Reflections on
key oil challenges and opportunities

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Energy interdependence: key to integration and stability

Strong link between energy sources and uses: “integration”

- The role of oil is as important to its economic growth and prosperity of consuming/importing countries, as it is to the development and social progress of producing/exporting countries

Evolving understanding on energy security

- It is crucial for both sides to take into account demand as well as supply perspectives

Convergence on issues of mutual concern

- Security of supply and demand; market stability; enhanced transparency and predictability of fundamentals; upstream and downstream investments; technology
Energy and oil demand is set to grow
(demand by fuel type, mtoe)

- Fossil fuels will continue to satisfy the bulk of world’s energy needs
- Oil is set to retain greatest share; fast growth of natural gas
- Low base for renewables – limited impact on mix

![Graph showing average annual global growth in oil demand by sector from 2005 to 2030.](image-url)

![Chart illustrating the growth in energy demand from 1960 to 2030.](chart-url)
Strong price volatility

(Weekly prices of the OPEC Reference Basket, US$/b)

- Fund-driven price hike on back of weak dollar and increased financial market speculation
- Perceived market tightness and bottlenecks in refining sector
- Geopolitical concerns

Disconnect of prices from fundamentals since August, ‘07

Weekly change

2007-2008

2006-2007
Weak US dollar pressuring oil and commodity markets

(weekly average)

- Depreciation of the US dollar has led to significant shift of capital in financial markets to commodities: high correlation between the dollar movement and gold, oil & other commodity prices.
- Overall price surge in all commodity groups: energy, precious and industrial metals, agriculture.

![Graph showing price indexes vs US$ movement with dates from Aug-07 to Apr-08.]
OPEC Member Countries are investing

**Upstream**
- Over 120 development projects
- Cumulative investments in new capacity of more than $150 billion
- OPEC crude capacity expected to increase by more than 4 mb/d by end 2012 from current levels

**Downstream**
- More than $60 billion of refining investments
- Above 3 mb/d of additional distillation capacity expected on stream by 2012
Uncertainties pose investment risks for OPEC Members

- Significant uncertainties over upstream and downstream investments
- Over- and under-investment: waste of precious resources and negative effect on future investments
- Security of demand is as important as security of supply

**Cumulative OPEC upstream investment requirements**

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Rising costs and skill shortages

- Huge increase in costs of petroleum projects
- Skilled labour shortages: a major impediment for construction and operations
- Industry should be made more attractive to prospective graduates

Capital cost index in upstream (UCCI) and downstream (DCCI)

Source: Cambridge Energy Research Associates
Conventional liquids’ resource base is sufficient

- Increasing resource base levels (improved technology, enhanced recovery)
- Technology blurs distinction between conventional and non-conventional oil
- Resource base likely to continue to grow … especially with non-conventional oil

**World’s conventional oil resources**

![Graph showing world's conventional oil resources from 1983 to 2000](image)

**Source:** US Geological Survey.
Non-OPEC non-conventional oil and biofuel supply outlook

- Sustainability of large biofuel supply and use is increasingly questioned
- Increased use of crops for biofuels is contributing to surge in basic food prices

- Over 10 mb/d of non-conventional oil plus biofuels by 2030

- Biofuel sustainability issues:
  - Land-use changes
  - Competition with food supply
  - Impacts upon biodiversity
  - Competition for water resources
  - Effects upon air quality

- GHG mitigation costs of biofuels are very high
Technology for energy and the environment

- OPEC supports promotion of technologies that address climate change concerns

- Aim is to make fossil fuel use more consistent with protection of environment

- Carbon capture and storage is promising technology. Industrialized countries should take the lead in its development and deployment

- At Third OPEC Summit in Riyadh in November 2007, US $750 million pledged to research into energy and the environment
In conclusion

Key issues

- Market speculation is major cause of volatility and rising prices
- Market uncertainty undermines effectiveness of oil investment strategies
- Urgent attention needed for rising costs and skill shortages
- Oil resources sufficient to meet increasing demand for decades to come
- Sustainability of biofuels is being reassessed
- More intensive technology-based approach for environment (CCS)
- Provision of modern energy services essential for poverty reduction

Energy interdependence calls for broader dialogue and well-targeted cooperation, as well as greater transparency and predictability

- OPEC III Summit repeated its resolve to in-depth dialogue and cooperation
Thank you

Organization of the Petroleum Exporting Countries

www.opec.org

Stability in the oil market