**BCSIES-GRCF ENERGY SECURITY CONFERENCE**

Potential for EU-GCC Cooperation

*SESSION III – Interplay of Energy Security and Price Volatility*

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# The Oil Price Dimension of Global Energy Security

## A Petroleum Net Exporting Countries' Perspective

A presentation by A saoui
Senior Consultant
Arab Petroleum Inve nts Corporation

# Preamble

- The GCC region holds 37% of the world's proven reserves of oil and 23% of those of natural gas
- A complex and unsettling geopolitical environment has made the region the centre of attention with regard to global energy security
- Understandably, the world needs to anticipate what forces may throw the region off track
- The region also needs to convince the world that low oil prices are a potential source of these forces

# Outline of presentation

- The dual oil price dimension of global energy security
- The overwhelming imperfections of oil markets
- Looking beyond the market
  - The technology dimension
  - The cost dimension
  - The fiscal dimension

# The dual oil price dimension of global energy security

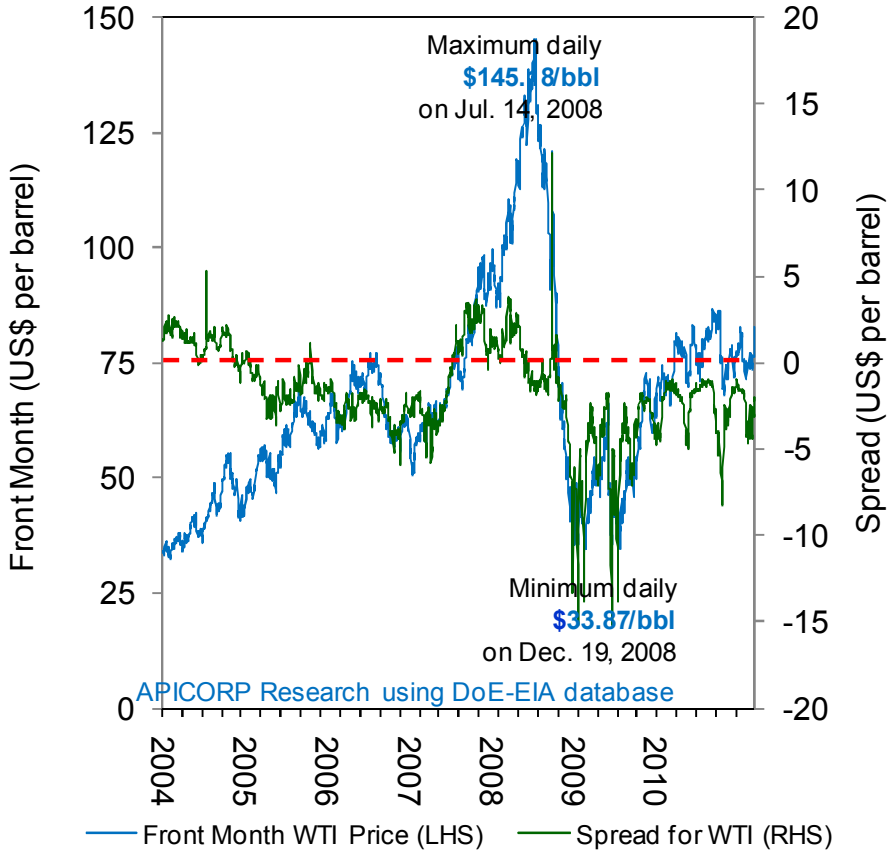
- Oil prices implicit in the discourse about energy security
  - Focus of net importing countries: reliable and affordable supply
  - Focus of net exporting countries: stable and remunerative markets
- Until recently, discussions on oil prices decried as interference with markets

# Oil markets overwhelming imperfect

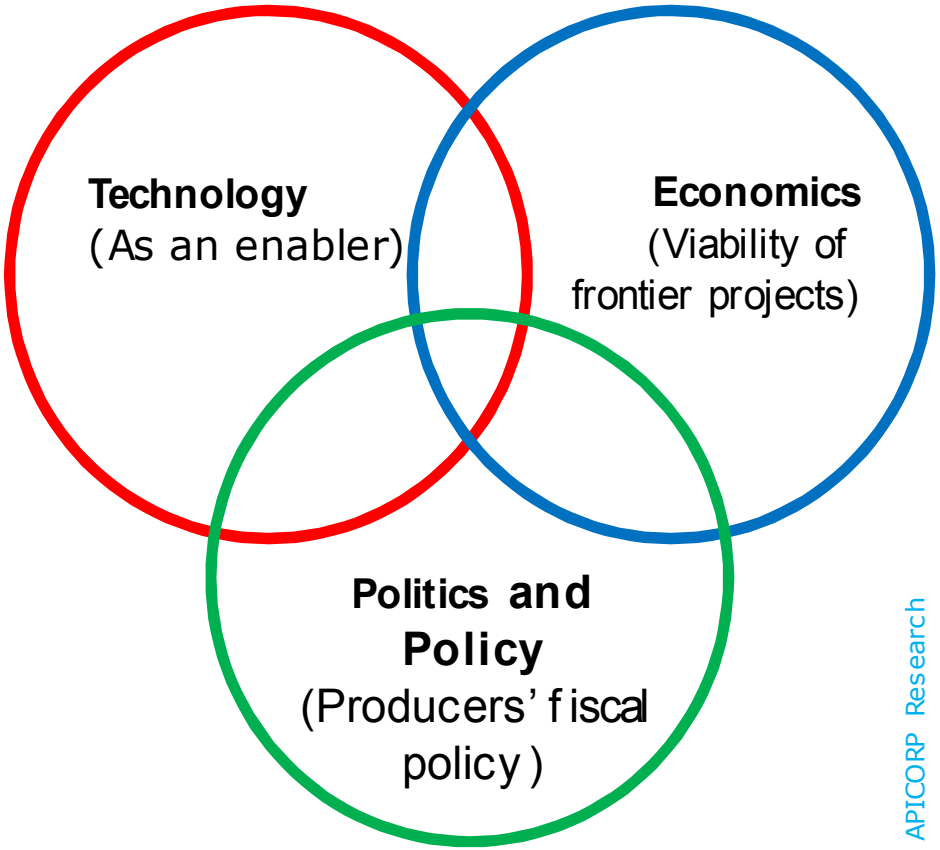
- Efforts to move away from the ideals of efficient market and rational expectations
- But can we come to grip with the imperfections of oil markets?
  - Strategic nature of the natural resource
  - Complex instruments for trading it as a commodity
  - Behaviors and motivations of main participants

# Oil markets can hardly provide reasonable investment and fiscal signals?

- Swings in prompt price : too sharp to be just the result of a shift in supply and demand
- Futures spreads: too wide to be just a reflection of a change in the economics of oil storage
- Fundamentals failed to anchor the market, which means markets are dysfunctional



# Looking beyond the market, at the confluence of technology, economics and politics/policies

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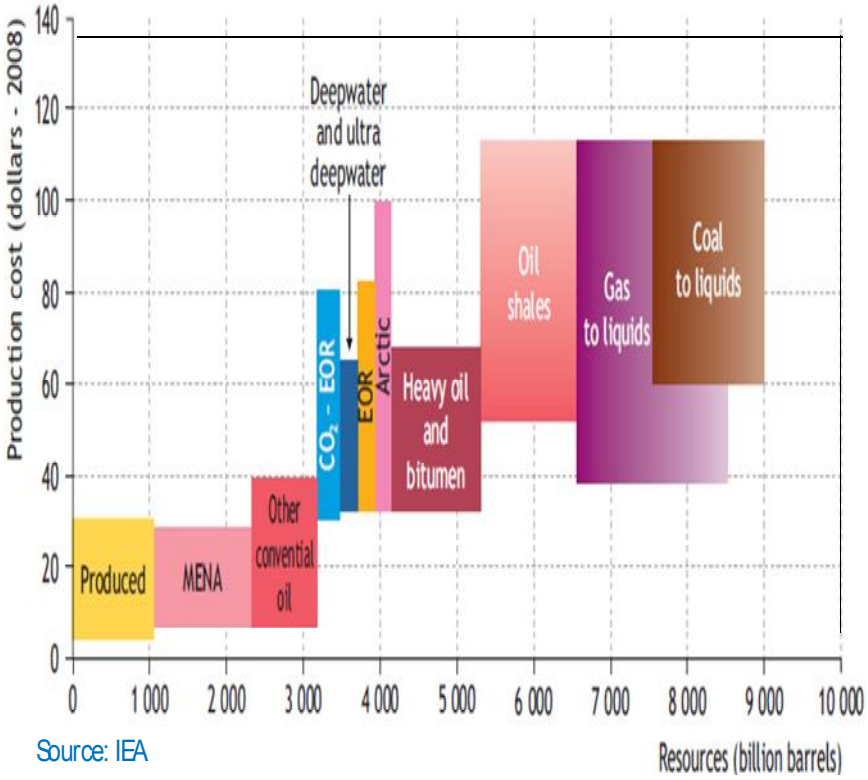
# Description of each of the three components and its outcome

- *Technology* enables oil to be produced cost-effectively. The outcome is industry experts' perspective on the impact of future technologies
- *Economics* emphases the viability of E&D projects. The outcome is the ex-ante economic cost of producing a marginal barrel of crude oil
- *Politics and policy* focus on net exporting countries' fiscal policies. The outcome is an oil price that ensures their long term fiscal sustainability

# Technology implicit in long term oil-supply curves providing a broad indication of economic costs

- A cumulative amount of some 1,100 billion barrels of oil has already been produced at a cost of less than $30/bbl (2009)
- The economic cost of exploiting remaining conventional oil is still below $30/bbl within MENA
- The resource-weighted cost for non-conventional oil lies in a range of **$45 to $95/bbl**



# More precise breakeven prices are derived by DB from (pre-Macondo) deep offshore projects

- Assuming an IRR of 15%
- Royalties/taxes reflecting current understanding of fiscal regimes
- A price of **$60 to $83/bbl** is required for investing in high-cost projects

| Growth regions | Number of projects | Breakeven prices | |
|---|---|---|---|
| | | Low-cost projects ($/bbl) | High-cost projects ($/bbl) |
| Brazil | 5 | 39 | 60 |
| US GoM | 7 | 46 | 70 |
| Angola | 8 | 54 | 83 |
| Nigeria | 5 | 58 | 83 |

(*) Deutsche Bank (DB), “The Cost of Producing Oil”, February 2009, p. 19-25.

# Politics/policy: A fiscal price derived from Milton Friedman's permanent income hypothesis (PIH)

- The economic literature on the use PIH is dominated by the IMF's empirical case studies
- PIH provides a simple framework for assessing long-term fiscal sustainability
- Sustainable government spending is determined by the annuity value of expected petroleum wealth

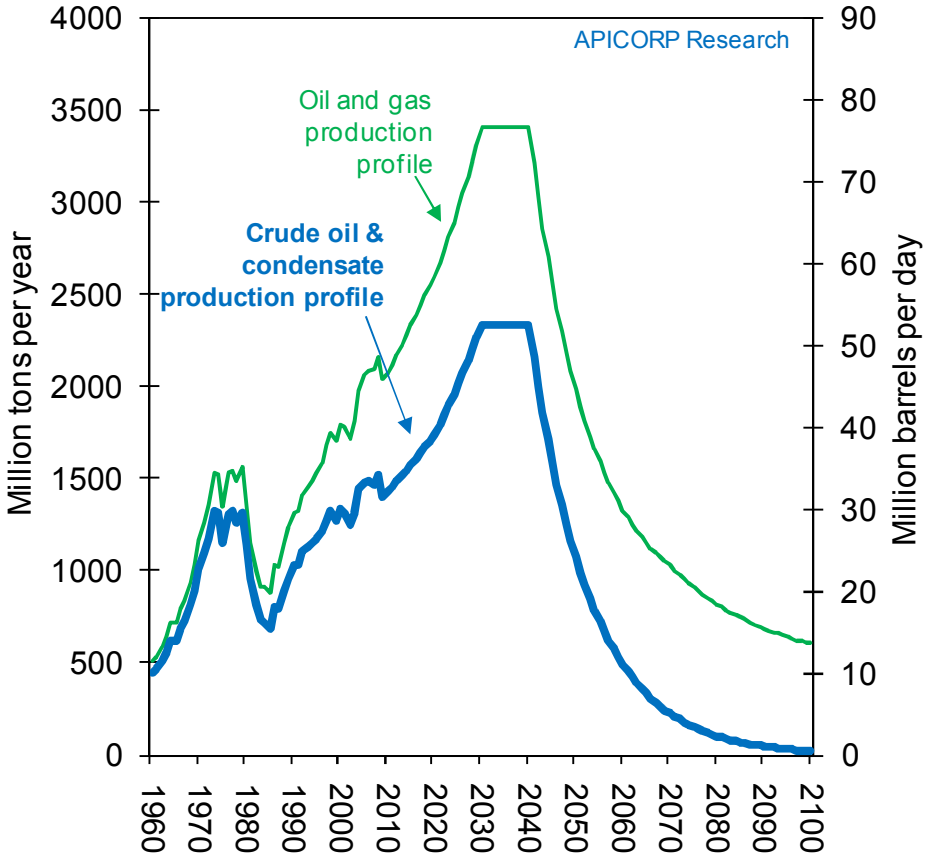
$$GC_{t+1} = GC = r \times [F_t + \sum T_{t+1+i} \times (1+r)^{-i}]$$

- GC Constant government spending
- F Value of the sovereign wealth fund
- T Taxes (royalties and petroleum-tax revenues)
- r Discount factor

# PIH model simulations – Key determinants and assumptions and resulting production profiles

## Key determinants and assumptions

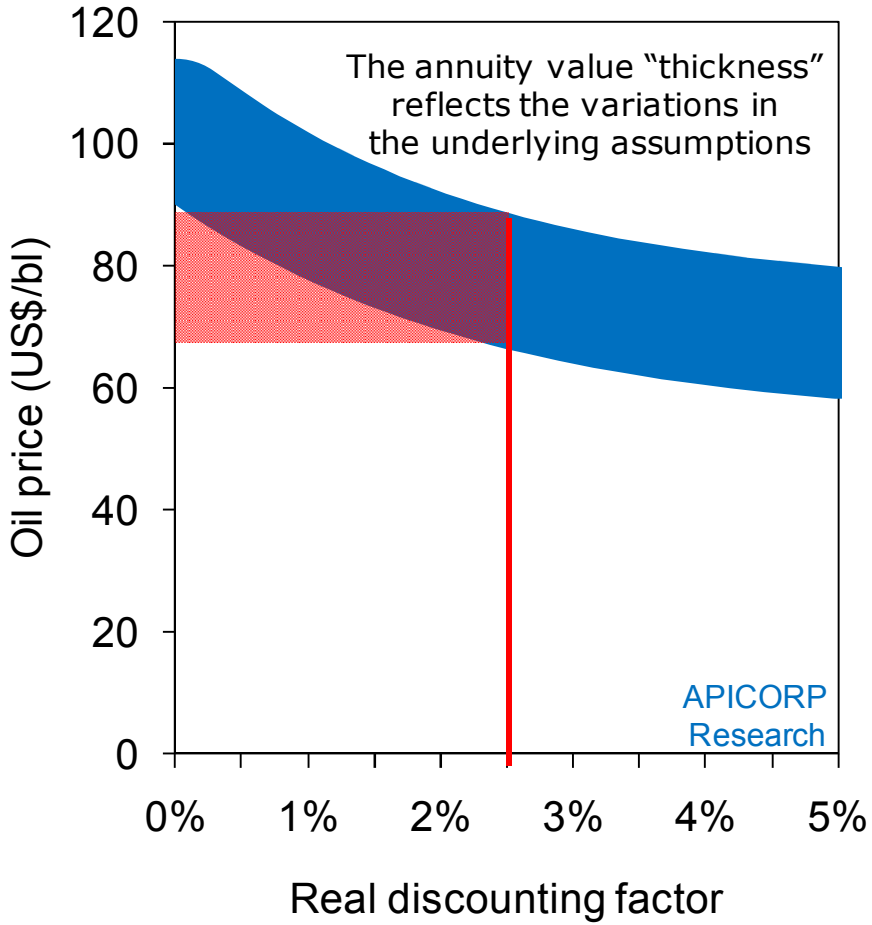
- Proven reserves and Yet-to-Find
- Call on OPEC oil and depletion policies
- Domestic energy demand
- Relative export oil and gas prices
- Fiscal regimes and governments' take
- Real discounting factor
- Population dynamics and growth



# PIH model simulations indicate an average fiscal price in a range of $70-90/bbl (*)

- For a given interest rate (discount factor), the higher the price of oil the higher is the annuity value
- The converse is less evident since it is far from intuitive that for a given annuity value, higher interest rates should imply lower oil prices (co-existence of cost of capital and return on investment),

(*) Similar simulations presented on the occasion of the 3rd OPEC Summit in Riyadh (Nov 2007) Indicated a fiscal price in the range of $60-80/bbl



# Summing up and conclusions

- Oil price: a critical dimension of global energy security
- Oil markets too dysfunctional to provide correct signals
- A non market perspective establishes $70-90/bbl as:
  - Supportive of frontier energy investments
  - accommodating  net exporting countries' "fiscal comfort"
- Such a band can serve as a reference in defining and setting boundaries of tolerable market behavior

# Further reading from the author

- “GCC Oil Price Preferences: At the Confluence of Global Energy Security and Local Fiscal Sustainability”, The Emirates Center for Strategic Studies and Research, October 2010
- “On Being Fair, Beautiful and Nearly Perfect : A Reflection on the Ethics, Economics and Politics of Oil Prices”, Op-Ed, MEES dated 12 April 2010