant progress in hydrocarbon technology. The participants encouraged exchanges and cooperation between R & D centers to identify potential synergies and called for adapted approach to foster cooperation.
- The participants noted that R & D efforts and technology advances require important investment and called for partnership between NOCs, IOCs and services providers and collaboration with governments to speed up the development and implementation of technology to the benefits of all parties. The symposium advocated industry and governments to maintain R & D funding despite foreseeable budget constraints.

- While underlining the advantages of CCS technology, the participants called for an enhanced cooperation between producing and consuming countries to accelerate its deployment and harvest its potential, and noted that this can be undertaken in the framework of IEF.
- The participants underlined the growing interdependence between oil and gas producing and consuming countries and advocated all parties to find ways and means to translate this higher interdependence in a vector of cooperation. They stressed that technology partnership, particularly in the upstream sector, provides a platform for a sustained cooperation and an effective dialogue between producers and consumers through the IEF.