Oil Market Update

National Australia Bank

- **Average oil prices fell for the second consecutive month in November. In addition to the bearish sentiment in the crude oil futures market, oil prices have generally returned to be more aligned with the reality of fundamentals where ample supplies, combined with seasonally weak global demand, have served to weigh on prices.**
- **The Iranian nuclear deal struck on the last week of November has not changed fundamentals much, as the precursory agreement does not include the lifting of the embargo on oil trade against the country, with much of the sanction relief ($6 to $7 billion) taking the form of oil revenue that has been frozen in foreign banks.**
- **The Brent-WTI differential has widened to the highest level in more than eight months to around US$19, as WTI was weighed down by record levels of production in the US while Brent continued to derive support from heightened geopolitical uncertainty in the Middle East.**
- **We expect Brent and WTI to converge in the coming months as WTI has probably been oversold and there is evidence of a return of bullish sentiment in the futures market. Meanwhile, there exist downside risks on Brent from the current low levels of Libyan and Iranian production which embodies a high degree of upward potential.**

Recent Oil Prices

Average oil prices fell for the second consecutive month in November, with broad-based falls recorded in all three major oil indices that NAB monitors: Brent, WTI and Tapis. In addition to the bearish sentiment in the crude oil futures market, oil prices have generally returned to be more aligned with the reality of fundamentals where ample supplies, combined with seasonally weak global demand, have served to weigh on prices. Upon the release of the news that Iran has struck a historic deal with the US-led coalition in the UN towards the end of November which stipulates that the country curb its nuclear program in exchange for some partial relief from the economic sanctions imposed on it, oil prices dipped but the overall response was fairly muted. Under the deal, not much has changed in terms of fundamentals, as the precursory agreement does not include the lifting of the embargo on oil trade against Iran, with much of the sanction relief ($6 to $7 billion) taking the form of oil revenue that has been frozen in foreign banks. Furthermore, the scale of the relief is considered to be minor relative to the existing $100 billion in Iranian investments frozen around the world, and the government's deficit of US$35 billion a year.

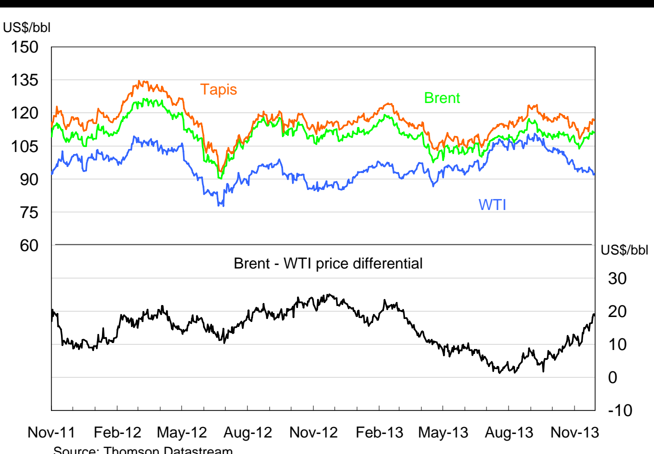
In Europe, poor cracking spreads, particularly for fuel oil, have weighed on the medium-sour market. Earlier geopolitical premiums associated with synchronised, large-scale unrest in a number of key oil producers in the Middle East and Northern Africa such as Libya, Nigeria, Egypt and Iraq that have led to extreme supply disruptions in recent months have generally moderated, with gradual recovery in production evident in a number of these countries. This, combined with the return of North Sea oil fields production from maintenance, further exerted downward pressure on prices. In Asia, Middle Eastern distillate-rich grades traded below their official selling price formulas (OSPFs) for the first time in more than three months, amid weakening gasoil margins and rising supplies.

	Avg Price (US$/bbl) Nov-13	Monthly % change Nov-13	Nov-12 - Nov-13 % change
Brent	108	-1.3	-1.6
WTI	94	-6.7	8.3
Tapis	113	-3.3	-0.9

Sources: NAB Economics; Thomson Datastream

In the past two months, WTI has shown significant weakening relative to Brent, driven largely by the record crude production in the US, combined with a seasonal decline in refinery demand, which resulted in a sustained run of weekly increases in inventories. This is despite the US Fed's surprise decision not to initiate tapering during its meeting on the 18th September which will perpetuate a historically loose monetary setting. Since reaching its recent peak in the second-week of September, WTI has declined by around 16%, as opposed to just a 5% drop experienced by Brent and Tapis. Providing some support to Brent in the meantime had been the bouts of geopolitical uncertainty in the Middle East and positive economic data stemming from China. Chinese Q3 GDP growth beat market expectations at 7.8% year-on-year, the highest quarterly reading this year. As a result, the Brent-WTI differential has widened from just US$2 post-FOMC meeting to the current level of around US$19, levels not seen since the first quarter of this year. More recently in November, WTI fell by 7%, compared to 3% in Tapis and 1% in Brent.

Daily Oil Prices



Source: Thomson Datastream

Market Conditions

In the past few months, non-OPEC oil supply growth appeared to have gained further traction, with updated third-

quarter production higher than expected. This has in turn led to the OPEC adjusting its quarterly estimates for non-OPEC supply upwards the second half of 2013. Non-OPEC supply is now expected to grow 1.18 mb/d in 2013 to average at 54.10mb/day, and rise further to 55.30mb/d in 2014. Contributing most to the increase in 2013 will be that of OECD Americas, with the projected growth of around 1mb/day for the US by OPEC the highest on record and for all non-OPEC countries for 2013. Within the US, the major oil fields of Eagle Ford and Bakken, which cover parts of North Dakota and Texas respectively, have demonstrated remarkable drilling efficiency and productivity gains over the past year, reflected in the divergent paths of rising production against falling rig numbers. According to the EIA's *Drilling Report* in November, production in Eagle Ford and Bakken is forecast to frog-leap by 141% in December this year compared to the same time last year to account for more than 80% of production growth amongst the six major shale plays (that also include Haynesville, Marcellus, Niobrara and Permian) over the same period. The jump in production will be supported further by rising gas exploration and production from wet gas wells which contain liquid hydrocarbons. A similar trend in production growth is also expected to take place in Canada, with expected growth 0.23mb/d to 4.14 mb/d to be the highest annual absolute supply increase since 1979, according to OPEC. This is largely driven by oil sands developments, including Christina Lake 2B project, as well as tight oil. Meanwhile, production in Latin America and Former Soviet Union is also expected to stay reasonably resilient in 2013.

The strong rise in North American output is expected to more than offset the declines some of the other major world regions such as the Middle East, other Asia and Norway. Given that OPEC adopts a reactionary supply approach in response to global trends, they have not disclosed their estimate for total global supply. Meanwhile, the Energy Information Agency (EIA), the statistical arm for Department of Energy in the US, has forecasts global production to average 90.10 mb/d and 91.54mb/d for 2013 and 2014 respectively in their latest November monthly forecast report, which had encompassed upward revisions over time.

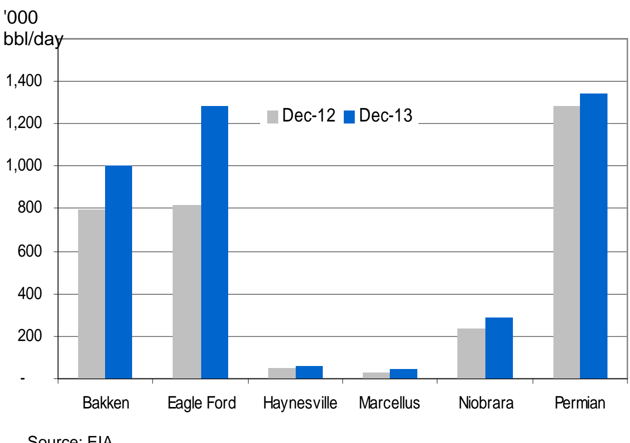
On the demand side, global refinery runs have moderated from their peak in the summer months of the northern hemisphere, with throughput falling by 3.6m barrels a day since July, according to the International Energy Agency (IEA). A rising number of European refiners are facing risks of closure as developing nations such as China and India build their own capacity and increasingly prefer importing crude to refined products, while competition stemming from refined products exports from the Middle East also stiffens. According to the IEA, European refinery output fell 6% in October from a year earlier as plants cut production due to poor margins in addition to seasonal maintenance.

However, overall global consumption for most of this year still represents a leg up relative to the same time last year, with most of the improvements stemming from the non-OECD countries, where relatively stronger economic and population growth, combined with relatively undeveloped transportation sectors, is leading to strong growth in demand for transport related energy use. Latin American and Middle Eastern countries, as well as China, are likely to be the biggest contributors to this growth. In Brazil and Argentina, an improved agricultural sector production outlook has contributed to a surge in transportation fuel demand.

Business surveys also show a ramping up in activity and confidence across all of the big advanced economies since early 2013. Industrial activity is now growing in all regions with a particularly solid upturn in Japan and the UK. The UK has been the star performer as it bounces back from a long period of weak activity, and together with an improving German economy, help to support oil consumption in OECD Europe, while consumption growth in Italy and Spain is more subdued.

In its November Oil Market Report, the EIA has forecast oil demand to be largely unchanged from last month at 90.25mb/d and 91.39mb/d for 2013 and 2014 respectively, which are slightly more conservative than the forecasts of 90.8mb/d and 92mb/day for 2013 and 2014 by the International Energy Agency (IEA).

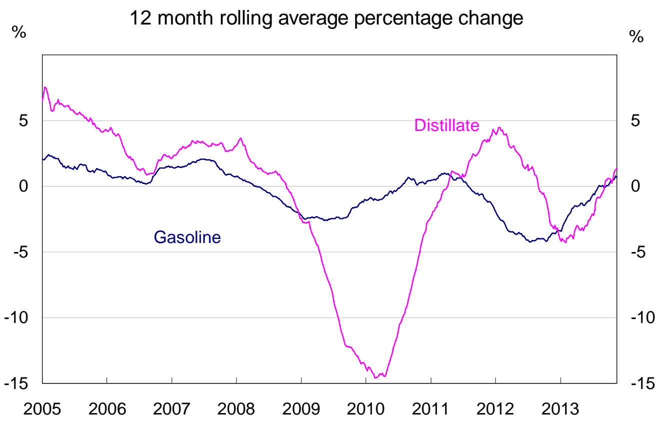
Oil Production in US Major Shale Plays



Source: EIA

In the **US**, refinery capacity utilisation rates on the Gulf Coast have moderated from their highs (exceeding 90%) in the third quarter in the last two months, however they remain elevated compared to seasonal norms to be still in the high 80s. As a result, gross inputs remain above the five-year range for this time of year as strong global demand for diesel fuel and other distillates have contributed to high prices for these products, keeping overall refinery margins attractive and refinery runs robust, despite anaemic gasoline margins.

Weekly US product demand



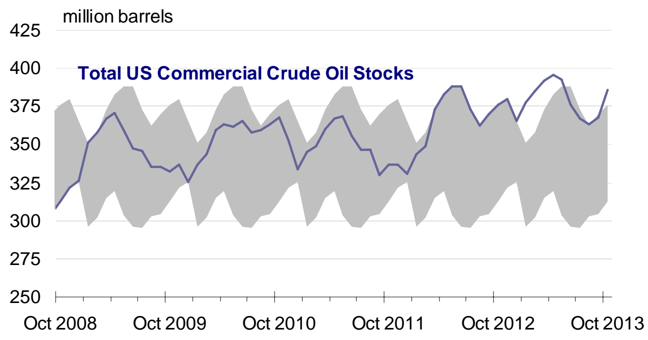
Sources: US Energy Information Administation; NAB Group Economics

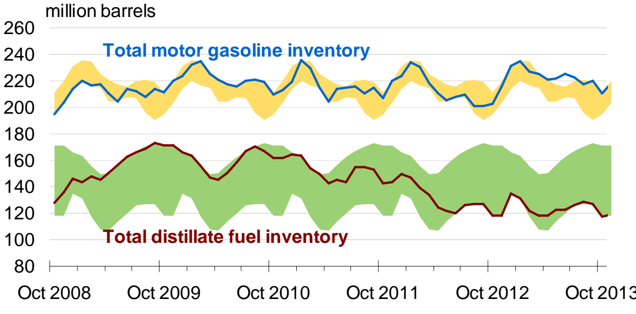
As previously mentioned, demand for transportation fuels, such as distillate and propane, in Latin America has demonstrated a high degree of resilience. Hence refineries at the Gulf Coast, with its ready access to discounted US crude

oil, relatively low-priced natural gas as a feedstock and fuel source, and geographic proximity to demand in Latin America, are well-positioned to serve those markets. Encouraged by recent trends, EIA has tipped distillate consumption to rise by 2.0% in 2014, buoyed by increases in industrial production, imports of goods, and in coal rail shipments.

The Labor Day on 1st September typically marks the official end to the driving season in the US, after which demand for gasoline is expected to enter a phase of seasonal lull. However, gasoline demand in the past two months has maintained at a strong pace in the US, part of it induced by lower pump prices as strong refinery runs that produced the highly sought diesel (distillates) also raised the coproduction of the fuel. Gasoline is the most widely used petroleum product in the world's biggest oil consumer, and data from EIA shows that the demand for it in the three months to November has risen by around 2% compared to the same time last year, while average petrol prices have fallen by around 8% in the corresponding period, from US$3.60 per gallon to US$3.30 per gallon. Consistent with the picture of a gradually improving US economy, auto sales have recorded robust growth in the year to October to be 9% higher. In the near-term, post-Thanksgiving deals are likely to push auto sales up in the last two months of 2013 to end the year on a strong note. That said, consumption of gasoline per vehicle has been declining as new stocks tend to be more fuel-efficient, with US government agency statistics suggesting that new-vehicle fuel economy has more than doubled since the 1970s. As such, EIA continues to expect flat to declining gasoline consumption in the next few years at around 8.7mb/day as improving fuel economy of new vehicles continues to outpace growth in highway travel.

US Inventories*





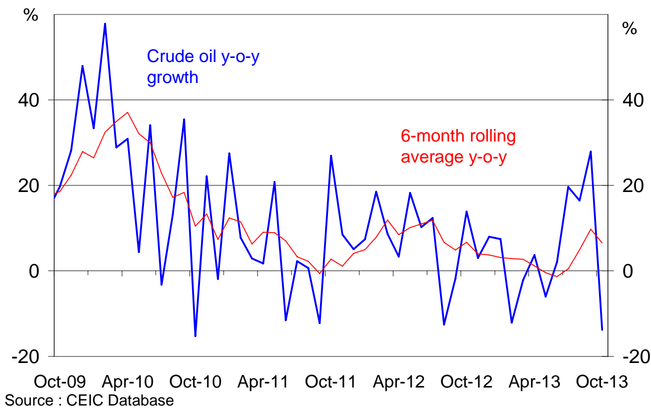
Note: Colored band around storage levels represents the range between the minimum and maximum from Jan. 2008 - Dec. 2012.
Source:EIA

Changes in US crude oil and product inventories were mixed over October and November. Weekly crude oil inventories, which fell by a record rate in July then continued to moderate till mid-September, have turned the corner and sustained growth ever since, to record the tenth consecutive weekly growth by the week ending 22 November. This largely reflects continuous solid productivity improvements in oil plays in the onshore Bakken, Eagle Ford, and Permian regions, combined with slightly lower refinery runs from seasonal maintenance. Meanwhile, stronger demand for finished products gasoline for reasons mentioned previously resulted in moderation in their inventory levels. Latest full-month data suggests that crude inventory has risen by 5% in October to be 2% higher from the corresponding period a year ago. Conversely, distillate and gasoline have fallen by 8% and 4% respectively in the month.

With record crude production and historically high crude inventory levels, US crude oil imports appears to be on track to fall year-on-year for a 21st straight month in November, as domestic crude output climbed to its highest level since early 1989. For the first time since 1995, monthly US crude output of 7.7mb/d has exceeded imports of 7.6mb/d in October, and partial-data to-date suggests that the trend is likely to have persisted into November. Burgeoning domestic crude supply in turns fuels the level of the country's energy self-sufficiency, to be currently around 86%.

Chinese economic data have shown some signs of acceleration since mid-year, after failing to live up to expectations in the first half of the year. In recent months, manufacturing PMIs had pointed to additional expansion in manufacturing activity, while client demand also improved both at home and abroad according to measures of new orders. Industrial production growth accelerated marginally to 10.3% y-o-y in October (from 10.2%), consistent with a pick up in merchandise exports and steady business investment and retail sales. Utilities investment is still relatively solid, but could start to ease if public infrastructure investment starts to wind down as private sector activity picks up.

Chinese Crude Oil Imports Growth



Source : CEIC Database

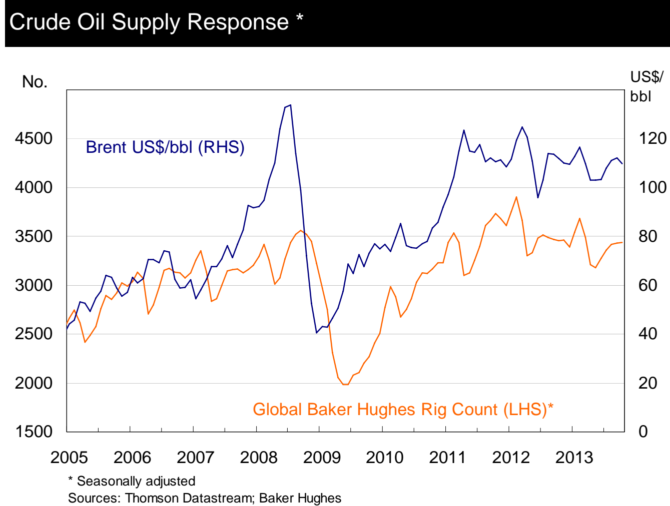
In line with more optimistic readings of industrial activity and a seasonal gearing-up in refinery capacity utilisation in recent months, growth in apparent crude oil demand and imports lifted sharply in the third quarter this year. However some of these gains have been reversed in October. In the September quarter, crude oil consumption has risen by 4% while imports data jumped by a more remarkable 10%, which is significantly higher than that of implied refined petroleum demand (1.6% in the quarter) would suggest. Over the past few years, China has invested substantially in expanding its crude-processing capacity, which allows it to be less dependent on refined

petroleum imports while boosting its demand for crude imports. Based on anecdotal data, it is estimated that China has installed refining capacity of around 12mb/day, with its goal to reach 14 mb/d by 2015, the end of the 12th Five Year Plan. Looking ahead, with Chinese manufacturing activity returning to a mildly expansionary phase, exports and domestic demand improving, oil consumption growth is expected to remain relatively robust over 2013.

Exploration

In response to higher global oil prices in the third quarter, there has been a mild pick-up in Baker Hughes global rig count since hitting its recent trough in May this year. In the quarter, rig count rose by 6% but still remained 3% below the corresponding period last year following a sustained period of high Brent prices. Since hitting its historical peak in mid-2011, rig count has followed a mild downward trajectory as Brent prices stabilised and rising efficiency of oil wells in Northern America sees overall production growth rising disproportionately to that of rig count. In the current global environment where oil supply constraints are limited and profitability falling, it is unlikely that rig count would revisit the record reached in 2012 anytime soon. Rather, rig count will most likely react at the margin to oil price movements.

Crude Oil Supply Response *

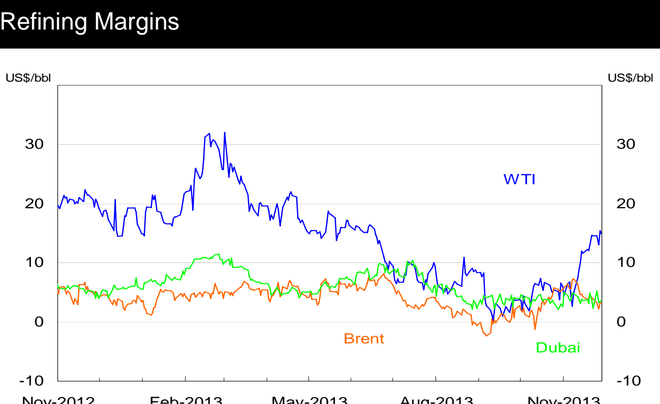


* Seasonally adjusted
Sources: Thomson Datastream; Baker Hughes

Refinery Operations

Product markets were mixed in October. Asian refining margins reversed the downward trend seen during previous months and recorded a small gain on the back strengthening cracking spreads for middle distillate and fuel oil. Significant falls in WTI in October and November have propped up a rebound in US refining margins in general, with sharp gains witnessed at the middle and bottom of the barrel cracks. Meanwhile, European refiners continue to feel the pressure of weakening margins, with the recovery observed in the middle of the barrel offset by softness in light distillates because of lesser export opportunities, only partially offset by the tightening of supplies due to the ongoing heavy refinery maintenance in the region.

Refining Margins

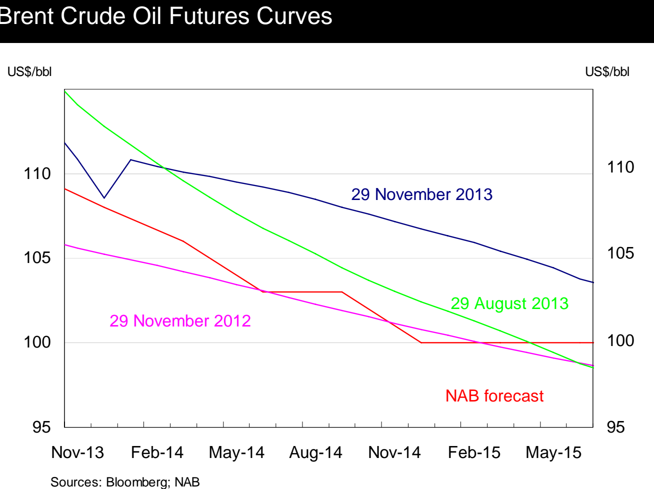


Source: Thomsons Datastream

Futures Prices

Since peaking in mid-September as a result of heightened geopolitical risks in the Middle East and tapering speculations in the US, Brent futures have eased to be more aligned with the reality of fundamentals of recovering global supplies and weak demand due to poor refining margins. Higher North Sea crudes and the pick-up in Iraqi exports, as well as the eventual Iranian nuclear deal have exerted downward pressure on Brent. Meanwhile, WTI has suffered an even more dire fate, with the stellar productivity oil well performance and seasonal refinery maintenance that fuelled record crude production in the US dragging down the index significantly. The weakening in Brent and WTI spot prices in October and November has led to a significant easing in the backwardation of futures curves over the last three months, which provides more incentives to store crude when inventories are already elevated in many parts of the world.

Brent Crude Oil Futures Curves



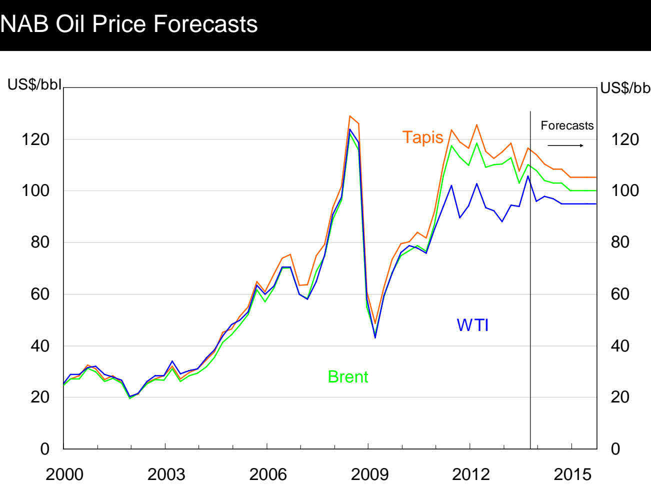
Sources: Bloomberg; NAB

Oil Price Outlook

In the central case of our forecasts without an extreme geopolitical event, we think that Brent and WTI will converge in the next month or two. The significant falls in WTI suggest that the index might have been oversold and any inventory increase from now on will have been priced in to some extent. Furthermore, the imminent pick-up in northern hemisphere winter demand is likely to limit the upward potential of inventory accumulation, especially when weather forecasts are pointing to rather wintry conditions in the coming weeks in the US. As such, we believe that WTI is likely to rise from its current levels in the coming months, albeit only to a slight extent as production rages on. Meanwhile, Brent is likely to

moderate from its current level as the reality of a surge in non-OPEC supplies becomes more tangible by the day and the Iranian deal lays the groundwork for the possibility for the country to ramp up its oil exports in the medium-term, although the process is likely to be a gradual and drawn-out one as the negotiating parties are still confronted by a number of ideologically oppositional issues. Potentially weighing on Brent is also the current low levels of output in Libya also suggesting that there will be upside risks in terms of its contribution to global output. Taken together, the Brent-WTI is likely to narrow from its current levels of around US$19 to be closer to be below US$10 in the medium term.

NAB Oil Price Forecasts



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Quarterly Price Profile

Oil Forecasts – Quarterly Average

	Actual	Forecasts							
	Sep-13	*Dec 13*	*Mar 14*	*Jun 14*	*Sep 14*	*Dec 14*	*Mar 15*	*Jun 15*	*Sep 15*
Brent US$/bbl	110	108	106	103	103	100	100	100	100
WTI US$/bbl	106	96	98	97	95	95	95	95	95
Tapis US$/bbl	116	114	112	109	109	105	105	105	105
Petrol AUc/L	142	140	138	140	141	142	142	143	143

Sources: NAB Economics; RACQ; Thomson Datastream

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