

LPS AGM – The Long View On Petroleum Economics

David Fishman, Fugro Robertson Ltd

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The Long View – backward and forward

- Reserves statements are always forward looking
 - This means the past is lost from view

- Reserves and production are presented separately for oil and gas
 - This means that total hydrocarbons are lost from view
 - Gas is rapidly approaching the versatility of oil in terms of having the extensive infrastructure to be substituted for oil in more uses
 - Gas reserves are understated
 - associated gas is not normally counted
 - Oil reserves are also understated
 - the condensate yield is not taken into account

- The above have contributed to the 'Peak Oil' views being given undue credence

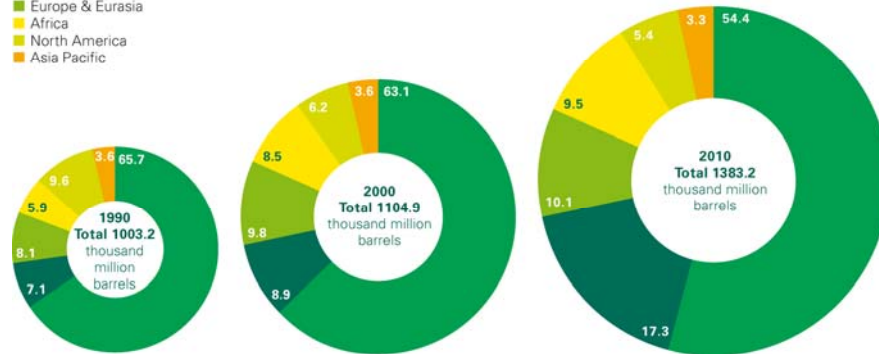
Proved Reserves: Worldwide Distribution



Distribution of proved reserves in 1990, 2000 and 2010

Percentage

- Middle East
- S. & Cent. America
- Europe & Eurasia
- Africa
- North America
- Asia Pacific



BP Statistical Review (2011)

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The Long View – backward and forward



- Taking reserves additions since 1990 and including production leads to a far higher figure, viz.
- Billions of barrels
 - Oil reserves 2010 1383
 - Oil reserves 1990 1003
 - Apparent reserves addition 380
 - Production 1990 – 2010 538
 - Actual reserves addition 918
 - Additional condensate/NGLs from gas circa 134 billion barrels (not counted in reserves)

Date

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The Long View – backward and forward

- Doing the same exercise for gas:
- TCF
 - Gas reserves 2010 6660
 - Gas reserves 1990 4486
 - Apparent reserves addition 2174

 - Production 1990 – 2010 1713

 - Actual reserves addition 3887

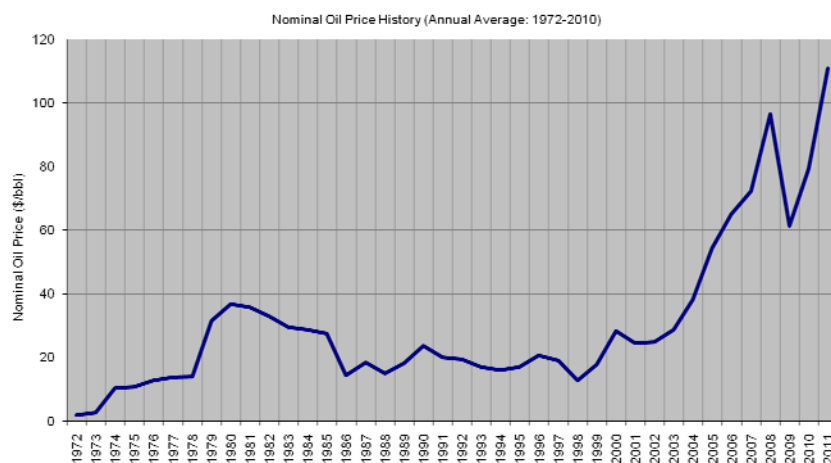
 - Additional associated gas circa 310 TCF (not counted in reserves)

Date

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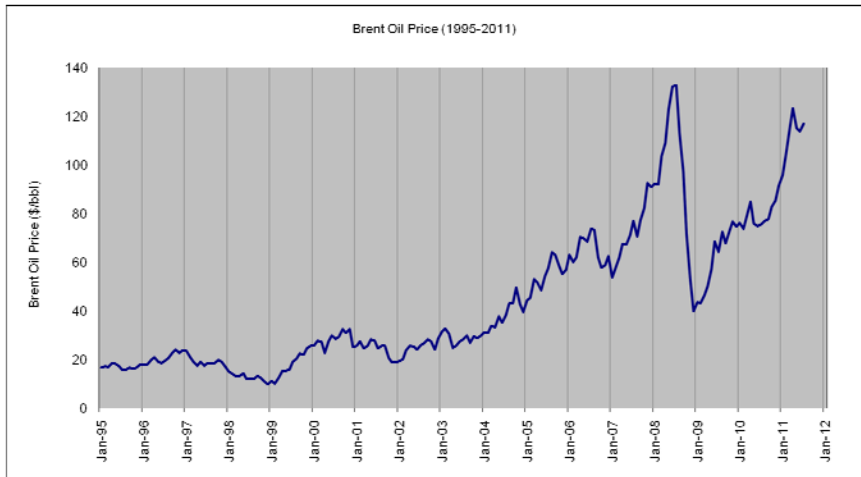


Nominal Oil Prices – 1972 to 2010 (Annual)



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Brent Nominal Oil Prices – 1995 to 2012 (Monthly)

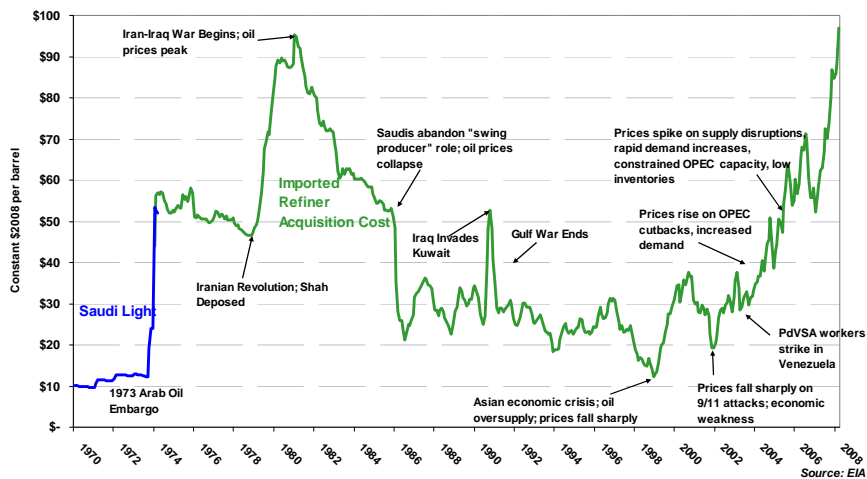


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Recent oil price movements (in 2008 real terms) (courtesy of EIA)



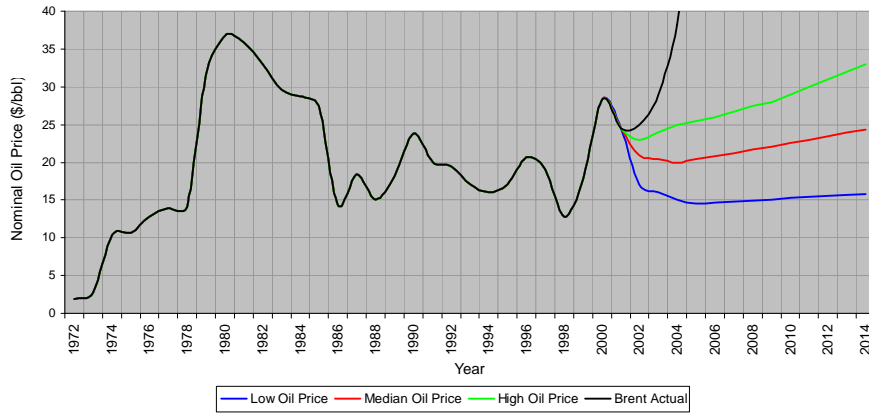
Major Events and Real World Oil Prices, 1970-2008Q1
(Prices adjusted by CPI for all Urban Consumers, 2008)



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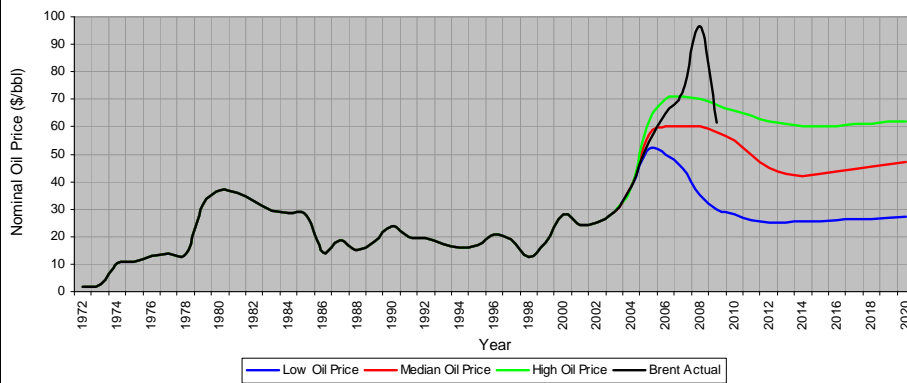
Nominal Oil Prices – Typical 'Forecast' in 2001



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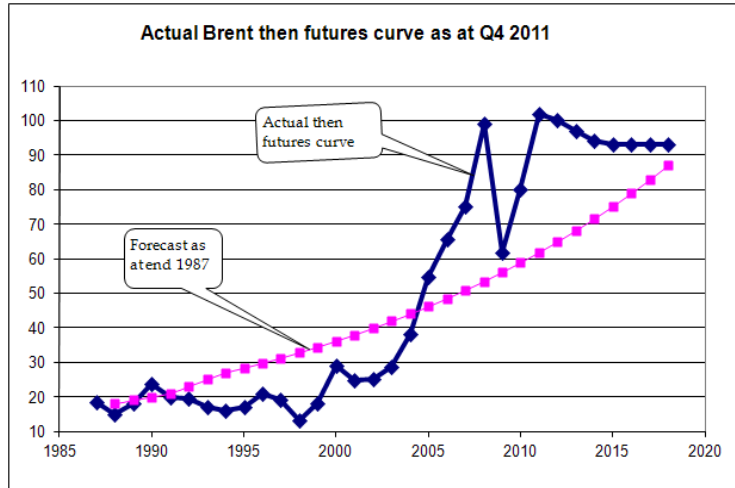


Nominal Oil Prices – Example 'Forecast' in Late 2005



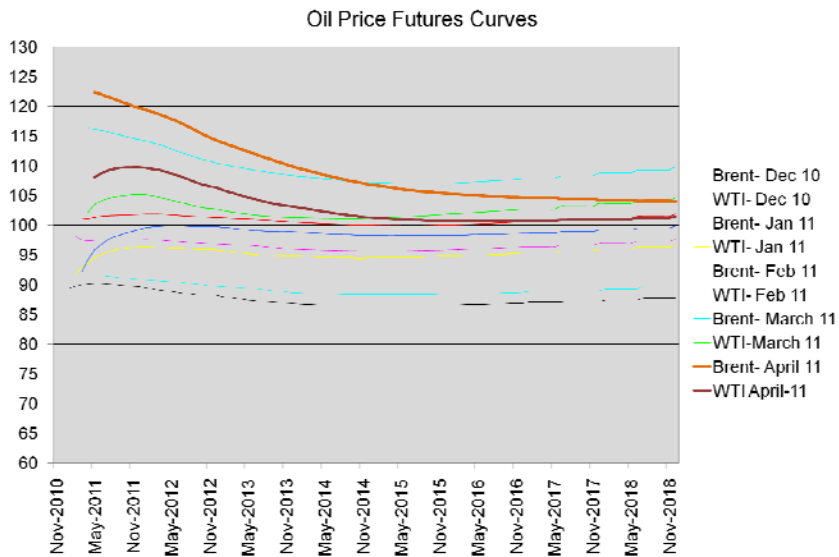
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Nominal Oil Prices – A different type of ‘Forecast’ in late 1987 – Britoil defence document



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Oil Price Futures December 2010 – April 2011

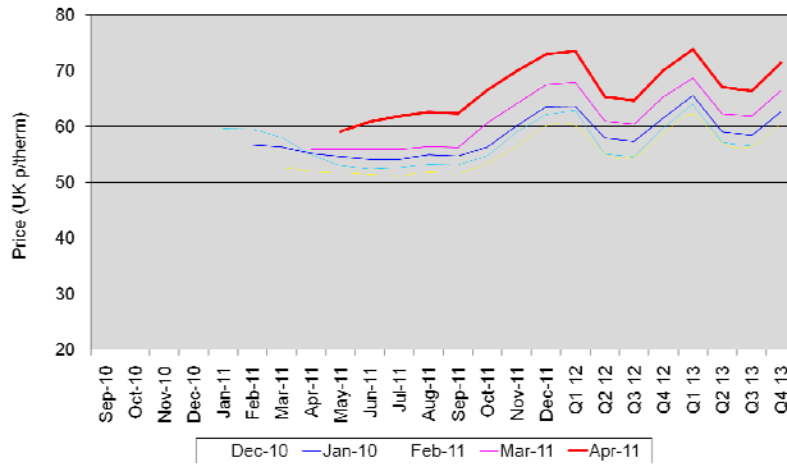


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Gas Price Futures



Gas Price Futures Curve



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Industry total revenue



- Taking total revenue from oil and gas sales from the Upstream:
- \$ billions (2011 real)
 - 1951 80
 - 1971 260
 - 1991 1040
 - 2011 3570

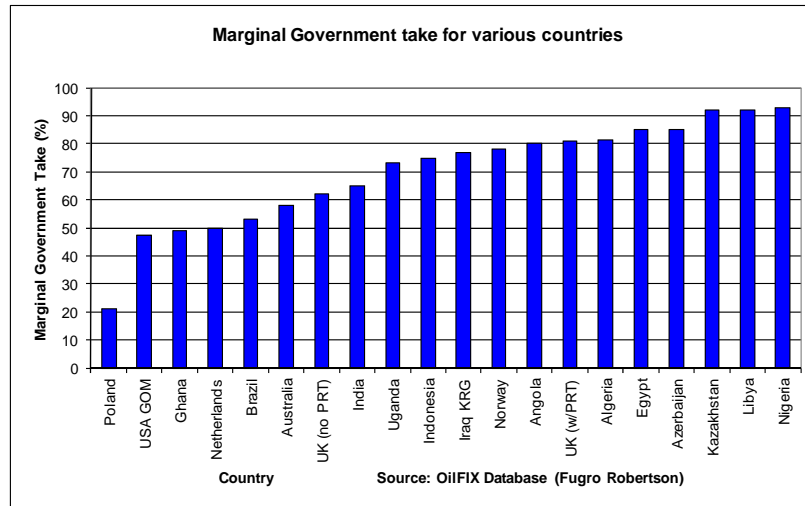
This is prodigious growth: the industry is in a golden age...for the moment

But there are two other elements to industry profitability which are vital:

- Taxes
- Costs

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How does government take compare?



Industry total revenue – technology and costs

- Considering technology and costs:

One final thought: does innovation flourish more when times are good...

Or when times are bad?

- The experience of the early 1980s was mixed – there was a lot of investment in the industry, but not necessarily in technological innovation; also there were the forays outside of the industry....
- The role of the service and contractor companies is now much more important and this heralds continuous improvement and innovation (irrespective of oil and gas prices?)

Thank You

