

# Changes in Global Oil Market and Corporate Strategy



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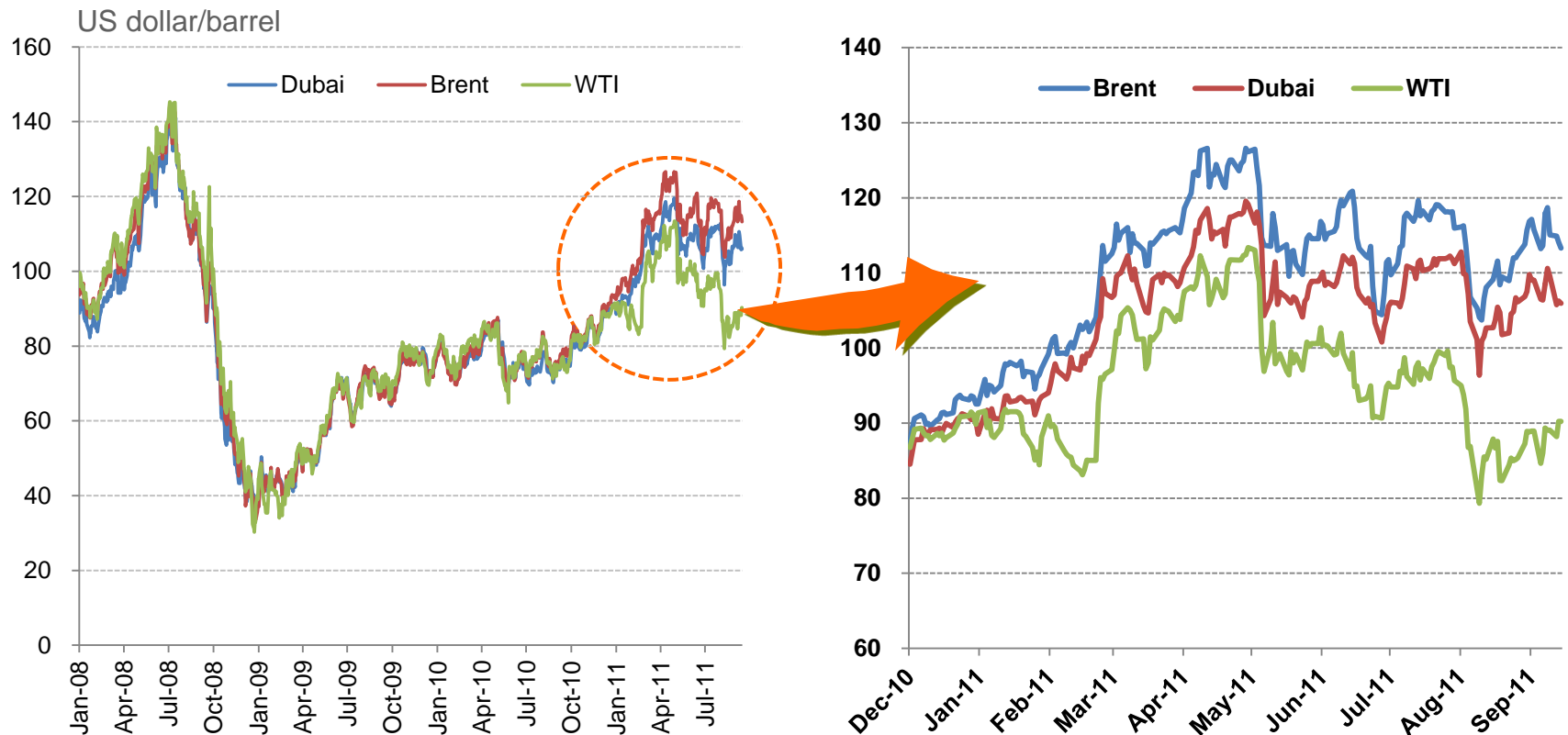
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# Trends in Oil Price

Due to the instability in the world economy and the financial market since the beginning of 2011, the global oil prices shifted downward and remain fluctuating.

Trends in Global Oil Price

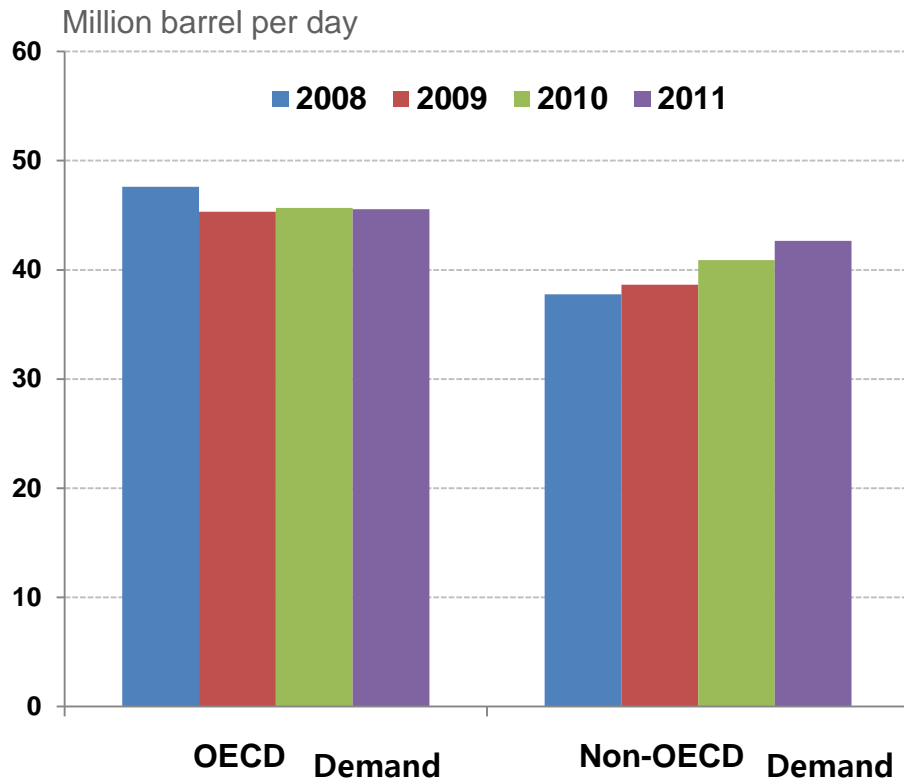


Source: Datastream

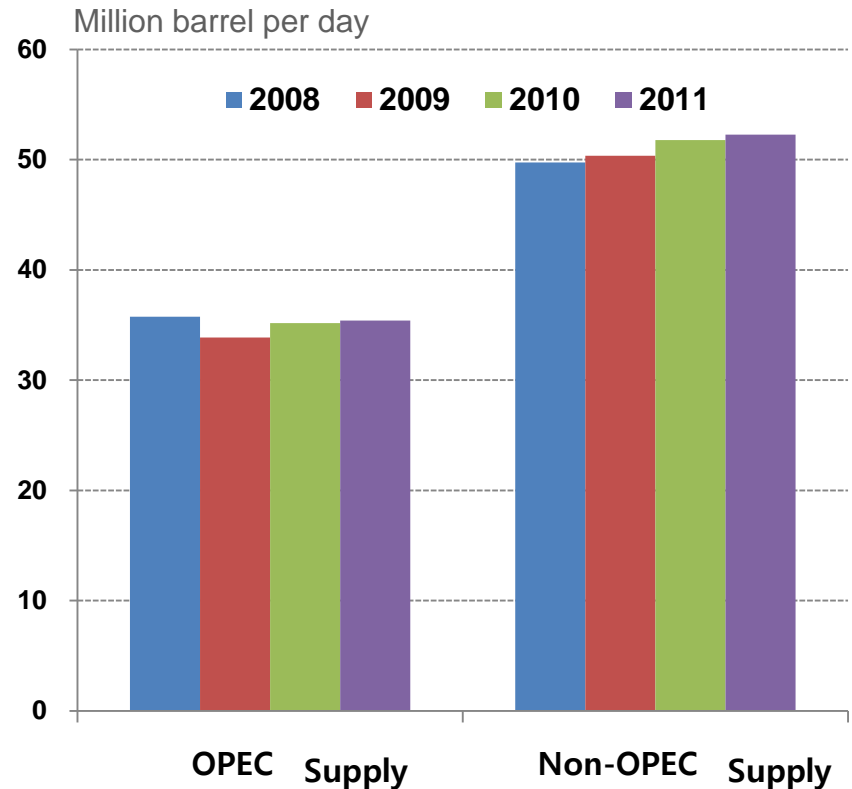
# Global Supply & Demand for Oil

The increase in demand for oil is mainly driven by the developing countries and the increase in supply for oil is led by non-OPEC member countries.

Trend of OECD vs. Non-OECD Demand for Oil



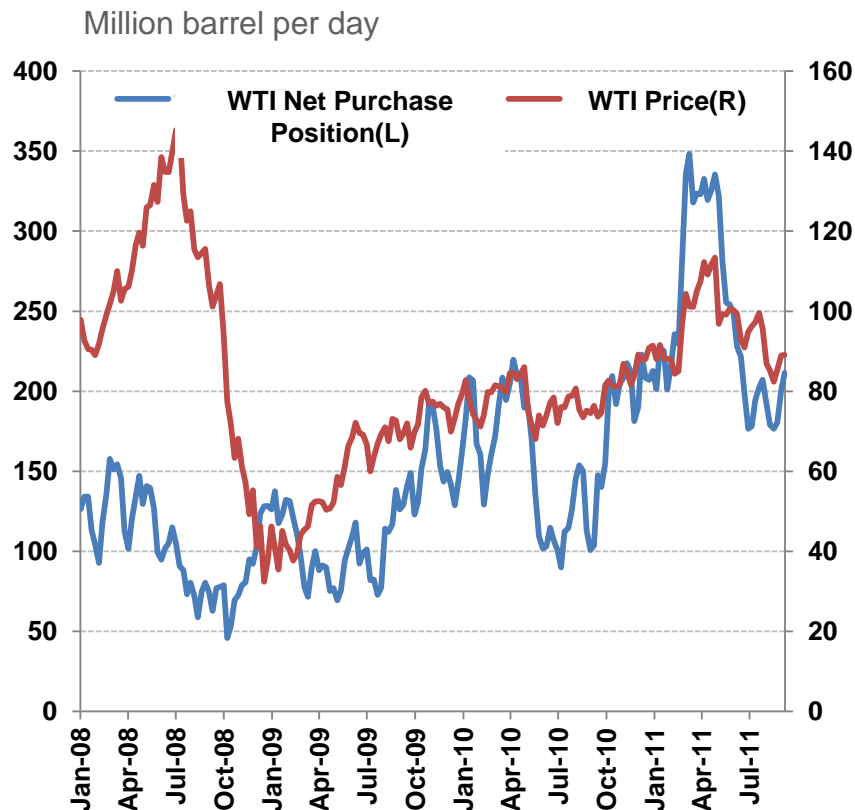
Trend of OPEC vs. Non-OPEC Supply for Oil



# Financial Factors

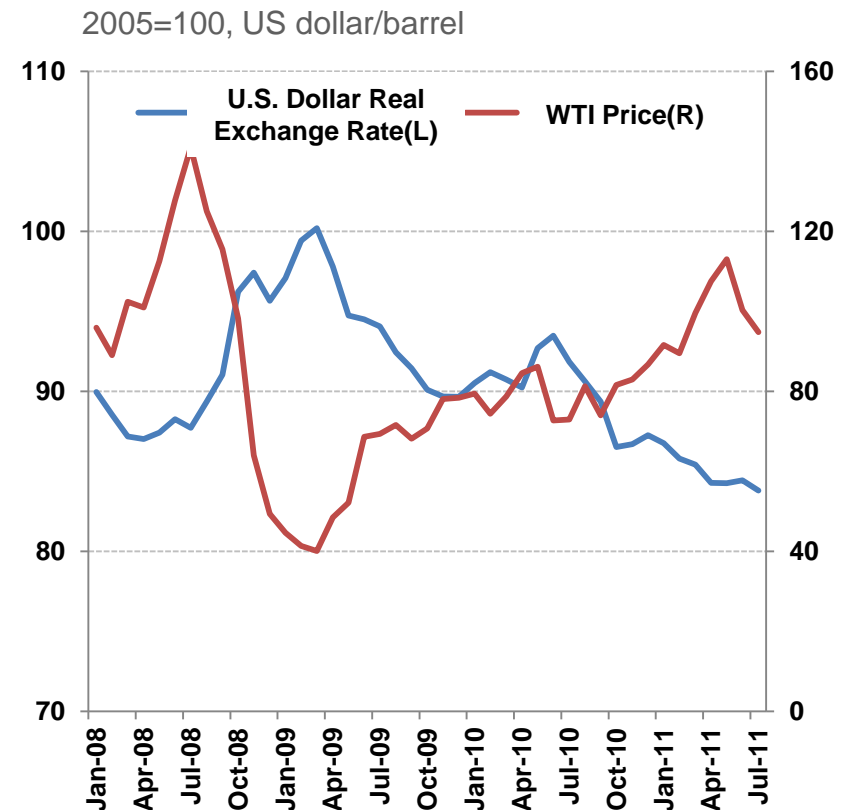
Since the oil prices plummeted, the exit of speculative money is quite noticeable, and the value of U.S. dollar coupled with oil prices have dropped sharply.

WTI Net Purchase Position Trend



Source: Bloomberg

Trend of U.S. Dollar Real Exchange Rate Changes

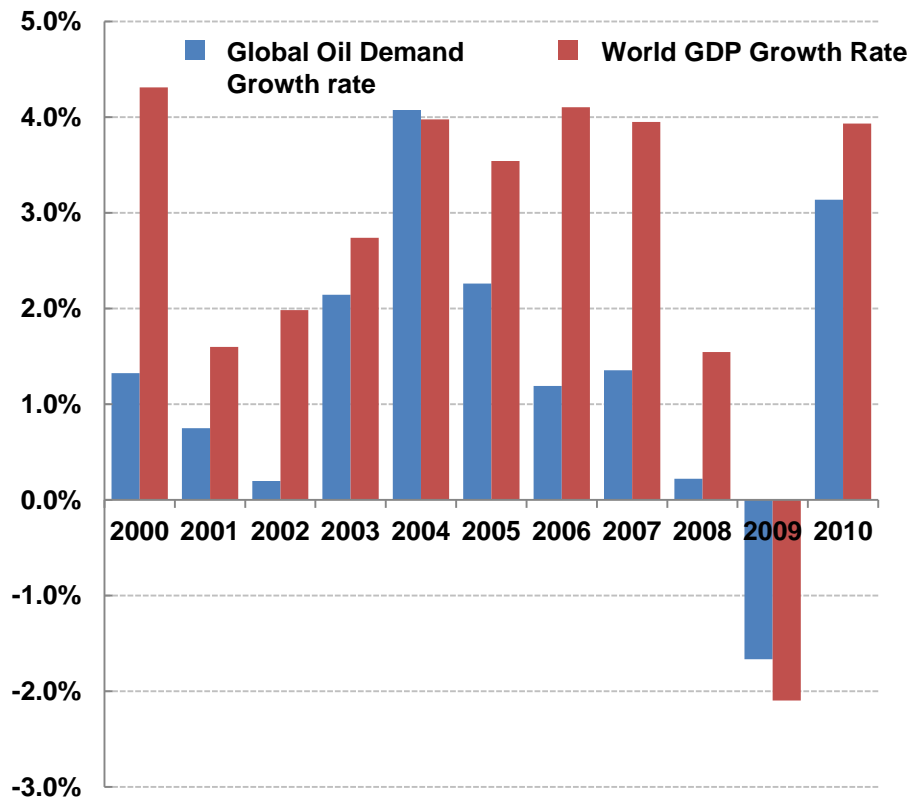


Source: BIS, Datastream

# Global Economy and Oil Market

If the growth of world economy is slowing down further, the increase in the global demand for oil is highly likely to be less than projected.

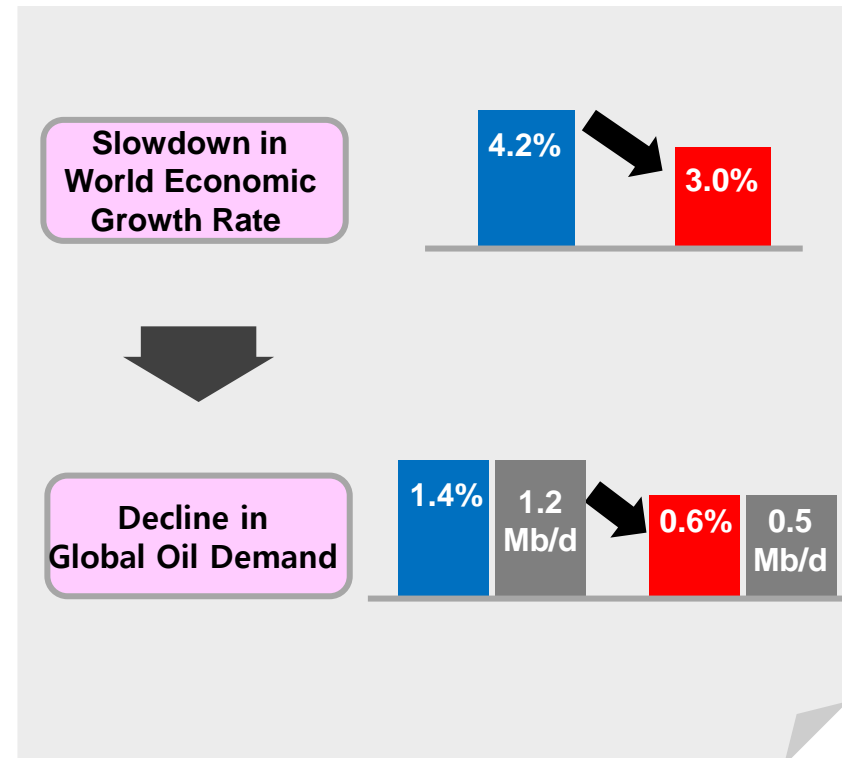
Global Oil Demand and GDP Growth Rate Trend



Source: Oil Market Intelligence, Datastream

Scenarios: Decline in Global Oil Demand

Year 2011

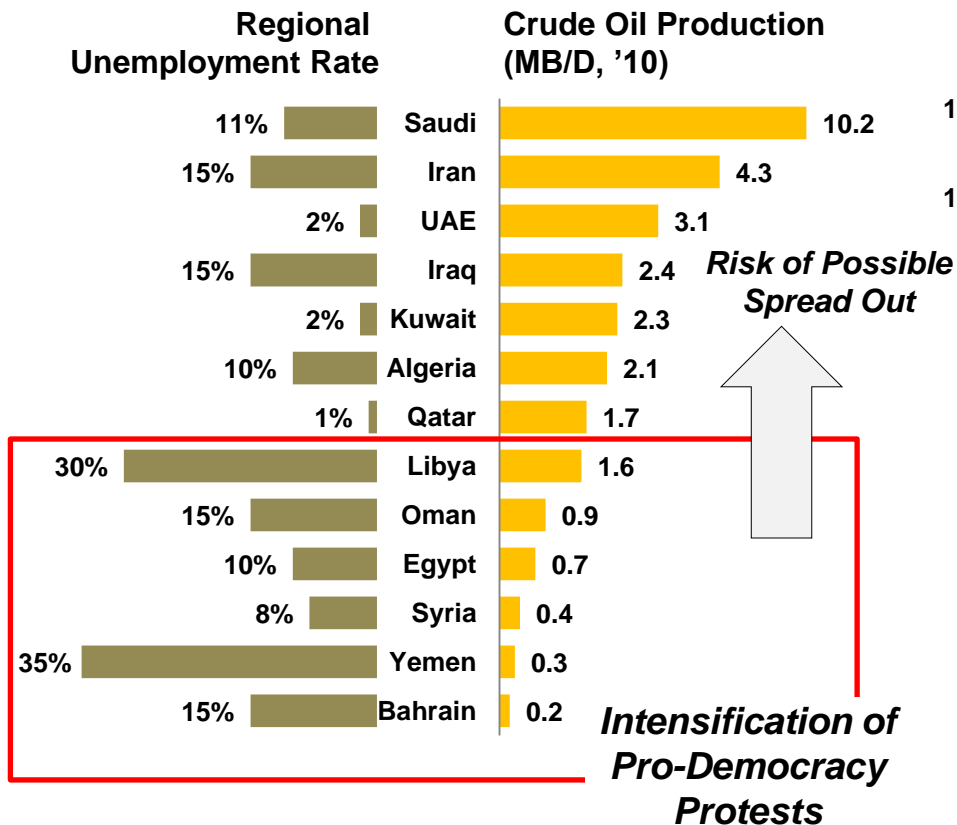


Source : SKRI, Citi group, IEA

# Geopolitical Instability in MENA

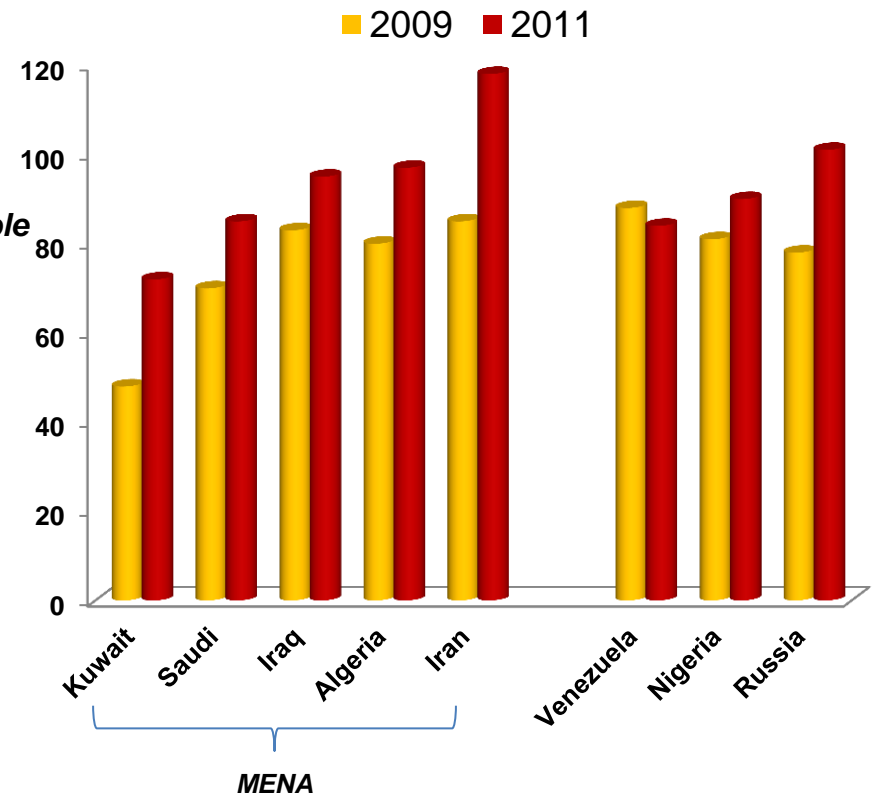
- The risk of volatile supply and the fluctuations in oil prices become more uncontrollable due to geopolitical instability in MENA.
- Too much generous government spending in MENA has driven up the OPEC target oil prices.

Crude Oil Production and Unemployment Rate



OPEC Target Oil Prices

US dollar/barrel



# Conflicts between Natural Resources Haves and Havenots

Concerns are raised against the intensification of the conflicts between natural resources haves and havenots as the developing countries are pouring their efforts into securing energy sources for the economic growth when the resource nationalism being reinforced.

*Rapid economic growth of the emerging markets is driving up the demand for energy sources*



*Resource nationalism is reinforced in Middle East, South America and Russia*

*Alternative energy sources to oil become more widely available and non-OPEC member countries increase their production of oil*

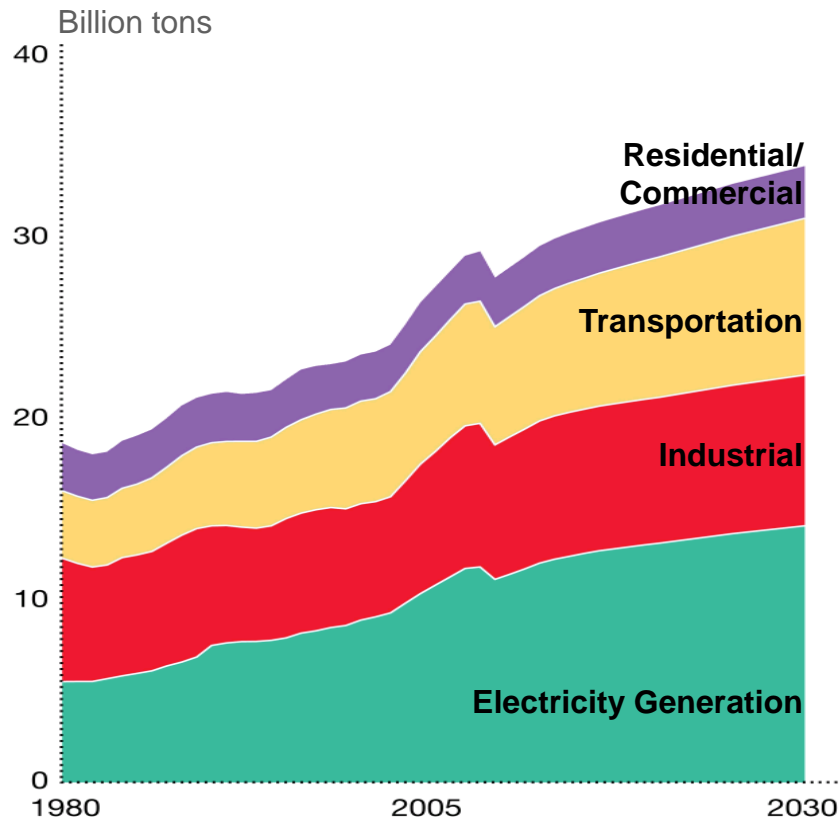
*Tangible assets are increasingly converted into financial assets as the uncertainty over the monetary policy increases*



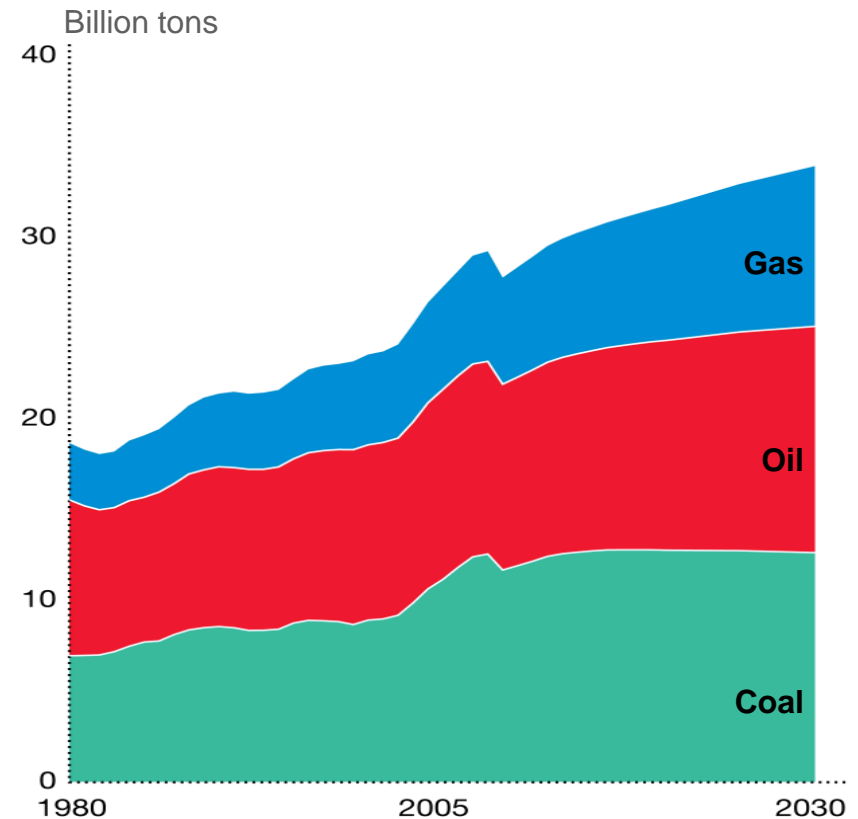
# Combating Climate Changes

- CO<sub>2</sub> emission in 2030 is estimated to increase by 25% compared to 2005.
- More than 40% of CO<sub>2</sub> emission is caused by the electricity generation which is heavily dependent upon coal.

CO<sub>2</sub> Emission by Sector



CO<sub>2</sub> Emission by Fuel

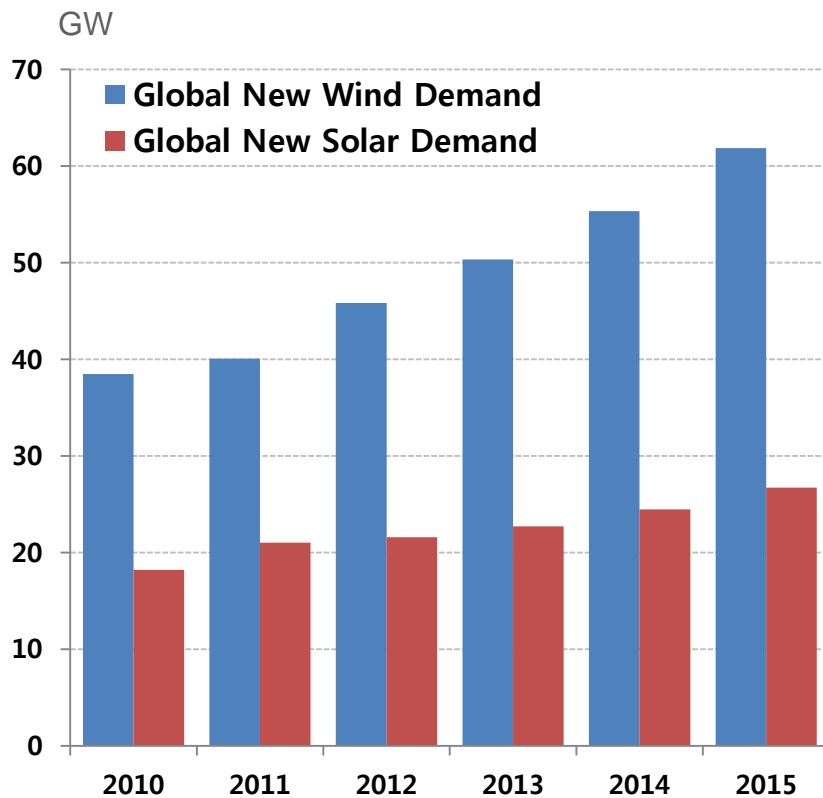


\* Energy-related CO<sub>2</sub> emissions only

# Growth of New Renewable Energy Sector

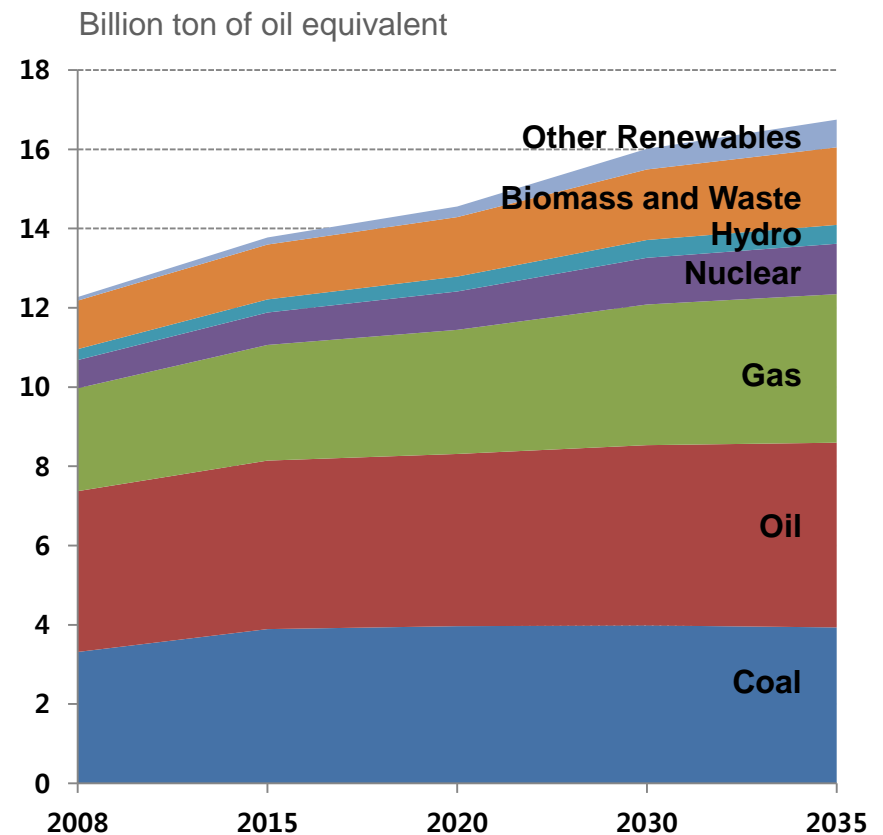
- The economic feasibility and the expansion of infrastructure is key to the growth in new renewable energy sector.
- Notwithstanding, the role of fossil fuels as the primary energy source remains little changed.

Global Demand for Wind Power and Solar Power



Source: Barclays Capital

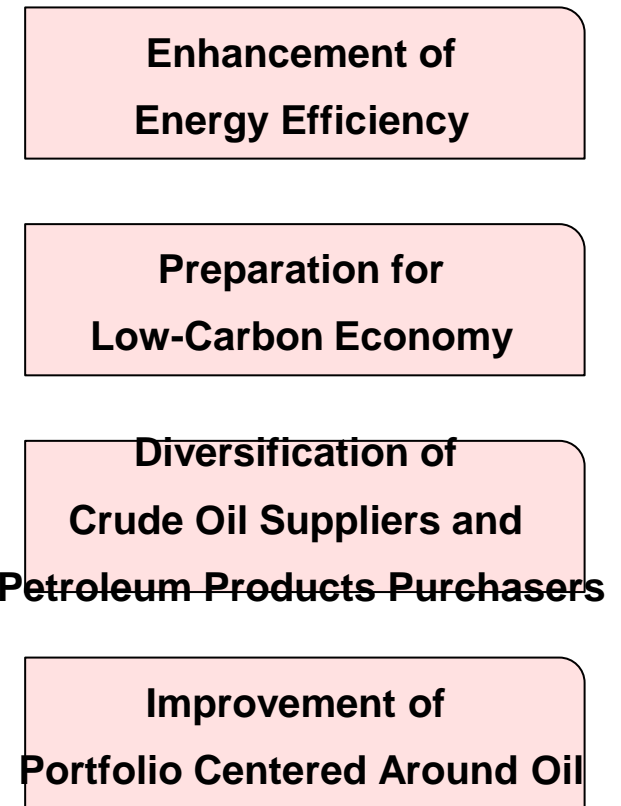
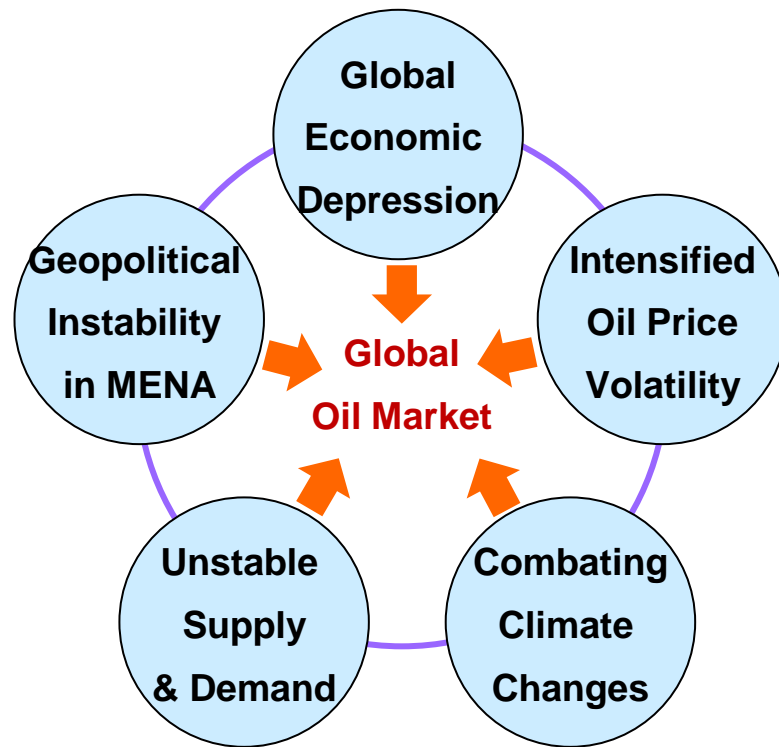
Outlook for Global Demand by Energy Sources



Source: IEA

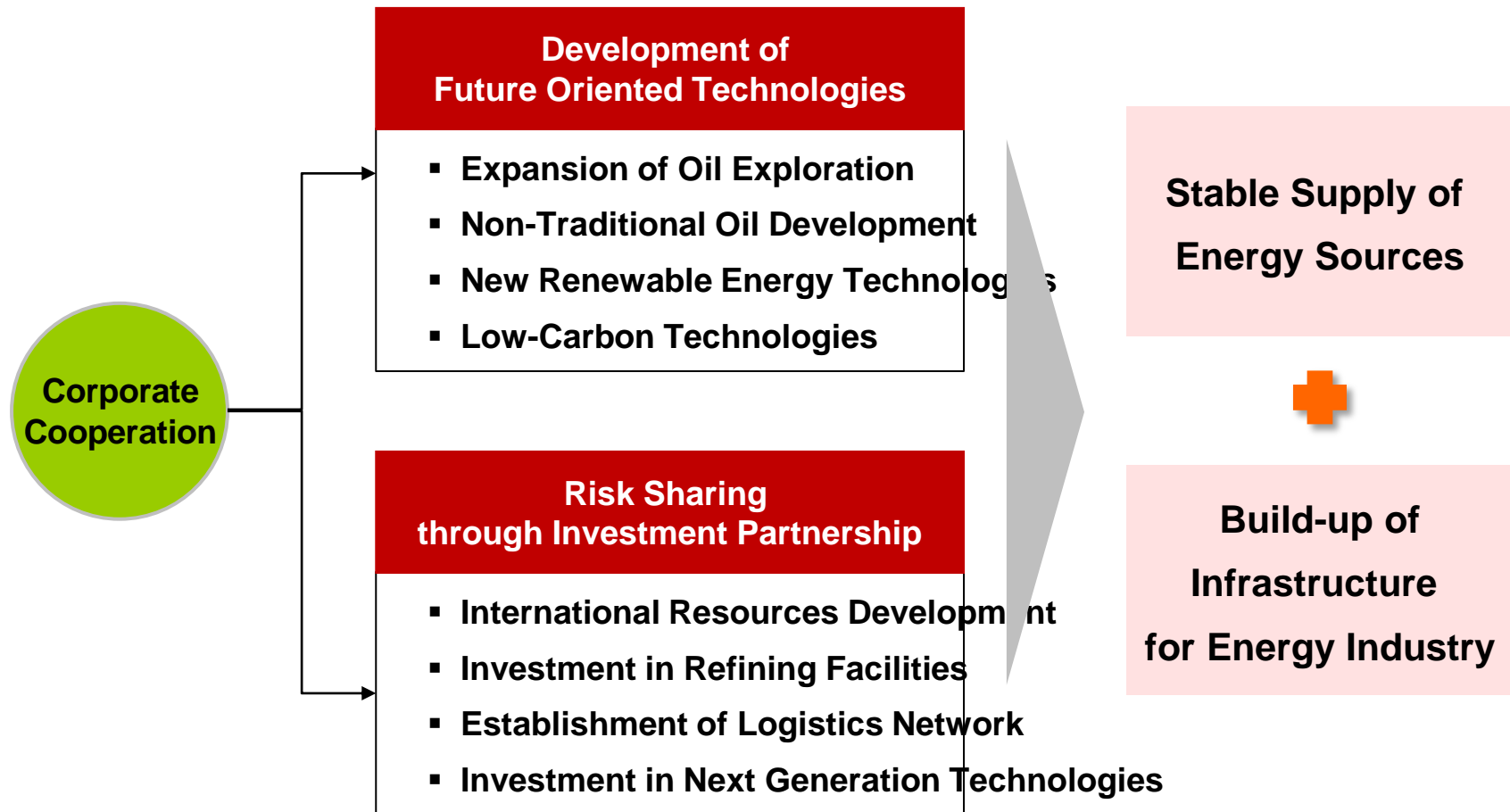
# Strategic Responses

With the changes in the environment of the global oil market, diverse strategies need to be explored in response.



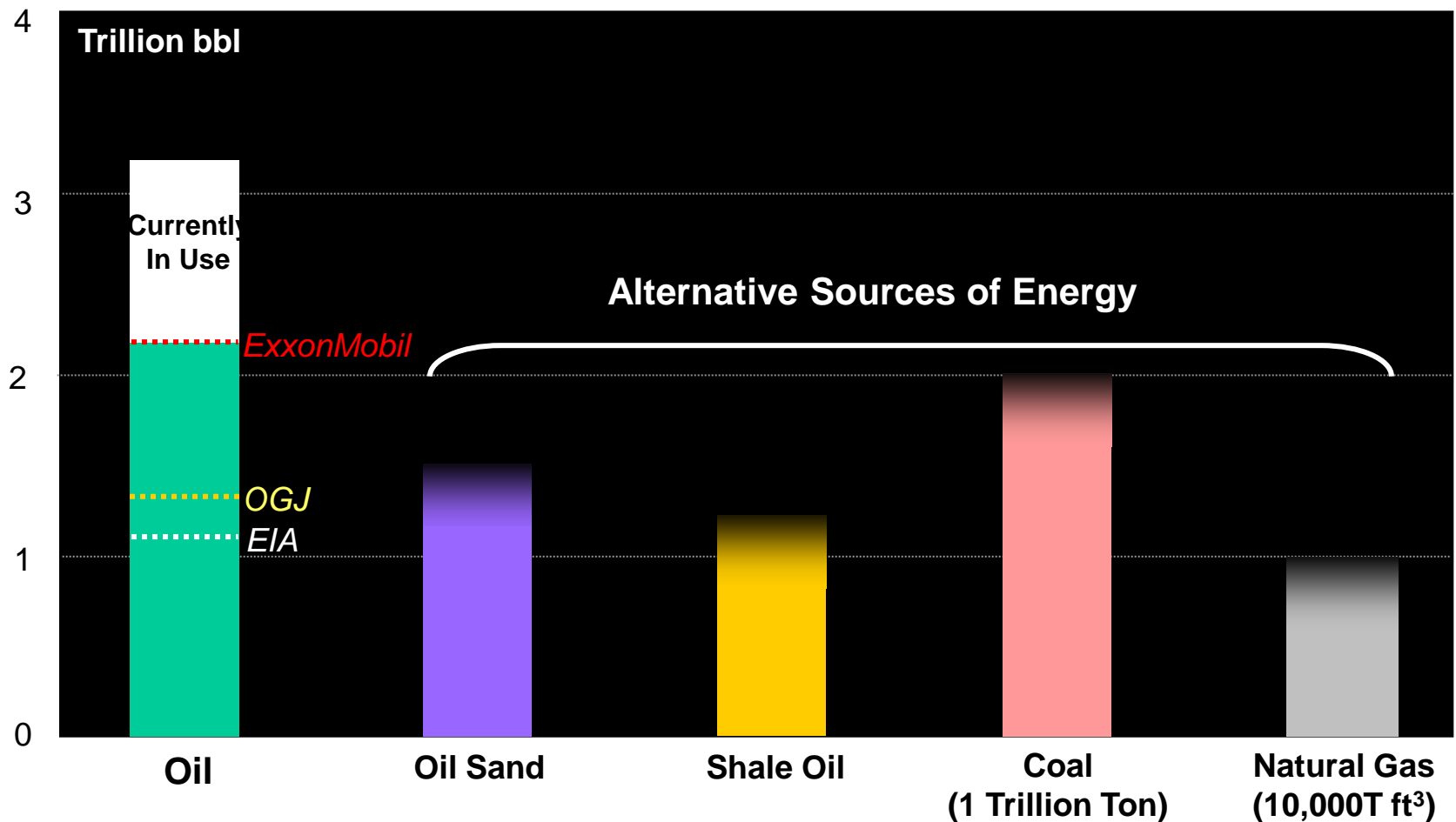
# Reinforcement of Cooperation

Close corporate cooperation in the fields of technology and investment will make it possible to secure stable supply of energy sources and build up infrastructure for energy industry.



# [CC] Alternative Sources of Energy

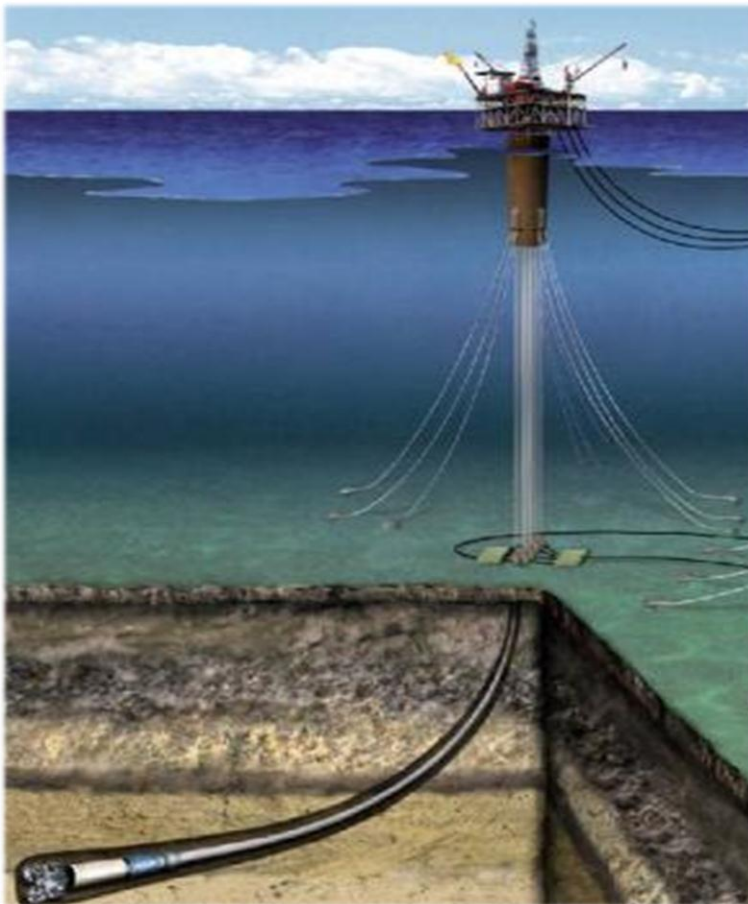
- Economic feasibility at the minimum can be achieved with oil price above \$60~80/bbl.
- Further improvement in the economics requires innovative technology development.



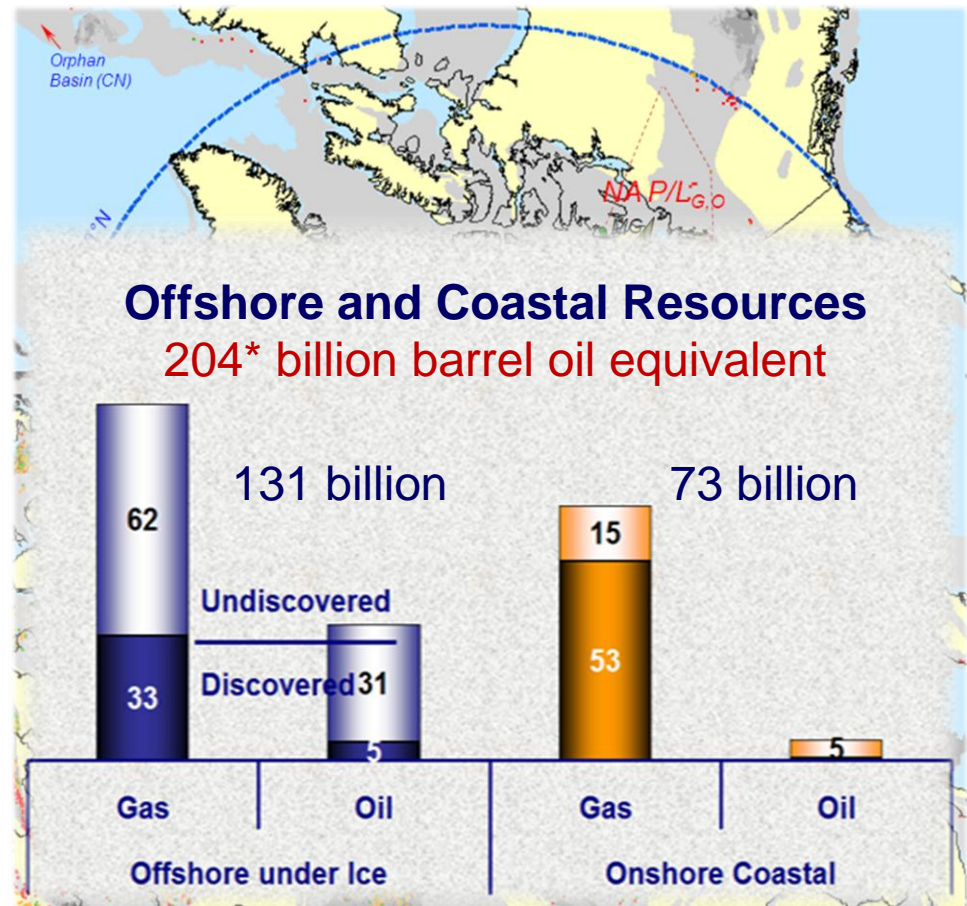
# [CC] Deep Water/ Arctic Oil Field “The End of Cheap Oil”

- As so called “Easy Oil” is drying up, exploration of deep water and/or arctic oil fields become more attractive.
- Deep water oil field costs over USD 100 million per borehole

Deep Water Oil Field



Arctic Oil Field



※ Oil deposits in Saudi Arabia: approximately 265 billion barrels

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