Oil & gas macro outlook

Edison investment research

North American supply gathers pace

The oil price outlook over the balance of 2012 and into 2013 is decidedly bearish in the absence of supply shocks. The market is in significant surplus, inventories are plentiful and demand is subdued and furthermore likely to continue so. Growing North American supplies are a key factor in the bearish equation not only domestically but also internationally given the potential for greatly reduced US imports. Shale oil development is indeed a game changer.

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Supply/demand position: Market in surplus

Based on IEA and OPEC data, the oil market in the first half of 2012 was in surplus to the tune of about 2mmb/d. This appears to have been followed by approximate balance in the third quarter, when demand is seasonally strong and supply weak. In the fourth quarter we would look for a surplus of over 1mmb/d reflecting increasing non-OPEC supplies and subdued demand. Overall, we expect demand growth in 2012 of 0.7-0.8mmb/d or 0.9%. A similar gain is expected in 2013, assuming consensus world GDP forecasts. This should be more than matched by a gain in non-OPEC output of around 1mmb/d.

North American supplies: Increasingly influential

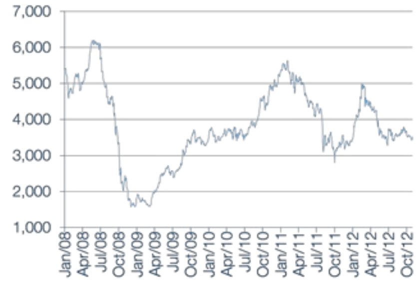
Arguably the most exciting petroleum industry development of the past 20 years is the increasing North American supply capability stemming from the Alberta oil sands and the Great Plains shales in both the US and Canada. Development of the shale and other tight formations is likely to boost US crude production by 2mmb/d between end 2011 and 2015, according to industry sources. Growing North American supplies are likely in due course to depress prices along the Gulf Coast, thereby enhancing the competitiveness of refineries in the zone. Sharply declining US light crude imports also have the potential to depress prices for key Atlantic Basin light crudes such as Nigerian Bonny.

Crude oil prices: The WTI discount widens again

Since mid-September international light crude prices have come under moderate pressure. However, WTI has shown considerably greater weakness, resulting in a sharply widening discount to Brent from a recent low of $10 in June to almost $25/barrel. The key drivers behind the widening have been acute supply problems in the North Sea, which have supported Brent, and a continuing influx of supply in the Mid-Continent, which has depressed WTI. Reflecting the supply issues, we have raised our Brent forecasts for 2012 from $105.7 to $111.1/barrel and for 2013 from $95.3 to$99.0/barrel. Our WTI estimate is broadly unchanged for 2012, at $93.6 ($91.5 previously), and unchanged for 2013. We expect the WTI discount to average about $21/barrel in Q4 2012 and $12.5/barrel in 2013 with the narrowing in the latter year reflecting the increasing takeaway capacity in the US Mid-Continent.

WTI vs Brent

AIM Oil & Gas Index



FTSE 350 Oil & Gas Index

Price trends

	WTI $/barrel	Brent $/barrel	Henry Hub $/mmBtu
2009	62.0	62.0	3.94
2010	79.5	79.7	4.37
2011	94.9	110.0	4.00
2012e	93.6	111.1	2.83
2013e	86.5	99.0	3.40

Note: Prices are yearly averages

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Crude oil market dynamics

Price overview

Market backdrop: Weaker trend of late

Recent months in retrospect – International benchmark light crude oil prices have trended flat to down of late, leaving them at historically high levels in both nominal and real terms. From the recent lows in the third week of June prices rebounded strongly in July and early August driven by a combination of three factors. These were anticipation of stimulatory monetary policy by the world's major central banks, a strike in the Norwegian sector of the North Sea and renewed supply concerns in the Middle East stemming from the long-running Iranian nuclear issue and the civil war in Syria. Broadly speaking, between late June and mid-August international benchmark light crude prices climbed almost $30/barrel or over 30%. Interestingly, over the same period the inland US benchmark showed a considerably more muted rebound of about $20/barrel. Since mid-August, a cap has tended to be kept on the international benchmarks by renewed concern about the direction of the world economy and an easing of fears relating to an imminent Israeli air-strike against Iran. Additionally, WTI has come under pressure from growing evidence of burgeoning supplies and continuing soft demand in the US.

The lacklustre price trend over the two or so months to end October has been despite the US Federal Reserve's announcement of a third round of quantitative easing (QE3) on 13 September and a raft of stimulatory economic measures taken by major central banks since August. The latter have included measures announced by the European Central Bank aimed at moderating the eurozone sovereign debt crisis. The absence of a sustained upward response in prices presumably reflects that in large part markets have discounted stimulatory action in advance. Markets may also be expressing scepticism concerning the potency of such action for economic activity. Significantly, since the announcement of QE3 the IMF has downgraded its outlook for world economic growth in 2012 and 2013 from 3.6% to 3.3% and 3.9% to 3.6%, respectively. Furthermore, in another manifestation of the soft demand backdrop to oil markets the IEA (the western world's energy watchdog) and OPEC have both recently lowered their forecast of oil demand growth for 2012 by 0.1mmb/d.

The dollar would appear to have been broadly neutral for oil prices in recent weeks given the absence of wide swings in the currency. Importantly, the currency did not come under pressure post QE3, probably reflecting the simultaneous implementation of stimulatory policy action elsewhere.

Hurricane Sandy Hurricane Sandy should have no major implications for crude oil prices other than possibly in the very short-term as refineries in the US North East resume operations. There are however potential negative implications for refined product demand in the short term due to the dislocation to economic activity in the region. We have discussed the impact of Sandy at greater length on page 17 under gasoline inventories.

Non-OPEC production outages – Tending to put a floor under international light crude prices in 2012 have been persistent non-OPEC facility outages and in some areas deteriorating field performance. According to the IEA, the impact of outages both planned and unplanned in the third quarter of 2012 was about 1.26mmb/d, substantially higher than the 0.45mmb/d of a year earlier. In the most recent quarter the shortfall in output became more pronounced, largely due to the Norway labour dispute, Hurricane Isaac in the Gulf of Mexico, planned and unplanned maintenance in the North Sea and high rates of depletion and field outages in the Campos Basin in Brazil. Importantly, production of the Brent blend was running at multi-year lows of about 0.6mmb/d at the end of August. Additionally wars in Yemen, Syria and South Sudan/Sudan have continued to take their toll on output. However, the shortfall due to outages should narrow significantly in the fourth quarter due in particular to the unwinding of the Hurricane Isaac effect and the waning influence of maintenance issues in the North Sea. Following the recent agreement by Sudan and South Sudan over border issues and pipeline tariffs, production from this zone could start to gather momentum by late 2012.

Despite outages, non-OPEC oil output has still managed to increase modestly through the first nine months of 2012 and for the year as a whole should show a gain of at least 0.4mmb/d. This reflects a decline of 0.2-0.3mmb/d compared with expectations earlier in the year. The key drivers behind non-OPEC output in 2012 are the US and Canada, where, based on IEA data, there could be gains of 0.81mmb/d and 0.36mmb/d respectively. US output continues to be driven by rapid development in the shale and tight oil formations of the Great Plains and Texas. In Canada development activity in the Athabasca oil sands is the key factor, although heavy rainfall here has recently cut bitumen output.

OPEC output slips in September – OPEC crude oil output in the first half of 2012 was running at about 31.6mmb/d, the highest level since 2008 and on average1.9mmb/d above a year previously. Additionally OPEC natural gas liquids, which are not subject to quotas, contributed another 0.2-0.3mmb/d to the growth in supplies. Historically high OPEC output contributed to the comfortable surplus of global production over consumption in the first half of 2012. The latest IEA and OPEC data, however, point to a dip in OPEC output in September. The former shows a decline of 0.51mmb/d while the latter reports a drop of 0.265mmb/d. At comfortably over 31mmb/d output, of course, remains relatively high from a recent historical perspective. Interestingly, according to the IEA the September dip appears to have reflected a lower call on OPEC crude and an inventory run-off, which is clearly a manifestation of weak demand.

Perhaps the most interesting development in OPEC output this year at the country level has been the divergence between Iraq and Iran. Iraqi output has risen from end 2011 by roughly 0.6mmb/d to a 30-year high of 3.3mmb/d in September, while Iranian output has dropped by 0.9mmb/d to 2.7mmb/d, a 30-year low. Iraqi output has benefited primarily from field development activity in the southern Basra region and expanded offshore export capacity. According to an oil ministry statement, Iraqi oil production is expected to reach 3.4mmb/d by end 2012 with exports of 2.9mmb/d against 2.6mmb/d in September. Iranian production appears to have increasingly felt the impact of US and EU sanctions in recent months. By end year the EIA is forecasting a drop in Iranian output of roughly 1mmb/d. This is broadly in line with forecasts made earlier in the year and corresponds to the loss of exports to Europe and a proportion of those to the Far East and elsewhere. Iran's key remaining export markets are believed to be China, India and Turkey. In an attempt to resurrect stalled talks over its nuclear programme, Iran offered in mid-October to cease high-grade uranium enrichment in exchange for fuel for a research reactor. Prices briefly dipped on this news.

An important positive for oil supplies particularly in European markets over the past year or so has been the re-emergence of Libya as a major exporter of high-grade light oil. Production has recently been running at over 1.5mmb/d, which is above the level prior to the beginning of the uprising against Muammar Gaddafi at the beginning of 2011. Furthermore, 1.5mmb/d is in excess of the level that many observers were predicting a year ago.

Recent levels of OPEC output of 31mmb/d plus theoretically suggest about 2.5mmb/d of spare capacity, most of which is located in Saudi Arabia. The key unknown is just how realistic is this estimate of spare capacity. Not surprisingly, Saudi-Aramco claims that it is indeed very realistic and could, if necessary, be brought on-stream within a matter of months. Many industry observers remain sceptical. In recent months Saudi production has been running at approaching 10mmb/d, which is close to the highest level in three decades. What we would all like know is for how long

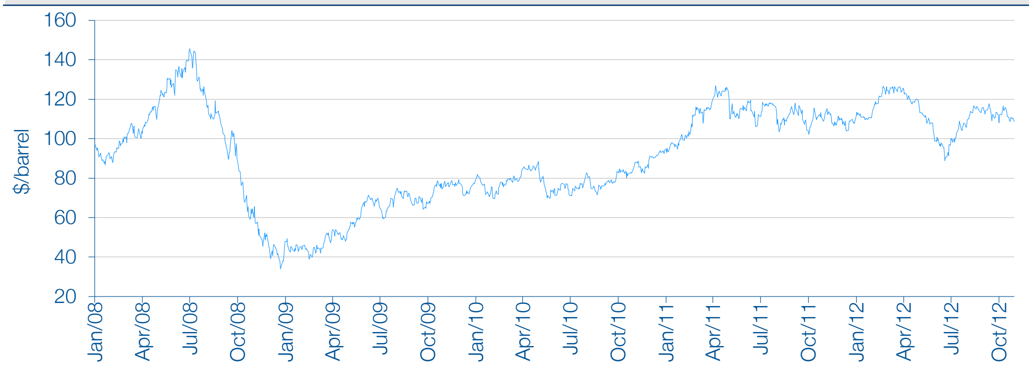
Saudi production could be sustained at significantly over 10mmb/d. In the absence of a dire emergency we are unlikely to discover the answer to this question in the near future.

Western European demand comes under pressure and China slows – Predictably Western European oil demand has been under heavy pressure in 2012. This reflects both the deep economic malaise in the region and negative structural influences such as improving vehicle fuel economy and a trend decline in miles driven. Both the IEA and OPEC are looking for declines in consumption in Western Europe in 2012 of about 0.4mmb/d or 3% to roughly 14mmb/d. Significantly, this is a hefty 1.6mmb/d, or more than 10%, below pre-financial crisis levels of demand in 2007. Given the weak economic backdrop and adverse structural trends, a further drop in Western European demand of 0.3-0.4mmb/d is likely in 2013.

Famously Chinese demand has been robust for many years and in the process buoyed global demand. However, in 2012 Chinese demand growth has slowed significantly from the 5-6% pa rate of recent years driven principally by a softening industrial economy, with fuel oil and diesel being the key product areas showing weakness. Both the IEA and OPEC are forecasting growth in Chinese demand of about 0.3mmb/d or 2.5-3.0% in 2012 and 2013.

OECD inventories continue to look comfortable – OECD commercial inventories, which include both crude and refined products, look comfortable in either absolute or days' supply terms. According to the IEA, inventories declined by a counter seasonal 11.2mm barrels in August due to the impact of Hurricane Isaac on Gulf production and imports, but this appears to have been offset by a build of 13mm barrels in September. This has left inventories close to the five-year average. The forward demand cover at 58.8 days is also looking pretty normal.

Exhibit 1: Brent crude oil price trend



Source: Bloomberg

Recent trends in Brent and WTI: WTI weak relative to Brent

The third quarter performance of Brent, the key international light crude benchmark, was considerably more robust than that of WTI, the inland US benchmark. This was the converse of the situation in the second quarter. Brent plumbed an 18-month low of $88.7/barrel on 21 June. Over the following two months or so Brent trended strongly upward as market sentiment strengthened in response to a tightening supply backdrop in the North Sea and a resurfacing of Middle East tension. The highs for July and August were $108.8/barrel and $116.6/barrel respectively, with the latter occurring on 16 August and reflecting a gain of 31% from the June low. Brent trended broadly flat over the balance of August and finished the month at $115.5/barrel. The trend softened a little in early September in response to weak macroeconomic data, which took the spot quote down to $112.6/barrel on 6 September. Ahead of the Federal Reserve's QE3 announcement on 13 September Brent firmed and reached an approximate seven-month peak the day after of $117.6/barrel. The excitement, however, proved short-lived as negative macroeconomic news flow and European sovereign debt concerns once again came to the fore. Brent closed September at

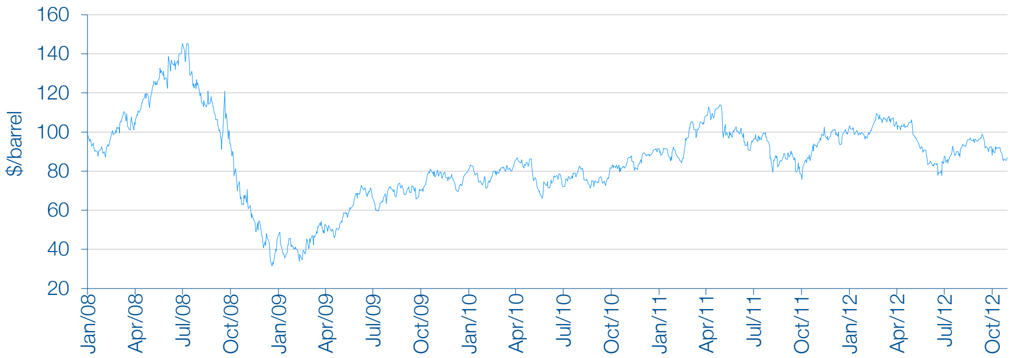
$113.3/barrel. The average for the third quarter was $109.8/barrel, slightly up on the $108.7/barrel of the second quarter, but significantly below the $118.7/barrel of the first quarter.

The trend in Brent was weak in the early days of October, with the price hitting around a two-month low of $108/barrel on 3 October. This once again reflected the lacklustre macroeconomic backdrop and bearish oil industry data out of the US. Brent firmed through mid-October, reaching an approximate one-month high 15 October of $115.8/bbl. This reflected Nexen's statement that following maintenance the restart of the Buzzard field, the largest in the UK sector of the North Sea, would be delayed a few days, and renewed concern about developments in the Middle East. Brent trended moderately down over the balance of October and finished the month at $109.9/barrel, roughly the same as a year previously.

WTI was close to trading at a 20-month low of $77.7/barrel on 28 June. In common with Brent it rebounded through mid-August reaching a three-month high on 22 August of $97/barrel. This constituted a 25% gain from the June low. WTI trended broadly flat until the second week of September, when speculation concerning QE3 began to take hold. As in the case of Brent, WTI peaked on 14 September. The closing price of $99/barrel was the highest in around four months. Over the balance of September WTI softened significantly under the impact of further evidence of buoyant US production, historically high inventories and soft domestic demand. WTI closed September at $92.2/barrel. During the third quarter WTI also averaged $92.2/barrel, slightly down on the prior quarter's $93.3/barrel and significantly below the $103.0/barrel of the first quarter.

In early October WTI dipped and on 3 October hit a two-month low of $88.1/barrel. After a mild mid-month recovery the trend in WTI weakened again over the balance of October. On 29 October WTI plumbed a four-month low of $85.5/barrel and ended the month at $86.7/barrel. The latter was 7% down on a year earlier. The softening WTI price trend in October largely reflected a sequence of bearish reports on US inventories and petroleum demand. Hurricane Sandy was also a mild depressant on 29 October and 30 October due to refinery shutdowns in the north-east.

Exhibit 2: WTI crude oil price trend



Source: Bloomberg

Light crude spreads

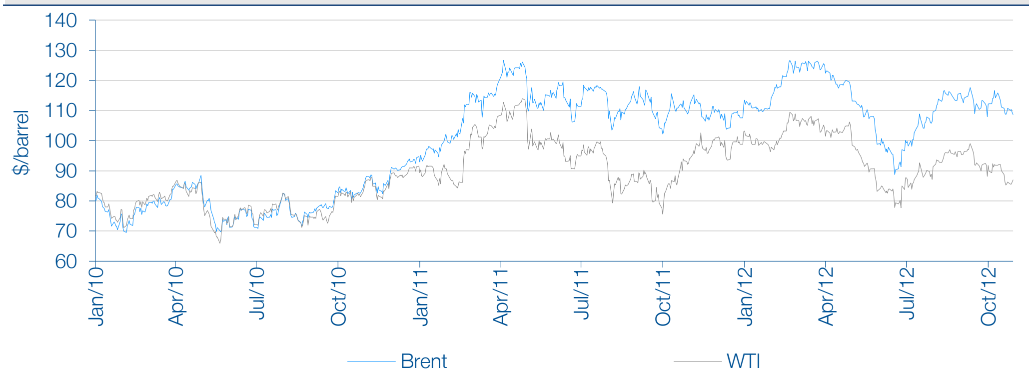
WTI-Brent: WTI discounts widens again to over $20/barrel

One of the most significant developments in oil markets over the past three or so months has been a pronounced widening to historically high levels in the WTI Cushing discount to Brent. From the low point in 2012 of $10.3/barrel on 20 June the discount widened to a recent high on 11 October of $24.6/barrel. This was the widest spread in a year and approaching the record of $29/barrel. For the third quarter the WTI discount averaged $17.6/barrel, significantly up from the $15.7/barrel and $15.5/barrel of the first and second quarters of 2012 respectively.

WTI has now been trading consistently at a discount to Brent for over two years, after having spent most of the previous 20 years at approximate parity or a small premium of up to two dollars or so. The recent widening in the WTI discount has occurred when some oil market observers had been predicting a marked narrowing. In principle, the widening reflects the widely differing market dynamics driving WTI and Brent. The former is tending to be depressed by burgeoning supplies related to sharply rising production in the US Mid-Continent and Texas plus Canada at a time of lacklustre demand. By contrast Brent is being supported by the acute supply problems in the North Sea and lingering Middle Eastern supply concerns. Effectively, due to the supply influx the inland US market has become more insulated from international influences than has been the case since perhaps the early 1970s. It is probably also fair to say that few oil industry observers predicted the strength of the upward trend in US production over the past few years. Indeed, until recently many were expecting declining production based on the peak oil theory.

Having noted the above, the extent of the rapidly widening WTI discount in recent months is still a little surprising. Takeaway capacity in the form of pipelines and rail loading facilities from areas where production is growing rapidly and from the NYMEX pricing point of Cushing Oklahoma is being rapidly expanded, which theoretically should have alleviated some of the relative weakness in WTI by displacing imports in coastal zones.

Exhibit 3: WTI vs Brent



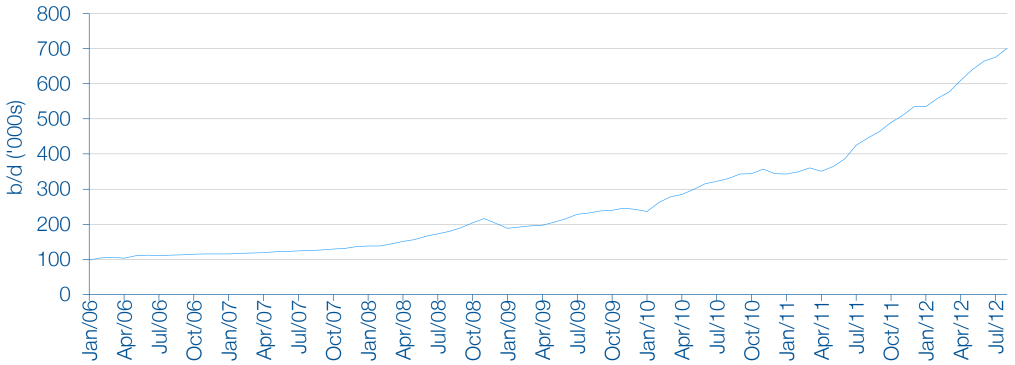
Source: Bloomberg

WTI Midland-Cushing spread: There are two pricing points for WTI, Cushing Oklahoma (30 miles west of Tulsa) and Midland, west Texas, with the former serving the Mid-Continent and the latter the Permian Basin. Historically, WTI Midland has sold at a discount of a dollar or less to WTI Cushing. Following the dramatic widening of the WTI Midland discount in the first quarter and early second quarter of 2012 to an unprecedented $9/barrel, there was a return to a more normal $1.1/barrel on average in the third quarter. This probably reflected major upgrades to takeaway capacity in the Permian Basin, which lessened the impact of transportation bottlenecks. During October, however, the WTI Midland discount again tended to widen and by the end of the month was at a historically high $6/barrel. We believe this is indicative of the buoyancy of production in the Permian Basin.

US production developments: Strong growth continues, 17-year high

North Dakota: Oil production in North Dakota continues to grow strongly. The state is now comfortably the second largest oil producer in the US. Based on North Dakota Department of Mineral Resources data, production in August 2012 averaged 701,134b/d, of which 91% was accounted for by the Bakken petroleum system. Production during August, the most recent period for which data is available, was up 3.7% on the prior month and 57% on a year previously. The year-on-year rate of growth therefore shows little sign of slowing compared with earlier in 2012.

Exhibit 4: North Dakota crude oil production

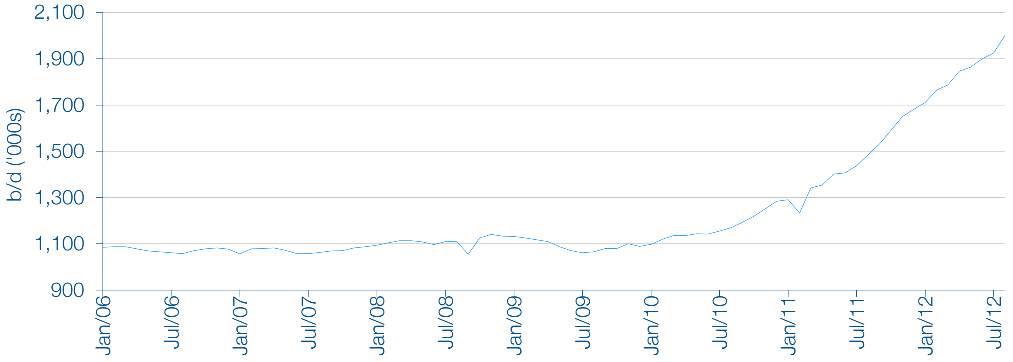


Source: EIA. Note: Monthly data.

The strong upward trend in North Dakotan production continues to be driven by intensive development activity and advances in completion technology in the Bakken/Three Forks shale formation. Significantly, the deeper intervals in the Three Forks formation are providing major new opportunities for development. According to the ND Department of Mineral Resources, in the year to September 2012 there were 2,220 spuds in the state, up 57% on 2011, while the number of producing wells in August at 7,701 was 29% higher than a year earlier. The rig count in the state averaged 204 through the first nine months of 2012 against 176 in 2011. September's count of 190 was, however, down from the recent peak of 213 recorded in June. Importantly in terms of future activity, drilling permits in North Dakota have remained on a strong upward trend. In the nine months to September 2012 they were up 22% on a year earlier.

In light of this year's strong performance, earlier forecasts of North Dakotan production by the Department of Mineral Resources now appear far too conservative. We believe the Department's earlier forecast of 650,000b/d by end 2012 could conceivably be 100,000b/d adrift of the final outcome, abstracting from adverse weather conditions. Increasingly Whiting Petroleum's (WLL) suggestion that North Dakota production will reach 1mmb/d by 2015 appears entirely plausible. With 24bnboe of recoverable reserves, according to Bakken pioneer Continental Resources (CLR), there is little doubt that the Bakken/Three Forks petroleum system is among the largest hydrocarbon discoveries ever made in the western hemisphere. Significantly, the oil is also very high-grade with an API of over 40 degrees and a sulphur content of 0.1%. This compares with 38 degrees and 0.4% for WTI.

Exhibit 5: Texas crude oil production

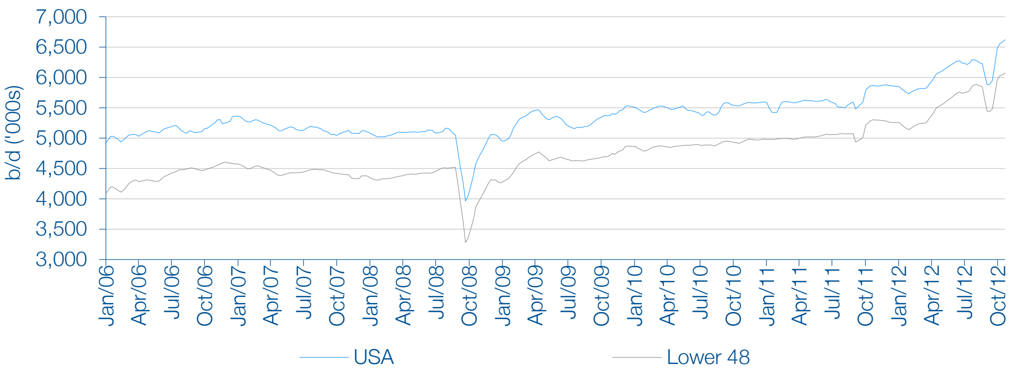


Source: EIA. Note: Monthly data.

Texas: Production in Texas, the largest producer in the US, also remains on a strong upward trend. This is being driven by intensive development activity in the Eagle Ford shale zone in the south-west of the state and the tight oil formations of the Permian Basin to the north-west. Based on EIA data, production in August came in at 1.93mmb/d, up 1.3% on a month previously and 30% on a year earlier. Cumulatively production through the eight months to August was up 36% from 2011. Interestingly, Texan production has almost doubled from the lows of the mid 2000s and is running at around a 24-year high. Production of 2mmb/d or more now looks like being on the cards by end 2012 which is slightly ahead of our expectations of a few months ago.

US: US crude oil production has continued to trend higher in recent months driven principally by Texas and North Dakota and to a lesser extent several smaller producers in the lower 48 states. Key among these were New Mexico, Oklahoma and Colorado. Crude production in the four weeks to 12 October was running at 6.6mmb/d, up12.5% on a year previously and an approximate 17-year high. Production from shale and other tight formations, we believe, is currently running at about 1.5mmb/d. Industry sources such as EOG, one of the leading E&P independents, have suggested that shale projects will boost US production by 2mmb/d between end 2011 and 2015. This would suggest US crude production of approaching 8mmb/d.

Exhibit 6: US crude oil production



Source: EIA. Note: data are four-week averages.

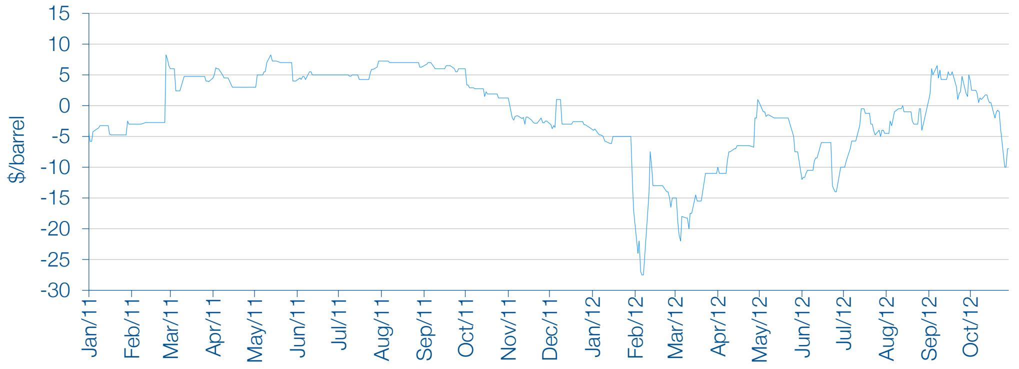
As in earlier months in 2012, US production growth has been constrained by falling production in Alaska and flat trends in California and the Gulf of Mexico. Overall, crude production in the lower 48 in the most recent four-week period was showing a 14.8% year-on-year gain, while Alaskan output was down 8.3%. Including natural gas liquids, renewables (mainly ethanol) and refinery processing gains, total US domestic oil supplies in the four weeks to 12 October were up 8.2% year-on-year at 10.84mmb/d. This is equivalent to 58% of US usage currently.

An important consequence of the increasing availability of domestically sourced light crude has been a sharp decline in light crude imports along the Gulf Coast. According to the leading refinery group Valero Energy, these have dropped by roughly 1mmb/d to 0.5mmb/d over the past two years or so. Light crude imports are likely to cease altogether by 2015.

Bakken and Sycrude-WTI spreads: Bakken and Syncrude recently swing to discounts

Bakken (Clearbrook Minnesota hub) and Canadian Syncrude (Edmonton Alberta hub) light crude grade spreads have swung sharply between discount and premium during 2012. In the case of Bakken, the grade was trading at a premium to WTI of $4/barrel on average in September, which contrasts with a discount at the low point in February of about $25/barrel. For much of the period February to August refineries sourcing Bakken and Syncrude had the advantage of ultra-low-cost feedstock. During October the premium narrowed significantly early in the month and by the 31 October had swung back to a discount of $7/barrel.

Exhibit 7: Bakken WTI spread

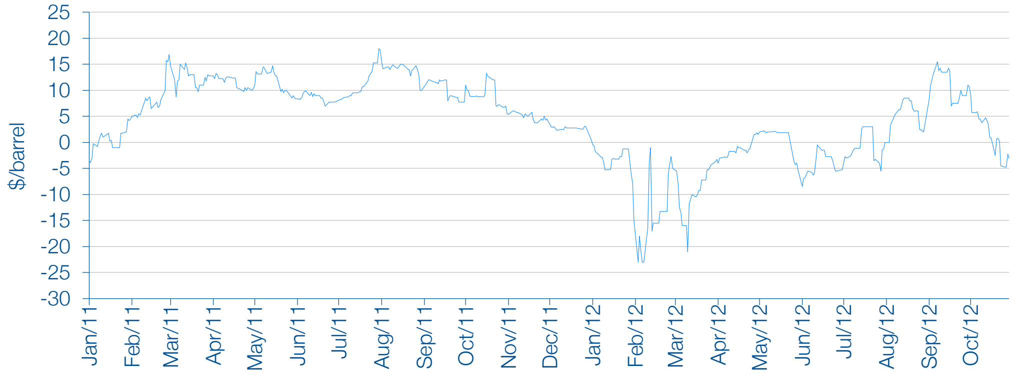


Source: Bloomberg.

Similarly, Syncrude moved from a discount to WTI in February of about $23/barrel to a premium in September, averaging $11/barrel and $15.5/barrel at the high point. As in the case of Bakken, Syncrude swung to a discount to WTI during the second half of October. On 31 October this was $2.3/barrel.

Hefty Bakken and Syncrude discounts in the first quarter of 2012 appear to have reflected a combination of burgeoning production and acute transportation bottlenecks, which led to a build-up of supplies at the hubs. As the bottlenecks were removed the spreads narrowed and even for a while turned positive. The spike in the Syncrude premium during September probably reflected constrained supplies stemming from adverse weather conditions in Alberta mentioned earlier. In the long term and abstracting from unplanned outages, we would expect to see Bakken and Syncrude sell at discount of about $5/barrel to WTI. This reflects transportation costs from the oilfields to the hubs.

Exhibit 8: Syncrude WTI spread



Source: Bloomberg.

Outlook for the WTI-Brent spread: Historically wide WTI discount to persist near term

A WTI discount of over $20/barrel to Brent in all probability is unsustainable other than for relatively short periods related to technical constraints on transportation capacity and/or geopolitical issues. Conceptually the spread is sufficiently wide to ultimately encourage arbitrage activity. However, it needs to be remembered that the arbitrage is not costless. For example it probably costs $10-15/barrel to move oil by rail from the Mid-Continent to the higher-priced Gulf Coast markets where the reference crude is Brent.

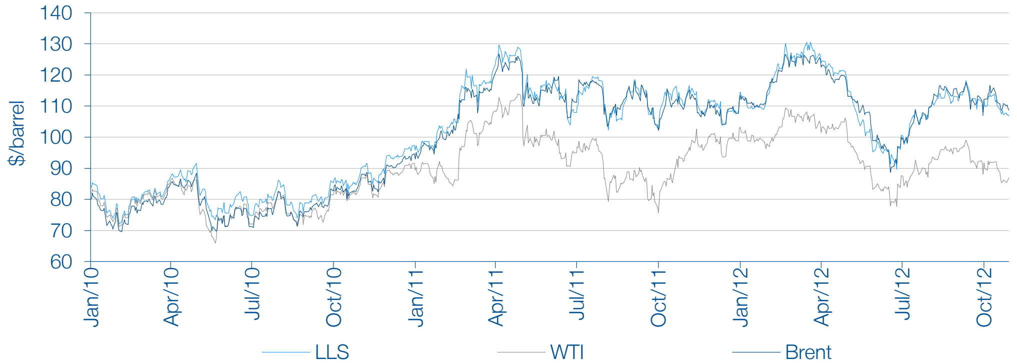
It might be argued that the arbitrage cost will drop to $4-5/barrel when Enbridge's Seaway pipeline capacity from Cushing to Houston has been expanded from 150,000b/d to 400,000b/d in late 2012. Effectively, $4-5/barrel is slightly above the pipeline tariff for uncommitted shipments. However, two factors need to be noted here. Firstly, supplies are likely to continue rising in the Mid-Continent at a rapid rate for the foreseeable future, reflecting shale and Alberta oil sands development and will therefore probably keep the pressure on logistical and storage facilities in the region. Seaway pipeline capacity will probably be insufficient to handle all the anticipated influx in new supply in the Mid-Continent and of course has no relevance to burgeoning production in Texas. Secondly, Brent production is in structural decline, the exact opposite of WTI. This factor combined with Middle East supply concerns is likely to continue to support Brent.

Reflecting the above we believe WTI will probably continue to trade in the coming months at a much wider discount to Brent than might be inferred by the costs of using the Seaway pipeline. In fact, we think that the discount might not be dissimilar to October's $22/barrel, particularly if the North Sea supply issues persist. Our new forecast calls for a WTI discount over the balance of 2012 of about $21/barrel. This would imply an average for the full-year of $17.5/barrel, a significant widening from the $15.1/barrel of 2011. We would expect the WTI discount in 2013 to narrow compared with 2012 to reflect the growing pipeline and rail takeaway capacity in the Mid-Continent. Any narrowing, however, we suspect will be limited by the structural supply constraints surrounding Brent and continuing Middle East supply concerns. Our new 2013 forecast calls for an average discount of $12.5/barrel, which exceeds the $9/barrel forecast previously. As has been the case over the past two years, the WTI discount will probably remain highly volatile. A recurrence of 2011's and 2012's North Sea outages would probably once again send WTI to a discount to Brent of $20/barrel plus.

LLS-WTI and LLS-Brent: LLS swings to a discount to Brent

Light Louisiana Sweet (LLS) is a Gulf of Mexico-sourced light crude comparable in specification to WTI and Brent. It competes with waterborne imports at Gulf Coast refineries and has traditionally traded at a $2 to $3/barrel premium to Brent. Given Gulf sourcing, LLS naturally tracks Brent rather than the inland grade WTI. As a consequence, a hefty premium to WTI has opened up over the past two years or so. In October the premium reached a high of $22.8/barrel and averaged $20.8/barrel for the month. The scale of the premium of course continues to put Gulf Coast refineries at a significant cost disadvantage to their Mid-Continent counterparts able to source WTI.

Exhibit 9: Recent trends in WTI, LLS and Brent



Source: Bloomberg.

As was the case earlier in 2012 LLS has recently been trading at a discount to Brent. In October the discount averaged $1.64/barrel. This unusual occurrence is largely reflective of the well-bid market for Brent stemming from acute supply constraints. Taking the year-to-date LLS and Brent have traded at approximate parity on average.

Over the next year or two we would expect to see LSS moving from a structural premium to a discount to Brent. We believe the amount of the discount will be at least $2/barrel and quite possibly closer to $5/barrel. The switch to a discount reflects a combination of the underlying tight Brent supply situation and the anticipated influx of low-cost high-grade oil from the Mid-Continent, Texas and Canada along the Gulf Coast following the installation of new high-capacity pipelines. By mid-decade it is becoming increasingly apparent in our view that imported light crudes will be largely displaced by domestic supplies along the Gulf Coast. The availability of low-cost feedstock will provide Gulf Coast refineries with a structural cost advantage in an Atlantic basin context.

Exhibit 10: WTI 2008-12 quarterly prices ($/barrel)

	Q1	Q2	Q3	Q4	Average
2008	97.9	123.8	118.2	59.1	99.9
2009	43.2	59.7	68.1	76.0	62.0
2010	78.8	77.9	76.1	85.2	79.5
2011	93.9	102.3	89.5	94.0	94.9
2012	103.0	93.3	92.2	86.0	93.6

Source: Bloomberg.

Exhibit 11: Brent 2008-12 quarterly prices ($/barrel)

	Q1	Q2	Q3	Q4	Average
2008	96.5	122.2	115.9	56.2	97.7
2009	45.1	59.4	68.4	75.0	62.0
2010	76.8	78.6	76.4	86.9	79.7
2011	104.9	116.8	109.1	109.3	110.0
2012	118.7	108.7	109.8	107.0	111.1

Source: Bloomberg.

Other key light crude benchmarks: Urals and Dubai discount widens, Tapis and Bonny premiums narrow

Brent-Urals Mediterranean – Urals is a Russia-sourced medium-sour export blend that is shipped either from the Black Sea or Baltic ports. Reflecting its inferior quality in terms of gravity and sulphur, Urals has typically sold at a discount of $1-3/barrel to Brent. Urals is nevertheless well suited to producing middle distillates such as diesel and can be easily shipped to the refining centres of the Mediterranean.

Urals was generally trading at a discount to Brent through the first two quarters within the historical range. The average for the first and second quarters was $1.27/barrel and $1.85/barrel respectively. During July and August, however, the discount narrowed sharply to $0.36 and $0.26/barrel on average and in the early days of the former Urals was at times actually trading at a small premium to Brent of $0.3/barrel or so. The narrowing discount in July and August reflected Mediterranean refineries scrambling for feedstock in the wake of the EU embargo on Iranian imports coming into effect. Since August the Urals discount has widened noticeably. The averages for September and October were $1.65 and $1.74/barrel respectively. During September and October the high for the Urals discount was $2.4/barrel.

The widening of the Urals discount of late is part of a wider trend in sweet-sour spreads in Europe. The drivers have been tight supplies of Brent, abundant availability of sour grades and most significantly widening refinery crack spreads, which have supported demand for the light grades. The Urals discount to Brent, however, remains well within the historical range.

Brent-Dubai – Dubai Fateh is a Gulf-sourced light but relatively sour crude popular with Far Eastern refineries. Historically Dubai has traded at a discount of about $2/barrel to the higher-grade Brent. During the first six months of 2012 the Dubai discount at $2.4/barrel was close to the longer-term average, but subsequently it has tended to widen. The averages for July, August and September were $3.9, $4.9 and $2.4/barrel respectively, while October came in at $3.2/barrel. In early October Dubai was briefly trading at a historically wide discount of $6.1/barrel to Brent. The widening tendency in recent months reflects similar factors to those mentioned above for the Brent-Urals spread.

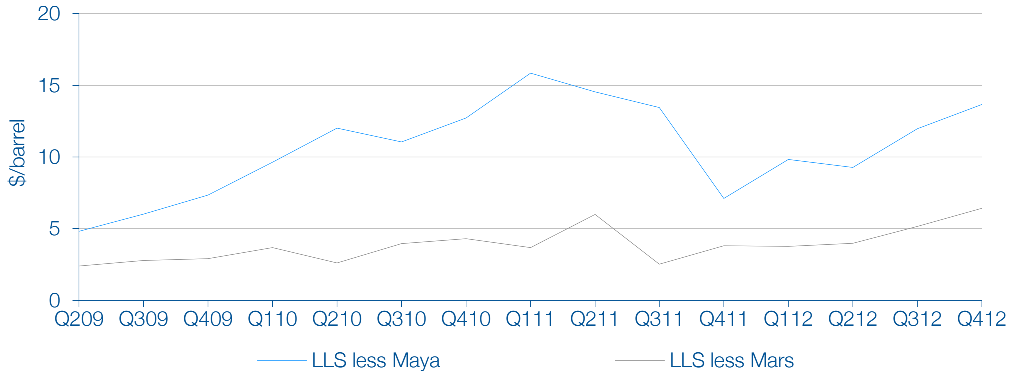
Brent-Bonny – Nigeria-sourced Bonny is a key eastern Atlantic ultra-low-sulphur light crude. Normally it trades at a premium of $1.0-2.5/barrel to Brent. Through the first six months of 2012 Bonny traded at a premium consistent with the longer-term picture. Since June, however, the premium has narrowed significantly and unusually in July and August, in fact, swung to a modest discount to Brent. In September and October Bonny traded at premiums to Brent of $0.31/barrel and $0.32/barrel, respectively. We believe the narrowing Bonny premium in recent months reflects two factors. Firstly, the ready availability of West and North African light crude grades and secondly, growing competition from US domestic supplies along the US Gulf Coast. Traditionally Nigeria has been a major supplier of high-grade crude to the US.

Tapis-Dubai – Tapis is a high-quality low-sulphur Malaysia-sourced crude popular with refineries in the Far East. The spread to Dubai Fateh crude is one of the key sweet-sour crude price relationships. After trading at a fairly typical premium of $10-12/barrel through the first eight months of 2012, the Tapis-Dubai spread has recently contracted sharply. In September the premium was down to $7.7/barrel on average and in October was at a historically low $2.3/barrel. The recent narrowing appears to reflect the growing availability of West African light crudes in the Far East as a result of being displaced from US markets.

US heavy crude spreads: Heavy discounts widen

US heavy crude spreads have widened significantly from the recent lows of the second quarter. Taking Mars, a medium-sour grade sourced from the Gulf of Mexico, the average discount to LLS has widened from $2.9/barrel in June to $6.5/barrel in October. For Maya, a Mexican heavy-sour grade, the discount on the same basis has risen from about $7/barrel in May/June to $13.8/barrel. The discounts in October were in line with the longer-term averages. The widening discounts reflect the increasing availability of South American heavy crudes, driven in large part by the partial outage at PDVSA's Amuay refinery in Venezuela following a fire in late August and the prolonged unplanned maintenance-related shutdown at a crude unit at Motiva Enterprises Port Arthur refinery. Both refineries are substantial facilities and among the world's largest.

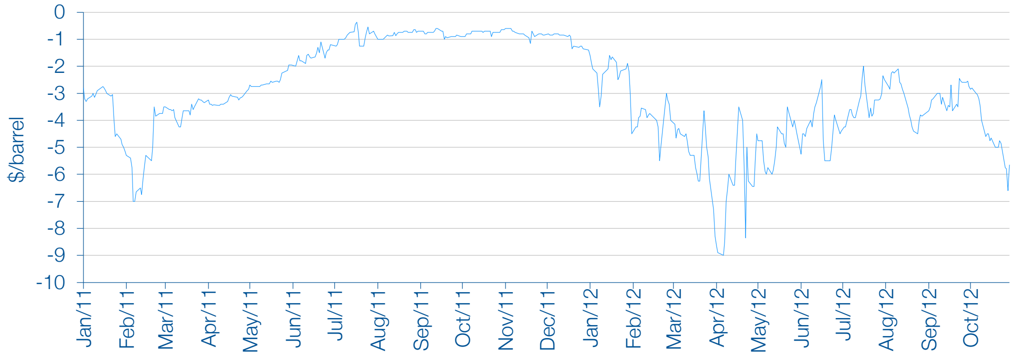
Exhibit 12: US medium and heavy discounts



Source: Bloomberg

WTS-WTI spread – WTS (West Texas Sour) is an inland medium-gravity sour grade with a specification similar to Mars and a delivery point of Midland, West Texas. In the early months of 2012 the WTS discount to WTI widened sharply from about $2.2/barrel to $5/barrel and in early April hit an unusually high $9/barrel. The widening tendency during early 2012 appears to have reflected a build-up of supply in the Permian Basin along with logistical constraints. During the second and third quarters the WTS supply/demand balance appears to have normalised. The WTS discount averaged $3.3/barrel in the third quarter and was $3.6/barrel on average in October. This is close to the long-term average.

Exhibit 13: WTS-WTI spread



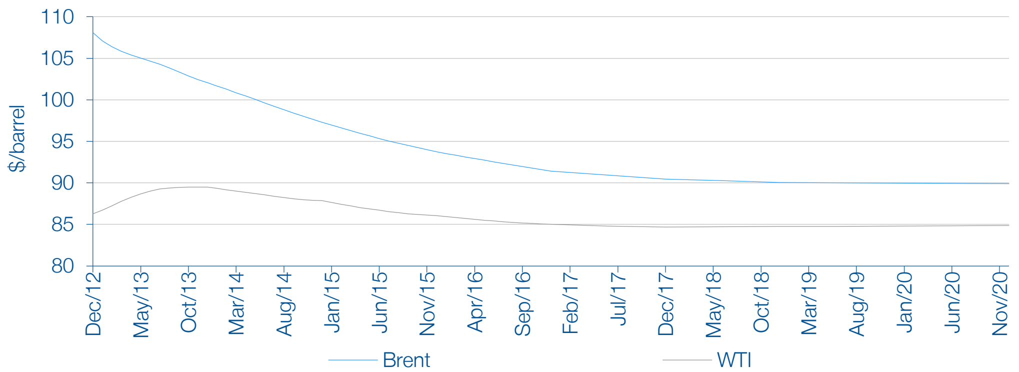
Source: Bloomberg.

Forward curves: Brent backwardation and mild WTI contango

The forward curves for Brent and WTI remain essentially the same in profile as three months ago. There has, however, been a slight downward shift in the WTI curve. WTI is in mild contango (near-term prices lower than for the forward dates) for all months through end 2013 reflecting the abundance of near-term supplies. From a December 2012 forward price of $86.3/barrel the WTI forward curve rises to $89.5/barrel by end 2013. The curve then goes into mild backwardation (near-term prices higher than for the forward dates) over the next three years or so, reaching $85/barrel by end 2016. Over the subsequent four years the WTI forward curve is essentially flat at about $84.8/barrel.

The Brent forward curve remains in significant backwardation through late 2017, reflecting pronounced near-term supply constraints and indeed the expectation that these might persist. From a December 2012 forward price of $108.1/barrel the curve dips to $102.1/barrel by end 2013 and $90.5/barrel by end 2017. The curve then trends broadly flat at marginally under $90/barrel through end 2020. The two forward curves imply a narrowing of the WTI discount to Brent from $21.8/barrel in December 2012 to around $5/barrel post 2017.

Exhibit 14: Brent and WTI forward curves



Source: Bloomberg

Supply/demand balance: Surpluses in 2012 and probably 2013

2012 – Data over the past few months have confirmed that the oil market was very comfortably in surplus during the first half of 2012. Both the IEA and OPEC put this at about 2mmb/d. Provisional data for the third quarter point to a market that is somewhere between marginally in deficit and balance. In this context it should be noted that demand is seasonally strong in the third quarter, while non-OPEC output is seasonally low due to northern hemisphere facility maintenance programmes, particularly in the North Sea. Very often, in fact, there is a sizeable deficit in the third quarter. Based on current trends the oil market globally looks like being in significant surplus in the fourth quarter. The key factors here are subdued demand, resumed non-OPEC supply growth and in all likelihood continuing buoyant OPEC production. Specifically in the case of non-OPEC supply growth, the key positives are expected to be recovery in the North Sea following the outages both planned and unplanned in the third quarter and the bullish trend in North American production.

Based on forecasts made by the IEA, OPEC and the EIA, global demand growth for 2012 as a whole could be in the range 0.7-0.8mmb/d or about 0.9%. According to these three organisations demand growth in 2012 is likely to be comfortably exceeded by a combination of higher non-OPEC oil production and OPEC natural gas liquids, which are not subject to quotas. Broadly speaking, the former looks like increasing by 0.4-0.6mmb/d while the latter grows by 0.3-0.4mmb/d. The implied surplus without recourse to OPEC crude might therefore be in the region of 0.2mmb/d. Including OPEC crude the surplus could be about 1.5mmb/d assuming OPEC production in the fourth quarter of 31mmb/d.

2013 – Given the lacklustre macroeconomic backdrop globally combined with negative structural influences, oil demand is likely to remain subdued in 2013. The three forecasting bodies mentioned above are anticipating demand growth of between 0.78mmb/d and 0.90mmb/d, which is not significantly different than in 2012. Broadly speaking, a drop of 0.2-0.3mmb/d in the OECD world is expected to be more than offset by a gain of a million or so barrels/day elsewhere. We believe these forecasts are plausible if world economic growth does indeed come in at 3.6% as suggested by the IMF. However, a significantly weaker outcome is entirely possible, bearing in mind recessionary or quasi recessionary forces in much of the OECD and slowing economic growth in the developing world. By historical standards world economic growth of 3.6% is respectable. In the event of growth of around 3% oil demand would probably increase in 2013 by no more than 0.5mmb/d with a gain of perhaps 0.9mmb/d in the developing world partially offset by a drop of 0.4mmb/d in the OECD. The IEA in an earlier study suggested that world economic growth of 2.3% might be consistent with oil demand growth of 0.34mmb/d.

Conceptually the outlook remains for a highly significant gain in non-OPEC oil output in 2013. The EIA continues to be the most bullish of the three forecasting bodies mentioned earlier. Its forecast of a 0.9mmb/d gain, however, reflects a downgrade from the previous 1.1mmb/d. Around 75% of the forecast growth emanates from North America (shale development), with the balance stemming principally from Brazil (pre-salt development), Kazakhstan (giant Kashagan field coming on-stream) and Sudan/South Sudan (resumption of operations following hostilities). Non-OPEC output growth forecasts for 2013 by the IEA and OPEC call for somewhat smaller gains than the EIA at 0.7mmb/d and 0 8mmb/d respectively. OPEC NGL production gains in 2013 might be lower than in recent years, but at about 0.25mmb/d should still be significant. All told, total non-OPEC controlled supplies therefore might increase by a million barrels or so per day in 2013, which should comfortably exceed demand growth on any conceivable scenario. As always, considerable uncertainty surrounds the supply forecast given the potential for unplanned outages and delayed project start-ups related to such factors as technical malfunctions, adverse weather conditions, labour disputes, civil strife and wars.

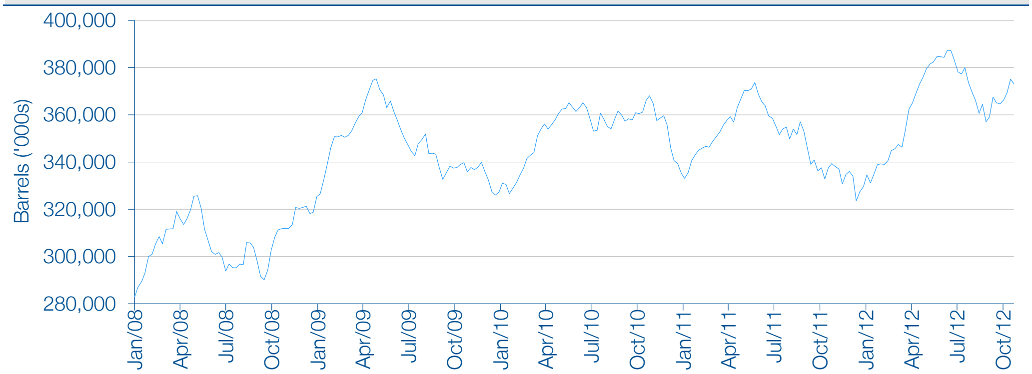
An unknown at this stage is how OPEC production will develop in 2013 in the event of a significant non-OPEC supply surplus as suggested above. A cut would presumably be on the cards, but how watertight this might be, particularly with Iraq continuing to boost production, is an open question. Much will probably depend on whether or not the conflict between the West and Iran intensifies over the latter's nuclear programme. Significantly, Iran has threatened to cease all exports if the West should tighten sanctions still further. This would remove another 1mmb/d from the market and result in a clear deficit unless matched by a corresponding increase in output by the rest of OPEC.

US inventories

Crude oil: Historically high

There has been a seasonally strong upward trend in US commercial crude oil inventories of late, which has left them at historically high levels for the time of year. Based on EIA data, inventories reached a recent high on 19 October of 375.1mm barrels, up 37.5mm barrels on a year previously and about 10mm barrels above the top end of the seasonally relevant range for the past five years. Inventories were admittedly higher in June when they hit around a 22-year high on 15 June of 387.3mm barrels, but this reflected seasonal influences. On a days' supply basis inventories are also elevated historically. For the week ending 19 October inventories were equivalent to 25.3 days against 23.0 days a year ago. The days outstanding were higher last May at 26.0, but the difference is less than would be expected seasonally. Including the strategic petroleum reserve crude inventories on 19 October were 1,072mm barrels, equivalent to about 72 days' supply.

Exhibit 15: US crude oil inventory



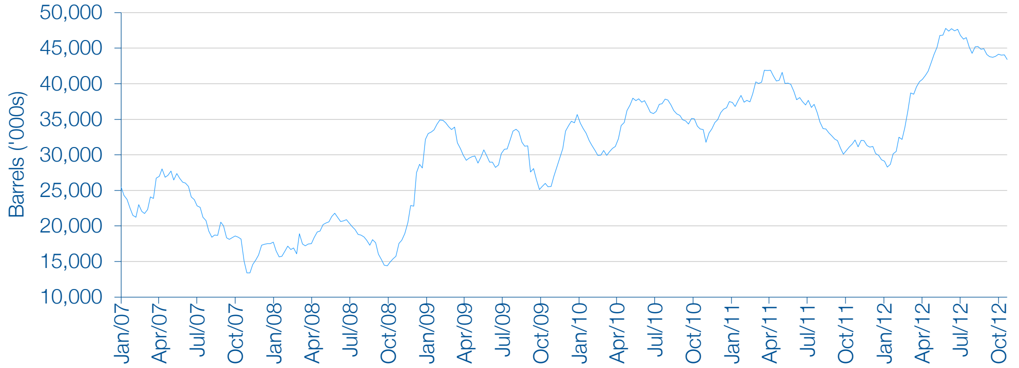
Source: EIA

Historically high inventories reflect a combination of buoyant production and soft demand. It is interesting to note, however, that US refinery utilisation and refinery inputs in the week ending 19 October were both higher than a year previously. Utilisation for example was up from 84.8% to 87.2%, while inputs were 1% higher. The four-week average for the latter, however, was marginally down year-on-year.

Cushing: Seasonally high

Crude oil inventories at Cushing, Oklahoma, the world's largest tank farm and the delivery point for Nymex crude, have fallen modestly from the June highs of just under 48mm barrels, but remain seasonally high. As of 19 October they stood at 44.1mm barrels, up 12.6mm barrels or 40% on a year earlier. The shell capacity of the Cushing tank farm has been boosted by a substantial 13.9mm barrels over the past 18 months and currently stands at 74.6mm barrels, according to the EIA. Working capacity is somewhat less at 61.9mm barrels, but plenty of spare capacity remains.

Exhibit 16: Cushing crude oil inventories



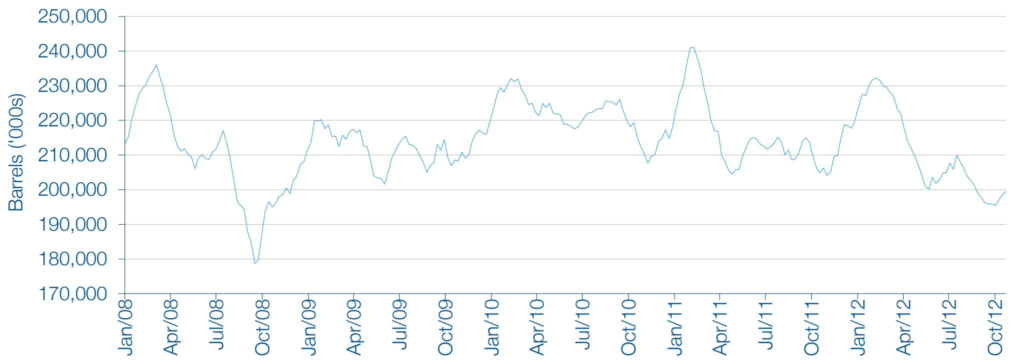
Source: EIA

The upward trend in Cushing's inventories in 2012 largely reflects buoyant US Mid-Continent production and increasing supplies from Canada stemming from upgraded pipeline connections. Reflecting a recent unplanned maintenance related outage on the Keystone Pipeline (Hardisty Alberta-Cushing) Cushing inventories could dip a little over the next week or two. In the medium term a key issue concerns the potential impact of converting BP's giant Whiting refinery near Chicago (the largest in the Midwest) to largely use heavy Canadian feedstock rather than WTI. Conceptually this could result in a WTI inventory build-up at Cushing and consequent downward pressure on prices for this grade.

Gasoline: Seasonally low in absolute terms but days' supply normal

Gasoline inventories have been on a pronounced falling trend in 2012, which, contrasting with crude oil, has left them at seasonally low levels. For the week ending 19 October inventories stood at 196.8mm barrels, down 6.3mm barrels or 3% on a year ago. Based on the five-year average gasoline inventories are at the lower end of the range. Taking the period since 2000, inventories are also on the low side but still above lows of 180mm to 190mm barrels. The downward trend in gasoline inventories reflects falling production and imports driven by declining demand. On a days' outstanding basis gasoline inventories are, in fact, normal seasonally at 23.1 days. Admittedly, however, this is a little down on the 23.4 days of a year earlier. We believe that given the structural drop in demand over the past five or so years it is more appropriate to judge gasoline inventories in terms of days' outstanding rather than absolute barrels.

Exhibit 17: US gasoline inventories



Source: EIA

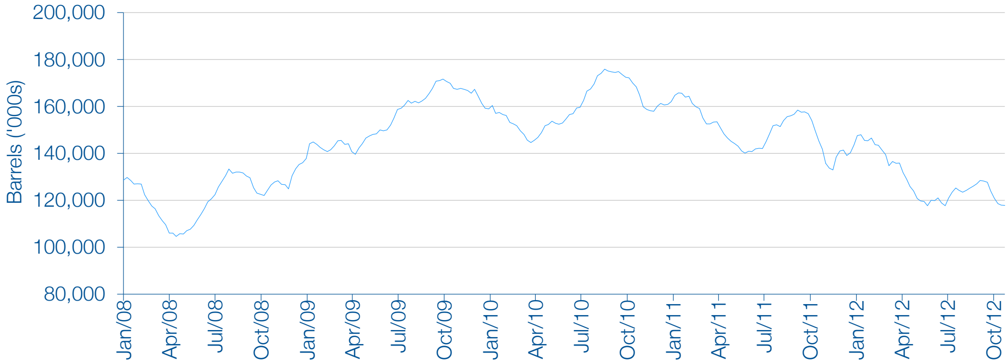
Hurricane Sandy

In the wake of Hurricane Sandy fears have been expressed concerning the adequacy of refined product inventories in the Northeast, given that six major refineries have been closed. It should, however, be noted that in addition to the impact of the hurricane on supply there has been an impact on demand. Hurricane Sandy affected a wide swath of the Northeast, which accounts for about 25% of US GDP. The damage and destruction undoubtedly has taken a heavy toll on economic activity and therefore fuel demand. We believe that tight supplies of refined product will tend to put upward pressure on wholesale and retail gasoline prices in the near term. In extremis this could result in a release in inventory from the strategic reserve. It would appear that the refineries in the Northeast have come through the hurricane unscathed structurally so there should be no medium-term negative implications for fuel supply.

Distillates: Seasonally low, but days' supply within the historical range

Distillate inventories have also been trending down for some time and remain below the lower end of the five-year average for the time of year. For the week ending 19 October inventories came in at 118.0mm barrels, down 27.5 mm barrels or 19% from a year earlier. On a days' supply basis distillate inventories in the latest week were equivalent to 30.8 days against 35.1 days a year ago. Although the current days' supply is well below the peak levels of about 50 days in 2009/10, it is not out of line with the 22 to 40 days of much of the period since 2000. A key issue in terms of distillate inventories in the coming weeks will be weather conditions in the key US heating oil usage regions in the Midwest and Eastern Seaboard. Mild conditions in the winter of 2011/12 cut usage considerably.

Exhibit 18: US distillate inventories

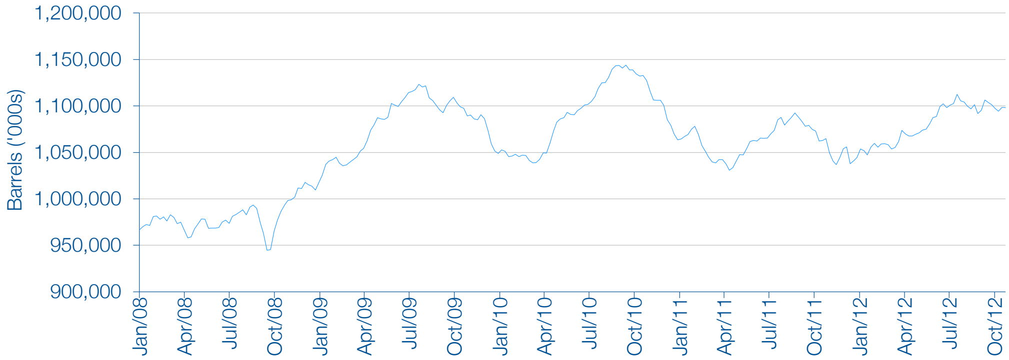


Source: EIA

All petroleum product inventories: Close to 2009/10 highs

We believe the soundest basis for assessing the adequacy of petroleum inventories is on the all-encompassing definition. Based on EIA data for 19 October, US commercial crude and refined product inventories were 1,098mm barrels, up 35.5mm barrels or 3.3% on a year earlier. Compared with the recent 2012 third-quarter high of 1,112.6mmm barrels, total commercial inventories are marginally down but they are nevertheless within shooting-distance of the post 2000 highs of 2009/10.

Exhibit 19: US all petroleum product inventories

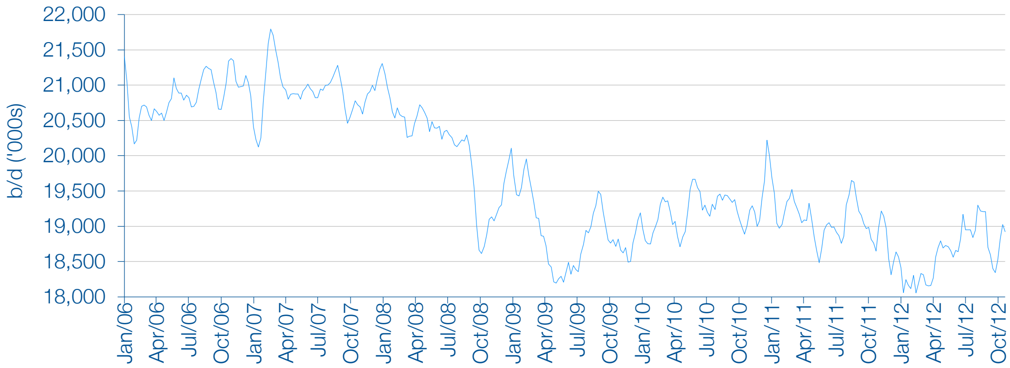


Source: EIA

US petroleum product demand: Firming trend continues

The trend in US petroleum product demand has firmed a little of late, but the underlying picture remains lacklustre. Based on EIA data for products supplied, demand in the four-weeks to 19 October averaged 19.02mmb/d, up 1.4% from a year previously. This follows year-on-year movements for the prior six four-weekly periods of 0, -2.4%, +3.4%, -3.4%, -2.9% and -2.7%, and declines of around 6% at the beginning of 2012. In the year-to-date demand has fallen 2.2% from 2011. This compares with a cumulative decline of 2.8% in mid-July. In terms of the product mix, the year-on-year movements in four weeks to 19 October were as follows: gasoline -1.8%, distillates -7.7%, kerosene +7.1%, residual fuel oil -1.8%, propane/propylene +22.0% and miscellaneous +13.8%. Cumulatively in 2012 gasoline consumption has dropped compared with 2011 by 3.8% to 8.66mmb/d, while distillates kerosene and fuel oil have fallen by 4.1%, 0.5% and 26.9% respectively. By contrast, propane/propylene has shown a gain of 12.7% and miscellaneous has risen 2.6%. Propane supplies have been driven in 2012 by rising production of natural gas liquids, much of which stems from the shale plays and in particular the Eagle Ford.

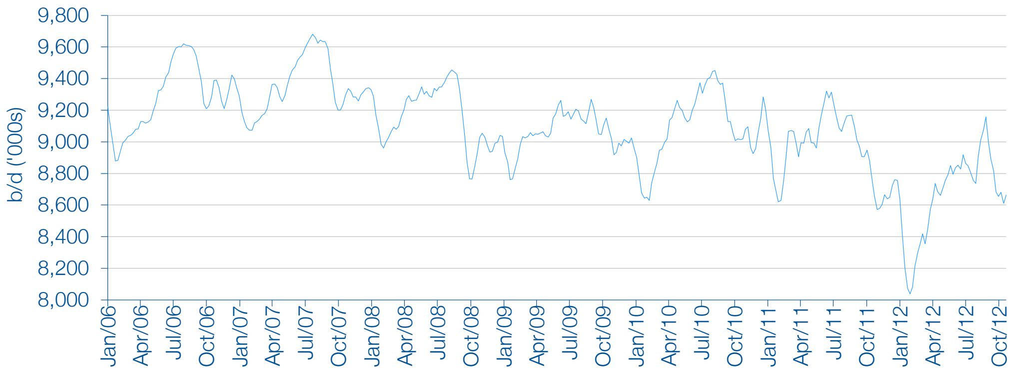
Exhibit 20: US petroleum products supplied



Source: EIA. Note: data are four-week averages.

For 2012 the EIA is forecasting US petroleum product demand of 18.67mmb/d, a decline of 0.28mmb/d or 1.5% from 2011. Gasoline is expected to show a surprisingly modest decline of 0.3% to 8.72mmb/d, while distillates, kerosene and fuel oil are expected to be down by 2.8%, 1.4% and 13.0%, respectively. The EIA's petroleum product demand forecast for 2012 would imply a drop of 2.13mmb/d or 10.2% from the 2005 all-time high of 20.8mmb/d. Similarly, gasoline would be off 6.1% from the 2007 high of 9.29mmb/d. Given that demand was actually under significant pressure in the closing months of 2011, the year-on-year comparisons should become easier over the balance of 2012. Nevertheless, we believe the risks are to the downside in the EIA's forecast of demand for 2012 as a whole.

Exhibit 21: US gasoline supplied



Source: EIA. Note: data are four-week averages.

For 2013 the EIA is looking for modest petroleum product demand growth of 0.5% to 18.77mmb/d, a slight upgrade from the 18.75mmb/d of a few months ago. Gasoline demand is expected to be broadly unchanged, while distillates consumption is forecast to increase by 1.3% driven by rising transportation and industrial needs. Elsewhere, the EIA expects kerosene demand to be flat, fuel oil demand to be off 2.5% and miscellaneous to be unchanged. The GDP growth assumptions used by the EIA are 2.2% for 2012 and 1.7% for 2013. Given the far from buoyant macroeconomic backdrop along with the structural factors tending to depress demand, we believe the EIA's 2013 forecasts are also vulnerable to the downside. In our view gasoline is the key area of vulnerability, reflecting the increasingly negative structural influences in terms of improving light vehicle fleet fuel economy and declining miles driven. We suspect that in practice demand will struggle to show any growth. Indeed, another modest decline of up to 0.5% would not be surprising.

Crude oil price outlook: Bearish

In terms of the fundamentals we see no reason for great excitement in oil markets in the near term. Non-OPEC production is gathering momentum, OPEC output continues to run at a relatively high level, inventories are plentiful and demand is subdued. In short, we are looking at a significant supply surplus.

The bearish market backdrop has, of course, already to some extent been reflected in prices by the pronounced softening in the second half of October. Compared with end October we would expect prices to trend flat to down over the balance of the fourth quarter. We believe this could be consistent with averages for the quarter of perhaps $107.0/barrel for Brent and $86.0/barrel for WTI. The quarterly scenarios for 2012 would then be as follows: Brent Q1 $118.7, Q2 $108.7, Q3 $109.8, Q4 $107.0; WTI Q1 $103.0, Q2 $93.3, Q3 $92.2, Q4 $86.0. This would imply full-year forecasts of $111.1/barrel for Brent and $93.6/barrel for WTI. The former constitutes a significant upgrade compared with the $105.7/barrel forecast previously, with the variance effectively reflecting the third-quarter supply issues surrounding Brent and more generally geopolitical concerns. The new WTI forecast reflects a more modest upgrade from the earlier $91.5/barrel.

As already alluded to in the supply/demand section, the crude oil market backdrop will probably remain decidedly subdued in 2013 subject to the caveat of no major supply shocks or intensified geopolitical angst. On the supply front the most obvious areas of concern relates to Iran, and further outages in the North Sea. Regarding the former, we would continue to expect any new administration in the US to avoid a conflict with Iran due to the potential for a wider conflagration in the Gulf and a consequent surge in oil prices. A potential wildcard for 2013 could be a spread of the Islamist 'democracy' movement to the Gulf. It has already affected Bahrain and could engulf other emirates such as Kuwait, UAE and even Saudi Arabia itself. There have indeed been some civil disturbances in Kuwait and the UAE of late apparently directed at seeking greater political freedom. On the macroeconomic front the key issues in the coming months relate the sovereign debt crisis in Europe, the fiscal cliff in the US and the business slowdown in China. Any signs of further cuts in economic growth forecasts could, we believe, severely depress oil and indeed broader commodity market sentiment.

All factors considered, we would look for oil prices generally to be somewhat weaker on average in 2013 than 2012. The anticipated softening trend in prices in the closing months of 2012 is a key factor here. As in recent years, however, we expect supply issues both real and imagined to provide a degree of support for prices in 2013. In the case of Brent we are raising our 2013 forecast from $95.3/barrel to $99.0/barrel to reflect greater than previously anticipated carryover strength from 2012 and potential international supply uncertainties, with further technical problems in the North Sea very much to the fore. For WTI we are leaving our 2013 forecast unchanged at $86.5/barrel.

Exhibit 22: WTI and Brent price scenarios

$/bbl	2004	2005	2006	2007	2008	2009	2010	2011	2012e	2013e
WTI	41.5	56.6	66.1	72.2	99.8	62.0	79.5	94.9	93.6	86.5
Brent	38.3	54.5	65.4	72.7	97.7	62.0	79.7	110.0	111.1	99.0

Source: Bloomberg, Edison Investment Research. Note: Prices are averages.

US natural gas market

Production levelling-off, consumption gaining momentum

Recent trends

US natural gas production remains on an upward trend, but in recent months there has been a levelling tendency on a monthly sequential basis. EIA data for July, the most recent available, showed marketed production of 2.13tcf, up 4.4% on a year previously. Cumulatively for the seven months to July 2012 production has climbed 6.4% year-on-year. This is down from 8.4% at the four-month stage. Interestingly, production in July was roughly unchanged from late 2011. As in earlier months, the lower 48 states have been responsible for all the cumulative production gain in 2012. In Alaska and the Gulf of Mexico production has actually fallen by 5% and 18% respectively in the year-to July.

Rising US production has occurred despite the spate of well shut-ins announced earlier this year and declining dry gas drilling activity. The explanation to the apparent conundrum would appear to be increasing production from liquids-rich shale projects, where gas is produced as a by-product. The net import balance has remained on an underlying narrowing trend in recent months. At the seven-month stage in 2012 the balance was 952bcf against 1,202bcf a year earlier. The 20% year-on-year decline in the balance narrowed somewhat from 26% at the four-month stage. With the net import balance running at an annual rate of only about 1.6tcf it is now pretty marginal in the context of total supply of over 25tcf. The bulk of the gross imports relate to pipeline shipments from Canada. According to the EIA, LNG imports are likely to roughly halve between 2011 and 2012 to a marginal 183bcf, about 5% of gross imports.

US natural gas consumption was depressed in the early months of 2012 due to the mild winter in the Midwest and Northeast, which sharply cut commercial and home heating usage (roughly 50% of US households use gas for heating). Since the first quarter, however, consumption has firmed seasonally with the key factor being rapidly growing use of gas in power generation. Gas consumption in July was up 9% year-on-year, while cumulatively through the first seven months of 2012 the increase has been 3.2%. Cumulatively in 2012 gas use in power generation (the largest market) has surged by 29% from 2011. Declining residential and commercial usage, however, has to a considerable extent offset the gain in power generation with year-on-year falls of 19% and 14% respectively. Industrial, the second largest market, has shown a modest cumulative gain of 1%.

The surge in the use of gas this year in power generation has been driven by the fuel's radical gain in price competiveness against coal. According to EIA data, gas accounted for about 30% of power generation in the US in the first half of 2012 against 22% a year earlier. Meanwhile coal's share dropped from 43% to 35%. Interestingly, as a result of this loss of market share in the US, exports of coal have been stepped up, which has increased the power station coal burn rate in several European countries.

Outlook

US natural gas production looks like remaining at a high level over the balance of 2012, but the rate of growth will probably slow significantly compared with the beginning of the year, reflecting the lagged impact of shut-ins and declining drilling activity for dry gas. The EIA is now forecasting a gain in marketed production in 2012 of 4.0% to a record 25.13tcf, marginally down on the forecast made earlier in the year. For 2013 the EIA is forecasting marketed production of 25.27tcf, a slight gain of 0.5% from 2012.

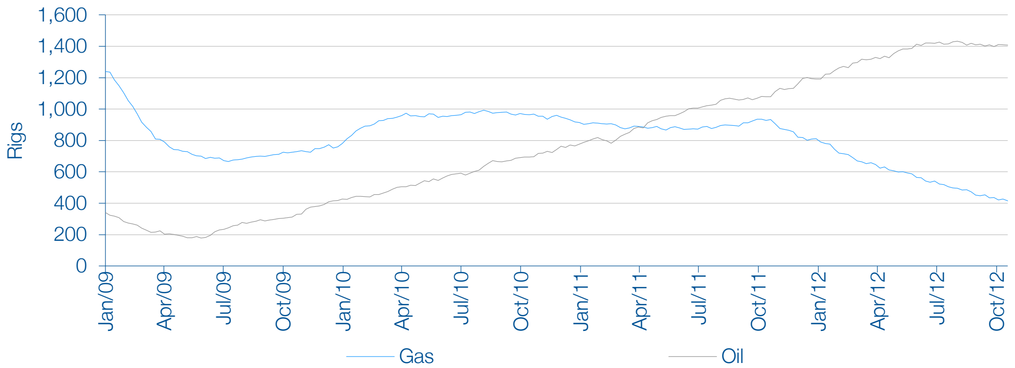
Assuming normal winter weather in the fourth quarter, we expect US consumption growth to remain buoyant over the balance of 2012. For the year as whole the EIA is currently forecasting growth of 4.7%, marginally down on the 4.9% of three months ago. In the fourth quarter power generation usage is likely to remain robust, albeit less so than earlier in the year, while residential and commercial usage should show substantial year-on-year gains if weather conditions follow the normal seasonal pattern. Interestingly, the EIA is forecasting a marginal decline of 0.5% in natural gas consumption in 2013. This is expected to be driven by declining usage in the power generation sector, as assumed higher natural gas prices and deteriorating competiveness *vis-à-vis* coal reduce demand in power generation. As the EIA has noted, however, gas usage in power generation is likely to remain at historically high levels in 2013. Gains in the residential and commercial sectors are expected to largely offset the drop in gas usage in power generation, as more normal winter weather conditions boost space heating demand.

Drilling activity and rig count: Gas rig count continues to slide, oil plateauing at a high level

The US rotary rig count overall has trended modestly down in recent months from the record levels of late 2011 and early 2012. According to Baker Hughes, the rig count on 26 October 2012 was 1,826, 10% below the earlier highs. The softening trend of late continues to be very much gas-driven, although the oil rig count has also recently lost momentum. Rigs focused on gas drilling were 416 on 26 October, down 55% on a year earlier and a post June 1999 low. The continuing slide reflects still-depressed gas prices and marginal gas industry economics. Admittedly, gas prices have firmed since the second-quarter lows, but at about $3.4/mmBtu are still distinctly marginal on a fully accounted basis. The bulk of the gas rigs still operating are believed to be either meeting lease commitments or focused on liquids-rich shale plays such as Marcellus and Utica in Appalachia and the Eagle Ford in Texas. Bearing in mind that finding and development costs in the US are probably about $2/mcf on average, we would not expect there to be a sustained rise in gas related drilling until gas prices are $4/mcf or more.

The US oil-related rig count has been on a high plateau of around 1,400 since early June 2012. On 26 October it was 1,408, equivalent to 77% of the total and 30% above a year previously. In recent months the oil rig count high was 1,432 on 10 August. This was the highest level since 1987 when the rig count was split between oil and gas. Indicative of the shale oil boom the oil rig count is up almost eight times since the June 2009 low of 179.

Exhibit 23: Baker Hughes rig count



Source: Baker Hughes, Bloomberg

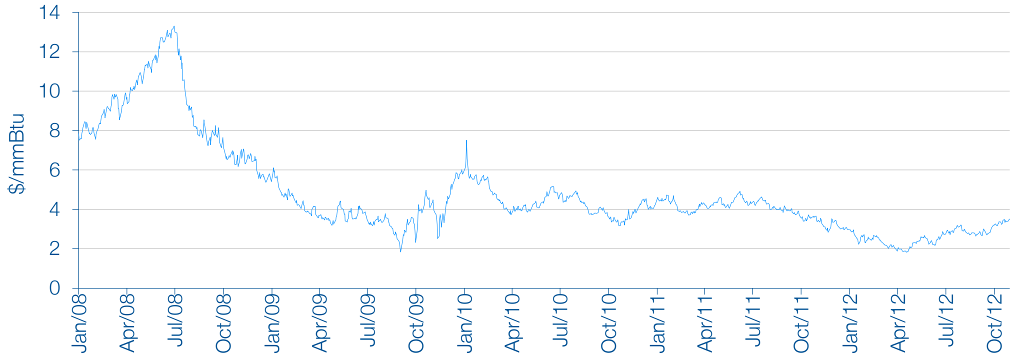
Inventories: Historically very high

US natural gas inventories remain at historically very high levels as the withdrawal season approaches. Based on the latest EIA data, inventories on 19 October were 3,843bcf against 3,189bcf and 3,716bcf three and 12 months ago, respectively. Compared with the five-year average between 2007 and 2011, inventories are currently 7% (251bcf) higher and pretty well at record levels. Sizeable inventories reflect the clear tendency for production to outpace consumption in 2012. Clearly inventories should be adequate for even a severe winter in the Middle West and North East. The caveat is that the functioning of the supply infrastructure is not adversely impacted by severe weather as has sometimes been the case in the past. We suspect that in the absence of seasonally low temperatures on a sustained basis in December and January, US gas inventories will again probably end the withdrawal season in March 2013 at seasonally high levels.

Recent price developments: The rebound continues

The low water mark for US natural gas prices appears to have been reached last April. On 20 April the Gulf benchmark Henry Hub, Louisiana quote plumbed $1.82/mmBtu, around a 10-year low and a level that few thought possible. Since April the Henry Hub quote has trended higher. The average for the third quarter was $2.88/mmBtu, which was in line with our expectations. By end October the Henry Hub had recovered to $3.40/mmBtu, up 87% from the April low, although still 7% below year-earlier levels. At the other major hubs (with the usual exception of Agua Dulce, south Texas) in the Gulf Coast and Western regions gas was trading at similar levels to Henry Hub at the end of October. Despite the firming price trend in recent months, the Henry Hub quote and indeed US gas prices in general remain depressed internationally. The Henry Hub, for example, currently stands at a discount of about two-thirds to the late October UK NBP (National Balancing Point) price of $10.56/mmBtu and about 75% to international LNG prices. At around $20/barrel on an energy equivalent basis, the Henry Hub price also remains at a substantial discount to crude oil.

Exhibit 24: Henry Hub price trend



Source: Bloomberg

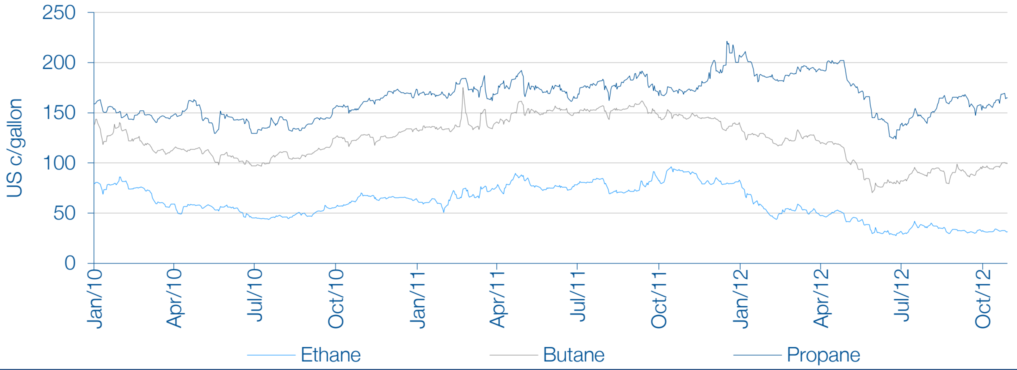
The firming trend in natural gas prices has been despite continuing historically high inventories. The key driver during the third quarter was a hot summer and the associated boost to power generation related to intensive air conditioner use. More recently gas prices appear to have been supported to stepped-up speculative activity geared to the possibility of a significantly colder winter than in 2011/12.

Economics

There was little doubt that US gas producers were under heavy margin pressure in the first half of 2012. At $1.82/mmBtu we believe, in fact, that dry gas realisations for the average producer were pretty much down to variable production costs defined as lifting, taxes and royalties, processing and pipeline tie-in. The situation is obviously greatly improved at $3.40/mmBtu. We believe that with dry gas realisations at this level there should, in fact, be a reasonably comfortable cash contribution for the average producer. This assumes lifting costs of $1.5/mcf (including taxes and royalties), $0.9/mcf for SG&A and $0.2/mcf for processing and pipeline tie-in. Including finding and development costs, however, of perhaps $1.5/mcf, a significant fully accounted loss is still implied.

The above calculations are based purely on dry gas realisations. In practice margins tend to be more favourable due to by-product natural gas liquids such as butane, propane and ethane, which have chemical industry applications. Particularly in the case of liquids-rich gas from the shale formations of the Eagle Ford and Marcellus, natural gas liquids can boost realisations by a further $2/mcfe or more, which would imply overall realisations currently of perhaps $5.5/mcfe. In all likelihood this would imply a comfortable fully accounted profit. However, unfortunately for producers natural gas liquids prices have come under pressure in 2012 as production and inventories have built-up. Compared with a year ago propane, butane and ethane spot prices (Mont Belvieu, Texas) are down 30%, 12% and 69% respectively. However, all three are above the June 2012 lows.

Exhibit 25: Recent trends in US NGL prices



Source: Bloomberg. Note: Prices are ex Mont Belvieu, Texas.

Price outlook: Boone Pickens could be right

Bonne Pickens, the legendary oil man and leading advocate for natural gas, expressed a view a few months ago that the Henry Hub quote would be back to $4/mmBtu by 2012 year end. On recent trends he may well be right. The thinking here is that the supply/demand balance is likely to tighten as the seasonal upswing in demand takes hold and lower drilling activity and shut-ins keep a lid on supply. We believe recent trends are consistent with our earlier forecast of $3.70/mmBtu on average for the fourth quarter. Consequently, we are leaving our full-year 2012 forecast unchanged at $2.83/mmBtu. The key factor determinant of natural gas prices over the next few months will probably be weather conditions in the Midwest and Northeast.

Reflecting improving visibility on a moderately tighter supply/demand balance we are raising our Henry Hub forecast for 2013 from $3.25/mmBtu to $3.40/mmBtu. The quarterly scenario might be as follows: Q1 $3.90, Q2 $2.80, Q3 $3.20, Q4 $3.70. We continue to believe that any increase in US natural gas prices in 2013 will be dampened by soft coal prices. The significance of the softness in coal relates to the potential for rolling back this year's surge in the power station burn-rate for natural gas.

Exhibit 26: Henry Hub quarterly price scenario

	Q1	Q2	Q3	Q4	Average
2008	8.66	11.37	9.06	6.45	8.89
2009	4.54	3.70	3.17	4.37	3.94
2010	5.15	4.15	4.32	3.86	4.37
2011	4.18	4.37	4.12	3.33	4.00
2012e	2.43	2.29	2.88	3.70	2.83

Source: Bloomberg, Edison Investment Research

Exhibit 27: Henry Hub natural gas price trend

$/mmBtu	2004	2005	2006	2007	2008	2009	2010	2011	2012e	2013e
	5.85	8.79	6.72	6.96	8.89	3.94	4.37	4.00	2.83	3.40

Source: Bloomberg, Edison Investment Research

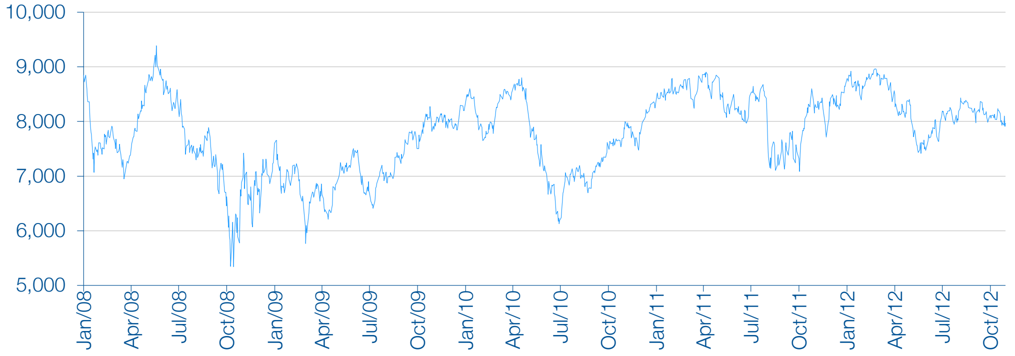
Oil and gas sector performance

UK: AIM juniors recently under pressure, performance weak relative to the FTSE 350

The performance of large capitalisation and junior UK oil and gas stocks has diverged significantly in recent months. After hitting a seven-month low in late May the FTSE 350 Oil & Gas Index, which is dominated by the majors, trended strongly upward through early August rising 14% in the process. Subsequently, the Index has drifted moderately down. By end October it was around 4% and 10% below the August and February 2012 highs respectively. Compared with a year ago, the FTSE 350 Oil & Gas Index has fallen about 3%, while Brent is broadly unchanged. The 3% decline constitutes a significant under performance compared to the 5.5% gain in the FTSE 100 over the same period. Broadly speaking, since early August the FTSE 350 Oil & Gas Index has declined in tandem with a softening tendency in Brent.

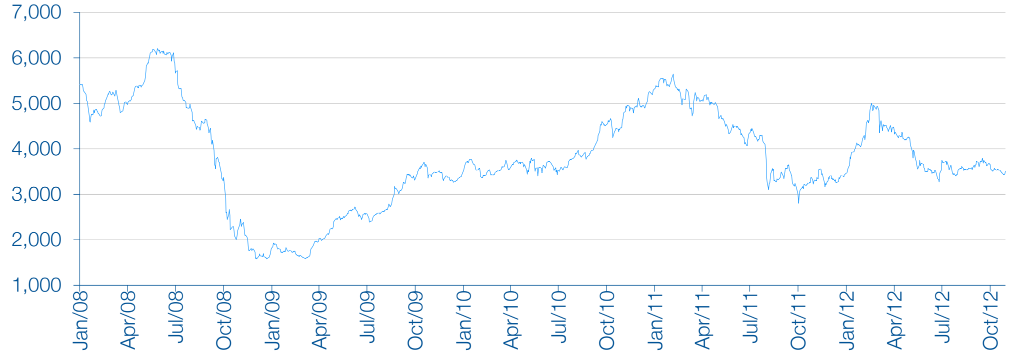
The AIM oil and gas juniors had a much more muted recovery following the second quarter 2012 plunge than the majors. From a six-month low at the end of June the AIM Oil & Gas Index climbed about 7% in early July before trending broadly flat over the following 2½ months. Between mid-September and end-October the AIM Oil & Gas Index dipped 10% leaving it little higher than the recent late-June low. Compared with the February 2012 high, the AIM Oil & Gas Index is down 32%, while relative to a year ago there has been a modest gain of 3%. For perspective, the AIM All-Share Index has fallen 4% over the past year. Significantly, the AIM Oil & Gas Index is down 45% since the 2008 peak.

Exhibit 28: FTSE 350 Oil & Gas Index



Source: Bloomberg

Exhibit 29: AIM Oil & Gas Index



Source: Bloomberg

US: E&P independents have lost momentum, S&P 500 Oil &Gas trending flat at a high level

Developments in the US E&P sector have been uneventful of late. After climbing 23% between the June low and mid-September, the S&P 500 Oil & Gas Exploration and Production Index (an index of large capitalisation oil and gas independents) has subsequently dipped about 5%. This has left the index down 13% from the February 2012 high and 3% from a year ago. Recently the independents have been subject to two countervailing forces, namely, the marked dip in WTI and the firming trend in natural gas prices. From a longer-term perspective the US independents have been strong performers, with the S&P 500 Oil & Gas Exploration and Production Index almost doubling since the lows of early 2009. The independents have, of course, benefited from being in the vanguard of the shale oil revolution over the past four or five years. One of the leading Bakken pioneers, Continental Resources, for example, is up more than fivefold since early 2009. The independents, however, have clearly lost momentum over the past two years or so in tandem with WTI and the deterioration in gas industry economics.

Exhibit 30: S&P 500 Oil & Gas Exploration and Production Index

Source: Bloomberg

The more broadly based S&P 500 Oil & Gas Index (which includes the majors Exxon, Chevron and ConocoPhillips as well as large E&P independents and refinery groups such as Valero) also recovered strongly from the second-quarter lows with a gain of 22% in the three months to mid-September. Subsequently, there has been a dip of 4%, but the index remains 7% up on a year ago. Taking the period early 2011 to end October 2012, the S&P 500 Oil & Gas Index has trended flat at a high level historically. As we have noted before, several of the large capitalisation majors sport significant yields, an important consideration in this age of low cash returns. The yield on the S&P 500 Oil & Gas Index at end October was 2.3% according to Bloomberg data. This is modestly above the S&P 500's 2.1% and usefully in excess of the 10-year Treasury yield of 1.7%.

Exhibit 31: S&P 500 Oil & Gas Index

Source: Bloomberg

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