

# EXECUTIVE SUMMARY

## Overview

Despite a considerable downward revision to our global oil demand forecast due to weaker economic growth projections and a doubling of oil prices over the past year, structural demand growth in developing countries and ongoing supply constraints continue to paint a tight market picture over the medium term. Oil demand remains concentrated in developing economies, with 90% of the growth spread between Asia, South America and the Middle East, reflecting the improving wealth and accelerating energy use in several high-population countries. In spite of a considerable increase in investment, non-OPEC crude supply will remain at or below 39 mb/d over the next five years, with the majority of the 1.2 mb/d of non-OPEC liquids growth coming from NGLs, condensates and biofuels. Refining investments continue apace, but with costs doubling over the past five years, planned expansions are put under regular financial scrutiny and projects are subject to ongoing slippage and are vulnerable to changes in refining margins. As such, with 48% of global product demand growth over the next five years concentrated in middle distillate fuels, generating sufficient product to meet demand will continue to be a challenge. Further, investment in upgrading capacity will lead to tighter fuel oil markets and will expose the heavy end of the barrel to strong additional pressures from tight LNG and coal markets.

Poor supply-side performance since 2004, in the face of strong demand pressures from developing countries, has forced oil prices up sharply to curb demand. These pressures have been exacerbated by refinery tightness, which limits the flexibility of the industry to meet the structurally strong demand growth for middle distillate fuel. While recognising that speculation can have a day-to-day impact on price moves, the fact that all producers are working virtually flat out and that there is no sign of any abnormal stockbuild gives a strong indication that current oil prices are justified by fundamentals. Similarly, while high forward prices may reflect concerns about peak oil or sustained demand growth, they too could only impact spot prices if they started to create a forward price premium sufficient to encourage stockbuilding.

### Global Balance Summary

(million barrels per day)

	2008	2009	2010	2011	2012	2013
<b>Global Demand</b>	<b>86.87</b>	<b>87.74</b>	<b>89.20</b>	<b>90.74</b>	<b>92.39</b>	<b>94.14</b>
Non-OPEC Supply	49.92	50.54	50.60	50.68	50.68	51.08
OPEC NGLs, etc.	5.13	5.94	6.52	6.82	7.07	7.21
<b>Global Supply excluding OPEC Crude</b>	<b>55.05</b>	<b>56.48</b>	<b>57.12</b>	<b>57.50</b>	<b>57.75</b>	<b>58.29</b>
<b>OPEC Crude Capacity</b>	<b>35.34</b>	<b>36.44</b>	<b>37.35</b>	<b>37.25</b>	<b>37.58</b>	<b>37.87</b>
<b>Call on OPEC Crude + Stock Ch.</b>	<b>31.82</b>	<b>31.25</b>	<b>32.08</b>	<b>33.25</b>	<b>34.64</b>	<b>35.84</b>
Implied OPEC Spare Capacity <sup>1</sup>	3.52	5.19	5.27	4.00	2.93	2.03
Effective OPEC Spare Capacity <sup>2</sup>	2.52	4.19	4.27	3.00	1.93	1.03
<i>as percentage of global demand</i>	2.9%	4.8%	4.8%	3.3%	2.1%	1.1%
<b>Changes since July 2007 MTOMR</b>						
<b>Global Demand</b>	<b>-1.40</b>	<b>-2.29</b>	<b>-2.71</b>	<b>-3.10</b>	<b>-3.43</b>	
Non-OPEC Supply	-0.60	-0.63	-0.87	-1.04	-1.41	
OPEC NGLs, etc.	-0.38	-0.34	-0.20	-0.09	-0.01	
<b>Global Supply excluding OPEC Crude</b>	<b>-0.98</b>	<b>-0.97</b>	<b>-1.07</b>	<b>-1.13</b>	<b>-1.42</b>	
<b>OPEC Crude Capacity</b>	<b>-0.59</b>	<b>-0.13</b>	<b>-0.24</b>	<b>-1.14</b>	<b>-1.25</b>	
<b>Call on OPEC Crude + Stock Ch.</b>	<b>0.05</b>	<b>-0.85</b>	<b>-1.16</b>	<b>-1.49</b>	<b>-1.54</b>	
Implied OPEC Spare Capacity <sup>1</sup>	-0.17	1.19	1.40	0.82	0.75	

1 OPEC Capacity minus 'Call on Opec + Stock Ch.'

2 Historically effective OPEC spare capacity averages 1 mb/d below notional spare capacity.

## Price Formation

In our section on price formation, we argue that fundamentals are setting the level of oil prices. While it is extremely important to have an open discussion on the role of fund flows and their effect on oil prices, there is a risk that the debate is losing context. Assertions of a 50% or higher premium by some analysts on the current price due to fund inflows largely rest on the observation that fund flows have increased. Often it is a case of political expediency to find a scapegoat for higher prices rather than undertake serious analysis or perhaps confront difficult decisions.

History has generally shown that speculative bubbles occur when speculators cause or facilitate speculative physical stockbuilding – look at past bubbles in tulip bulbs, silver, or even housing. A check on oil stocks does not indicate this is happening. More to the point, what about the surge in other commodities such as spot LNG, coal, steel and rice, or the doubling of iron ore prices, where capacity utilisation is very high, stocks very low and where speculation is fundamentally difficult?

Within this report, we welcome the announcement of a US *Commodity Futures Trading Commission (CFTC)* report on the role of fund flows on futures prices, scheduled to be released in September. In addition, our section on price formation tries to look at the debate from a different angle. The IEA has always argued that money flows and speculation can have a day-to-day influence on prices, but it is not one that can be sustained for any length of time without a market imbalance being apparent. It is not *who* takes the price to a different level that is important (speculators by their very nature should probably always be first to react to an event), but *whether* that level is representative of market fundamentals. From this perspective, the analysis of supply and demand conditions makes much more sense than daily position flows. But whichever way you try to look at this subject, you will never have a full perspective without extra financial market transparency or non-OECD inventory data.

Our analysis also tries to open the debate on the importance of refining and product demand trends in setting oil prices. We try to show that crude oil prices can be sensitised and even pushed dramatically higher by a constrained refining system or unexpectedly strong demand in a product category. As such, we try to explain why traders regularly talk about crude prices being dragged up by gasoline or diesel.

## Demand

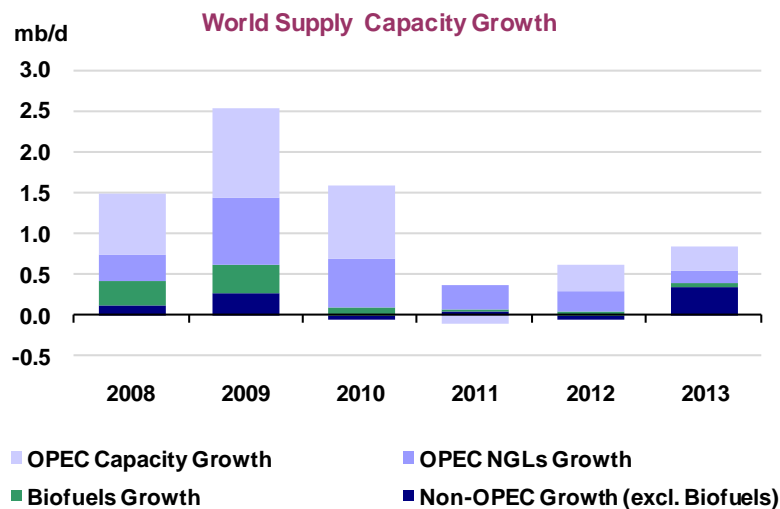
Global oil product demand is expected to grow by 1.6% per year on average over the next five years, rising from 86.9 mb/d in 2008 to 94.1 mb/d in 2013. The pattern of growth is diametrically opposed to the trends in supply, with the growth dragged down by slower GDP growth in 2008 and 2009, before returning to trend levels in 2010 and beyond. Of course, as with any forecast, there are risks - and at present these are focussed on the depth and global impact of the US economic slowdown. The outcome of such a scenario is discussed below, but it is important to note that there are also risks to supply.

High prices are clearly affecting consumer behaviour, particularly in the OECD transportation sector, with a visible switch away from SUVs and light trucks in the US. Most significantly, the big auto companies are indicating that they are slowing or halting production of these vehicles, focussing their efforts on smaller, more efficient and environmentally friendly cars.

Demand growth remains heavily concentrated in developing countries, where total consumption will nearly reach parity with mature economies by 2015. Within the non-OECD, growth is highly concentrated in three regions – Asia, the Middle East and South America, accounting for nearly 90% of global demand growth over the next five years. Of this, China and India account for almost half. By contrast, demand growth in OECD countries is expected to contract slightly over the next five years, albeit with modest growth continuing to be seen in the transportation sector. Globally, growth is concentrated in a small number of products, particularly middle distillates, and those associated with the petrochemicals industry (NGLs and naphtha), providing an ongoing technological challenge to the refining industry.

## Supply

Over the next 18 months there appears to be the potential for a modest build in the supply cushion due to the combination of weaker economic growth and a concentration of new projects in OPEC and non-OPEC countries coming on line. However, the annual rate of expansion drops off considerably from the 1.5 - 2.5 mb/d seen through to 2010 to under 1 mb/d at the tail end of our forecast, just as global economic growth is forecast to pick up again. It is also worth noting that the lion's share of non-OPEC growth comes from condensates, NGLs and biofuels, with only a very limited contribution from non-OPEC crude supply. As a result, effective OPEC spare capacity temporarily rises above 4 mb/d in 2009 and 2010, before receding to minimal levels by 2013.



There are significant downward revisions for both non-OPEC supplies and OPEC capacity estimates from last year's *Medium-Term Oil Market Report (MTOMR)*. Project delays remain a major factor in supply-side underperformance, with slippage estimated at up to twelve months on average for the large projects surveyed, alongside an estimated doubling of costs. A detailed study of non-OPEC decline rates conducted earlier this year (already factored into our 2008 projections in the monthly Oil Market Report) found that average non-OPEC decline rates for mature fields over the past 10 years have been relatively constant at around 7.5% per year. Incorporating the result of this study into the five-year forecast, together with some adjustments to assumed OPEC field decline rates suggests that global net decline for the forecast (the implied decline level for the entirety of base year production) rises from 4% per annum in last year's *MTOMR* to 5.2% this year. Put another way, over 3.5 mb/d of new production is needed each year just to hold world production steady.

## Crude Trade

Global inter-regional crude oil trade could rise by 2.5 mb/d between 2008 and 2013, equating to around 1.5% annual compounded growth. The 1.8 mb/d downward revision to crude trade from last year is largely driven by the lower demand forecast, which reduces the call on oil imports from the Middle East. China will drive crude trade, with imports possibly rising from current volumes of around 4 mb/d to as much as 5.7 mb/d in 2013. Although export prospects from the Middle East are lowered, they may still rise from 16.0 mb/d in 2008 to 17.5 mb/d in 2013 and will be supplemented by rising condensate exports, probably heading east. The OECD import profile for the medium term is seen as much weaker, in line with a lower demand outlook.

## Biofuels

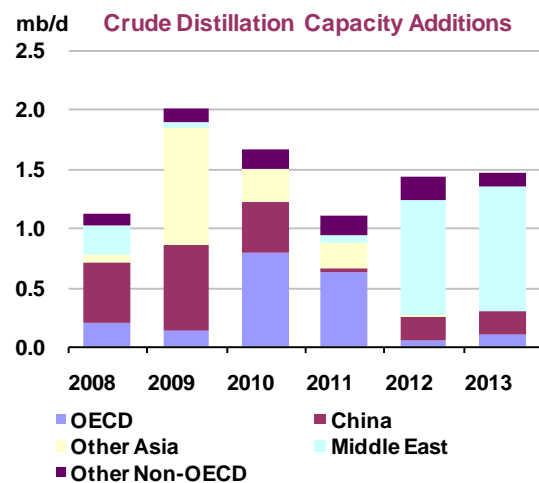
Biofuels continue to add significant growth to the supply forecast, rising from 1.35 mb/d in 2008 to 1.95 mb/d by 2013. Although significant capacity additions have been proposed for the next five years, we maintain the cautious stance on future growth that we have held since 2006. Previously we have warned that the planned expansion in biofuel capacity seemed overly aggressive in relation to available feedstock and that more rapid growth could impact food prices. While it is wrong to attribute all the recent increase in grain prices to rapid biofuel expansions, it has undoubtedly had an impact. Similarly, we remain wary about the ongoing competition for first-generation feedstocks and also the growing political resistance to expansion in some areas. It is clear, however, that biofuels have helped to diversify energy supply. Compensating for the additional supplies that have been met through ethanol and biodiesel supply growth in Europe and the US since 2005 would require around 1 mb/d of crude oil to be processed. Given the poor performance of non-OPEC production and relatively low spare capacity, clearly much higher petroleum prices would be in place now if those biofuels had not been available.

## Refining

Given the link between high crude prices and tight product markets, the refinery outlook is extremely important for both product supply and crude oil prices. This report sees 8.8 mb/d of crude distillation capacity being added to the refinery system between 2008 and 2013 – greater than projected upstream crude capacity additions but only really having a significant impact on product supply at the tail-end of the forecast.

With cost pressures adding 50% to investment expenditures over the past two years, and much shorter lead times between project completion than in the upstream, companies are forced to continually evaluate investment plans, prospective returns and likely delays. Coupled with growing lead times for delivery of key upgrading units, this has not only led to considerable slippage in the forecast, but also implies greater uncertainty over project plans slated for the tail-end of the forecast.

Regionally, refinery capacity growth is concentrated in China, Other Asia and the Middle East, with the three segments accounting for roughly a third of new distillation capacity additions. Considerable investment is also taking place in upgrading capacity and desulphurisation units to try to meet the challenge of the concentration of demand in transportation fuels and weak fuel oil cracks.



## Spare Capacity and Market Implications

Given the evolution of demand and non-OPEC supplies (including biofuels and OPEC NGLs), there appears to be an improving trend in the market balance over the next 18 months, which reduces the call on OPEC by 0.6 mb/d in 2009 from 31.8 mb/d in 2008. Thereafter, the call on OPEC rises sharply to 35.84 mb/d by 2013. Similarly, effective OPEC spare capacity will rise to 4.2 mb/d in 2009 before falling to negligible levels of around 1 mb/d in 2013 – unless there are early discussions on additional projects.

Prices have largely been driven by the poor performance of non-OPEC crude supply since 2004, a feature that remains in place over the duration of the forecast. Similarly, despite large investments in refinery upgrading capacity, the concentration of demand growth in middle distillates is likely to continue to keep the market tight – although perhaps not quite as tight as 2008.