Edison investment research

# The market remains well supplied

The oil market remains well supplied and probably in surplus. Based on the fundamentals there is no reason to expect a surge in prices in 2011 as is being suggested in some quarters. We expect an extended period of sluggish economic growth in the western world and a slowdown elsewhere to constrain the scope for price gains in 2011 and possibly 2012.

15 October 2010

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## Oil supply/demand outlook

We expect the oil market in 2010 to be in surplus by about 0.5mmb/d. For 2011 we are looking for the market to be somewhere between a deficit of 0.2mmb/d and approximate balance assuming sluggish economic growth rather than an outright western world recession.

## Crude oil prices

Light crude prices over the past two months have remained within the $70-85/barrel trading range that has prevailed over the past year. Since late September there has been a decisive move above $80/barrel driven by slightly more positive US economic data, speculation concerning another round of Federal Reserve monetary stimulus and a depreciating dollar. To reflect the strong start to Q4 and dollar weakness we have raised our 2010 and 2011 WTI forecasts from $77.6/barrel to $78.0/barrel and $77.0/barrel to $79.3/barrel, respectively.

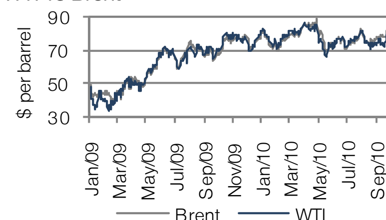
## US natural gas prices

US natural gas prices have come under heavy pressure since the summer months. This reflects a sharp build-up of inventories, forecasts of mild weather and the lacklustre economy. We are downgrading our Henry Hub forecasts for 2010 from $4.70 to $4.51/mm Btu and for 2011 from $5.00 to $4.70/mm Btu.

## Investment reflections

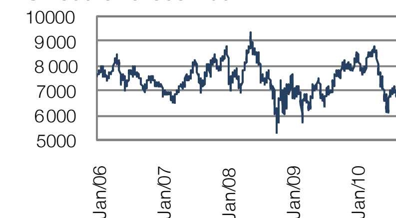
The AIM Oil & Gas Index has performed strongly of late with a gain of 23% since end July and as of mid October was around a two-year high. Since the beginning of 2010 the AIM Index is up 32%. The large capitalisation oil and gas stocks have also gained momentum recently but have lagged the juniors. Two low profile juniors that we believe look particularly interesting currently are the Latin America-focused Geopark and Russian play Exillon Energy.

WTI vs Brent




AIM Oil & Gas Index

FTSE 350 Oil & Gas Index




Price trends

| | WTI $/barrel | Brent $/barrel | Henry Hub $/mm Btu |
|---|---|---|---|
| 2007 | 72.2 | 65.1 | 6.96 |
| 2008 | 99.8 | 97.3 | 8.89 |
| 2009 | 61.8 | 61.7 | 3.94 |
| 2010e | 78.0 | 78.0 | 4.51 |
| 2011e | 79.3 | 79.0 | 4.70 |

Note: Prices are yearly averages

# Crude oil market dynamics

## Price overview

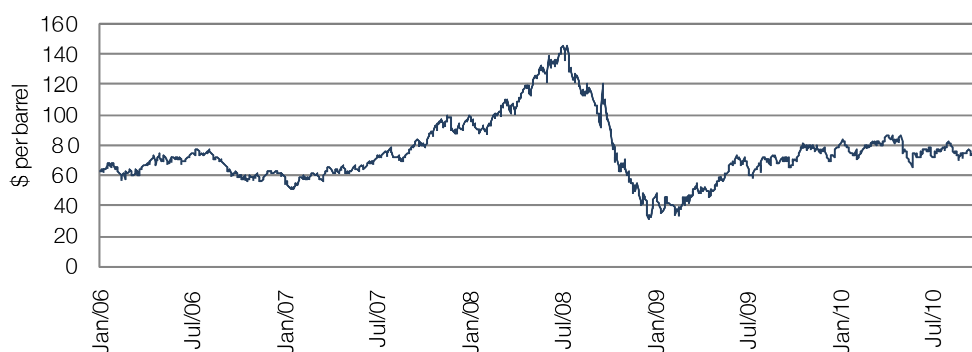
## Recent price developments: Within the trading range

Over the last two months light crude oil prices have remained within the trading range of the past year or so of broadly $70-85/barrel. After firming through the first 10 days of August the trend in US benchmark WTI weakened noticeably over the balance of the month. At the low point on 24 August, WTI traded at $71.2/barrel, around a three-month low. Nevertheless, for the month as a whole WTI averaged $76.6/barrel which was very similar to September. Weakness in the second half of August reflected concerns regarding the outlook for the world economy in general and the US in particular and burgeoning inventories.

Between the end of August and the fourth week of September WTI trended broadly flat with the price averaging $75/barrel. In the closing days of September market sentiment firmed markedly. This lifted WTI to $80/barrel by the last trading day. For the month as a whole, however, WTI averaged slightly less than in the preceding month at $75.3/barrel. The firming trend carried over into early October with WTI hitting an eight week high of $83.2/barrel on 6 October. This was up 17% on a year previously but was still down on the 6 April 2010 high of $86.8/barrel. In the year-to-date early October WTI has averaged $77.8/barrel.

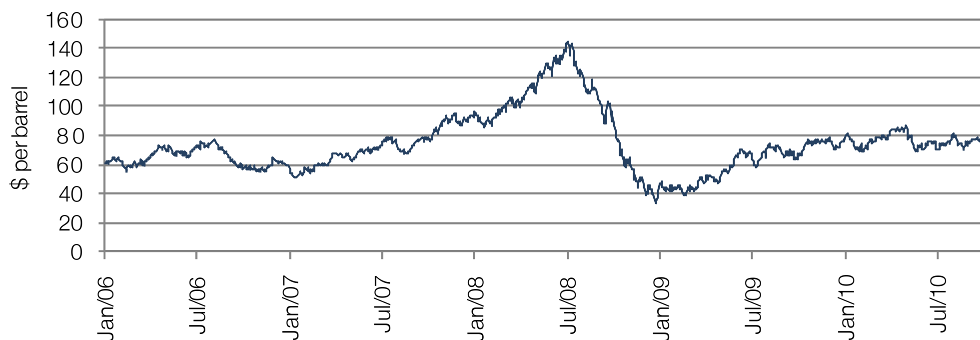
The firming trend in late September and early October was largely driven by three factors. These were a more bullish interpretation of the economic outlook by market participants in the light of some slightly more buoyant economic data especially in the US, speculation that the Federal Reserve and possibly other central banks will undertake another round of monetary stimulus and a sharp depreciation in the dollar post mid August. Significantly, the dollar slumped by 8% against the euro between mid August and early October leaving the currency around a seven month low. Typically, a weak dollar boosts demand for commodities denominated in the currency. In real terms crude oil prices clearly remain at historically high levels, having only been exceeded over the past 30 years in the early 1980s and for a brief period in 2008.

Exhibit 1: WTI crude oil price trend



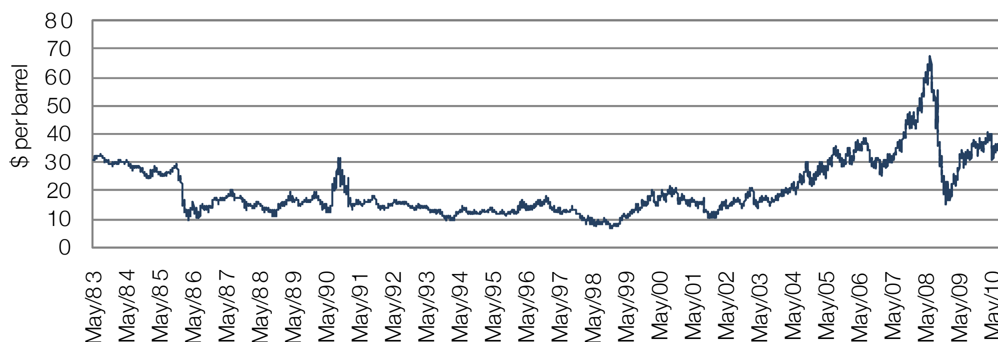

Source: Bloomberg

Exhibit 2: Brent crude oil price trend




Source: Bloomberg

Exhibit 3: WTI inflation adjusted




Source: Bloomberg

Exhibit 4: WTI 2007/11 quarterly price scenario

Note: Quarterly data are averages.

| $/barrel | Q1 | Q2 | Q3 | Q4 | Average |
|---|---|---|---|---|---|
| 2007 | 58.1 | 65.0 | 75.2 | 90.5 | 72.2 |
| 2008 | 97.9 | 123.8 | 118.2 | 59.1 | 99.8 |
| 2009 | 43.2 | 59.7 | 68.1 | 76.0 | 61.8 |
| 2010 | 78.8 | 77.9 | 76.1 | 79.0e | 78.0e |
| 2011 | 79.0e | 78.0e | 79.0e | 81.0e | 79.3e |

Source: Bloomberg, Edison Investment Research

## Light crude spreads : WTI at a discount to Brent

After trading at a slight premium to the North Sea basin benchmark Brent in early August, WTI again moved to a discount in the second half of the month. For the month as a whole WTI traded on average at a discount of $0.53/barrel to Brent which compares with premiums of $0.68/barrel and $0.44/barrel in July and June respectively. During September the Brent premium widened on average to a historically high $2.50/barrel, but in early October had narrowed slightly to $1.4/barrel. In the year-to-date Brent has traded on average at a slight discount to WTI of $0.25/barrel.

The sustained period of strength in Brent relative to WTI in recent months is unusual historically, although has become a more common phenomenon in recent years. Historically, WTI has generally traded at a premium to Brent reflecting the strength of demand for high-grade feedstock in the US and the cost of transportation to the US from other regions. The Brent premium over the past month or two continues to mainly reflect very high inventories at the Cushing, Oklahoma WTI basing point. High inventories in turn stem from low refining activity and growing supplies of crude from US fields, notably the Bakken in North Dakota and Montana and from the Athabasca tar sand fields in Canada. Significantly, Cushing is partially land locked only having tenuous pipeline connections to the Gulf Coast. Heavy maintenance schedules at North Sea fields were also a contributory factor to the relative strength of Brent late in the third quarter of 2010.

Tight supplies of Brent also at times sharply cut the traditional discount to Nigerian Bonny Light, a very high-grade crude, during August. By late in the month, however, the discount had returned to more normal levels and in September averaged $1.47/barrel. In early August the Brent-Dubai Light (a light but relatively sour crude grade) spread was running at a historically high $5/barrel, but by the end of the month had narrowed to $1.32/barrel and in September averaged a normal $2.52/barrel. The narrowing of the Brent premium appears to having reflected strengthening demand for Dubai Light following earlier disruptions to logistics and refinery operations in the Far East. However, by early October the Brent-Dubai spread had once again widened noticeably to $4.1/barrel. The very high grade Malaysian Far Eastern benchmark light crude, Tapis, was trading in early October at $89.77/barrel, reflecting premiums of $5.5/barrel to Brent and $3.9/barrel to Bonny Light. These premiums are broadly in line with the historical picture.

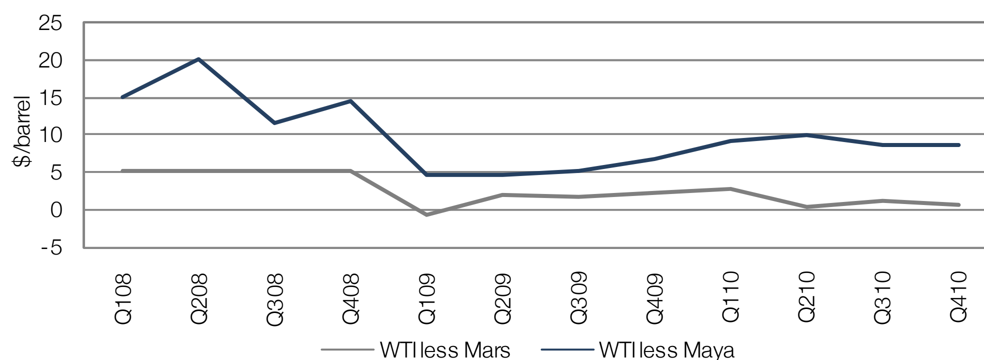
## Heavy crude discounts: Not reflective of specification differences

The picture on US heavy crude discounts to light crudes remains anomalous in relation to specification differences. After trading at a highly unusual premium to high quality WTI (API 39.6 degrees and 0.24% sulphur content) in May of $1.36/barrel, Mars, a medium sour grade (API 28.9 degrees and 1.93% sulphur content) sourced from the Gulf of Mexico, returned to a more normal discount between June and August. The Mars-WTI discount in the three months ending August averaged $0.72, $1.98 and $2.26/barrel respectively. However, these discounts were still well under those of $6-7/barrel between 2004 and 2008 and are arguably not reflective of the difference in specification between the two grades.

During late September Mars, once again, returned to a premium to WTI. For the week ending September 24 this was $1.41/barrel and for the month averaged $0.40/barrel. In early October Mars and WTI were trading at approximate parity. Looking at Maya, a heavy sour grade sourced from Mexico, the discount to WTI has narrowed significantly since June when it averaged

$9.39/barrel. It was down to $6.49/barrel by September 24 and for the month as a whole averaged $7.43/barrel against $7.77/barrel in August. In early October the Maya discount widened slightly to about $8.3/barrel, but it should be noted that current discounts are only about half the levels prevailing between 2005 and 2008. The underlying issue concerning the narrowing of heavy discounts continues to be the sizeable overhang of inventories at Cushing which is tending to depress the price of WTI compared to other grades.

Exhibit 5: Medium and heavy sour crude oil discounts




Source: Valero Energy

## Supply/demand balance

### 2010 supply: Both OPEC and non-OPEC production is higher

The supply of oil globally has been stable in recent months abstracting from the seasonal dip in the third quarter for maintenance programmes. According to OPEC, supply in August was running at 86.1mmb/d, around 2.5% or 1.8mmb/d up on a year earlier. OPEC crude accounts for about 0.3mmb/d of the gain and non-OPEC sources, including OPEC natural gas liquids (not subject to quota), the balancing 1.6mmb/d.

In August, OPEC's output of crude was running at about 29.1mmb/d, down by 43,000b/d on the previous month. The key areas of weakness appear to have been Iran, Kuwait, Nigeria and the UAE. Nigerian output in August was hit by sabotage, but at about 2mmb/d nevertheless remained above year earlier levels. Iraqi output also slipped modestly in August to 2.35mmb/d thereby maintaining the soft trend since the end of 2009, when output was close to 2.5mmb/d. In recent months Iraqi output has been hit by terrorist activity and technical problems. On a positive note Iraq has recently sharply increased its estimate of proven reserves by 25% from 115bn barrels to 143bn barrels making it number three in the world after Saudi Arabia and Venezuela. Significantly, the 143bn estimate excludes Kurdistan which may have reserves of another 40bn barrels. Partly offsetting the areas of weakness in August was a substantial gain of 63% in Angola as output was stepped up following maintenance activity. Lesser gains were reported by Saudi Arabia, Qatar and Venezuela. At recent production rates OPEC has been producing about 2mmb/d more than implied by the official target level.

Significantly, OPEC also has substantial surplus capacity currently of around 6mmb/d. Given that prices have been trending within the desired range no changes to the existing quota regime are expected in the coming months. However, we would expect compliance with the existing regime to

deteriorate still further if oil prices continue to firm. Quite simply, crude oil production for OPEC members is a very profitable proposition at over $80/barrel and many producers will not be able to resist the temptation to raise output at prices significantly above this level. OPEC would probably acquiesce in a rise in output, if prices moved significantly above this level on a sustained basis.

Non-OPEC crude production is performing strongly in 2010 reflecting both capacity additions and no major disruptions for technical, weather related or other reasons. Significantly, the hurricane season in the Gulf of Mexico (GOM) has, so far at least, been muted, and little output has been lost. Historically, September has been the peak month for hurricanes in the GOM so the danger may have passed. In August non-OPEC output was estimated by the IEA to have been about 52.4mmb/d. For the full year the IEA is looking for an average of 52.6mmb/d, a gain of 0.9mmb/d on 2009. OPEC is forecasting a similar increase. We believe this forecast may have to be increased assuming no major disruptions to output in the GOM over the balance of the 2010 hurricane season.

The principal contributors to output growth in 2010 are expected to be Brazil, China, Colombia, India, Kazakhstan, Russia and the US. Brazil is benefiting from a high rate of offshore development activity and rising ethanol output and should see production of about 2.7mmb/d in 2010, a gain of 0.2mmb/d on 2009. China's production has been driven in 2010 in large part by offshore development activity in Bohai Bay. For the year as a whole China's production could be up by about 0.18mmb/d to a record 4mmb/d. Colombia is a good example of a country that has experienced a surge in exploration and development interest following a liberalisation of the fiscal regime. This is now being reflected in rising production. For 2010 Colombian production is expected to come in at about 0.79mmb/d, more than 0.1mmb/d up on 2009 and around 0.25mmb/d on the low point plumbed in 2004. Indian production is being driven by development of the new Rajasthan fields and should result in a record 0.84mmb/d in 2010. The lagged impact of development activity has also boosted production in 2010 in Russia, Kazakhstan and Azerbaijan. The key areas of weakness regionally in 2010 will be the mature producing areas of Mexico, Norway and the UK.

Significantly higher US output is arguably surprising in 2010 in the light of delays to GOM development programmes in the wake of the Deepwater Horizon disaster. The IEA believes that this factor will indeed reduce output by about 60,000b/d in 2010 and 100,000b/d in 2011. This, however, is expected to be much more than offset by carryover development from 2009, gains in output from the Bakken shale oil fields, strong gains in NGL and ethanol production and the muted hurricane season. Overall, the IEA is looking for an increase in US output in 2010 of 110,000b/d while OPEC is forecasting an increase of a hefty 370,000b/d.

OPEC natural gas liquids have provided a major support for petroleum supplies in recent years and 2010 looks like being no exception. For the year as a whole production from this source is expected by OPEC and the IEA to increase between 2009 and 2010 by 0.5mmb/d to in the region of 5mmb/d. This would imply an increase of perhaps 1.4mm to 1.5mmb/d in non-OPEC supply in 2010. All told, we continue to look for world petroleum supply in 2010 to average about 86mmb/d, a gain of 2% on a year earlier. Bio-fuel is expected to contribute about 1.8mmb/d to this total.

### 2011 supply: Less robust gain than in 2010

Non-OPEC supplies will probably increase less rapidly in 2011 than in 2010. The key negatives are likely to be a slowdown in new development projects coming on-stream, the continuing impact of depletion in mature producing zones, such as the North Sea, and the lagged impact of the drilling moratorium in the GOM post Deepwater Horizon. For 2011 the IEA and OPEC are looking for similar gains in non-OPEC crude supplies of 0.3mmb/d and 0.36mmb/d respectively while the EIA is actually anticipating a decrease of 0.16mmb/d. In making its prediction the EIA refers specifically to falling production in the North Sea and the prospect of declining supplies from Russia. While these factors are relevant, we would not expect them to more than offset the positives for production in 2011, unless there are major disruptions to supply for technical, weather-related or geo-political reasons.

Regionally we see the principal drivers behind crude oil production in 2011 as being Brazil, Canada, Colombia and the Caspian Basin. Significantly in 2011 production should start to gather momentum at the giant Tupi field offshore Brazil and OGX (the E&P arm of Eike Batista's EBX empire). Canadian output, we believe, will benefit from several developments in the Athabasca tar sand operations which produce synthetic crude. These include action to boost capacity utilisation at the largest producer Syncrude, the non-recurrence of unscheduled maintenance work and the bringing on-stream of new capacity. A key example of the last mentioned is Suncor's Firebag Stage 3 project which is scheduled to come on-stream in the second quarter of 2011. Overall, we believe production could increase in 2011 by about 0.2mmb/d in Brazil, 0.1mmb/d in Canada, 0.1mmb/d in Colombia and 0.16mmb/d in the Caspian Sea basin.

OPEC natural gas liquids should make another significant contribution to petroleum supply in 2011. In this regard the IEA and OPEC are forecasting gains of 0.64mmb/d and 0.50mmb/d respectively. A key positive for NGLs in 2011 should be the carryover impact of the third phase of the Habshan gas complex in the UAE. According to the IEA, UAE NGL production could increase by about 0.2mmb/d in 2011.

Overall, we believe total non-OPEC petroleum supply, including natural gas liquids, has the potential in 2011 to increase by 0.8mm to 0.9mmb/d.

### Demand: Up about 1mm b/d in both 2010 and 2011

The views of the three key quasi governmental forecasting agencies have not changed radically over the past two months. OPEC remains the most conservative with demand growth forecasts of about 1mmb/d or 1.2% in both 2010 and 2011. The IEA is the most bullish with forecasts of gains of 1.9mmb/d and 1.3mmb/d respectively for the two years. The EIA is slightly more bearish than the IEA for 2010 with a growth forecast of 1.6mmb/d, but with a gain of 1.4mmb/d is in a similar ballpark to the IEA for 2011. For perspective, the average annual growth rate between 2004 and 2009 was 0.8mmb/d. Growth regionally, not surprisingly, is expected to be largely driven by the developing world led by China, Latin America and the Middle East. Specifically in the case of China demand growth of around 5.5% and 5% is expected in 2010 and 2011 respectively. According to the forecasting agencies, North America will also contribute modestly to growth in 2010 and 2011 with the US, Canada and Mexico all participating. However, significant declines in demand are

anticipated in Europe and the OECD Pacific region in both years, thereby continuing a trend apparent for some time.

We continue to believe that OPEC's demand forecasts for both 2010 and 2011 are the most plausible of the three principal forecasting bodies given the lacklustre economic backdrop in the advanced economies and the looming prospect of a significant economic slowdown in the developing world including China. Importantly, the IEA, OPEC and the EIA have all alluded to downside risk to their demand forecasts due to the economic situation in the advanced economies. It should be noted that all three to varying degrees use IMF GDP growth forecasts in their demand forecasting models. Currently the IMF's forecasts call for world GDP growth (at market exchange rates) of 3.7% in 2010 and 3.3% in 2011. The former appears feasible, but the latter could be vulnerable to downward adjustment, if the business slowdown intensifies in the months ahead. This would then trigger downgrades in the crude oil demand forecasts.

Market balance: Supply surplus in 2010 and approximate balance in 2011

The oil market continues to look well supplied near-term at least. Inventories are close to record levels both in the US and in the OECD and the implied supply-demand balance for 2010 is pointing to a comfortable surplus. As of the end of July OECD inventories across all product lines stood at 2,785mmbbls, sufficient to cover 61 days' demand. Inventories have only been higher in the third quarter of 1998 when they reached 2,797mmbbls.

Assuming that demand grows by about 1mmb/d in 2010, we believe that prospective non-OPEC supply will have no difficulty keeping pace. Indeed, in this scenario we could be looking at a surplus of more than 0.5mmb/d bearing in mind that OPEC's output will probably also be up for the year by 0.2mm to 0.3mmb/d. We believe that prospective supply gains in 2010 will be broadly sufficient to cover even the EIA demand forecast. Clearly, if demand increases more in line with the IEA's demand scenario the supply/demand relationship would tighten perceptibly. This, however, seems highly unlikely.

Conceivably, the market could tighten perceptibly in 2011, if demand increases by more than say 1mmb/d. However, in these circumstances we believe OPEC production would move higher to fill the void. The most likely scenario in our view is for the market to be somewhere between a modest deficit of perhaps 0.2mmbbls and approximate balance. Inventories are sufficiently high currently to withstand a moderate drawdown.

# US inventories

## Crude oil: Inventories remain historically high

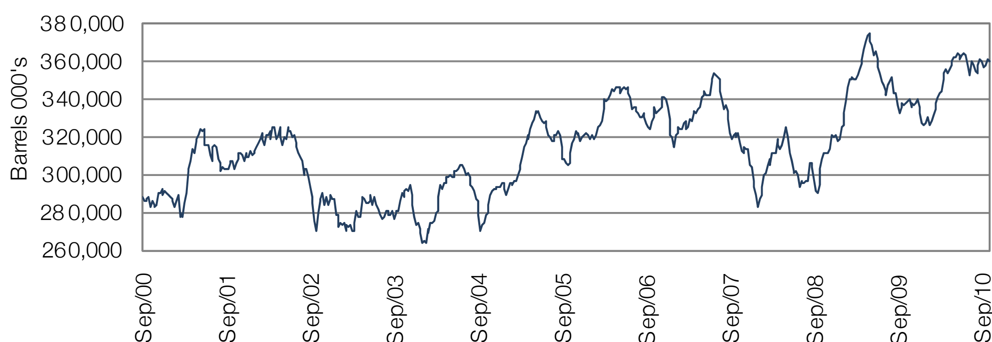
US commercial crude oil inventories have remained at historically high levels both absolutely and relative to consumption over the past two months. Based on Department of Energy (DOE) data, crude inventories stood at 360.9mmbbls on 1 October which was up 0.8% on the prior week and 7% on a year previously. They are about 13% higher than the average for the time of year and within shooting distance of the 20-year high of 375mmbbls recorded in May 2009. Since 2000 crude inventories have averaged 313mmbbls. Clearly near record inventories provide a substantial buffer in the event of a major supply disruption in the coming months.

Crude inventories at the Cushing, Oklahoma WTI basing point and the world's largest tank farm have edged down from the May all-time high of 37.9mmbbls but remain close to record levels. As of 1 October, Cushing inventories were 35.1mmbbls up 0.75mmbbls on the prior week and 10.0mmbbls or 51% on a year earlier. Current levels imply a 76% utilisation rate of Cushing's theoretical 46mm barrel shell capacity. This is, in fact, close to full capacity after allowing for safety, blending and maintenance considerations.

## Gasoline: Seasonally weak decline

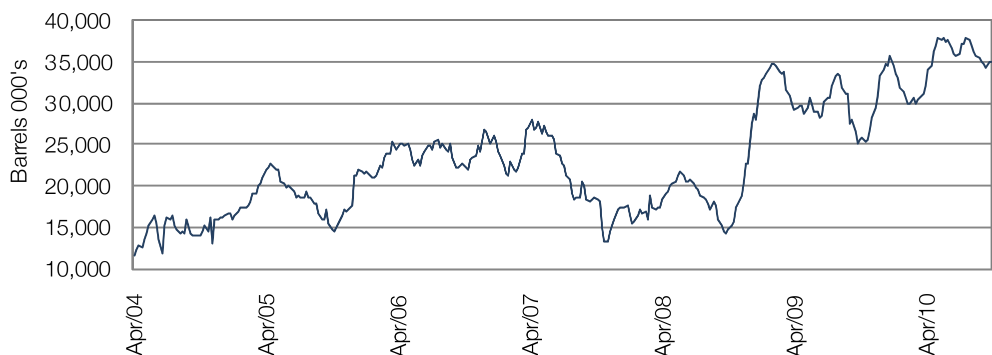
After an unusual rise through much of the driving season between late May and early September, US gasoline inventories have slipped marginally in recent weeks. The decline has been weak seasonally. According to DOE data, gasoline inventories on 1 October were 219.9mmbbls, down 1.2% on the prior week but up 2.6% on a year earlier. Compared with the upper end of the range for the time of year gasoline inventories are currently up around 5%. Since 2000 gasoline inventories have averaged 313mmbbls. Historically high gasoline inventories continue to reflect lacklustre demand particularly during the driving season and a sharp rise in refinery utilisation earlier in the year.

Exhibit 6: US crude oil inventories



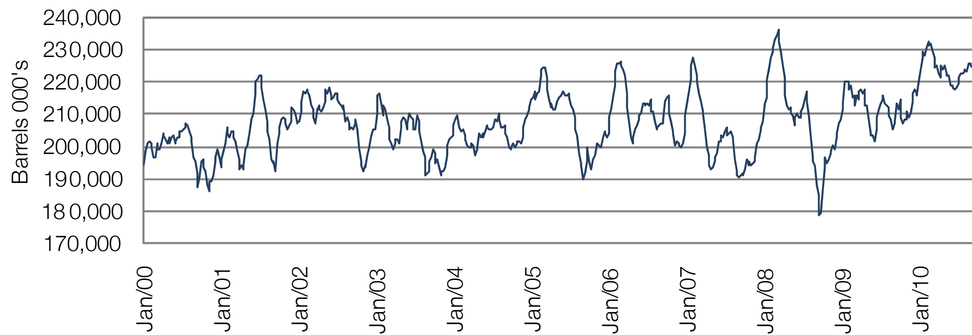

Source: Bloomberg

Exhibit 7: US Cushing oil inventories




Source: Bloomberg

Exhibit 8: US gasoline inventories

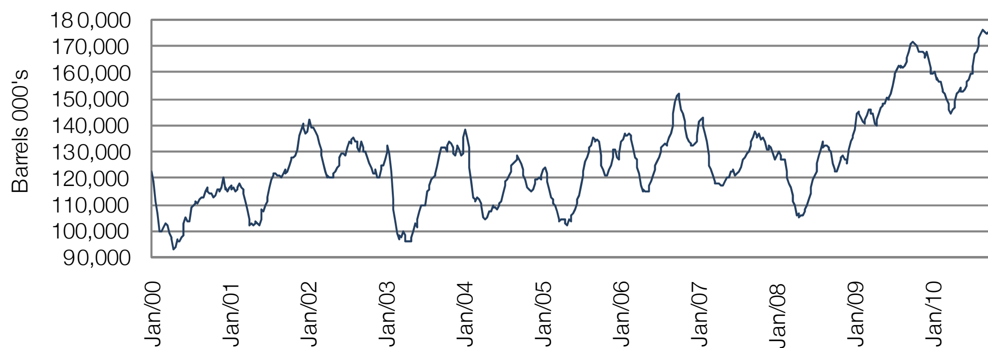



Source: Bloomberg

## Distillates: Seasonally high inventories

Distillate inventories reached a 20-year high of 176mmbbls on 20 August. Subsequently they have edged down and on 1 October stood at 172mmbbls. This was marginally above year earlier levels and roughly 20% higher than the upper end of the range for this time of year. Compared with the average of 127mmbbls since 2000 distillate inventories are 36% higher currently. Seasonally high distillate inventories are indicative of lingering recessionary influences, particularly in the industrial sector.

Exhibit 9: US distillate inventories




Source: Bloomberg

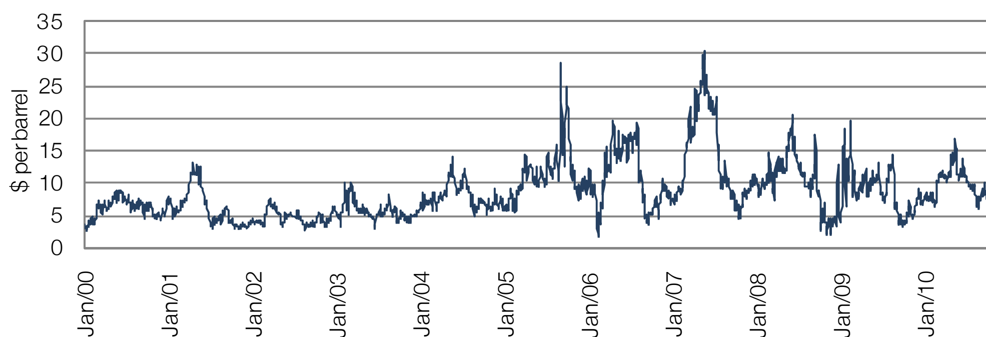
# Refinery crack spreads: Firmer trend of late

US crack spreads rose strongly through the first four and a half months of 2010, but narrowed sharply in the third quarter as refined product prices came under pressure. Since the end of August, however, spreads have widened in tandem with a drop in refinery utilisation and a firming in refined product prices. Taking the NYMEX WTI 321 crack spread (the margin before refining costs on converting three barrels of WTI into two barrels of gasoline and one of diesel) the recent low was $6.11/barrel on August 23. This was below the long-term average of about $9/barrel and probably implies no better than modest levels of fully accounted refinery profitability. The recovery since end August has taken the NYMEX 321 crack spread to about $9.5/barrel as of early October. This we

believe implies comfortably profitable operations for the bulk of refiners, although it has to be remembered that the US refinery utilisation is relatively low currently at about 83% against 85% a year ago.

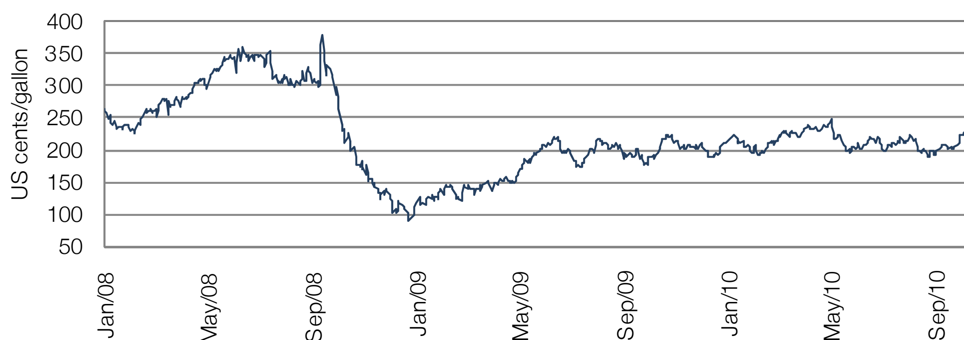
Near-term we see little scope for a sustained rise in US refinery crack spreads due to the sluggish market for refined products. In our view, it is unlikely that the WTI 321 spread will rise much above $10/barrel over the balance of the fourth quarter of 2010 in the absence of major plant outages or a period of extreme cold weather in the northern hemisphere. A significant widening of spreads will probably have to await a significantly firmer business environment possibly in the second half of 2011 or even 2012. We are not convinced that the refinery closures announced so far in Europe and elsewhere are in themselves sufficient to tighten refined product markets in the current business environment, given the large capacity additions that have also been made in the Middle East and Far East.

Exhibit 10: NYMEX WTI 321 crack spread




Source: Bloomberg

Exhibit 11: NY Harbour gasoline price




Source: Bloomberg

## US refined product demand: Modest recovery

US refined product demand has recovered modestly so far in 2010 following the dip of 10% between 2007 and 2009. Based on EIA data, demand on a year-on-year basis was down 0.2% in the first quarter and up 2.4% in the second quarter and 1.4% in the third quarters. In the four weeks ending 1 October there was a year-on-year gain of 2.2% but the most recent week showed a decline of 1.5%. In the year-to-date, October demand is up from 2009 by 1.2% driven by

distillates, residual fuel oil and jet fuel. In the four weeks to 1 October gasoline consumption averaged 9.1mmb/d and was a mere 0.1% up on a year previously, while distillate consumption at 3.8mmb/d showed a gain of 11.5%. Gasoline consumption currently is running around 2% off peak 2007 levels but distillate consumption is still down about 10%.

The EIA is predicting a weak 2010 fourth quarter for US refined product consumption reflecting the lacklustre economy. Usage is expected to be broadly the same as for a year previously which will leave consumption up 0.9% at 18.9mmb/d for 2010 as a whole. A gain of 0.7% to 19.1mmb/d is forecast for 2011. These forecasts look eminently plausible in the context of an extended period of sluggishness in the US economy.

## Crude oil price outlook: No reason to expect a surge

Crude oil prices for much of 2010 have been significantly higher than might have been expected on the basis of the fundamentals. Arguably they have been defying gravity given a market that is in surplus and inventories that are at or near record levels. The explanation to this apparent conundrum possibly reflects the growing influence of purely financial market participants. Prices currently appear to be being buoyed by the view that a new round of monetary expansion via quantitative easing will come to the rescue in the coming months of the world economy and hence oil demand.

Even if quantitative easing is widely applied we would question its effectiveness in the near and even the medium term. We believe that market participants are severely underestimating the deep-seated problems facing the advanced economies. Essentially, the excesses of the past 20 years in terms of financial leverage are having to be purged resulting in a prolonged period of sluggish economic growth or even outright stagnation. Presently, we are encountering the classic liquidity trap of economic theory and it is not at all clear when the preference of wealth holders for high levels of liquidity will abate. Additionally, oil demand growth is likely to be increasingly constrained in the years ahead by radical improvements in the fuel efficiency of the transportation fleet and not just in the advanced economies.

We would accept that quantitative easing applied largely in the US may continue to put pressure on the dollar, which, other things being equal will be supportive of oil prices. For this reason and the buoyant start to the fourth quarter we are raising our WTI price forecast for the last three months of 2010 from $76.5/barrel to $79.0/barrel. Given a year-to-date average of $77.7/barrel, this implies an average of $78.0/barrel for 2010 as a whole. Previously we had been looking for $77.6/barrel.

We continue to believe that crude oil prices in 2011 are unlikely to be radically different on average than in 2010 given the likelihood of a broadly balanced market and historically high inventories. On the upside we would expect any surge in prices much beyond $85/barrel to be capped by more OPEC supply. If this is not the case, higher prices will sow the seeds of their own destruction just as occurred in 2008. Gasoline at $4/gallon would once again destroy the US economy. To reflect the possibility of actual and prospective dollar weakness we are raising our 2011 WTI forecast from $77.0/barrel to $79.0/barrel. The quarterly split is as follows: Q1 $79.0, Q2 $78.0, Q3 $79.0, Q4 $81.0. It should be noted that this scenario assumes sluggish economic growth in the advanced economies rather than a descent into a renewed recession. In the event of this more extreme

scenario, benchmark light crude prices would in all likelihood test $70/barrel and quite possibly $60/barrel.

Exhibit 12: WTI and Brent price trends

Note: YTD October 8, 2010 averages: WTI $77.7/barrel, Brent $77.5/barrel; time series data refer to yearly averages.

| $/b | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010e | 2011e |
|---|---|---|---|---|---|---|---|---|---|---|
| WTI | 26.2 | 31.1 | 41.5 | 56.6 | 66.1 | 72.2 | 99.8 | 61.8 | 78.0 | 79.0 |
| Brent | 24.4 | 25.0 | 28.8 | 38.3 | 54.5 | 65.1 | 97.3 | 61.7 | 78.0 | 79.0 |

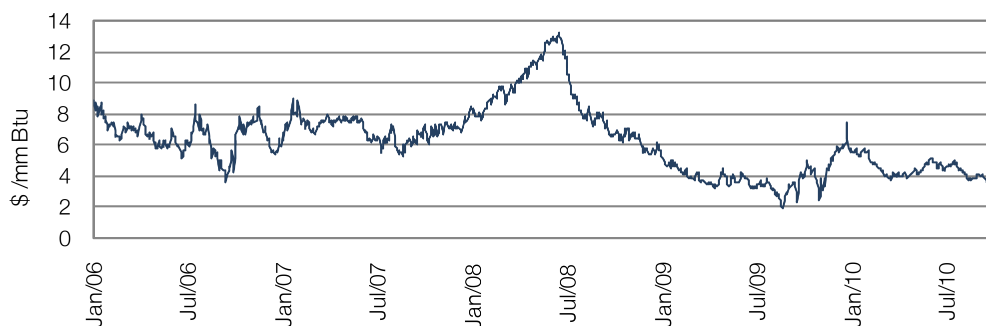
Source: Bloomberg, Edison Investment Research

# US natural gas prices

## Market balance: Seasonally very high inventories

US natural gas consumption has recovered strongly in 2010 from the lows of 2009 driven by rising power generation activity and industrial usage. In the six months to June 2010 consumption is estimated to have been running 4.4% above a year earlier and is believed to have remained buoyant through July and August due to high power generation activity related to elevated temperatures and heavy air conditioner usage. Since end August natural gas consumption has eased in tune with a seasonal trend to milder conditions. Near-term forecasts are pointing to a continuation of mild temperatures across the US Midwest and Northeast. For 2010 as a whole the EIA is forecasting a gain in consumption of 4% to a record 23.7bcf. The EIA is forecasting broadly flat consumption in 2011, assuming normal weather patterns.

Exhibit 13: Henry Hub price trend




Source: Bloomberg

US natural production has remained buoyant in 2010, although the trend has been weaker than for consumption. Through the first six months of 2010 production was up year-on-year by 1.4% reflecting continuing high levels of drilling activity and development of shale gas capacity. For the year as a whole the EIA is calling for an increase in production of 1.2% which would take dry gas production to 21.2bcf, close to the 1973 record of 21.7bcf. Significantly, the EIA is anticipating a decline of 1.9% in 2011 resulting from an assumed drop in drilling activity due to depressed natural gas prices. However, it should be noted that similar predictions have been made on several occasions over the past two or three years, but have been confounded by a continuing buoyant trend. In this regard it is significant that Shell has recently indicated that its shale gas operations can remain profitable at prices of $3.5mm/bcf or less due to rapidly advancing shale gas well completion and production technology which is lowering operating costs. US natural gas imports whether by pipeline or in the form of LNG have remained subdued in 2010 due to the buoyant trend in domestic production.

Overall in 2010, the US natural gas market appears to have tightened slightly given the trends in production and consumption. Natural gas inventories were indeed running modestly below the very high levels of a year ago during the third quarter, reflecting high rates of draw down in the summer months due to high summer temperatures and consequent heavy air conditioner usage. In recent

weeks, however, a return to mild temperatures combined with buoyant production has boosted inventories to seasonally high levels. On 1 October US natural gas inventories stood at 3.50bcf, down 4% on a year earlier, but 7% higher than the average for the time of year. Given the forecasts of mild weather, it now appears that inventories at the end of the injection period in late October could be very close to the record levels of 3.7bcf reached in 2009.

## Prices: Under pressure

US natural gas prices have come under heavy pressure since the summer months which, of course, partly reflects seasonal factors related to the shoulder period before the onset of winter. Taking the benchmark Henry Hub quote at Erath, Louisiana, the price has dropped from highs of $5/mm Btu to $5.17/mm Btu in June and July to a recent low on 8 October of $3.36/mm Btu. This nevertheless is still 15% above the ultra depressed levels of a year ago. In the year-to-date the Henry Hub quote has averaged $4.52/mm Btu, 20% higher than in 2009, which is indicative of the slight tightening of the marketplace over the past year. The sharp drop in the Henry Hub quote from a recent high of $4.11/mm Btu on September 17 reflects the build-up of inventories, the near-term forecasts of mild weather and the lacklustre economy. US natural gas prices remain considerably below international levels for the commodity. LNG import prices into Japan, for example, are about $13/mm Btu, while the UK natural gas quote at the virtual NBP hub in early October was the equivalent of $7.2/mm Btu at an exchange rate of $1.59/£.

We believe US natural gas prices may be close to a low, at least as far as 2010 is concerned. The key factors are the onset of winter and the likely depressing impact of current prices not only on drilling activity but also production from current operations. While current prices remain significantly above average lifting costs of perhaps $1.5/mcf, the situation is considerably more marginal after taking into account pipeline connection and marketing costs. Including finding and development costs of around another $2/mcf and current prices are indeed truly marginal. Assuming normal weather patterns over the early winter, we forecast an average Henry Hub quote in the fourth quarter of 2010 of $4.35/mm Btu, which is close to the outcome in the same period in 2009. This would imply an average for 2010 as a whole of $4.51/mm Btu, down from our earlier forecast of $4.70/mm Btu reflecting the weak third quarter showing and the sizeable inventory overhang.

For 2011 we are downgrading our earlier forecast from $5.00/mm Btu to $4.70/mm Btu due to the deteriorating economic outlook. Interestingly, the futures curve is suggesting that it could be mid decade before the US Henry Hub quote returns to the levels of over $5.5 to $6/mm Btu prevailing in the halcyon days between 2003 and 2008.

Exhibit 14: Henry Hub natural gas price trend

Note: October 8, 2010 YTD $4.52/mm Btu.

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010e | 2011e |
|---|---|---|---|---|---|---|---|---|---|
| $/mm Btu | 5.63 | 5.85 | 8.79 | 6.72 | 6.96 | 8.89 | 3.94 | 4.51 | 4.70 |

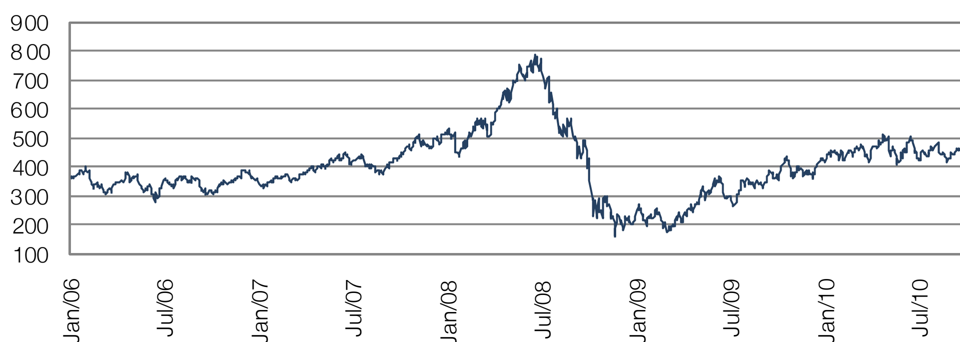
Source: Bloomberg, Edison Investment Research

# Investment reflections

## The recent past in retrospect: Strong performance by the juniors

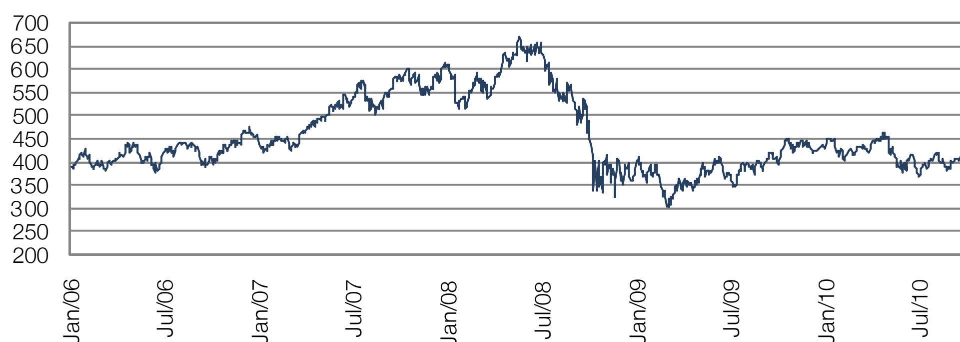
The junior E&P sector has been very much in vogue over the past three months. After trending broadly flat between the fourth quarter of 2009 and the early third quarter of 2010, the AIM Oil & Gas Index has climbed 23% since end July. This has left it at a two-year high and up 32% from the beginning of 2010 and a similar percentage from a year earlier. By comparison in 2010, the AIM All Share Index has risen by 21%, while the FTSE 350 Oil & Gas Index has dipped 10%. Mid-capitalisation US E&P stocks, as represented by the S&P 400 Index, have also performed strongly in 2010 with a gain of 16% since the start of the year. The large capitalisation orientated S&P 500 Index (integrateds plus heavyweight E&P independents plus refiners) has, however, turned in a lacklustre showing in 2010 with a decline of 1.6%.

Exhibit 15: S&P 400 E&P index




Source: Bloomberg

Exhibit 16: S&P 500 Oil and Gas index




Source: Bloomberg

The junior's strong performance in 2010 continues to reflect generally bullish news flow and intense speculative interest among investors in finding the next Gulf Keystone, Heritage or Rockhopper. A key exception to the bullish backdrop has been Soco's recent announcement of a non commercial flow rate at its TGD-2X well, offshore Vietnam. However, Soco has indicated that it still expects production capacity of around 100,000boe/d (Soco stake 30.5%) to be brought on-stream in 2011

and 2012 at its nearby TGT field. Additionally on the negative front, shares in Nighthawk and Regal Petroleum have been hit of late due to unexpected management changes.

An interesting case of the potential that can be unlocked by successful oil exploration and development over a relatively short period is Dana Petroleum which has recently agreed, albeit reluctantly, to a bid by the Korean national oil company, KNOC. The company was floated on the London Stock Exchange in 1996 with a market capitalisation of just over £24m and has been acquired for £1.83bn. The take-out multiples are $11/boe for the pro-forma 2P reserves of 260mmboe and $7/boe based on the 2P reserves plus the contingent resources of 408mmboe. Although the take out terms are not particularly generous, there is no doubt about the creation of value at Dana over the past 14 years.

The FTSE 350 Oil & Gas Index has firmed noticeably since end August in tandem with the S&P 500 Index and indeed more bullish sentiment in oil markets. However, this has been insufficient to offset the 20% plunge in the Index between the end of April and June related to the collapse in the BP share price post the Macondo well disaster. Since end June the BP share price has shown a partial recovery but continues to lag the pre-Macondo high by 31% and by a similar percentage from the start of 2010. For perspective its integrated peers have performed as follows in the year-to-date early October: Exxon -5%, Royal Dutch Shell +2%, Chevron +6%, Conoco Phillips +14%, Total -19% and ENI -10%.

## Investment view

Yield plays: We continue to see the integrated majors, with the exception of BP, as interesting value plays with the hefty yields being a particular attraction for those seeking income. Even Exxon, arguably the strongest operationally and financially of the majors, offers a yield of 2.7% currently which is usefully above the US 10 year Treasury yield of about 2.4%. Furthermore, if we assume that dividends grow in line with the 5.7% rate of the past 27 years the total return would be 8.4%. This would constitute a pretty good return if we are indeed looking at an extended period of slow growth. While the BP debacle of recent months has reminded us of the risks involved in the oil business, the odds of the Exxon dividend being cut this side of the apocalypse must be considered decidedly remote. The dividend has not been reduced in much more than 50 years and in most years over the past 30 has, in fact, been increased.

As far as the other majors are concerned, we believe there would have to be a prolonged period of sub $60/barrel prices for the dividends to be cut. While this is a possibility it is arguably unlikely and would require a sustained recession in the western world and a marked economic slowdown in the developing countries. For those requiring both income and some exploration upside we would suggest a portfolio comprising a mix of the integrated majors and the heavyweight E&P and oilfield services stocks. A vehicle with these characteristics is the iShares S&P Global Energy ETF, NYSE symbol IXC. This currently sells on a P/E of 16.4X, a price:book ratio of 1.9 and a yield of 2.4%. The yield is usefully above that on the S&P 500 of 1.9%.

Drilling-related news flow: The juniors, of course, are typically focused on exploration and development rather than cash flow and dividends. In the absence of a collapse in oil prices we would therefore expect investor interest in the juniors to remain strong. Self evidently perhaps for those that do not have a high risk threshold, investment in the sector is best undertaken on a

diversified portfolio basis. Several of the explorers potentially have interesting drilling-related news flow in the coming weeks. Within this category are Faroe, Heritage and Xcite. Faroe has a 12.5% stake in the high-impact Anne Marie well where drilling commenced in late July. Heritage is scheduled to report on its MiramWest-2 well in Kurdistan shortly and Xcite has recently spud its Bentley 9/3b-R appraisal well in the central North Sea.

Gulf Keystone, a company normally associated with exploration, is likely to become a significant oil producer by year end as it brings on-stream production on its very large Shaiken field also in Kurdistan. The truly interesting angle regarding Gulf Keystone nevertheless remains the exploration potential on its four Kurdistan blocks. Drilling could commence in early 2011 on the Ber Bahr block which has the potential to host a giant field.

Geopark and Exillon Energy: Two low profile juniors that have recently come to our attention and are worthy of consideration for a diversified portfolio of juniors are Geopark and Exillon Energy. The former has production assets in the Austral Basin of southern Argentina and Chile as well as major exploration and development opportunities in the same region. Significantly, it has a joint-venture agreement with Korean conglomerate LGI to acquire exploration and development opportunities in Latin America. The 2P reserve base is already a highly significant 55mmboe and production is scheduled to be running at 8,500boe/d by end 2010. Importantly, the fiscal regime in Chile is highly favourable and the operations are solidly profitable. Geopark has a market capitalisation of around $410m and is selling on $7.5/barrel of 2P reserves. We believe this to be undemanding considering the near-term development opportunities.

Exillon has a sizeable resource base in Russia’s prolific West Siberian and Timan Pechora basins. Reserves are 137mmboe on a 2P and 391mmboe on a 3P basis. The oil is high quality with an API of 35 to 40 degrees and a sulphur content of less than 0.5%. Production is building up strongly and is expected to run at 9,000b/d in the fourth quarter of 2010 and 17,000b/d in the fourth quarter of 2011. Operating and finding and development costs are low by international standards, but the fiscal regime in Russia is, of course, onerous. Nevertheless, Exillon should be very comfortably profitable in the second half of 2010. The stock sells on about $3.5/barrel of 2P which we believe is modest in a Russian context considering the outstanding development potential.

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