IATA ECONOMIC BRIEFING

SEPTEMBER 2008

OUTLOOK FOR OIL AND JET FUEL PRICES

Key points:

- The rise in oil prices has not been because of 'peak oil'. Known reserves would last a further 44 years at current rates of consumption with no further discoveries.
- Much of the rise and subsequent fall in oil prices during 2008 seems to have been driven by a futures market 'bubble' not any change in fundamentals, though the rise up to 2007 can be explained by real underlying changes.
- One key change has been a sharp rise in the cost of finding and extracting oil from new fields. The doubling of oil prices from 2003-2007 can be explained by increased production costs, which is now estimated at $80-90 a barrel.
- In addition supply-demand conditions have tightened over the same period producing a 'scarcity' premium on oil prices over and above the cost of production.
- OECD oil demand is now falling but this is more than offset by strong Chinese and other developing country demand. On the supply-side stable or falling non-OPEC oil production is increasing the market power of the OPEC cartel. Saudi Arabia needs $60 a barrel oil prices to cover its budget but would fear substantial demand destruction if prices persisted much above $100 a barrel in real terms.
- Economic weakness in 2009 is expected to weaken both oil market supply-demand conditions and further deflate the futures market 'bubble'. As a result we see spot oil prices at $110 a barrel next year and jet fuel at $136 a barrel. In the medium term we expect oil prices to remain above production costs at $100 a barrel in 2008$.

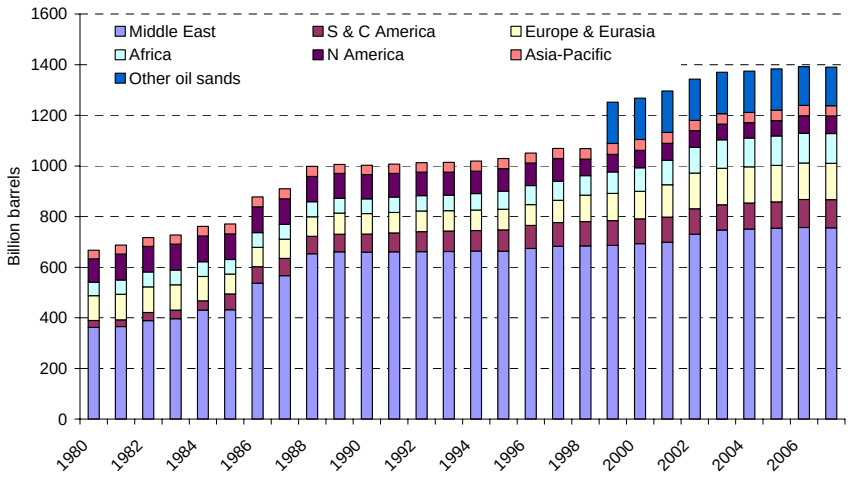
Table 1: IATA baseline forecast (high and low scenario in table 2)

	2007	2008	2009	2010	2015	2020	2025	2030
Jet fuel price, $/b	90	140	136	139	145	162	182	205
Oil price, $/b	73	113	110	112	117	131	147	165
Oil price, 2008$/b		113	108	108	100	100	100	100

The world is not running out of oil yet

The rise in oil prices has not been because of 'peak oil', the idea that we are fast running out of oil. Last year oil reserves stabilized as new discoveries matched consumption. If no more oil was discovered and we continued to consume at a rate of 85mb/d known oil reserves would still last over 40 years until 2052.

Chart 1: Known oil reserves

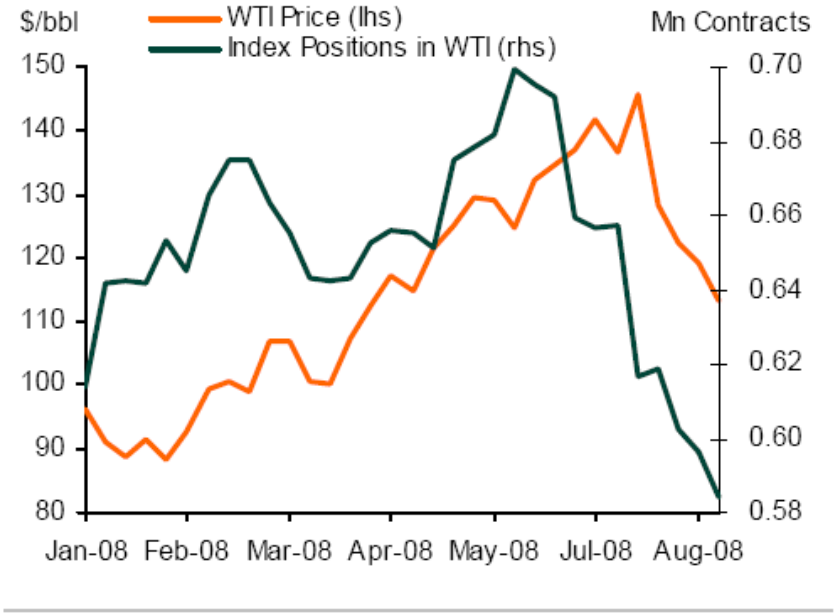


Source: BP statistical review 2008

Futures markets played a part in generating the May-July 'bubble'

The rise in oil prices from $110/b to $147/b over the May to July period this year does now seem to have been a 'bubble', following its rapid fall during August. Big moves in futures market positions have moved both futures and spot oil prices. The spot price for Brent crude oil is usually within 1% (representing storage and borrowing costs) of the front futures contract for delivery in 1 month. For example index funds in Chart 2 were buying WTI oil futures in May and then became heavy sellers in July. Oil price movements did not entirely coincide with these moves but the funds are likely to have contributed to the rise and fall of the 'bubble'.

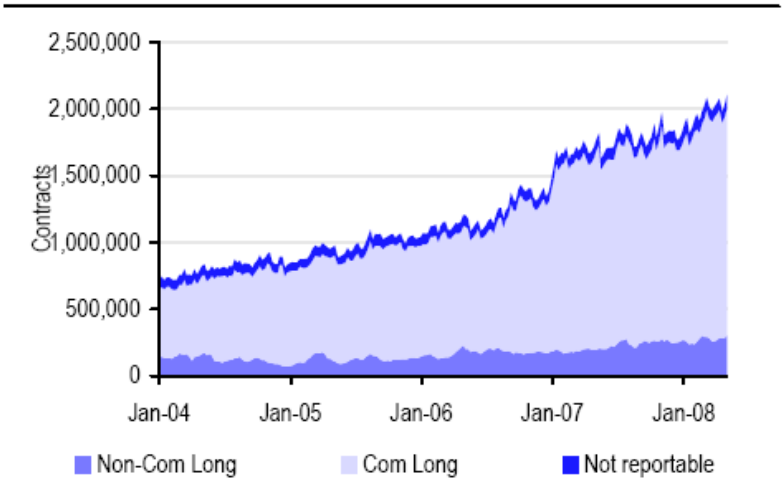
Chart 2: Index funds sold WTI positions…but before oil price fell



Source: Lehman Brothers, CFTC, Bloomberg.

Undoubtedly futures markets did play a role in spot price movements in recent months. What is not entirely clear is which players in the market dominated. Chart 2 shows the actions of a group of 'non-commerical' players, the index funds. But if the WTI futures market on the New York Mercantile Exchange is taken as an example, the majority of open interest in is taken by commercial players hedging their exposures, as chart 3 shows. Non-commercial make up around 5% of the market.

Chart 3: Commercial (hedgers) dominate WTI futures on NY exchange

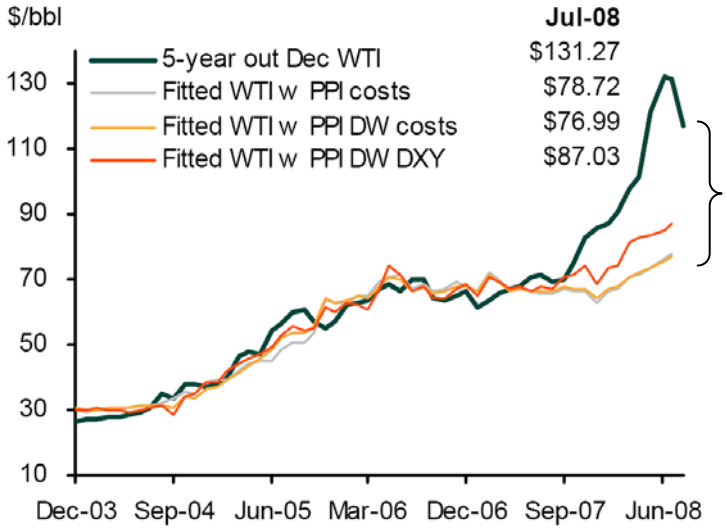


Source: Bloomberg, Nymex and CFTC

But the cost of finding and developing new oil reserves has risen a lot

The view that a significant part of the rise in oil prices this year has been a bubble is supported by data on the cost of production, as shown in chart 4. The cost of finding, developing and producing oil from new marginal fields has risen sharply, and on most estimates explains the rise in oil prices from 2003-mid 2007. Offshore rig rates rose 130% and steel prices 75% over this period. Further increases in costs during 2008 would suggest production costs now – unless they decline - put a floor under crude oil prices at $80-90 a barrel.

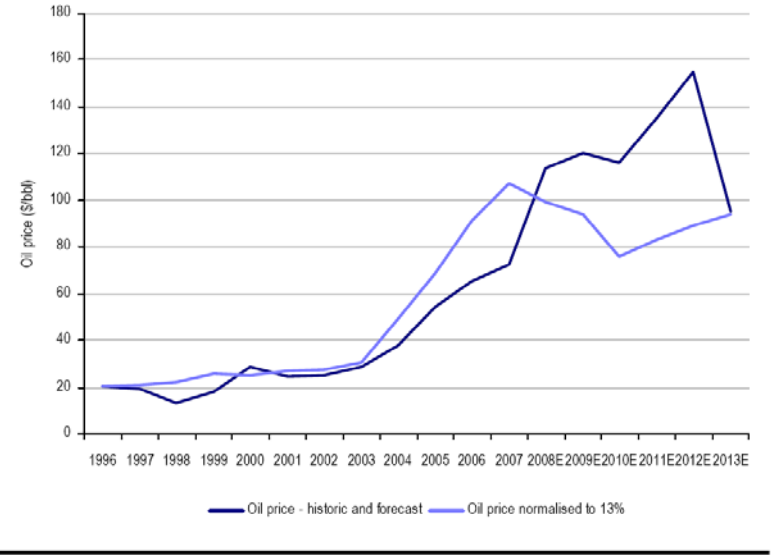
Chart 4: Oil prices and the costs of finding and development



Source: U.S. Bureau of Labor Statistics, Lehman Brothers estimates.

Another approach models the oil price necessary to deliver a 13% rate of return to the world's major oil fields. This also suggests a cost-based floor under crude oil prices of $80-90 a barrel (the light blue line in chart 3).

Chart 5: Oil prices necessary to produce a 'normal' return on oil fields



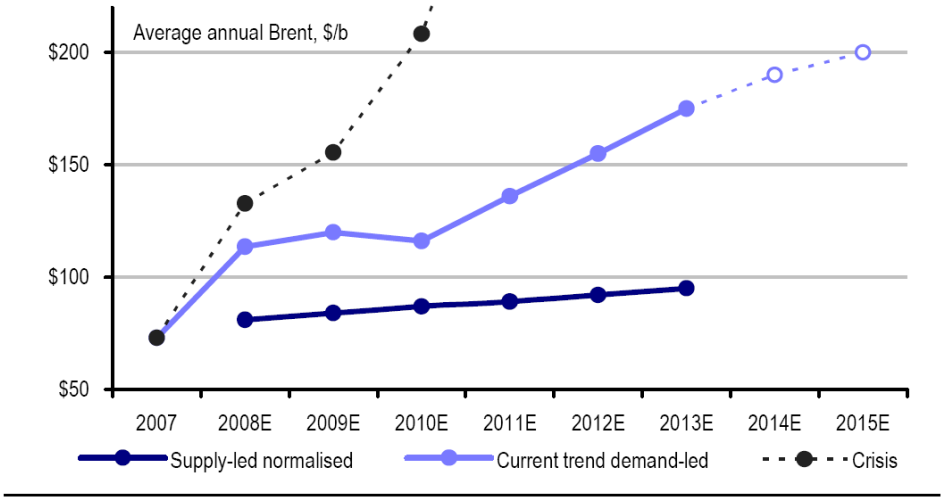
Source: UBS

An important point to note from charts 4 (from Lehman Brothers) and 5 (from UBS) is that they both agree on a cost floor for oil prices of $80-90 a barrel. However, Lehman Brothers believes this points to the recent oil prices rise being a bubble and expects oil prices to fall to $94 a barrel in 2009. Whereas UBS expects supply-demand pressures to produce oil prices of $120 a barrel in 2009.

Supply-demand conditions could keep oil prices higher than costs

The prices of most commodities return to the level of their costs in the medium-term, as it is difficult to gain market power in very homogenous commodities. However, some are suggesting oil prices could be persistently higher than costs because of a 'scarcity premium'. UBS in Chart 6 suggest that oil prices, having stabilized at $120 a barrel for the next 2 years as demand weakens and some new capacity comes on stream, will rise to new highs in the medium-term as demand grows further but supply does not.

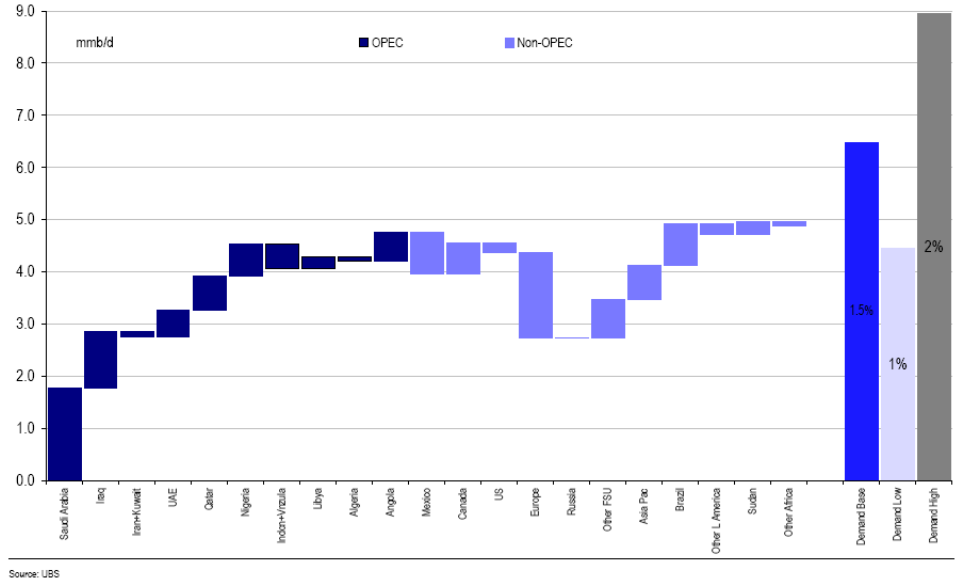
Chart 6: Some suggest supply-demand pressures will push prices higher



Source: UBS

During the first half of 2008 oil demand had slowed to grow by 1% (oil demand is being destroyed in OECD economies at a rate of -1.4% a year, but is more than offset by growth of 5-6% in China and India). High prices are certainly increasing energy efficiency and weakening economic growth. If oil demand growth remains at 1% a year Chart 7 suggests that growth in oil supply over the next 4-5 years will exceed demand. So supply-demand conditions may act to reduce oil prices. For this year and 2009 – because of weak economic growth - that may well be a good assumption. However, the margin is tight. It is more likely that demand grows 1.5% a year from 2010 in which case supply-demand conditions will keep oil prices above the cost of production at the marginal field, shown in charts 4 & 5.

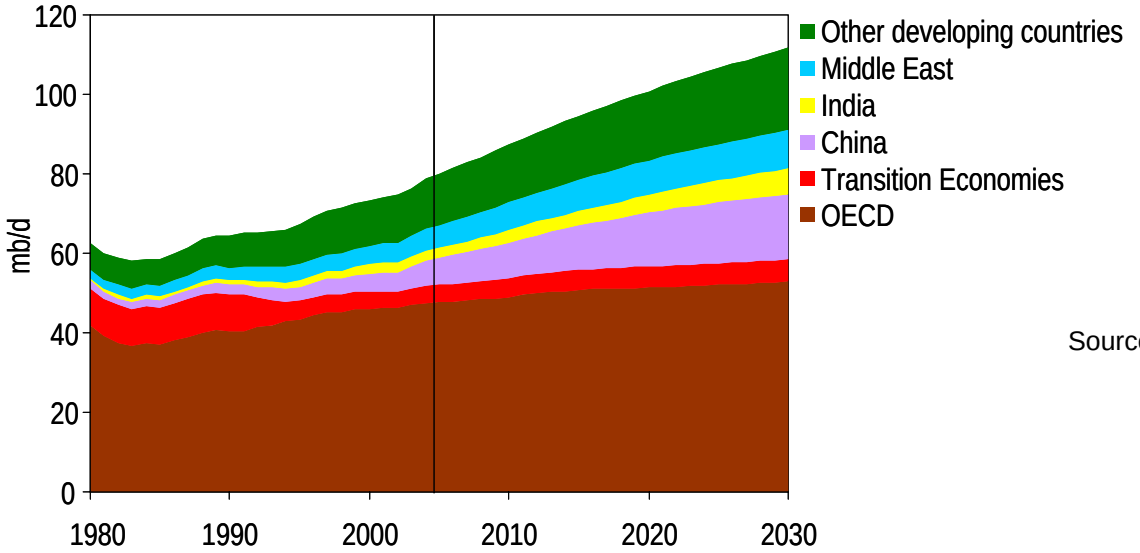
Chart 7: Cumulative growth in oil production 2007-2012 against demand



Source: UBS

The International Energy Agency's reference scenario for oil demand in Chart 8 shows that virtually all the growth in demand for oil will come from the developing countries. Even though near-recession and investment in alternatives and energy efficiency is reducing oil demand in the developed OECD economies, that is being more than offset by rapid growth in oil demand from elsewhere.

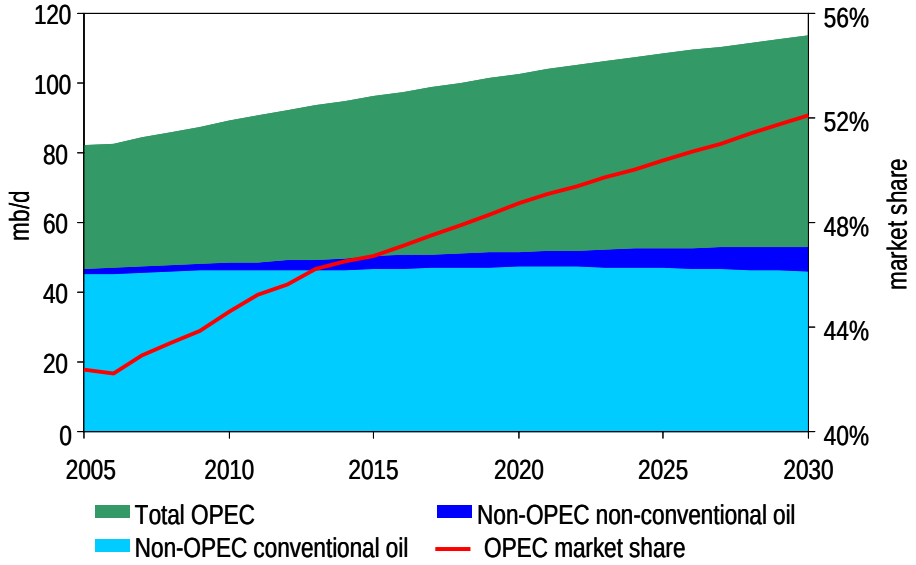
Chart 8: IEA reference scenario for oil demand



Source: IEA

Added to this robust oil demand outlook is a change in the oil supply situation. For most of the period to 2006 the supply of oil from outside the OPEC cartel was increasing rapid, reducing OPEC's share and its control of the market. Prices fell as low as $10 a barrel as a result. That situation went into reverse in 2006 and from now on non-OPEC oil production is at best expected to remain unchanged. Once more OPEC is the swing producer, with its share of the market projected to increase to over 50%. If the OPEC cartel can retain its discipline (which is has not always done in the past) then it will have much more ability to restrict supply and keep prices high.

Chart 9: IEA reference scenario for oil supply



Source: IEA

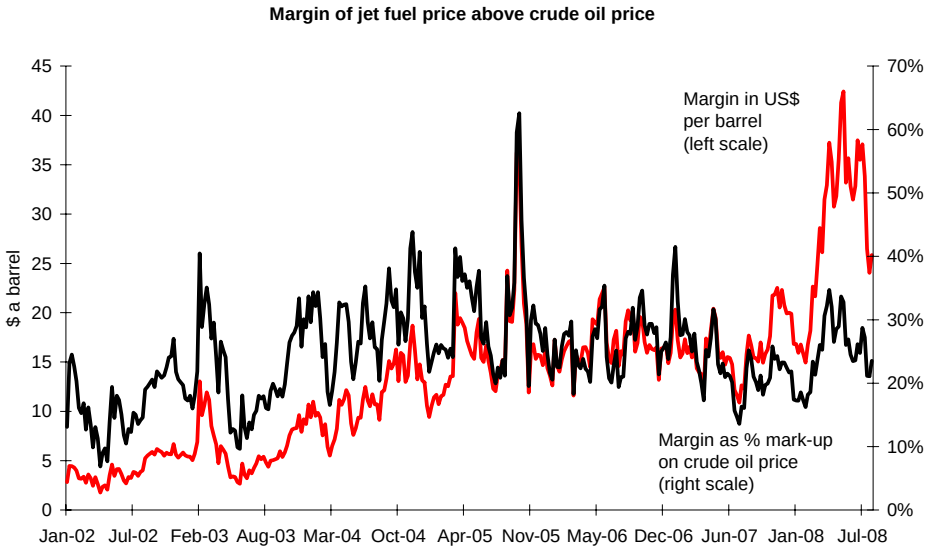
The problem for OPEC is that at oil prices much above $100 a barrel the development of alternative fuels to oil become very attractive, which could undermine long-term revenues for the oil producers. Estimates suggest that Saudi Arabia, at current US$ exchange rates, needs oil prices of around $60 a barrel to cover this year's

budget spending. So OPEC would certainly act to keep oil prices above $60 a barrel but they may not want to see oil prices persistently very much above $100 a barrel, for fear of the longer-term consequences.

Jet fuel mark-up over crude relatively stable in percentage terms

Jet fuel has seen its mark-up over crude oil prices rise from around $6 a barrel in 2002-03 to over $40 a barrel recently. However, in percentage terms the mark-up has fluctuated around a relatively stable level of 24%.

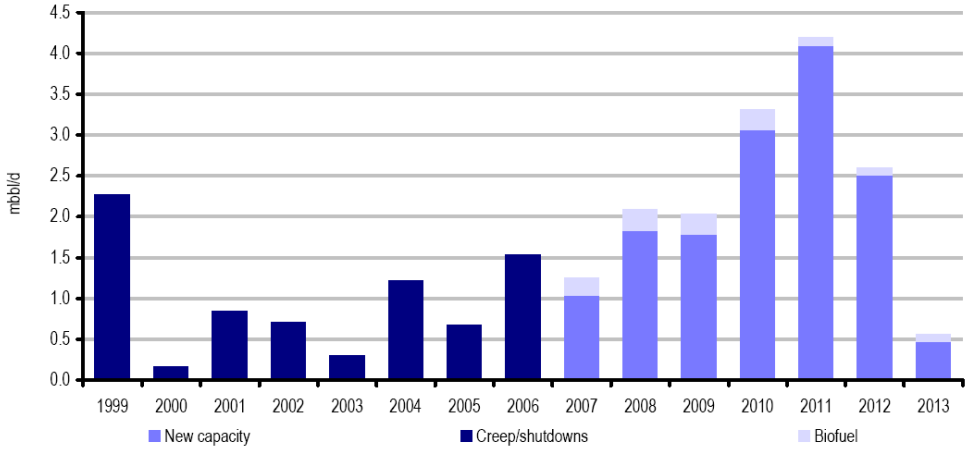
Chart 10: Jet fuel price mark-up over crude oil



Source:
RBS, Platts

One of the pressures keeping refinery margins relatively high in dollar terms in recent years has been under-investment resulting in a shortage of refinery capacity. High product prices and oil company profits in the past five years encouraged significant investment in new refinery capacity. Much of this is due to come on stream in the next three years. With economic weakness reducing product demand this should lead to some decline in refinery margins in absolute dollar terms.

Chart 11: Planning additions to refinery capacity



Source:
UBS

Outlook for oil and jet fuel prices

The analysis above suggests production costs at new fields supplying the incremental barrels of oil have risen to $80-90 a barrel, whereas most long-term oil price forecasts made earlier this year were based on costs in the range of $60-70 a barrel. Supply-demand conditions also look tight in the medium to long-term with strong developing country oil demand and increasing control of supplies by OPEC. However, OPEC is unlikely to want to see oil price persistently above $100 a barrel for fear of significant demand destruction.

Based on this our baseline or central case long-term forecast assumes a modest decline in oil prices from current levels in 2008US$ before stabilizing at $100 a barrel from 2015, remaining above production costs. This is significantly higher than the $46-80 a barrel range of long-term forecasts presented in the US EIA's August 2008 World Energy Outlook. However, the latter forecasts do not seem to have taken into account recent evidence on higher production costs, which should provide a floor for crude oil prices.

Jet fuel prices are assumed to remain 24% higher than crude oil prices, or $124 a barrel in 2008US$ from 2015, as significant additions to refinery capacity comes on strem in the next few years.

Table 1: Oil and jet fuel price forecasts

$/b	2007	2008	2009	2010	2011	2012	2015	2020	2025	2030
Forecasts developed in August 2008										
EIU	73	111	91	110	112	115				
Lehman	73	115	93							
UBS	73	116	120	116	136	155				
Long-term forecasts developed in 2007 and early 2008 (2006 US$)										
EIA	73			74			60	60	60	62
IEA	73			63			60	62	64	66
Global Ins.	73			68			61	55	48	46
DB	73			57			60	66	72	80
IATA oil price assumption based on market forecasts										
IATA base	73	113	110	112	114	116	117	131	147	165
2008US$		113	108	108	107	106	100	100	100	100
low		113	94	96	95	95	90	85	80	80
high		122	135	135	135	135	135	135	135	135
IATA jet fuel price assumption										
Margin, %	25	24	24	24	24	24	24	24	24	24
IATA base	90	140	136	139	141	144	145	162	182	205
2008US$		140	134	134	133	131	124	124	124	124

The outlook for the next 18 months remains uncertain but almost all forecasts suggest the $147 a barrel reached in July was the peak of the bubble. A number of forecasts are now projecting sub-$100 oil prices for 2009. Some project $120 a barrel or more but most of these forecasts were developed in July.

Based on this we have assumed oil prices at $110 a barrel in 2009 for our baseline forecast. Our high oil price scenario uses $135 a barrel as in our previous analysis. With tight supply-demand conditions any significant supply disruption arising from the geopolitical risks facing many of the oil producing countries in the Middle East and Russia could force prices back up to this high case. Our low case uses $94 a barrel in 2009, falling in 2008$ terms to $80 a barrel by 2025, on the basis that production costs could fall back to the top end of the previous long-term oil price forecast range. We believe this range captures the uncertainty over oil prices.

IATA Economics
29th August 2008.