

# 2009 Energy Market Outlook

## Lowering our WTI oil price forecast to \$50/bbl in 2009

On October 1, we lowered our average 2009 crude oil price forecast to \$90/bbl based on an ML global GDP growth forecast of 3%. Since then, our economists have slashed their 2009 forecast to 1.3%, a scenario that is consistent with a global recession, and we are now cutting our average WTI and Brent oil price forecast to \$50/bbl for 2009. Also, we see a contraction in global oil demand of 400 thousand b/d or 0.5% next year. The main downside risk to our forecast would be a downward revision in the ML GDP growth prediction for China, now at 8.6% for 2009. On the other hand, the major upside risk to our numbers could come from excessively loose fiscal and monetary policies around the world.

## We see an oil price trough forming between 1Q and 2Q09

As producers continue to scale back output and the 4Q08 shock to economic activity starts to fade, oil prices could begin to form a floor, possibly around mid 1H2009 when demand slows seasonally. As economic activity in OECD countries starts to recover, we see oil prices posting a rebound in 2H2009. In line with this view, we expect WTI crude oil prices to average \$43/bbl in 1Q and \$45/bbl in 2Q09. Thereafter, we see prices averaging \$56/bbl in 2H09 and \$70/bbl in 2010.

## Petroleum demand weakness should persist well into 2009

On a regional basis, OECD Europe and North America will likely see a sharp oil demand decline next year, with the Middle East, Latin America and Africa seeing an increase in consumption. The demand outlook for the Asia-Pacific region is more mixed, with decreases in Japan and Korea offsetting the consumption gains from China. By product, we see RBOB gasoline spreads staying very weak, while we expect middle distillates to hold up better. On aggregate, we expect a large surplus of light products of 1.1 million b/d, a surplus of residual fuels and other products of 930 thousand b/d, and a surplus of distillates of just 164 thousand b/d.

## US nat gas prices to stay weak on an oversupplied market

US nat gas prices rallied from \$7.50/mmBTU in February to almost \$14/mmBTU in early July this year. Then, as demand started to cool off, a surge in domestic gas output resulted in higher-than-expected storage builds. Not even two major hurricanes, with large gas production disruptions, have done much to tighten the market. Going forward, US industrial and electricity gas demand could continue to soften. Combined with a large surge in LNG supply ahead, we are now lowering our 2009 US nat gas average price forecast down to \$6.00/mmBTU, from \$8.50.

## Global coal prices will continue to fall, in our view

The global coal markets have not been able to escape the sell-off in commodity prices. Since the peak in early July, European API-2 coal prices have fallen by 65% and stand at \$78.50/mt compared to \$118.75/mt in January. With global economic activity deteriorating rapidly, European API-2 and South African API-4 coal prices could fall again as the seasonal inventory build in 4Q comes to an end, with the contango in API-2 and API-4 increasing further. The main risks to our view are a very cold winter and large unexpected coal supply disruptions.



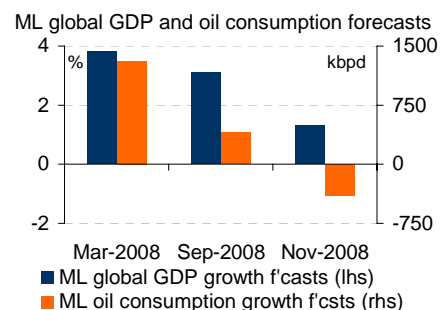
**Francisco Blanch** +44 20 7996 4144  
Commodity Strategist  
MLPF&S (UK)  
francisco\_blanch@ml.com

**Sabine Schels** 1 212 449 3259  
Commodity Strategist  
MLPF&S  
sabine\_schels@ml.com

**Gustavo Soares** +44 20 7996 1976  
Commodity Strategist  
MLPF&S (UK)  
gustavo\_soares@ml.com

**Michael Haase** +44 20 7995 6104  
Commodity Strategist  
MLPF&S (UK)  
michael\_haase@ml.com

**Chart 1: We now forecast a contraction in global oil consumption of 400 thousand b/d, the largest reduction since 1982**



Source: Merrill Lynch Commodity Research

**Table 1: ML Commodity Price Forecasts**

(\$/bbl)	4Q2008	1Q2009	2Q2009
WTI Crude Oil	60.00	43.00	45.00
Brent Crude Oil	60.00	43.00	45.00
USGC No. 2 HO	16.78	16.19	16.11
USGC RBOB Gasoline	-2.67	1.17	3.64
USGC 1% Residual	-15.74	-12.46	-12.79
NWE 0.2% Gasoil	21.23	19.18	18.89
NWE Prem. Gasoline	0.70	0.12	3.84
NWE 1% Residual	-9.30	-15.06	-14.80
US Natural Gas	6.75	6.20	5.50

Source: Merrill Lynch Commodity Research Estimates

Note: products quoted in crack spreads, US nat gas in \$/mmBTU

Merrill Lynch does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 46.



## Contents

---

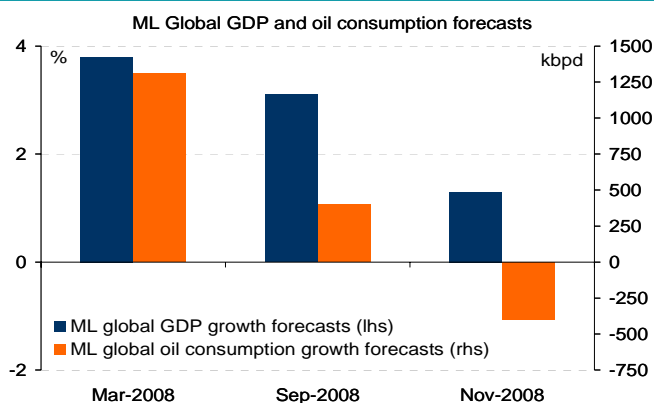
	Page
1. Global crude oil outlook	4
2. Petroleum product outlook	13
3. US natural gas outlook	21
4. Global coal outlook	25
Appendix	29

# 1. Global crude oil outlook

## Lowering our WTI oil price forecast to \$50/bbl in 2009

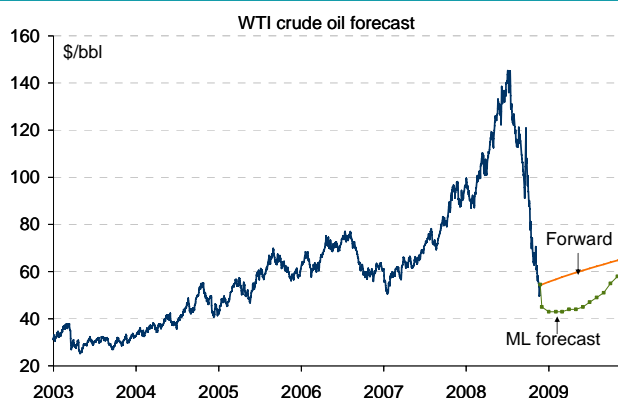
On October 1, we lowered our average 2009 crude oil price forecast to \$90/bbl based on a Merrill Lynch global GDP growth forecast of 3%. Since then, our economists have slashed their 2009 global growth forecast to 1.3% (Chart 1), a scenario consistent with a global recession. As a result, we are now cutting our average WTI and Brent crude oil price forecast further to \$50/bbl for 2009 (Chart 2). In this new base-case global recession scenario, the major downside risk is a revision of the GDP growth assumption for China, currently at 8.6% for next year.

Chart 2: Our economists have revised their 2009 global GDP growth forecast down to 1.3%, a scenario consistent with a global recession



Source: Merrill Lynch Commodity Research

Chart 3: We are now lowering our average WTI crude oil price forecast further to \$50/bbl for 2009



Source: Bloomberg, Merrill Lynch Commodity Research

## How low could oil go?

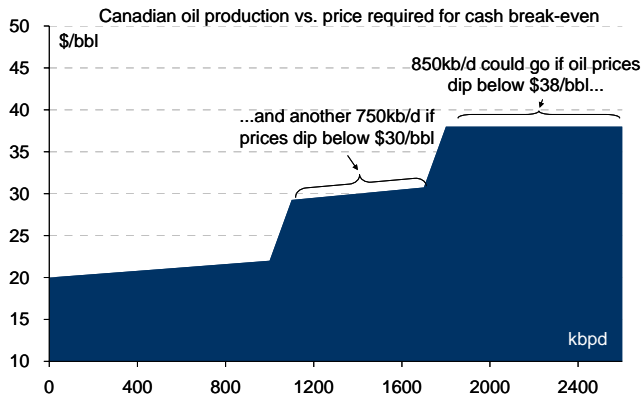
With demand vanishing across all key oil consuming regions, a strong rebound in prices in 1H2009 is unlikely. In the short-run, market participants will focus on OPEC and potentially even non-OPEC producer responses to balance the market. Outside OPEC, cash costs can set a soft floor to crude oil prices. On our estimates, almost 800 thousand b/d of Canadian output could go off line if oil prices dipped below \$38/bbl. Beyond these economic cuts, the next layer of non-OPEC support comes in at \$30/bbl (Chart 4). Looking at operating costs around the world, a temporary drop to this level would be technically possible if the global recession extends to China and OPEC fails to cut output sufficiently (Chart 5).

Table 2: Canadian Operating Cost Structures

C\$/BBL	Intgd Oil Sands	In-Situ Bitumen	Conventional
2009 Projected Cost Structures			
Oil Price Required for Cash Breakeven (\$/bbl, WTI)	30.00	38.00	22.00
Assumed FX (USD/CAD)	0.80	0.80	0.80
Canadian Light Sweet Oil Price (C\$/bbl)	37.50	47.50	27.50
Quality differential	(2.81)	(23.75)	(5.50)
Price Realization	34.69	23.75	22.00
Royalties at Breakeven Cash Flow	0.35	0.24	3.96
Cash Operating Costs	26.97	15.93	12.55
Cash Admin Expenses	2.00	2.00	2.00
Maintenance Costs	6.00	6.00	4.00
<b>Total Ongoing Operating Costs &amp; Royalties</b>	<b>35.31</b>	<b>24.17</b>	<b>22.51</b>
Historical Data			
2007 Actual Cash Operating Costs	24.29	15.97	11.15

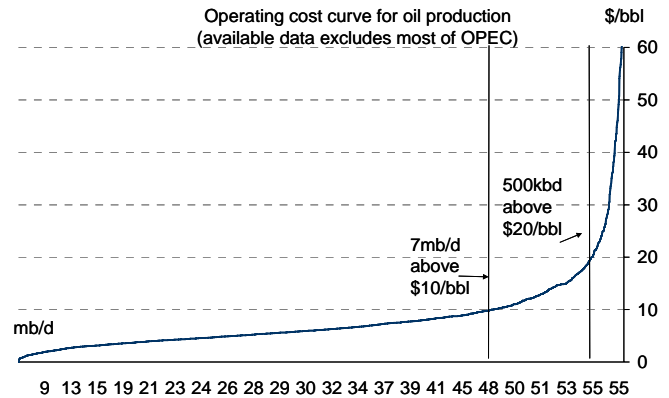
Source: ML Canada estimates

**Chart 4: On our estimates, almost 800 kb/d of Canadian output could go offline if oil drops below \$38/bbl, and another 800 kb/d at \$30/bbl**



Source: Merrill Lynch Research

**Chart 5: Operating costs for oil companies are low, and will not provide much price support above \$30/bbl**

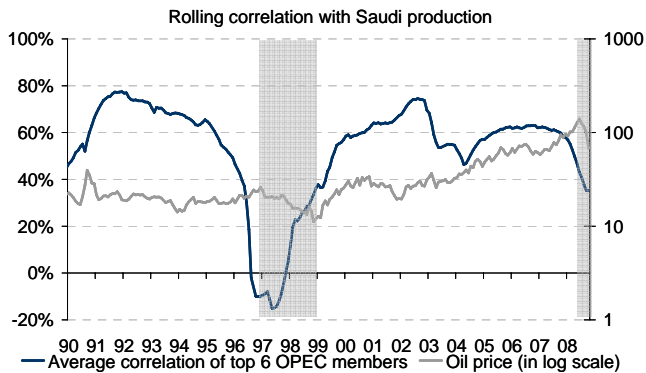


Source: WoodMac, Merrill Lynch Commodity Research

**OPEC's response is a function of budget break-even levels**

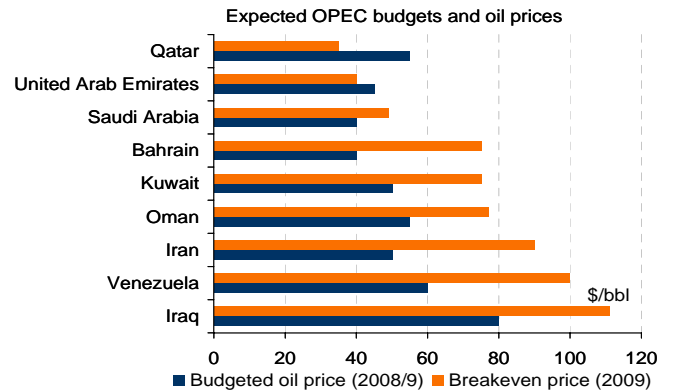
OPEC has already cut some barrels out of the market in an effort to stabilize prices. In a recent note (see GEW ["Will OPEC cut for real?"](#)), we argued that OPEC had not been acting as a cohesive group in past months, and we questioned the cartel's ability to act firmly unless prices broke through \$50/bbl. In fact, our indicator of OPEC cohesion even showed shrinking correlation of the various members' oil production with Saudi Arabian output in recent months (Chart 6). However with the OPEC basket price firmly below \$50/bbl, prices are biting into the members' government coffers (Chart 7). Thus, the incentive to co-operate has come back and we expect more output reduction announcements to balance the market.

**Chart 6: Our indicator of OPEC cohesion shows shrinking correlation between Saudi Arabian oil output and the output of the other members**



Source: IEA, Bloomberg, Merrill Lynch Commodity Research

**Chart 7: Now with the OPEC basket price firmly below \$50/bbl, lower prices are biting into the members' government coffers.**



Source: IMF, NBK, various sources, Merrill Lynch Commodity Research

**We see an oil price trough forming sometime in 1H2009**

As producers continue to scale back output and the 4Q08 shock to economic activity starts to fade, oil prices could begin to form a floor. In our view, oil prices could find a trough sometime in 1H2009 with the seasonal slowdown in demand. Then, as economic activity in OECD economies starts to recover, we see oil prices recovering modestly in 2H2009. In line with this view, we expect WTI crude oil prices to average \$43/bbl in 1Q09, \$45/bbl in 2Q09 and then recover towards an average \$51/bbl in 3Q and \$61/bbl in 4Q. In this environment, near-dated WTI crude oil prices could continue to weaken relative to longer-dated prices in the short-run, but this trend should start to reverse as oil prices find a trough.

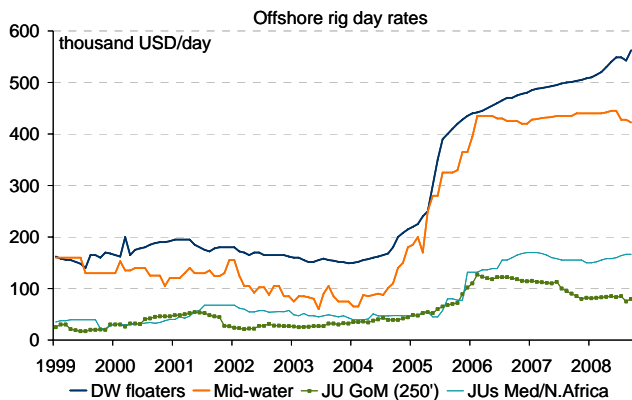
### Long-dated prices are linked to marginal cost economics

How will long-dated oil prices behave in the coming months? Forward curves in commodity markets are a mechanism for market participants to exchange price risk. While near-dated oil prices are typically a function of short-run supply and demand conditions and inventory levels, long-dated oil prices are much more linked to marginal cost economics. With the exception perhaps of Q2 and Q3 of this year, long-dated crude oil prices have tended to reflect the surging costs for increasingly complex marginal projects in Canada, Brazil and other non-OPEC countries.

### Marginal costs increased tremendously in recent years...

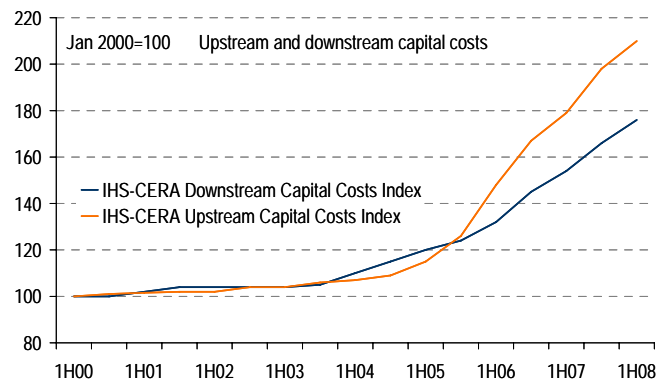
Marginal oil production costs were rather steady for most of the 1990s, with 5-year WTI crude oil prices reflecting the cost of production in expensive areas, such as the North Sea, and OPEC's need to balance the members' government budgets. Since 2004, marginal costs have increased tremendously and long-dated prices have spiked up accordingly. For instance, offshore rig day rates have increased two or three fold since 2004 (Chart 8). Similarly, both upstream and downstream expenditures—measured by the IHS/CERA Upstream and Downstream Capital Costs Indexes (Chart 9)—have doubled in the last four years on the back of surging steel and labour costs.

**Chart 8: Offshore rig day rates have increased two or three fold since 2004**



Source: Merrill Lynch Equity Research

**Chart 9: Both upstream and downstream oil production costs have increased very rapidly in recent years.**

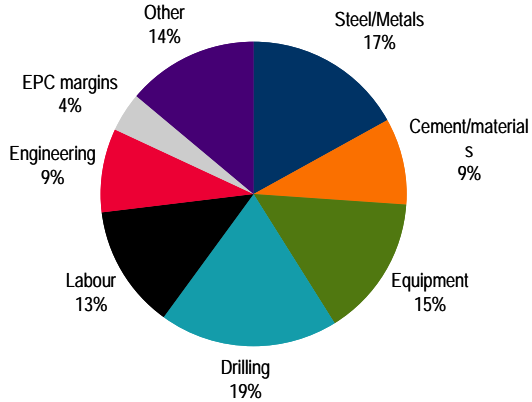


Source: IHS-CERA, Merrill Lynch Commodity Research

### ...pushing up long-dated WTI and Brent crude oil prices

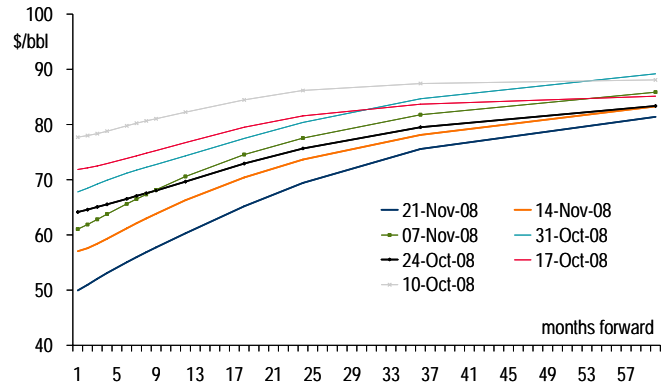
In spite of the recent drop in ferrous and non-ferrous metals prices, these cost increases have many permanent features that will be hard to reverse. As an example, only 17% of offshore drilling costs are directly related to highly variable steel and non-ferrous metals (Chart 10), suggesting the most of the cost structure for new projects is unlikely to come down very rapidly. ML equity analyst Andrew Fairbanks estimates that some of the new oil sands production in Canada will require an incentive price of \$80/bbl, and ML equity analyst Frank McGann calculates an incentive price of \$50/bbl for new pre-salt developments in Brazil. Consequently, we expect global oil production costs to stay high and, despite the dramatic drop in near-dated prices, we see long-dated prices remaining relatively well anchored at \$80-90/bbl (Chart 11).

**Chart 10: Only 17% of offshore drilling costs are related to steel and non-ferrous metals prices, suggesting overall costs will remain high**



Source: Merrill Lynch Equity Research

**Chart 11: We expect global oil production costs to stay high, and we see long-dated prices remaining relatively well anchored at \$80-90/bbl**

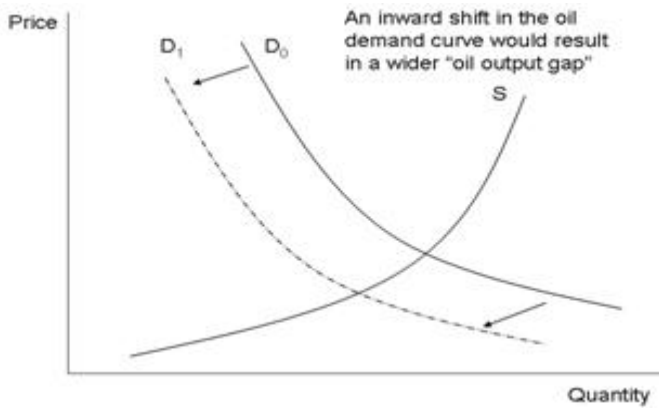


Source: Reuters, Merrill Lynch Commodity Research

**A prolonged recession could push 2010-12 oil prices down**

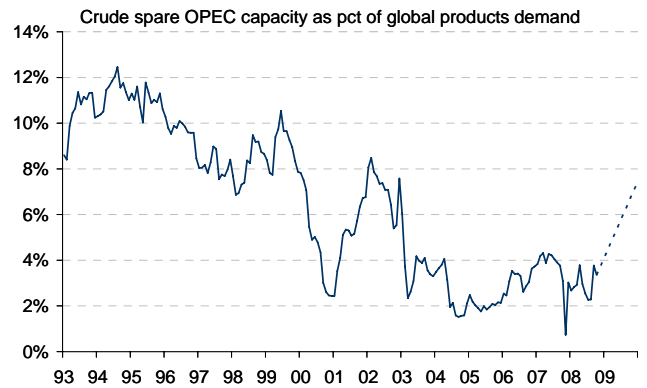
Of course, there are some risks to this view. In particular, a sharp and permanent collapse in oil consumption in the United States and other countries could shift the demand curve inwards (Chart 12), so that the quantity of oil demanded by consumers at a given price could decrease. Moreover, the prospect of a prolonged global recession could result in a severe correction in oil prices in 2010-12. In particular, should global oil demand fail to recover and OPEC continue to expand productive capacity as planned, spare oil production capacity could increase significantly over the next three years (Chart 13). Under these circumstances, calendar oil prices in the 2010 to 2012 period could suffer due to a growing "oil output gap".

**Chart 12: A sharp and permanent collapse in oil consumption in the United States could shift the demand curve inwards**



Source: Merrill Lynch Commodity Research

**Chart 13: If global oil demand fails to recover, oil prices in the 2010 to 2012 period could suffer with a growing "oil output gap"**



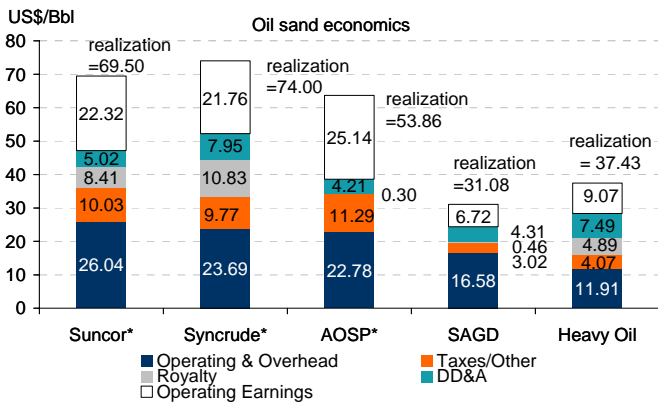
Source: Bloomberg, Merrill Lynch Commodity Research

**Producers could scale back on investment due to lower credit availability, and falling oil prices**

Of course, a significant pullback in energy investments over the coming months could well bring a recovery in oil prices forward. With calendar oil prices now below \$70/bbl for both 2009 and 2010, market participants in marginal areas such as Canada will continue to question the long-term viability of their investments (Chart 14). For instance, Petro-Canada has deferred the construction of an upgrader for its \$17 billion Fort Hills oil sands project, while Canadian Natural

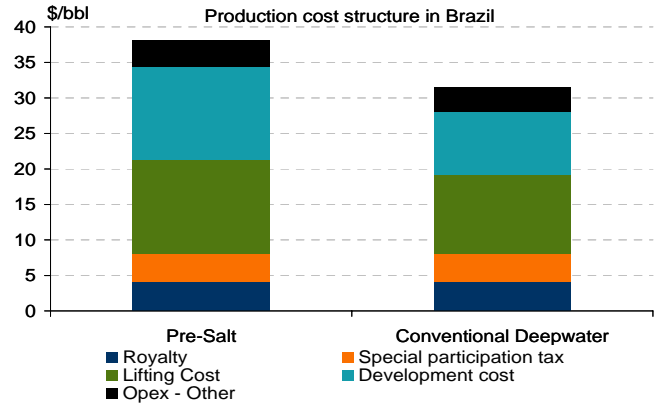
Resources Ltd has slowed its spending on the second phase of the Horizon oil sands project for 2009. Energy companies are also evaluating investment decisions elsewhere. BG recently postponed a decision on whether to proceed with Phase III of Karachaganak field development, which aimed to lift oil output to 16 million tonnes per annum (tpa) from 11 million, and Baker Hughes expects about 200 oil and gas rigs in North America to be idled during the fourth quarter. Lower oil prices will particularly impact companies with high capital commitment and low cash flows. Still, other high cost producers in areas like Brazil will likely go ahead with their investment plans even with lower oil prices (Chart 15).

**Chart 14: With oil prices now below \$70/bbl for 2009-10, some Canadian producers will question the viability of their investments**



Source: Merrill Lynch Canada Equity Research

**Chart 15: Still, other high cost producers in areas like Brazil will likely go ahead with their investment plans even with lower oil prices**



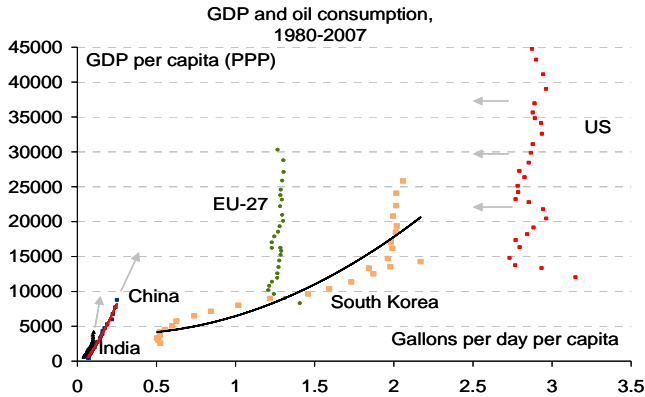
Source: Merrill Lynch Brazil Equity Research

**Demand should support long-dated oil prices at \$80-90/bbl**

Still, with emerging market oil demand poised to maintain a relatively strong upward trajectory in the medium-term, any contraction in US oil demand will be absorbed sooner or later (Chart 16). In part, this is because mature field declines (Chart 17) will likely prevent a significant increase in global oil beyond the current levels. Thus, a significant outward shift in the supply curve is unlikely in this exhaustible resource. As a result, the ultimate question will be for how long a permanent inward shift in the US oil demand curve will exceed consumption growth in emerging markets such as India and China. As demand starts to catch up again with supply over the next few years, oil prices will inevitably start trending higher.

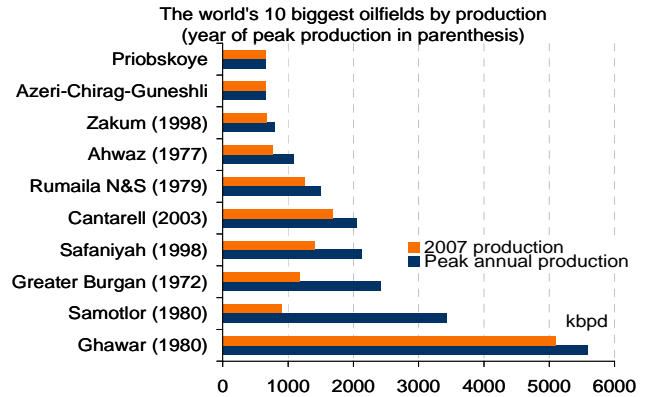


**Chart 16: With per capita emerging market oil demand still relatively low, any contraction in US oil demand will be absorbed sooner or later**



Source: IEA, IMF, Merrill Lynch Commodity Research

**Chart 17: Mature field declines will likely prevent a significant increase in global oil beyond the current levels**

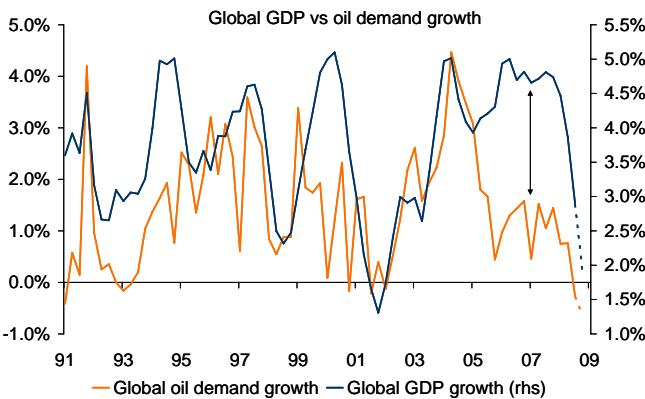


Source: IEA, Merrill Lynch Commodity Research

**Near-term the sharp cyclical downturn will reduce demand**

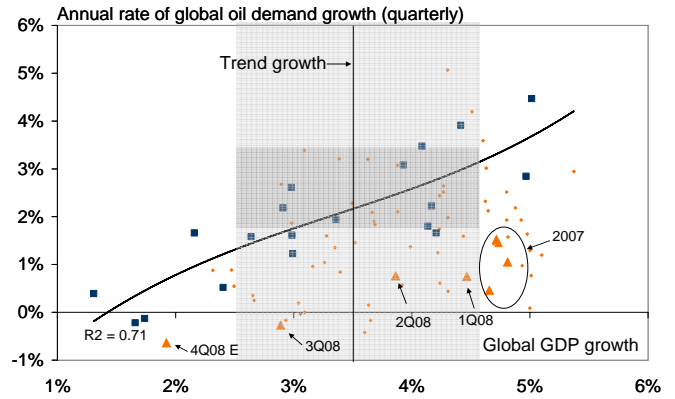
In the short-run, global oil demand growth will likely take a further beating as banks continue to cut credit to consumers and corporations. As we have argued before, the relationship between global GDP and global oil demand growth has been fairly weak during the current business cycle, as a lack of supply constrained consumption via rapidly rising oil prices. Due to this lack of supply, global oil demand has failed to match the strength in the global economy since 2005 (Chart 18). More recently, as global economic growth continued to decelerate in 2H2008, the global oil intake has started to contract relative to last year. This trend is likely to continue well into next year, and we now expect an outright contraction in global oil demand in 2009.

**Chart 18: Global GDP and oil demand growth have seemingly decoupled since 2005 due to a lack of supply...**



Source: IMF, BP, Merrill Lynch Commodity Research

**Chart 19: ...but the relationship is clearly tightening up as global economic growth falls further below trend**



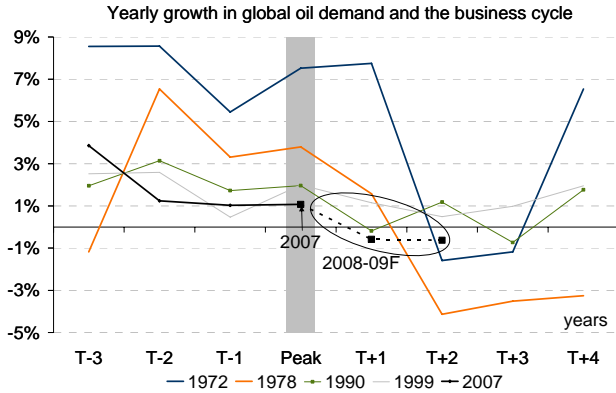
Source: IMF, BP, Merrill Lynch Commodity Research

**Oil demand is inextricably linked to the business cycle**

How close is the relationship between oil consumption and the business cycle? Oil demand almost always found a trough with the business cycle in every major recession since the 1970s. Looking at yearly data (Chart 20), we find that oil demand has historically dropped by more than half between the business cycle peak and the following year (from 2.9% to 1.4%). More importantly, global oil consumption growth contracted on average during the two years following the business cycle peak. Of course, oil demand growth suffered an even more severe setback during the two oil price crises in the 1970s. Demand destruction—defined

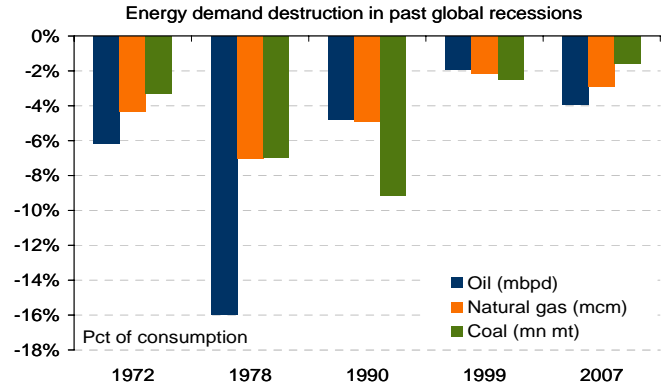
as demand growth during the recession relative to trend growth during a non-recession—is clearly also evident when looking at natural gas and coal consumption (Chart 21).

**Chart 20: Oil demand growth usually peaks in line with the business cycle and can take up to four years to recover**



Source: IMF, BP, Merrill Lynch Commodity Research  
 Note: The year stands for the peak in the global business cycle, as indicated by the OECD leading indicator

**Chart 21: Natural gas and coal consumption have also suffered major demand destruction relative to trend during the past recessions**



Source: IMF, BP, Merrill Lynch Commodity Research  
 Note: We define demand destruction as the difference between growth during no recession and growth during a recession

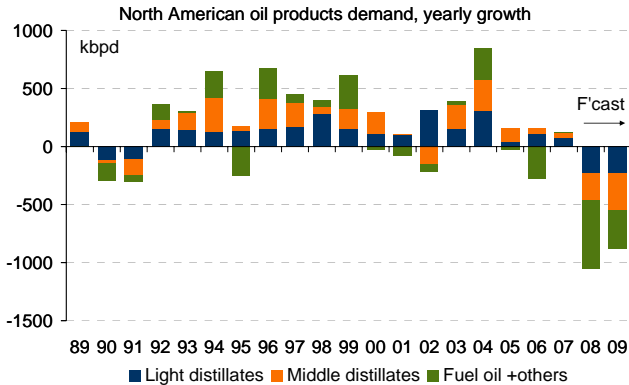
**The economic malaise that started in the US...**

So far, the epicentre of the oil demand shock remains in the United States. The rate of decline in US oil consumption has increased from -5.5% in May-July to -7.8% in the three months preceding October. Car sales, air traffic and manufacturing have all started to contract this quarter. In particular, the contraction in October has been staggering across all product categories, and is particularly brutal for gasoline, jet and residual fuel oil. While the rate of decline could slow over the coming months as pent-up demand comes back into the market, we continue to expect negative yearly growth in US oil demand for the next 3-6 months (Chart 22). On our estimates, the income elasticity effect far outweighs the price elasticity of demand, meaning that the shock from lower growth will be more negative than the positive impact that lower oil prices will have on demand (Chart 23). Our estimates therefore suggest a continued deterioration in oil balances in the United States in 2009.

**...is now spreading to Japan and Korea**

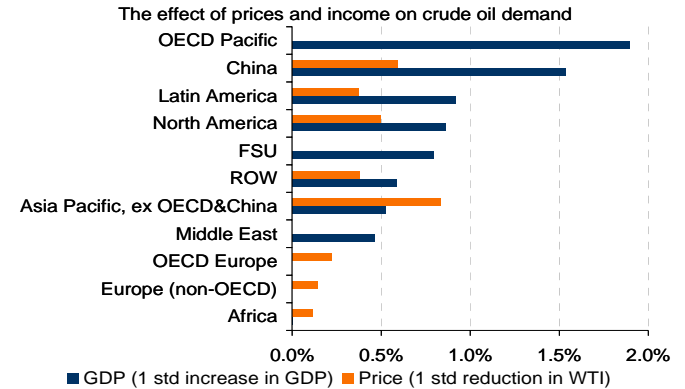
Moreover, the malaise that started in the US is now clearly spreading elsewhere. While the impact of an economic recession on oil demand is usually felt the hardest in the United States, both in level and growth terms, countries like China, Russia, Korea and Japan could also be very adversely affected. At present, Japan and Korea are being particularly impacted by the global economic turmoil as a sharp reduction in domestic credit and external demand for export products has pushed both of their economies into a recession. As a result, oil demand growth in the region has already plummeted.

Chart 22: We expect US oil demand to continue to contract in 2009



Source: EIA, Merrill Lynch Commodity Research

Chart 23: For most countries and regions, the income elasticity outweighs the price elasticity of demand for oil



Source: IEA, Merrill Lynch Commodity Research

Note: The chart shows how demand reacts to a 1 standard deviation change in regional GDP growth and a 1 standard deviation change in WTI crude oil prices. Missing bars indicate that variables are insignificant.

### The weakness in demand should soon infect OECD Europe

Unlike North America and OECD Pacific, Western European oil demand has so far held up significantly better. Oil demand growth bounced back to 2.3% YoY in September, the latest available datapoint, mainly due to very robust heating oil and diesel use. The strength in gasoil cracks in the past six weeks suggests that the refilling of heating oil inventories in Germany and elsewhere has continued to support demand ahead of the winter. Still, even though oil demand in Europe tends to be more price-sensitive than income-sensitive, the impact of a recession on oil demand use could still be fairly severe.

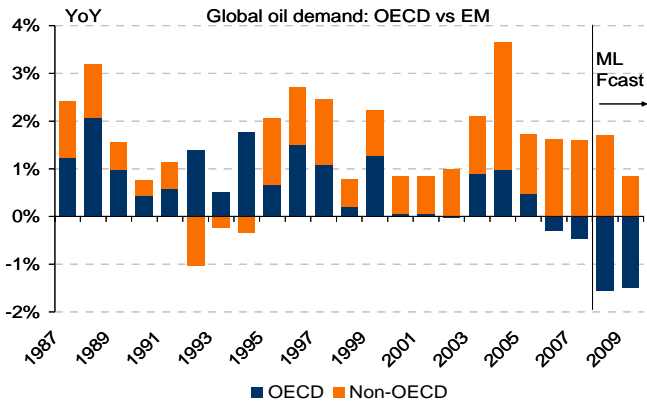
### Even emerging markets are experiencing a slowdown...

Meanwhile, emerging markets—once thought to be fairly insulated from the rest of the world—have not been able to steer clear from the global turmoil. Several countries in Latin America have turned out to be far more exposed to external weakness than expected. At present, declining commodity prices are putting downward pressure on countries like Mexico, Brazil, Chile and Peru. By the same vein, our economists expect Russian economic growth to halve next year (from 7% in 2008 to 3.7% in 2009) given the dry-up in foreign capital inflows. China and India are still expected to fare better on a relative basis due to a flexible policy framework and the impact of fiscal and monetary stimuli, but both economies have already moved to a slower growth path. While emerging markets should overall be able to avoid an outright recession, economic activity in non-OECD countries will still slow down markedly, from 6.4% this year to 4.5% in 2009.

### ...suggesting a further deterioration in EM oil demand

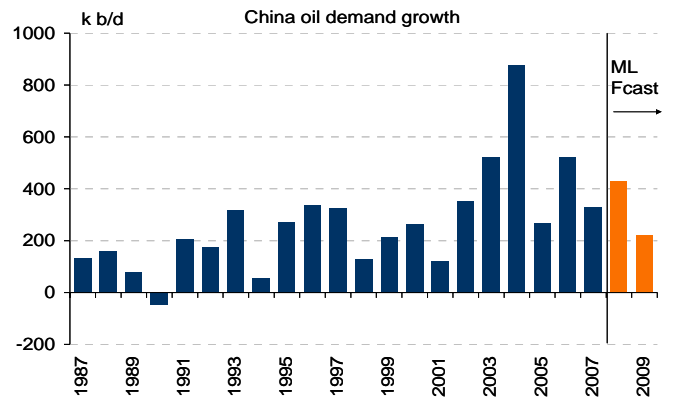
Given that emerging markets have been the engine of global oil demand growth in the past few years (Chart 24), a deteriorating economic outlook for non-OECD economies is clearly worrying. Although emerging market oil demand growth will still be positive overall, it will be substantially below the levels observed in the past few years. For instance, we expect China's oil demand growth to average 220 thousand b/d next year, relative to 500 thousand b/d per annum in the past five years. On our assumptions, Chinese economic growth would have to fall below 4.5% in order for oil demand growth to turn negative, an unlikely event in our view. In the end, as we have argued before, OECD demand will likely matter more to overall global oil demand growth than emerging markets in this current crisis.

**Chart 24: Emerging market growth is going to be the lowest since 2001 but still positive next year**



Source: IEA, Merrill Lynch Commodity Research

**Chart 25: There is downside risk to Chinese oil demand growth in 09 but it should not turn negative unless GDP growth falls below 4.5%**

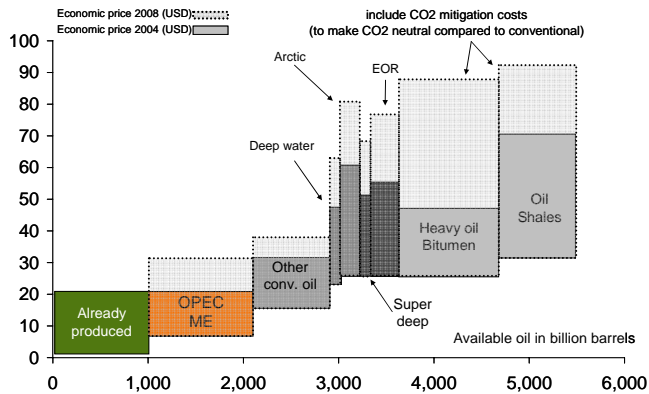


Source: IEA, Merrill Lynch Commodity Research

**Long-term, inflation & cost of money will push commodities up**

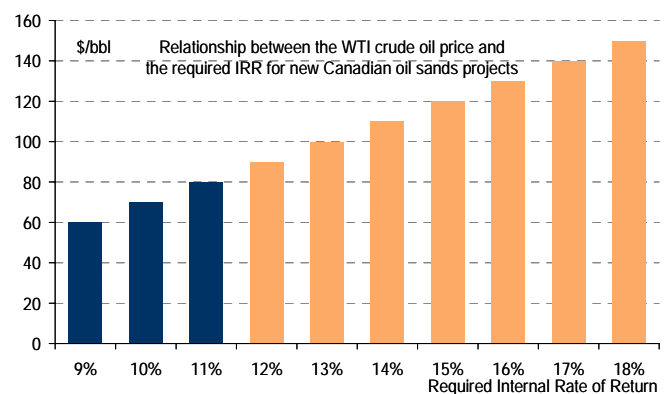
So is the commodity super-cycle over? We do not think so. Rather, we see global oil markets behaving as erratically as the Baltic Dry Index in the coming years. Whenever economic activity starts to recover, energy demand will likely start to strengthen and put upward pressure again on prices, as the ongoing bank bailouts will be inflationary in the long-term. More importantly, with the ongoing upward shift in the cost of money, oil investors could well require a much higher IRR than 10% (Chart 26 and 27). Thus, a combination of higher inflation and higher cost of money could push oil prices structurally above \$150/bbl within five years as economic activity recovers.

**Chart 26: Oil sands, offshore or Arctic projects will likely require oil prices above \$90/bbl to maintain profitability**



Source: Merrill Lynch Commodity Research

**Chart 27: But the cost of money is ballooning, so \$150/bbl may be required if investors demand an IRR of 18% in the future**



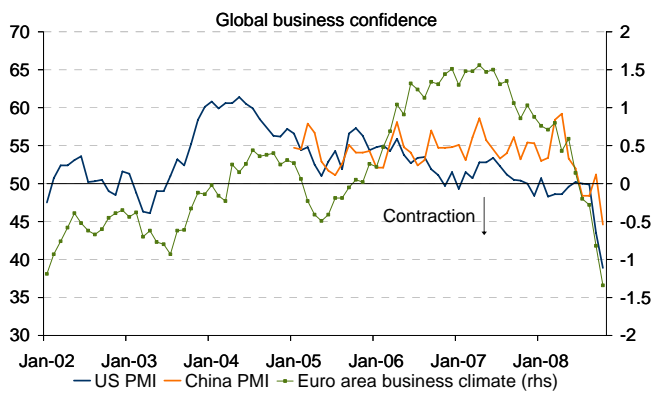
Source: Merrill Lynch Equity Research

## 2. Petroleum product outlook

### We expect a weak petroleum product demand environment in 2009

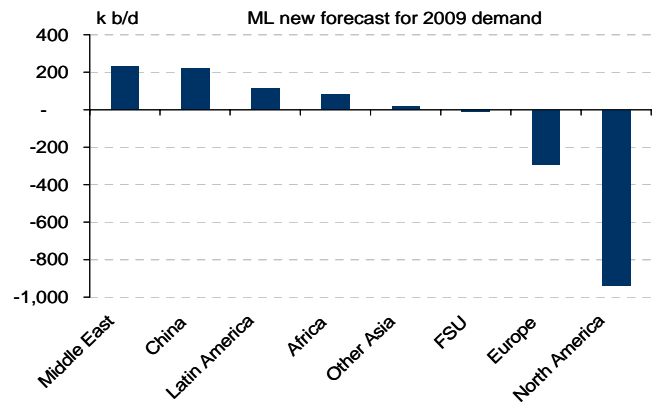
Demand for petroleum products has declined sharply and simultaneously across all major consuming regions in recent months, in line with the broad-based deterioration in global economic activity. Looking forward, a set of leading indicators point to significant weakness ahead (Chart 28), suggesting that oil demand should continue to contract going into 2009. In this context, certain geographical regions and certain petroleum products will be more affected than others by the economic downturn. Regionally, we expect North America to remain the softest spot for global oil demand, while demand in the Middle East should stay afloat. By product, we expect middle distillate markets to hold up better, while gasoline and residual fuel oil balances are likely to be a lot weaker. In line with this view, we are shifting our 1H09 USGC gasoline, heating oil and residual fuel oil crack spread forecasts to \$3.40/bbl, \$16.15/bbl and \$-12.60/bbl.

**Chart 28: Looking forward, leading indicators for all major economies point to further oil demand weakness**



Source: Bloomberg, Merrill Lynch Commodity Research

**Chart 29: Regionally, we see North America as the weakest link for global oil demand, while Middle East demand should hold up better**

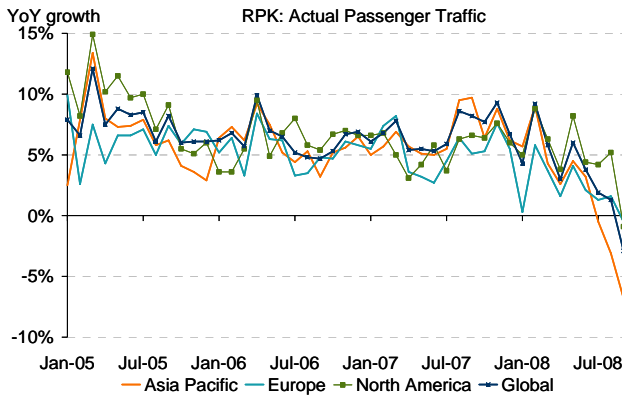


Source: Merrill Lynch Commodity Research

### Fundamentals are deteriorating rapidly everywhere...

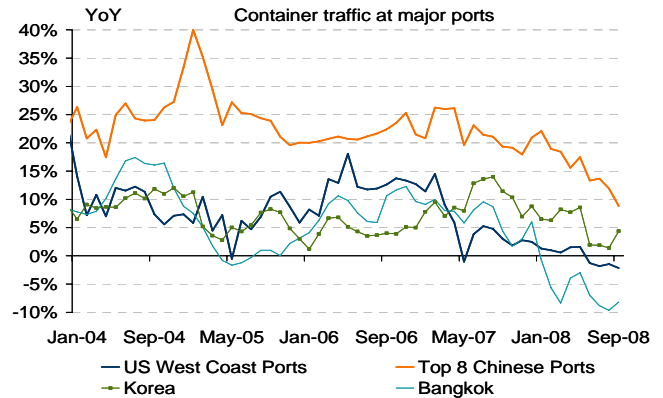
While regional product balances will surely drive investment and hedging decisions, oil demand weakness is above all a global phenomenon. A slowdown of globalization, marked by a reduction in the movement of both goods and people, is now well underway all over the world. As a point of reference for the global economy, actual air passenger traffic across all key regions has declined substantially during the last three months (Chart 30). Similarly, global container traffic has slowed down in a number of regions, as suggested by data from ports in the United States, China, Korea and Thailand (Chart 31).

**Chart 30: A contraction in air travel is putting downward pressure on jet demand across all regions**



Source: IATA, Merrill Lynch Commodity Research

**Chart 31: Container traffic has declined substantially, as suggested by data from ports in the United States and China**

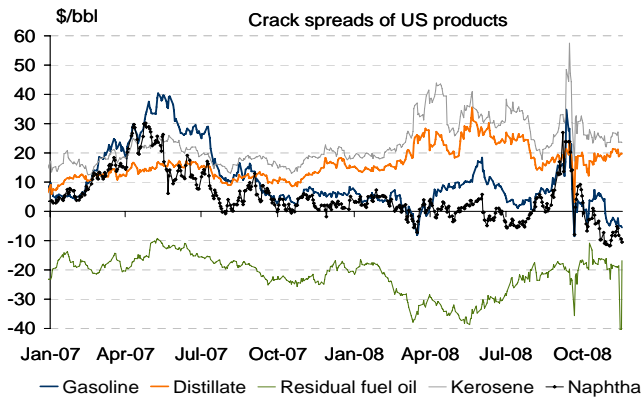


Source: CEIC, Datastream, Merrill Lynch Commodity Research

**...putting downward pressure on gasoil, jet and naphtha cracks**

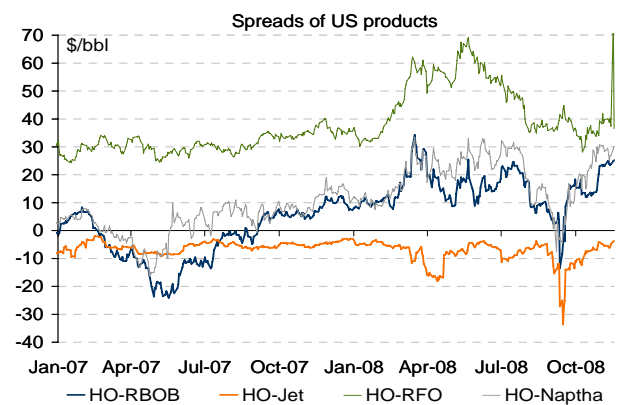
The reduction in passenger and freight transportation, coupled with a marked downturn in petrochemical and other industrial activity across the world, has put tremendous downward pressure on petroleum product cracks. In particular, gasoline and naphtha crack spreads have moved deep into negative territory, but spreads in other products such as jet fuel and diesel have also halved from their peaks (Chart 32). In our view, some of the dislocations experienced in a number of petroleum product markets as prices were trending up changed quite drastically as prices fell. For instance, the price differential in a number of products—heating oil to gasoline—widened tremendously while other differentials—such as heating oil to residual fuel oil—experienced a contraction (Chart 33).

**Chart 32: Gasoline and naphtha crack spreads have collapsed, spreads in other products such as diesel have also come down**



Source: EIA, Merrill Lynch Commodity Research

**Chart 33: Due to petroleum market dislocations, price differentials across products have moved very rapidly in the past months**



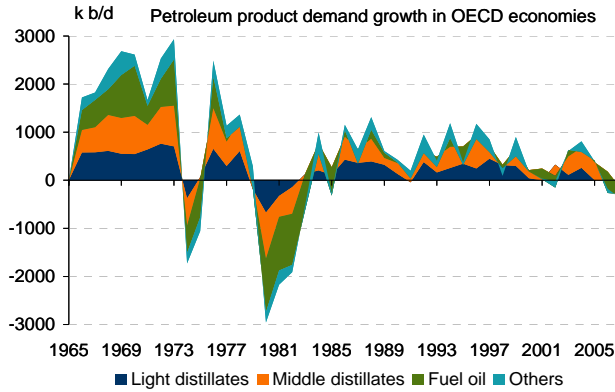
Source: EIA, Merrill Lynch Commodity Research

**Emerging markets matter more than OECD economies to product balances**

Historical trends suggest that oil product demand in China, South Africa or Brazil matters more than demand in the OECD to global oil product balances. In effect, aggregate OECD product demand growth has remained steady in the last two decades (Chart 34), while oil demand in emerging economies spiralled up with rapid economic growth (Chart 35). This time around though, we believe it is critical to look at balances both in developing economies and in the OECD. A

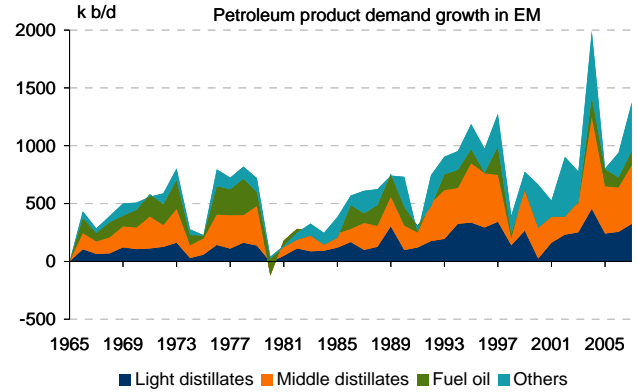
severe petroleum product demand contraction is underway in North America, while some of the emerging regions like Asia or the Middle East will likely maintain positive oil demand growth rates.

**Chart 34: In recent years, aggregate OECD petroleum product demand has barely changed...**



Source: BP, Merrill Lynch Commodity Research

**Chart 35: ...while demand in emerging economies has spiralled up very rapidly, particularly since the Asian crisis**

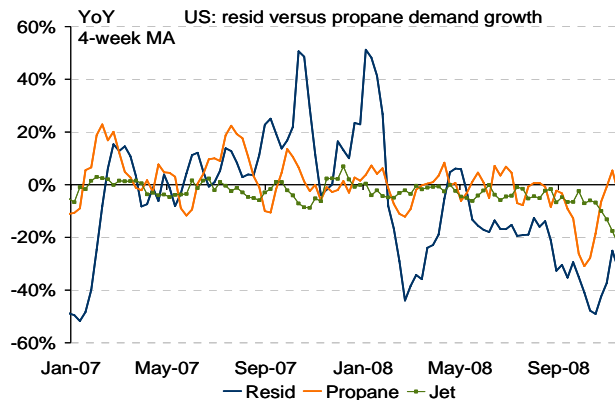


Source: BP, Merrill Lynch Commodity Research

**North American gasoline is the softest spot for oil demand**

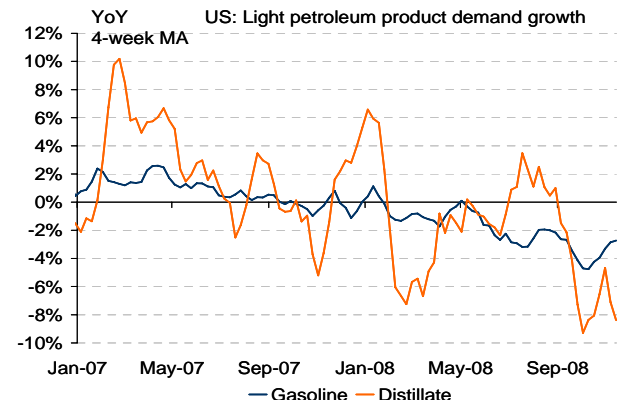
Leading the global demand decline, the United States has experienced an average contraction of 7.1% or 1.5 million b/d YoY in petroleum product demand in the last three months. More specifically, residual fuel oil has experienced the steepest demand decline as power generators continued to substitute away from oil into other energy products including natural gas (Chart 36). Propane demand has come down very rapidly this summer due to hurricane-related shut-ins of petrochemical plants but the outlook is very muted for this sector going forward. Equally, demand for light products has experienced a sharp, albeit less dramatic decline, as Americans cut back on their travels and as the shipments of goods fell (Chart 37). In our view, this trend will continue as the US consumer turns to more efficient energy usage, with a special focus on the gasoline sector.

**Chart 36: In the US, the steepest demand decline has been for resid, propane and jet fuel so far**



Source: EIA, Merrill Lynch Commodity Research

**Chart 37: The light and medium petroleum products are also experiencing a sharp demand contraction**

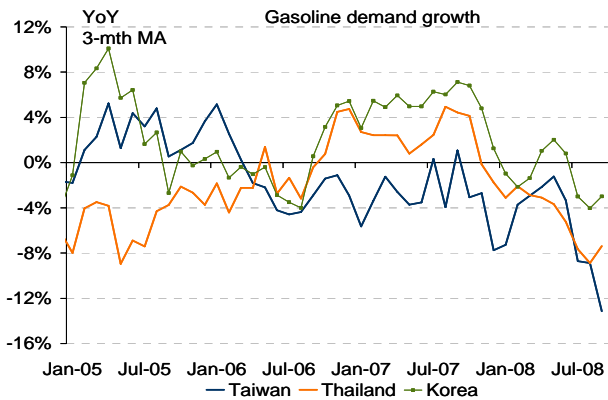


Source: EIA, Merrill Lynch Commodity Research

**In Asia, naphtha is leading the petroleum demand decline..**

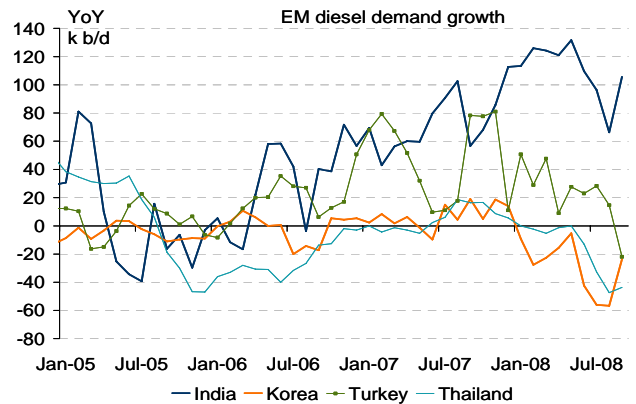
Asian oil demand has been slightly more resilient, thanks to more robust economic performance in China and India relative to the rest of the world. Having said that, Asian gasoline and naphtha demand is now looking very soft (Chart 38). In part, the more mature markets in the region have experienced an outright contraction in passenger car and petrochemical demand for light petroleum products. Meanwhile, Thai and Korean demand for diesel has also nose-dived in recent months. On the other hand, demand for middle distillates has continued to expand in China and India in 2H2008, albeit at a lower rate than in the first part of the year (Chart 39).

**Chart 38: In Asia, gasoline and naphtha demand has been leading the decline in oil consumption**



Source: JODI, Merrill Lynch Commodity Research

**Chart 39: Albeit coming from a higher base, Asian diesel demand has also started to deteriorate in recent months**



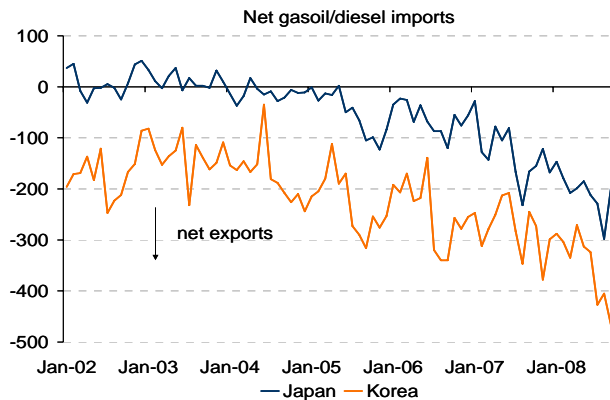
Source: JODI, Merrill Lynch Commodity Research

**...while the Asian trade balance for diesel is also softening rapidly**

As Asian demand for gasoline and diesel has started to soften, the Asian trade balance for petroleum products has weakened. Both Korea and Japan have become very large exporters of middle distillates, with the tandem reporting distillate exports of 550 in the first eight months of the year, up 151 thousand b/d from 2007 (Chart 40). This surge in exports is a combination of weaker domestic demand coupled with an improvement in domestic refining capacity in Korea. Breaking with the trend in 1H2008, the pace of diesel imports into China is slowing down remarkably after the Olympics (Chart 41), with many reports pointing to rapidly rising domestic inventories of distillates in the country. The latest container throughput data in China is not very hopeful either, with container traffic growth slowing down sharply in recent months.

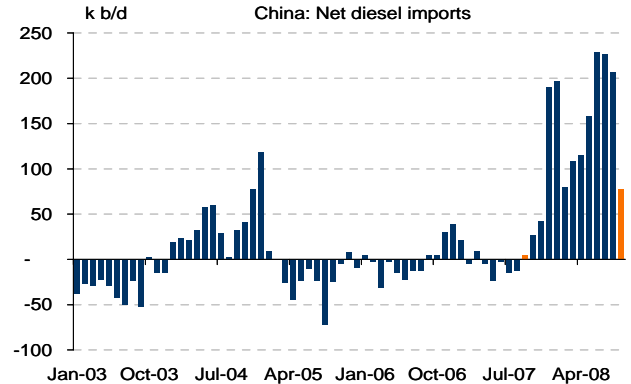


**Chart 40: Meanwhile, net diesel exports are rising out of Japan and Korea due to weaker domestic activity and new refining capacity**



Source: JODI, Merrill Lynch Commodity Research

**Chart 41: The pace of diesel import is slowing down remarkably in China after the Olympics**

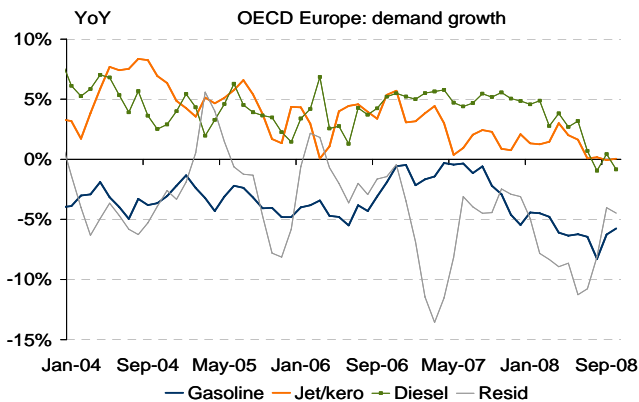


Source: CEIC, Merrill Lynch Commodity Research

**European gasoline demand is falling faster than demand for other products**

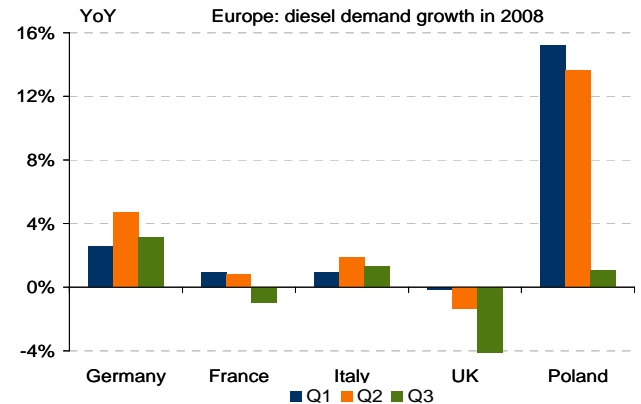
The European region has not been spared by the ongoing global economic downturn, with many countries posting an outright contraction in 3Q08. On aggregate, demand for gasoline and residual fuel oil has already been on a steady decline for years (Chart 42), due to substitution away from gasoline cars and out of oil-fired power generation. But demand for diesel and jet fuel has recently taken a very pronounced downturn after a decade of sustained growth of 5% and 3%, respectively (Chart 43).

**Chart 42: In Europe, demand for gasoline and residual fuel oil has been declining steadily for years**



Source: IEA, Merrill Lynch Commodity Research

**Chart 43: More recently, demand for diesel has taken a very pronounced downturn after a decade of sustained 5% annual growth**

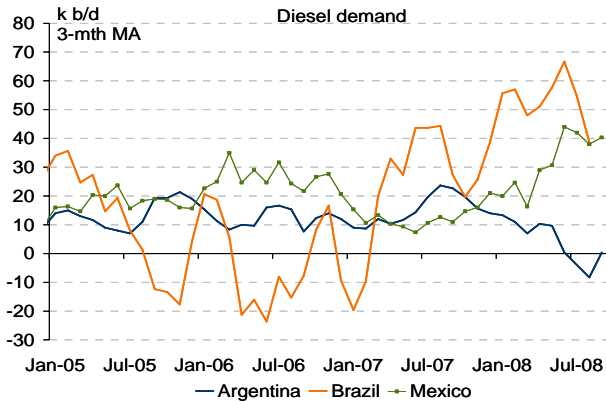


Source: IEA, Merrill Lynch Commodity Research

**Meanwhile, Latin America is finally slowing down**

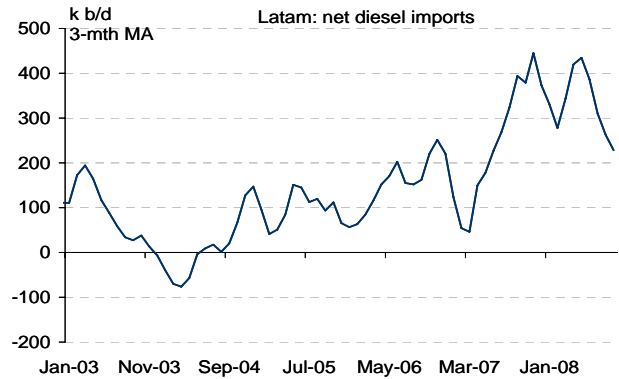
With an economic deceleration in the developed regions clearly underway, Latin America is starting to show signs of a slowdown as well. In particular, diesel consumption growth rates have turned in all the big Latin American economies, with Argentina showing an outright contraction (Chart 44). Latin American diesel imports, one of the global strongholds for distillate demand throughout the Southern hemisphere winter, are poised to slow down further in the coming months (Chart 45). Still, we expect the region to show a net positive contribution to global oil demand growth in 2009, as we only foresee a muted deceleration in regional GDP from 4.5% this year to 2.1% in 2009.

**Chart 44: Diesel sales have turned in the big Latin American economies, with Argentina showing an outright contraction**



Source: JODI, Merrill Lynch Commodity Research

**Chart 45: As a result, diesel imports from Latin America seem to have peaked**

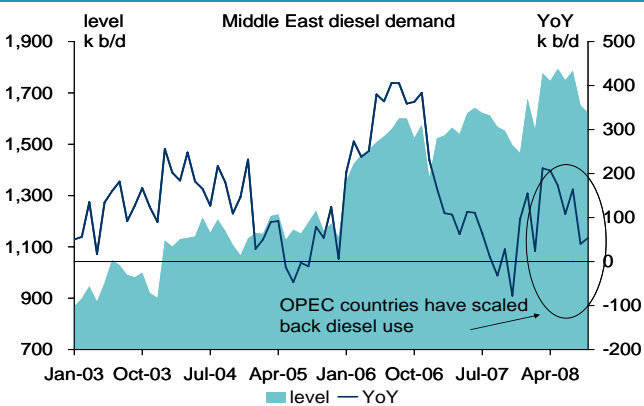


Source: JODI, Merrill Lynch Commodity Research

**The Middle East is past a petroleum demand growth peak**

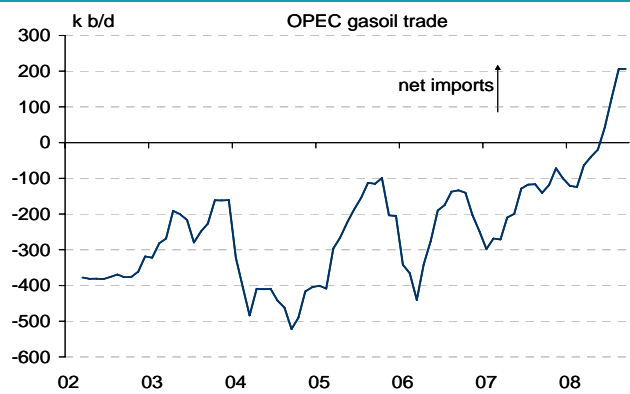
With global economic growth decelerating very sharply, Middle East demand will likely lose speed in the quarters ahead as well. With the decline in oil prices and the widespread banking problems, Middle East diesel demand has already started to slow down in the last months (Chart 46). Still, given the region's deficit in a number of products, petroleum imports into the Middle East firmed up in the first part of the year (Chart 47), suggesting petroleum product demand will likely remain robust relative to other regions. On aggregate, we estimate oil demand will expand at a yearly rate of nearly 200 thousand b/d next year in the region.

**Chart 46: Middle East diesel demand slowed down over the summer...**



Source: JODI, Merrill Lynch Commodity Research

**Chart 47: ...but coincidentally the region was a heavy buyer in international markets**



Source: JODI, Merrill Lynch Commodity Research

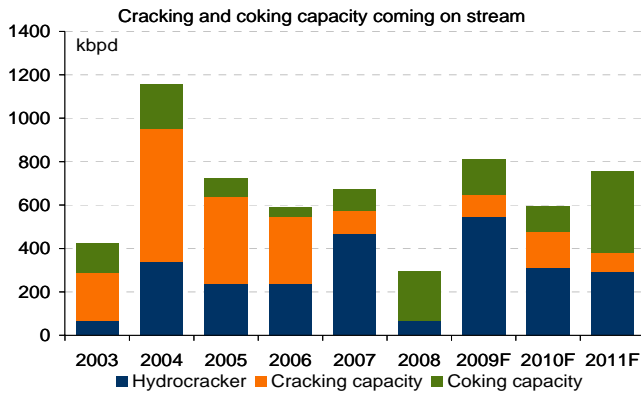
**Understanding the growing regional imbalances is key**

In sum, the global oil demand picture for 2009 is rather dim overall, with just a couple of bright regional spots in the months ahead. The Middle East, Latin America and Africa will probably experience a meaningful increase in oil demand, particularly centered on middle distillates and gasoline. The demand outlook for the Asia-Pacific region is more mixed, with decreases in Japan and Korea offsetting much of the consumption gains from China. Meanwhile, OECD Europe and North America will likely experience sharp outright oil demand declines concentrated in light petroleum products such as gasoline and naphtha.

### Global resid cracks could regain some strength in 1Q09

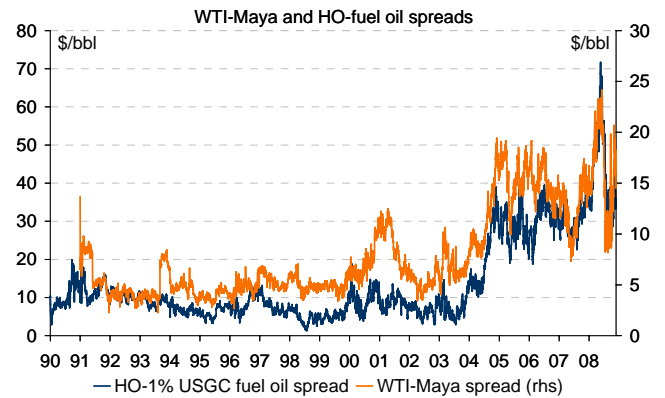
As demand for petroleum products continues to fade, we would expect the largest reductions in output to come from simple refineries. Topping and hydroskimming refineries typically carry very high residual fuel oil yields, suggesting supply for residual fuel oil should decline relatively rapidly in the next three or four quarters. In addition, new cracking and coking capacity should expand at a rapid pace in 2009 (Chart 48), further reducing residual fuel oil yields. Consequently, global resid cracks could regain some strength in 1Q09 on the back of the new upgrading capacity coming on line, in turn resulting in narrower light-heavy spreads (Chart 49).

Chart 48: Global resid cracks could regain some strength in 1Q09 on the back of the new upgrading capacity coming on line...



Source: Merrill Lynch Commodity Research

Chart 49: ...suggesting that light-heavy spreads could weaken substantially



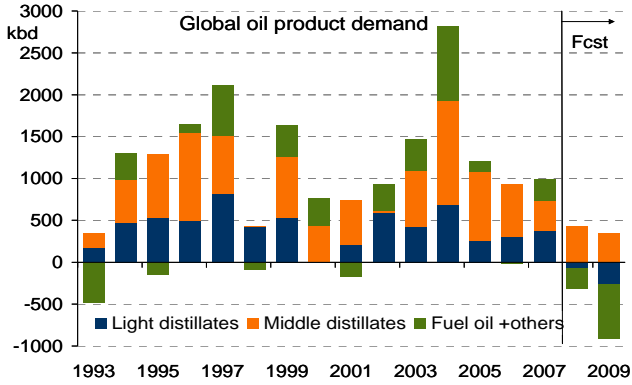
Source: Reuters, Merrill Lynch Commodity Research

### Gasoline crack spreads will likely remain very weak

While low sulphur NYH residual fuel oil crack spreads could strengthen from their current \$-23/bbl, we see RBOB gasoline spreads weakening further. Light petroleum product demand in key regions is falling rapidly due to lower driving and petrochemical oil usage, while supply continues to increase on the back of new refining capacity. Meanwhile, the middle distillate supply/demand balance is also weakening, but not as fast (Chart 50). Net, we estimate that the global demand balance for the key product groups will deteriorate further in 2009. Assuming the distillate market finds a balance, we see a surplus of light products of 1100 thousand b/d, a surplus of residual fuels of 930 thousand b/d, and a surplus of middle distillates of just 164 thousand b/d (Chart 51).

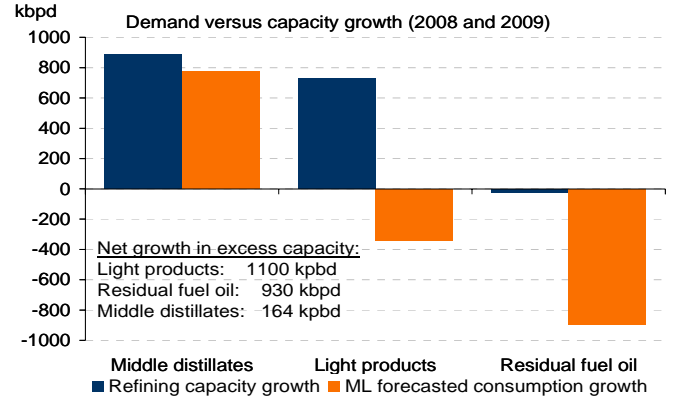
26 November 2008

**Chart 50: By product, residual fuel oil will likely experience a sharp decline in demand, with gasoline demand also falling**



Source: BP, Merrill Lynch Commodity Research

**Chart 51: We see a surplus of light products of 1.1, a surplus of residual fuels of 0.9, and a surplus of distillates of 0.2 m b/d**



Source: BP, Merrill Lynch Commodity Research

### 3. US natural gas outlook

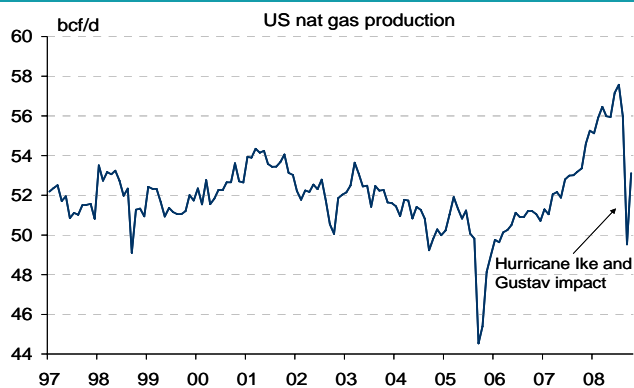
#### The US natural gas market is suffering from oversupply

The US natural gas market has undergone a phenomenal turn this year. Prices at the Henry Hub went from \$7.50/mmBTU in February to almost \$14.00/mmBTU in early July. Partly reflecting a colder-than-normal end of winter and sturdy demand from the industrial and power generation sectors (+ 1.25 bcf/d in 1H08), the market relentlessly pressed higher. However, as demand started to cool off at the start of July, the significant growth in domestic gas production (Chart 52) resulted in higher-than-expected storage builds. Previous market tightness evaporated and the market soon suffered from oversupply, as neither the decline in LNG nor pipeline imports proved enough to offset domestic production increases.

#### US natural gas prices should remain decoupled

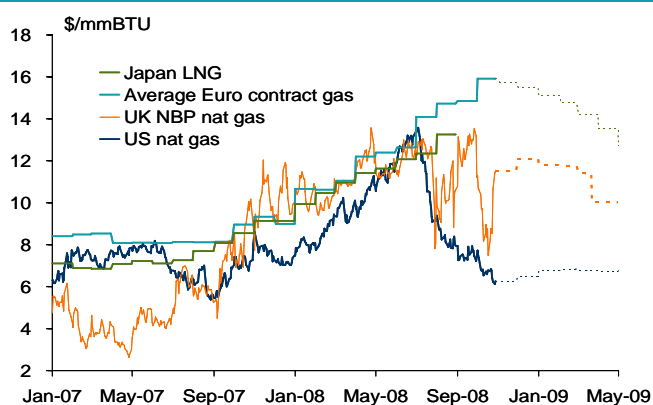
Not even two major hurricanes, with their corresponding gas output reductions, were enough to spark a natural gas price response. Despite almost 300 bcf of production disruptions, the deficit to last year has narrowed considerably as storage injections have remained above-normal. With supply running ahead of demand for months, the market now shows a 4% surplus relative to the 5-year average. As a result, US natural gas prices have fallen, and remain substantially decoupled from UK and Asian gas prices both on the spot as well as across the forward curve (Chart 53).

**Chart 52: In part, the significant growth in domestic gas production has resulted in a rapid build in inventories this season**



Source: EIA, Merrill Lynch Commodity Research

**Chart 53: US natural gas prices have fallen, and remain substantially decoupled from UK and Asian gas prices**

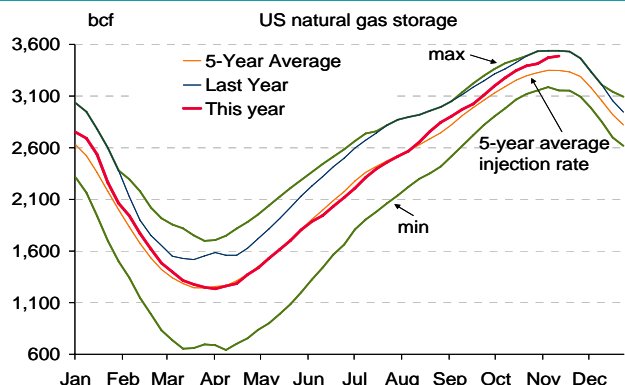


Source: World Gas Intelligence, Merrill Lynch Commodity Research

#### On a warm winter, natty could fall below the current levels

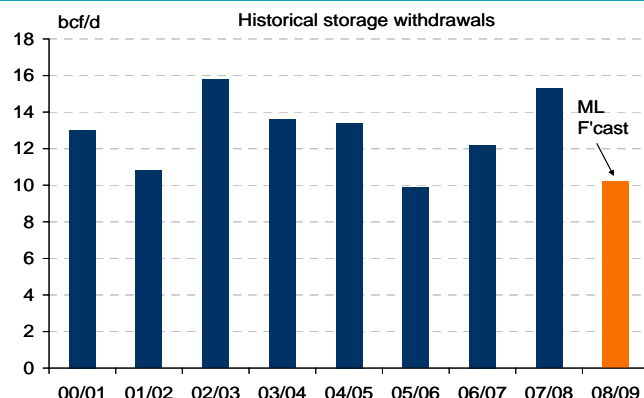
Is there anything that can save the US natural gas market? Given the weakness in gas demand and the absence of a cold spike, we continue to see storage injections into November (Chart 54). Moreover, basis spreads to Henry Hub remain weak in the Rockies and the Midcontinent, as gas trapped in those regions can not easily travel East. Assuming a combination of normal weather, a year-on-year decline in economic demand and continued growth in US production, the storage withdrawal this winter could well be one of lowest in years (Chart 55). In turn, high storage levels by the end of March 2009 could end up putting significant downward pressure on prices. As a result, we are significantly cutting back our average US natural gas price forecast for 2009 to \$6.00/mmBTU, from \$8.50/mmBTU.

**Chart 54: Storage injections continued relentlessly into November this year**



Source: EIA, Merrill Lynch Commodity Research

**Chart 55: The US natural gas storage withdrawal this winter could well be one of the lowest in years**



Source: EIA, Merrill Lynch Commodity Research

**The balance for 2009 is shaping up to be rather weak**

In effect, a potential storage overhang at the end of March could set the market up for a weak start into next year's injection season, depressing natural gas prices next summer. At the same time, the substantial build-up in natural gas storage capacity—55 bcf in 2007 and close to 80 bcf this year—will easily absorb the excess gas, keeping volatility well below normal. As a result, a colder-than-normal winter is now almost crucial to revive prices. On our estimates, we would need a 5% cold spike relative to the 10-year normal in order to clean up the balance.

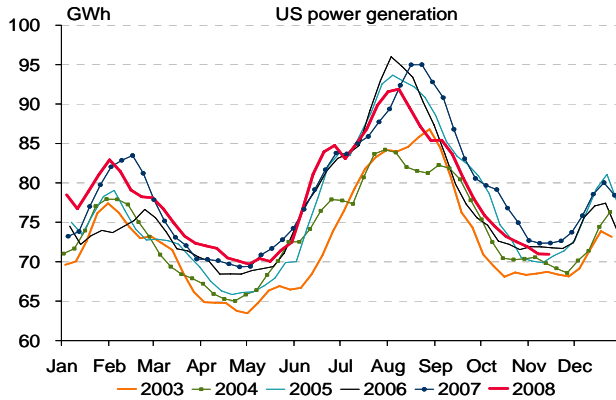
**Gas-to-coal competition is a non-issue during the winter...**

What else could save the market, barring a cold spike? On the demand side, the entire power sector has slowed down in recent months. After robust growth around the turn of the year, total power generation contracted by 4% in the past three months (Chart 56). Gas-fired power generation looks even worse, down at least 15% YoY over the same period. The lack of coal-to-gas switching in the power sector during the 'shoulder season' suggests that coal might not be a very hard floor for natural gas prices this winter, should the winter turn abnormally warm.

**...while industrial gas demand could weaken further**

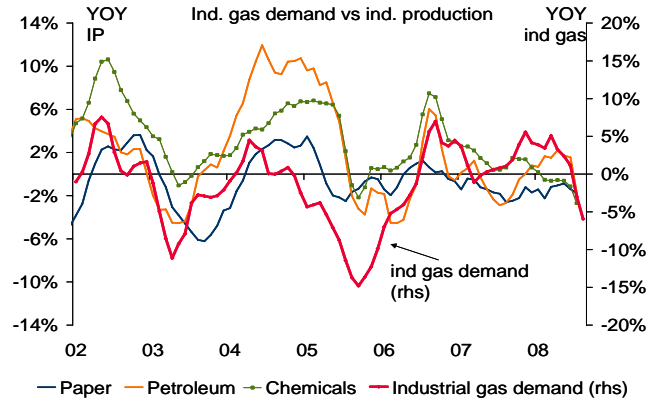
As the crisis in the financial sector starts to hit the real economy, industrial gas demand will continue to soften as factories are reducing output (Chart 57). Over the past three months, industrial gas use is already down by 6% relative to last year. While that is partly due to hurricane-related shut-ins of petrochemical refiners around the Gulf of Mexico, some of these temporary demand reductions are looking more permanent. End-user demand is starting to slow, suggesting that a major petrochemical demand rebound going into this winter is unlikely. Also, ethanol production could well decline on the back of an oversupplied gasoline market. Moreover, exports of gas-intensive goods such as steel or aluminium will suffer with a stronger USD. With the US industrial sector turning less competitive, as strong rebound in industrial natural gas demand is unlikely.

**Chart 56: After robust growth around the turn of the year, power generation contracted by 4% in the past three months**



Source: Edison Electric, Merrill Lynch Commodity Research

**Chart 57: As the crisis in the financial sector starts to hit the real economy, industrial gas demand will continue to soften**



Source: EIA, Datastream, Merrill Lynch Commodity Research  
Note: data is shown as a 3 months moving average

**Pipeline net imports could decline by less in 2009**

On the supply side, Canadian gas production continues to be in steep decline, falling by 0.6 bcf/d this year. Thus, imports of Canadian gas, which make up 15% of total US gas consumption, are down 8%. Still, drilling activity is booming and rigs have not yet dropped off while storage in Western Canada is sitting at a record surplus as demand has flattened out. On the other hand, Mexico, which receives gas from the US, will likely demand less gas next year given higher domestic production, a weaker economy and the new LNG receiving capacity. Net, the deceleration in net imports could slow in 2009 relative to this year.

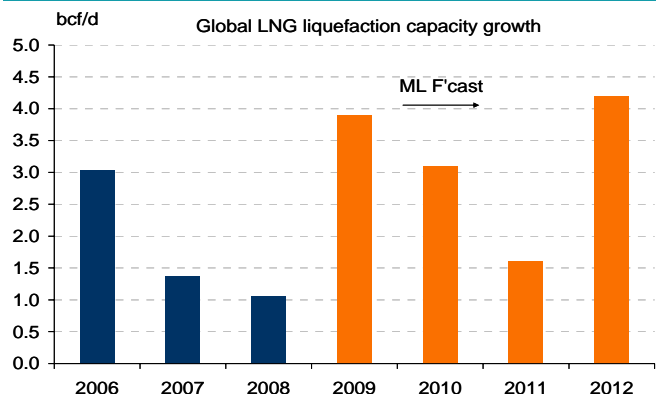
**The US will likely get more LNG cargoes next year...**

While pipeline gas flows will not help mop up the excess domestic supply in the United States, some of the incremental liquid gas output could head to North America. After a virtual standstill in the past two years, there are 4 bcf/d of new LNG supply coming out of the Middle East, Russia, Indonesia and Australia in 2009 (Chart 58). Qatar will contribute the most to the incremental supply growth via two mega-trains (1 bcf/d each). After record spot LNG prices this year, the new supply volumes are bound to come at a bad time for the global economy. In line with a weakening industrial sector, power generation is slowing in Asia (Chart 59). At the same time, Europe's limited gas storage capacity is nearly full. Where will all the new volumes go?

**...but the risk of a liquid gas supply glut is low**

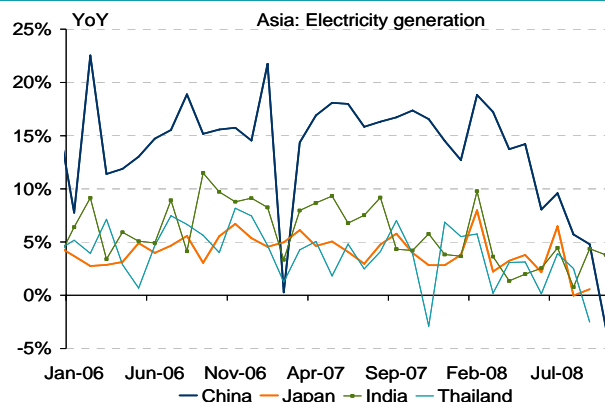
No doubt, some of the incremental LNG could end up in the United States if the global economic situation continues to deteriorate. Still, European and Asian spot gas prices are trading two to three times above Henry Hub, suggesting that demand in these regions would need to drop substantially to make a large amount of LNG available to the US market. As a point of reference, European gas demand averages 47 bcf/d on any given year, while Asia Pacific typically soaks up 43 bcf/d per annum. Compared to global gas demand of around 283 bcf/d, an incremental 4 bcf/d of LNG in 2009 should be relatively easy to absorb (Chart 60). Moreover, with a raft of new countries recently entering the market to snap up cargoes, a global LNG supply glut seems unlikely. From India to China, Brazil, Argentina, Kuwait or Pakistan, regas capacity is growing by almost 4 bcf/d over the next 12 months. Net, we only expect a modest increase in US imports of 300 mcf/d next year relative to 2008.

**Chart 58: After a virtual standstill in the past two years, we see 4 bcf/d of new LNG supply in the Middle East and Australia**



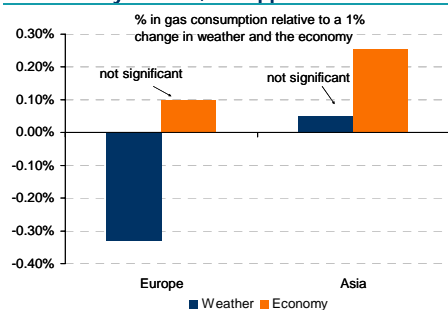
Source: Woodmac, Merrill Lynch Commodity Research

**Chart 59: In line with a weakening industrial sector, power generation is slowing in Asia**



Source: CEIC, Merrill Lynch Commodity Research

**Chart 60: On our estimates, European gas consumption is sensitive to weather, but not to the economy. In Asia, the opposite holds.**



Source: BP, IEA, Merrill Lynch Commodity Research

### Watch Europe's weather and Asia's growth

While a global LNG glut is unlikely, a number of factors such as weather and economic growth could swing the pendulum quite dramatically. On our estimates, European gas consumption is very sensitive to weather, but relatively insensitive to the economy. In Asia, the opposite holds. Gas use in Asia Pacific is highly sensitive to economic growth while weather only plays a minor role. Net, the combination of a mild European winter and significantly weaker economic growth in Asia would raise some alarm bells. In that scenario, a lot more LNG molecules than we currently discount could reach the US shores next summer.

### Domestic producers may need to reduce output

Putting it all together, a reduction in domestic output may be the only way to balance the US natural gas market in 2009. So far this year, the increased output from unconventional gas fields has more than offset conventional output declines, as well as falling imports of Canadian and liquefied natural gas. US well completions in the third quarter are up 6% YoY and more than double the gas drilling activity of a decade ago. Before the hurricane disruption took place, domestic output was expanding at a phenomenal rate of 8% or 4 bcf/d. As a result, US natural gas production is now on track to exceed 60 bcf/d next year, the highest level in 35 years.

### But when will they deliver?

Surely, the emergence of shale and tight gas will make it difficult to quickly cut output on a large scale. Despite the recent raft of announcements by producers to reduce capex and leasehold acquisitions, this does not imply a large and immediate cut to drilling. Rigs will most likely decline in the Rockies and the Midcontinent, but might be increased in more efficient places like Barnett Shale. Hence, the more productive shale plays could compensate for some of the production cutbacks in older fields. Moreover, gas producers tend to hedge a large part of their production, making them less exposed to the current price weakness. All in, we currently assume that 300-400 rigs will drop by June 08 and we expect more drilling announcements from producers. The cutbacks to production will likely reduce domestic production growth down to 1.3 bcf/d in 2009. As most of that output curtailment will only affect production in the second half of next year, we are revising down our nat gas forecast to \$5.85/mmBTU for 1H09.



## 4. Global coal outlook

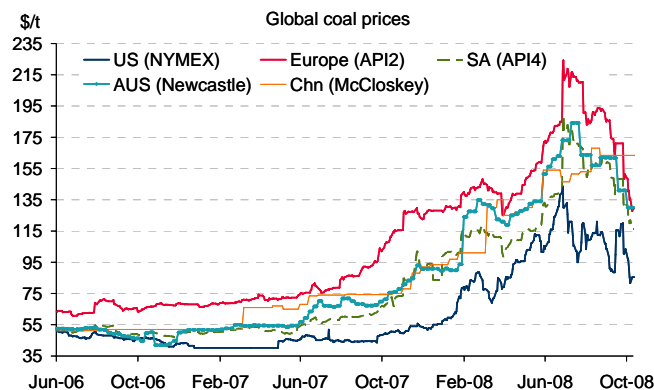
### Global coal prices will continue to fall, in our view

Global coal markets have not been able to escape the cyclical sell-off in commodity prices. Since the peak in early July, European API-2 coal prices have fallen by 59% and currently stand at \$93/mt, compared to \$119/mt at the start of the year. The sell-off in coal has almost mirrored that of WTI crude oil and other energy commodities, with only US NYMEX coal prices holding up slightly better. As global economic activity is deteriorating very rapidly, we believe European API-2 and South African API-4 coal prices will fall again as we come out of the seasonal inventory build of October-December (Chart 61). In our opinion, API-2 coal prices could break below \$80/mt in the coming months. The main risks to this view are a very cold winter and weather-related supply disruptions.

### The super-cycle is over for dry bulk freight

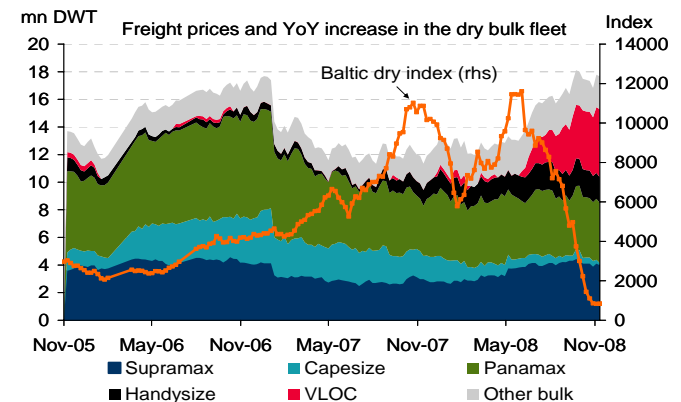
While coal prices have fallen sharply in recent weeks, the impact of the credit crisis on freight has been much more pronounced. Dry bulk freight prices have now fallen 93% from their peak (Chart 62). More worryingly, the order book for new ships coming on stream in the next few years is massive, with a scheduled capacity increase of almost 50%. Even with the recent flurry of cancellations and postponements, the freight market is poised to enter a prolonged period of oversupply. Meanwhile, demand for dry bulk shipping is highly cyclical, and is suffering as steel, zinc and aluminium mills scale down activity. As a final nail in the coffin, older ships are not being taken out of circulation, due to a lack of letters of credit for ship breakers. With continued weakness in freight markets, API-2 coal should continue to trade at a very slim premium to API-4 coal prices.

Chart 61: We believe global coal prices have further to fall as the market is increasingly oversupplied



Source: Bloomberg, Merrill Lynch Commodity Research

Chart 62: Dry bulk freight prices have fallen off a cliff the last 5 months, and we do not expect to see much near term strength



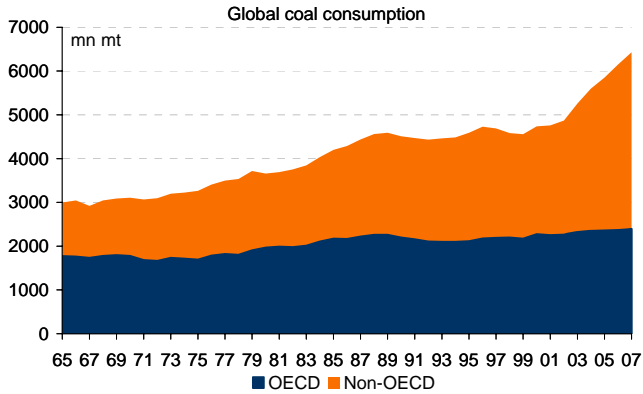
Source: Bloomberg, Merrill Lynch Commodity Research

### A weak global economy should reduce coal consumption

According to our economists, global growth will expand by 1.8% next year, at a rate consistent with the IMF definition of a global recession. While we still expect modest GDP growth in East and South East Asia as well as Latin America, the backdrop for growth in emerging markets has worsened considerably in recent weeks. What impact will this have on global coal demand? During the past years, the growth in global coal consumption was entirely generated by emerging markets as OECD demand remained relatively steady (Chart 63). On our estimates, demand in Asia-Pacific will still expand by 4.3% in 2009, relative to

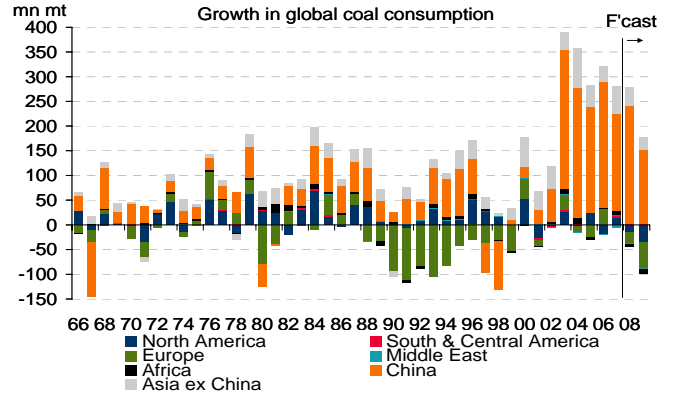
7.2% this year. Combined with a sharp contraction in the Atlantic Basin of 3.8%, this should reduce global demand growth to 2.2% in 2009, compared to an annual rate of 5.7% from 2002 to 2007 (Chart 64).

**Chart 63: Coal consumption growth during the past years was entirely generated by emerging markets**



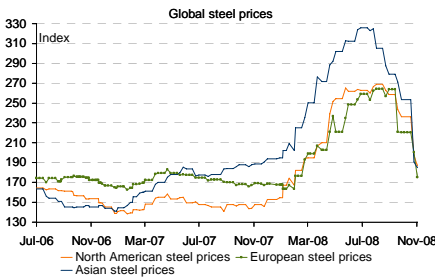
Source: BP, Merrill Lynch Commodity Research

**Chart 64: We forecast global coal demand growth at 2.2% in 2009, with Asia Pacific leading the demand increase**



Source: BP, Merrill Lynch Commodity Research

**Chart 65: A global construction downturn has contributed to bring down steel prices by more than 40% since mid June**



Source: Reuters, Merrill Lynch Commodity Research

**Steel & metals production is slowing rapidly...**

A global construction downturn has brought down steel prices by more than 40% since mid June (Chart 65). Thus, the world's biggest steel producers have recently announced major output cuts (15% in Western Europe, 30-40% in China). In China, steel production contracted at an annual rate of 16.4% in October. Given relatively abundant steel stocks, producers prefer to de-stock in the face of waning demand. The reduction in steel production has a two-fold impact. It reduces the amount of coal that is needed as an input fuel. Moreover, as production of metals and steel declines, some of the lower quality metallurgical coal can be converted and used in boilers as a substitute for thermal coal, further increasing the abundance of coal available for power generation.

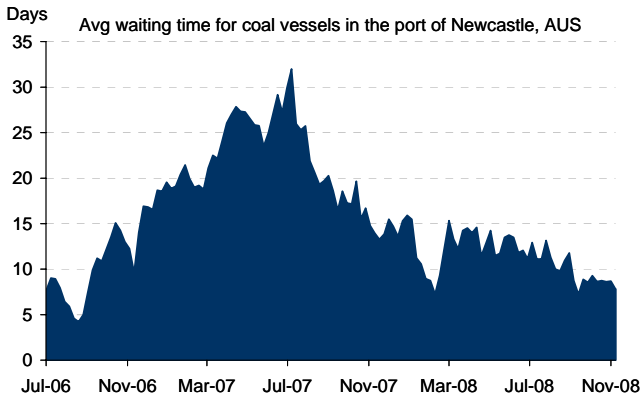
**...as is power generation in Asia**

Power generation in several Asian economies—such as Korea, India or Japan—has slowed down markedly. In China, power production (most of which is coal) has crashed down to -4% YoY growth in October, from 19% at the start of the year. Relative to coal production, demand growth is now running considerably lower. Underlining the weaker coal demand, Chinese coal exports rose 23% in October relative to September. The dramatic weakening in global economic activity, the steep falls in steel production, and the sharply lower power generation in Asia certainly do not bode well for coal demand in 1H2009.

**Supply bottlenecks are loosening up somewhat**

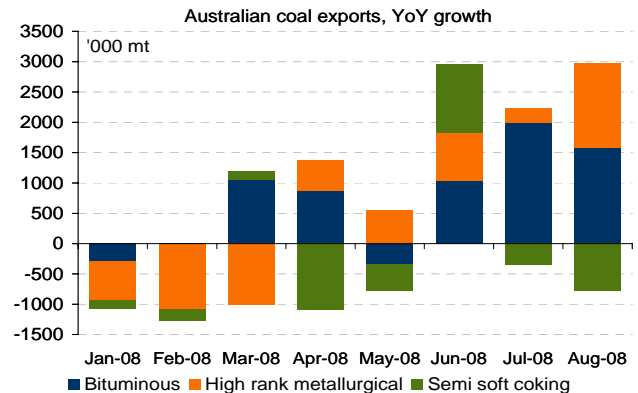
Surely, we have not yet solved the supply bottlenecks in global port and rail systems that supported a rally in coal prices in 2H08. However, supply disruptions have lost their sting in the current environment of falling demand and rising inventories. The average waiting time in the port of Newcastle is now below 8 days, which is a relief compared to 25 days in mid 2007 (Chart 66). The reduced bottlenecks allowed Australia to increase coal exports by 10.4% YoY in October (Chart 67). Similarly, exports out of Richards' Bay, South Africa, rose to the highest level seen in six months. True, South African exports are still crippled by a major power crisis that will not be solved in the near term, but lower economic growth next year should free up some of these constraints.

**Chart 66: The average waiting time for coal vessels in the port of Newcastle is back below 8 days**



Source: Bloomberg, Merrill Lynch Commodity Research

**Chart 67: The reduced bottlenecks supported 10.4% YoY growth in Australian exports in October**

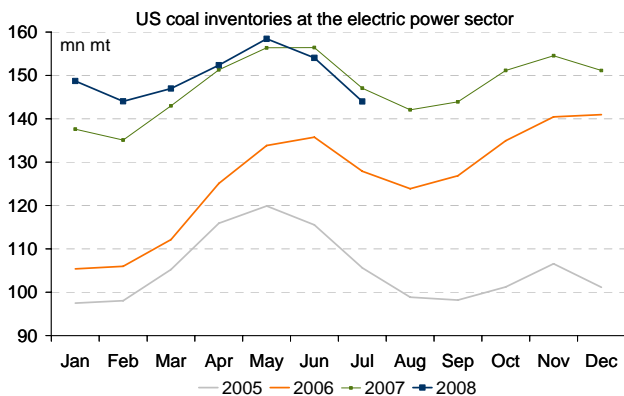


Source: Platts, Merrill Lynch Commodity Research

**Regional US tightness should dissipate in the near-term**

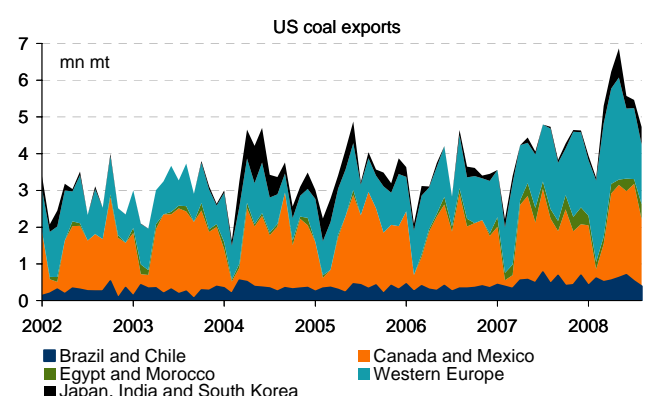
We also see further weakness in US coal prices, despite rather tight US Eastern coal markets. A broad-based boom in the export of coal to Atlantic markets in 1H2008 has drawn US coal inventories down from record levels (Chart 68). High quality coal is particularly scarce in the Eastern part of the US, with inventory levels down by about -20% YoY. However, the US coal market is increasingly connected with global coal fundamentals due to the low freight prices. A higher availability of coal in global coal markets will therefore alleviate the regional US coal tightness. In particular, Chinese coal with high Btu and low sulphur content is already heading to Korea and Japan, taking away market share from lower quality US petcoke. Furthermore, European and Latin American coal demand will suffer with the global steel and metals industries scaling down. Accordingly, US coal exports are starting to drop from the high levels of 1H2008 (Chart 69), and that trend should continue to pull down US coal prices.

**Chart 68: US coal inventory levels are coming down, and particularly Eastern coal markets look tight...**



Source: EIA, Merrill Lynch Commodity Research

**Chart 69: ... but a reduction in US coal exports could transfer global coal weakness to the Eastern US**



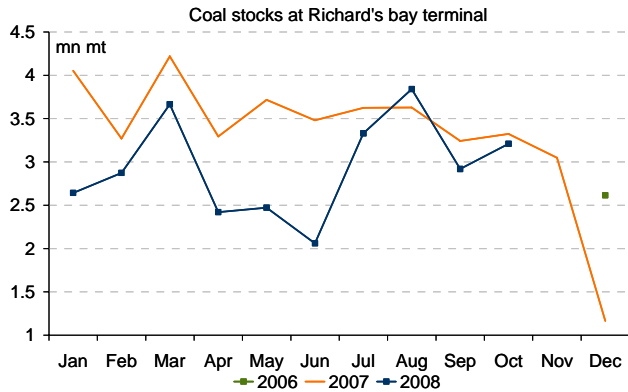
Source: US Census Bureau, Merrill Lynch Commodity Research

**Stocks are rising in consuming and producing countries**

Weak global demand for coal has helped to replenish global inventory levels in the world's largest coal exporting facility, Richard's Bay Coal Terminal in South Africa (Chart 70). Also the world's largest consumer of coal, China, is seeing increasing coal inventory levels. Chinese port stocks are near full capacity, while stocks at domestic power plants are up 40% from the beginning of 2008, covering

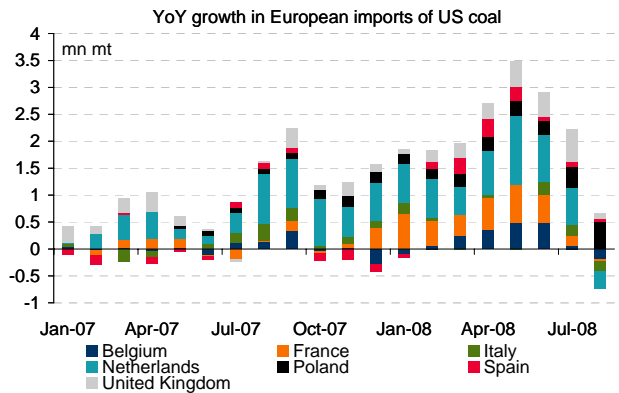
a comfortable 20 days of production. This is in stark contrast to just a few months ago, when low hydro levels drew stocks down to critical levels in the 10 day range. Also, high inventories at Indian ports have kept Indian consumers away from global coal markets in the otherwise demand-heavy post monsoon season. Finally, Western European inventory levels are increasing, reducing the demand for foreign coal (Chart 71).

**Chart 70: Tepid demand for South African coal from Europe and India has helped to push inventories back to normal levels in 2H2008**



Source: RBCT, Merrill Lynch Commodity Research

**Chart 71: With comfortable inventory levels in Europe, demand for US coal is falling rapidly**

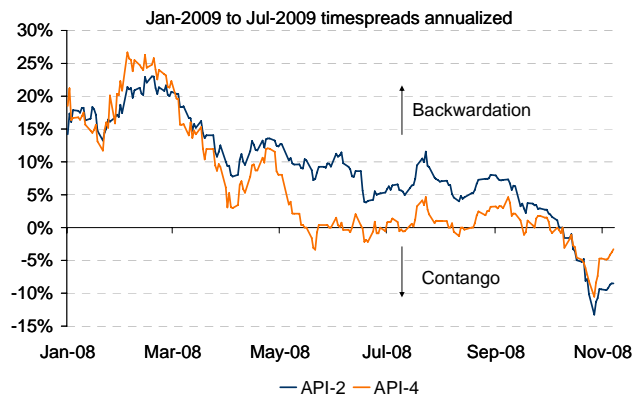


Source: US Census Bureau, Merrill Lynch Commodity Research

**Expect a more pronounced contango structure**

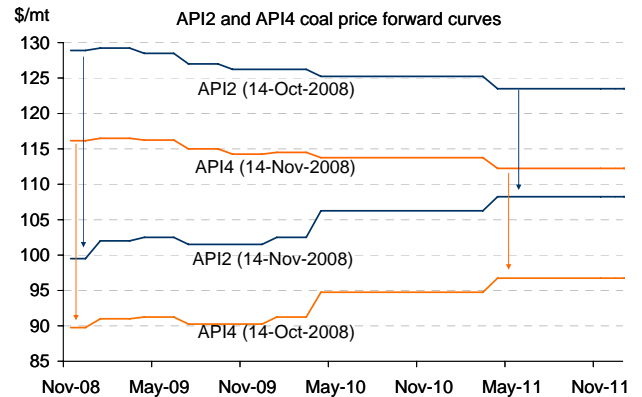
Coal time spreads narrowed tremendously in the second half of 2008 (Chart 72). More importantly during the last two months, the forward curves in European API-2 and South African API-4 coal rotated into contango, providing compensation to inventory holders for storing coal (Chart 73). We believe the contango is here to stay. As global coal supply outstrips demand over the coming 12 months, we even see the contango in API-2 and API-4 increasing further in order to give market participants an incentive to store the excess supply. Consequently we would suggest a short position in our rolling European and South African MLCX coal indices (MLCXEUCE and MLCXSACE).

**Chart 72: Coal time spreads have narrowed, and now provide significant compensation for inventory holders to store coal**



Source: Reuters, Merrill Lynch Commodity Research

**Chart 73: API-2 and API-4 flipped into contango in the last month, and we believe the contango will increase going forward**



Source: Merrill Lynch Commodity Research

# Appendix

# ML Global oil supply and demand balance

Table 3: Merrill Lynch Global Oil Supply Forecast (in thousand b/d)

	1Q2007	2Q2007	3Q2007	4Q2007E	2007E	1Q2008E	2Q2008E	3Q2008E	4Q2008E	2008E	1Q2009E	2Q2009E	3Q2009E	4Q2009E	2009E
<b>OECD North America</b>	14,302	14,362	14,132	14,126	14,231	14,195	14,064	13,637	14,187	14,021	14,283	13,973	13,853	13,913	14,006
Canada	3,351	3,261	3,363	3,287	3,316	3,264	3,112	3,243	3,333	3,238	3,443	3,193	3,293	3,393	3,331
Mexico	3,569	3,582	3,439	3,321	3,478	3,278	3,172	3,122	3,082	3,164	2,992	2,882	2,762	2,662	2,825
United States	7,382	7,519	7,330	7,518	7,437	7,653	7,780	7,272	7,772	7,619	7,848	7,898	7,798	7,858	7,851
<b>OECD Pacific</b>	586	626	643	647	626	605	665	693	743	677	703	753	813	868	784
Australia	530	564	552	542	547	496	561	593	633	571	574	614	664	669	631
<b>OECD Europe</b>	5,229	4,893	4,695	4,996	4,953	4,895	4,760	4,447	4,577	4,670	4,557	4,201	4,051	4,251	4,265
Norway	2,725	2,458	2,475	2,577	2,559	2,522	2,408	2,381	2,401	2,428	2,381	2,175	2,125	2,175	2,214
United Kingdom	1,762	1,702	1,485	1,698	1,662	1,641	1,639	1,353	1,443	1,519	1,423	1,273	1,173	1,323	1,298
<b>Non-OECD Europe</b>	138	135	132	129	134	127	124	121	117	122	125	123	121	117	122
<b>Former Soviet Union</b>	12,774	12,726	12,755	12,819	12,769	12,827	12,871	12,605	12,755	12,765	12,915	12,995	12,895	12,895	12,925
Russia	10,084	10,039	10,105	10,083	10,078	9,999	9,958	10,018	10,064	10,010	9,974	9,924	9,864	9,784	9,887
Azerbaijan	860	882	816	913	868	963	1,032	819	839	913	1,039	1,189	1,249	1,309	1,197
Kazakhstan	1,396	1,383	1,390	1,369	1,385	1,418	1,433	1,322	1,472	1,411	1,522	1,502	1,402	1,422	1,462
<b>Non-OPEC Africa (ex Angola)</b>	2,557	2,535	2,524	2,600	2,554	2,602	2,617	2,652	2,682	2,638	2,689	2,689	2,686	2,683	2,687
Egypt	666	670	674	672	671	677	683	691	688	685	693	691	693	691	692
Sudan	451	453	462	506	468	519	520	524	544	527	546	548	543	543	545
<b>Non-OPEC Asia</b>	6,430	6,424	6,320	6,388	6,391	6,438	6,430	6,428	6,494	6,448	6,521	6,537	6,517	6,537	6,528
India	818	812	809	811	813	811	816	815	821	816	828	829	834	844	834
Malaysia	731	717	742	779	742	772	743	769	799	771	809	814	804	829	814
China	3,744	3,785	3,703	3,684	3,729	3,762	3,816	3,789	3,819	3,797	3,829	3,839	3,827	3,822	3,829
<b>Non-OPEC Latin America*</b>	3,867	3,859	3,835	3,859	3,855	3,947	3,959	4,050	4,155	4,028	4,225	4,276	4,311	4,301	4,278
Argentina	762	759	730	744	749	752	705	752	744	738	732	730	737	747	737
Brazil	2,151	2,141	2,148	2,132	2,143	2,214	2,262	2,277	2,377	2,283	2,427	2,477	2,497	2,517	2,480
Colombia	523	527	532	558	535	565	579	596	609	587	583	587	595	608	594
<b>Non-OPEC Middle East</b>	1,744	1,676	1,649	1,631	1,642	1,642	1,630	1,614	1,604	1,622	1,584	1,562	1,558	1,553	1,564
Oman	706	698	701	697	701	730	719	720	721	723	722	730	734	740	732
Processing Gains	2,102	2,175	2,185	2,211	2,168	2,219	2,216	2,252	2,286	2,243	2,260	2,260	2,260	2,260	2,286
Other Biofuels, ex-US and Brazil	306	325	325	344	325	387	455	455	523	455	520	530	550	560	577
<b>Non-OPEC** (incl. processing gains)</b>	50,035	49,736	49,195	49,750	49,679	49,884	49,791	48,954	50,123	49,688	50,382	49,900	49,616	49,939	49,959
<b>OPEC-10 crude</b>	26,889	26,575	26,895	27,342	26,925	27,667	27,467	27,317	26,117	27,142	25,367	24,967	24,967	24,967	25,067
OPEC-10 crude plus Angola, Iraq, Ecuador	30,860	30,723	31,178	31,926	31,172	32,383	32,225	32,225	31,195	32,007	30,525	30,145	30,185	30,185	30,260
Total OPEC NGLs + Non-conventional	4,722	4,746	4,780	4,838	4,772	4,892	4,909	5,100	5,220	5,030	5,420	5,550	5,780	5,900	5,663
<b>Total OPEC</b>	35,582	35,469	35,958	36,764	35,943	37,275	37,134	37,325	36,415	37,037	35,945	35,695	35,965	36,085	35,923
<b>Total World Supply</b>	85,617	85,205	85,153	86,514	85,589	87,159	86,925	86,279	86,538	86,725	86,327	85,595	85,581	86,024	85,881

Source: Merrill Lynch Commodity Research

\*Non-OPEC Latin America excludes Mexico (OECD North America) and Ecuador (now OPEC)

\*\*Non-OPEC excludes Angola and Ecuador

**Table 4: Merrill Global Oil Demand and Oil Price Forecast (in thousand b/d)**

	1Q2007	2Q2007	3Q2007	4Q2007E	2007E	1Q2008	2Q2008E	3Q2008E	4Q2008E	2008E	1Q2009E	2Q2009E	3Q2009E	4Q2009E	2009E
<b>TOTAL OECD Demand</b>	49,817	48,225	48,838	49,831	49,178	48,904	47,227	46,984	48,282	47,849	47,672	45,807	45,874	47,500	46,713
OECD North America Demand	25,676	25,402	25,542	25,492	25,528	24,836	24,526	24,125	24,192	24,420	23,582	23,580	23,525	23,792	23,620
OECD Europe Demand	15,228	14,951	15,409	15,624	15,303	15,199	14,881	15,346	15,474	15,225	15,050	14,518	15,061	15,242	14,968
OECD Pacific Demand	8,914	7,872	7,886	8,716	8,347	8,869	7,820	7,513	8,616	8,205	9,040	7,710	7,288	8,466	8,126
<i>OECD Stock Changes</i>															
Industry	-856	789	-57	-920	-261	148	686	381	41	314	21	247	254	-221	75
Government	97	17	149	40	76	30	30	30	30	30	30	30	30	30	30
<i>OECD Stocks (mn bbl)</i>															
Industry	2,603	2,675	2,669	2,585	2,585	2,564	2,599	2,633	2,637	2,637	2,638	2,661	2,683	2,664	2,664
Government	1,507	1,509	1,523	1,526	1,526	1,530	1,529	1,532	1,535	1,535	1,538	1,540	1,543	1,546	1,546
Total Stocks	4,110	4,183	4,192	4,111	4,111	4,095	4,128	4,165	4,171	4,171	4,176	4,201	4,226	4,209	4,209
<b>TOTAL NON-OECD Demand</b>	36,399	36,908	36,910	37,315	36,883	37,958	38,554	38,533	38,174	38,305	38,620	39,377	39,199	38,966	39,040
China	7,329	7,726	7,519	7,591	7,541	7,850	7,951	8,058	7,941	7,950	8,029	8,264	8,193	8,196	8,170
Other Asia	9,237	9,337	9,063	9,405	9,261	9,653	9,726	9,160	9,309	9,462	9,592	9,685	9,171	9,479	9,482
Middle East	6,403	6,504	6,726	6,438	6,518	6,714	6,959	7,279	6,788	6,935	7,003	7,207	7,478	6,925	7,153
Latin America	5,414	5,588	5,733	5,726	5,615	5,663	5,881	5,960	5,906	5,853	5,778	6,000	6,070	6,008	5,964
FSU	4,115	3,927	4,184	4,282	4,127	4,114	4,128	4,363	4,342	4,237	4,203	4,256	4,504	4,418	4,345
Africa	3,094	3,077	2,988	3,121	3,070	3,144	3,147	3,003	3,137	3,108	3,196	3,201	3,072	3,190	3,165
Non-OECD Europe	807	748	697	751	751	819	762	710	752	761	820	763	711	750	761
<b>TOTAL Demand</b>	86,216	85,133	85,748	87,146	86,061	86,862	85,781	85,517	86,456	86,154	86,292	85,184	85,073	86,466	85,754
WTI crude oil price forecast (\$/bbl)	58.16	65.02	75.38	90.58	72.29	97.80	123.79	118.22	60.00	99.95	43.00	45.00	51.00	61.00	50.00
Brent crude oil price forecast (\$/bbl)	58.57	68.46	74.78	88.59	72.60	96.48	122.79	117.16	60.00	99.11	43.00	45.00	51.00	61.00	50.00

Source: Merrill Lynch Commodity Research, International Energy Agency

# ML Atlantic Basin petroleum products supply and demand balance

**Table 5: US and OECD Europe Refined Product Forecasts**

	Q1-06	Q2-06	Q3-06	Q4-06	Q1-07	Q2-07	Q3-07	Q4-07	Q1-08	Q2-08	Q3-08F	Q4-08F	Q1-09F	Q2-09F	Q3-09F	Q4-09F
<b>US</b>																
<b>Distillate</b>																
Demand	4,287	4,052	4,084	4,254	4,391	4,132	4,111	4,136	4,200	3,924	3,743	4,014	4,349	4,108	4,103	4,304
Supply	4,117	4,153	4,294	4,192	4,118	4,173	4,223	4,157	3,908	4,076	3,853	4,086	4,217	4,211	4,147	4,225
Stock	120,544	129,912	149,308	143,651	120,007	123,800	134,236	133,944	107,185	121,132	131,417	137,832	125,947	135,362	139,459	132,024
Stock change	- 171	102	210	- 62	- 272	41	112	- 3	- 292	152	110	71	- 132	103	44	- 79
USGC No. 2 HO Cracks (\$/bbl)	8.85	11.76	8.95	9.71	9.89	14.91	10.87	12.27	15.22	23.19	19.31	16.78	16.19	16.11	16.62	17.82
<b>Gasoline</b>																
Demand	8,935	9,313	9,469	9,283	9,023	9,380	9,492	9,239	8,908	9,135	9,013	9,097	8,989	9,389	9,445	9,233
Supply	8,804	9,255	9,485	9,236	8,939	9,461	9,456	9,220	8,910	9,100	8,972	9,216	8,944	9,515	9,387	9,314
Stock	208,722	213,292	214,127	211,806	201,570	205,546	199,986	218,107	221,203	209,773	200,482	211,354	207,467	218,963	213,415	220,684
Stock change	- 130	- 58	16	- 47	- 84	81	- 36	- 18	1	- 34	- 41	119	- 45	126	- 58	80
US RBOB Cracks (\$/bbl)	8.33	24.81	14.33	5.24	10.81	31.11	14.55	3.94	5.76	13.04	14.52	- 2.67	1.17	3.64	1.66	- 1.61
<b>Residual fuel</b>																
Demand	845	629	658	623	809	702	701	686	598	678	542	530	670	564	602	564
Supply	884	649	666	612	772	664	711	710	606	702	530	572	654	553	569	584
Stock	40,847	42,726	43,430	42,397	39,610	36,124	37,035	39,338	39,355	41,567	40,330	44,112	42,712	41,648	38,602	40,420
Stock change	38	20	8	- 11	- 37	- 38	10	25	8	24	- 13	42	- 16	- 12	- 33	20
USGC 1% Residual Cracks (\$/bbl)	- 15.52	- 20.43	- 24.14	- 19.43	- 18.14	- 13.86	- 19.08	- 21.91	- 25.34	- 32.89	- 21.78	- 15.74	- 12.46	- 12.79	- 13.54	- 14.60
<b>OECD Europe</b>																
<b>Gasoil/Diesel</b>																
Demand	6,533	5,904	6,183	6,434	6,209	5,758	6,106	6,526	6,354	5,991	6,266	6,748	6,812	6,234	6,454	6,866
Supply	6,397	6,130	6,338	6,519	6,238	5,757	6,158	6,274	6,435	5,993	6,358	6,762	6,643	6,350	6,563	6,844
Stock	351,508	366,704	375,633	379,930	381,900	382,340	384,145	362,168	371,724	372,015	383,409	384,627	369,791	380,464	390,868	388,938
Stock change	- 178	169	94	46	25	5	19	- 241	95	0	120	14	- 170	116	109	- 22
NWE 0.2% Gasoil Cracks (\$/bbl)	10.64	12.90	12.08	12.24	10.78	10.98	11.94	16.15	20.06	31.29	26.86	21.23	19.18	18.89	19.90	20.90
<b>Gasoline</b>																
Demand	2,436	2,609	2,661	2,558	2,427	2,623	2,628	2,442	2,315	2,462	2,438	2,484	2,357	2,559	2,592	2,409
Supply	2,527	2,550	2,814	2,721	2,481	2,542	2,740	2,607	2,428	2,357	2,430	2,598	2,425	2,383	2,533	2,508
Stock	170,225	155,451	159,136	167,290	165,004	154,555	158,206	167,214	171,973	158,317	156,506	166,962	173,188	157,200	151,746	160,823
Stock change	- 28	- 163	41	89	- 27	- 116	40	98	52	- 149	- 20	114	67	- 176	- 59	99
NWE Prem. Gasoline Cracks (\$/bbl)	5.54	16.28	11.59	7.50	7.90	18.48	12.32	6.73	5.12	5.37	7.66	0.70	0.12	3.84	3.71	1.06
<b>Residual fuel</b>																
Demand	2,066	1,373	714	813	828	679	641	729	673	535	515	643	840	554	583	692
Supply	1,005	743	638	776	730	565	689	600	693	445	443	659	766	558	627	714
Stock	117,795	123,263	122,504	125,381	123,630	119,201	129,231	123,337	131,502	128,951	125,826	127,339	120,886	121,350	125,470	127,587
Stock change	- 61	67	- 9	31	- 27	- 49	110	- 63	87	- 29	- 34	16	- 73	5	44	23
NWE 1% Residual Cracks (\$/bbl)	- 14.76	- 22.14	- 23.83	- 20.86	- 20.57	- 22.51	- 20.16	- 16.48	- 19.99	- 28.29	- 12.64	- 9.30	- 15.06	- 14.80	- 14.78	- 12.86

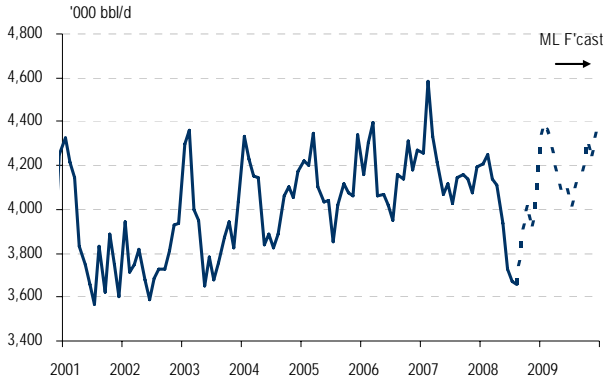
Source: Reuters, Bloomberg, IEA, US DOE, Merrill Lynch Commodity Research.

Note: All data are quarterly averages, stocks are end-of-period. Flows in '000 bbl/day; Stocks in '000 bbl.



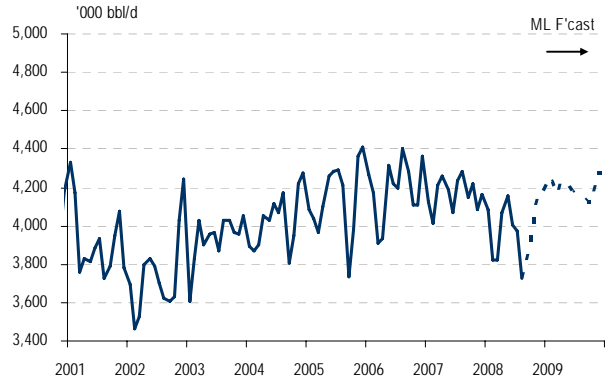
## US Products Forecasts

**Chart 74: US distillate demand**



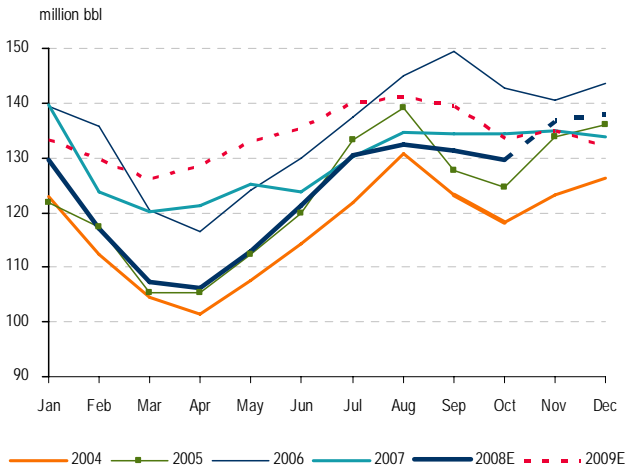
Source: Merrill Lynch Commodity Research

**Chart 75: US distillate supply**



Source: Merrill Lynch Commodity Research

**Chart 76: US distillate stocks**



Source: Merrill Lynch Commodity Research

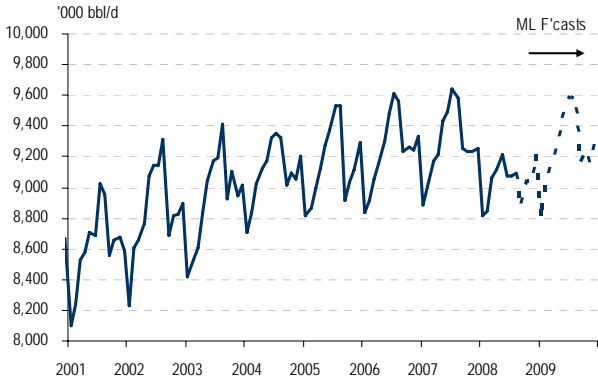
**Chart 77: US distillate crack spread**



Source: Merrill Lynch Commodity Research

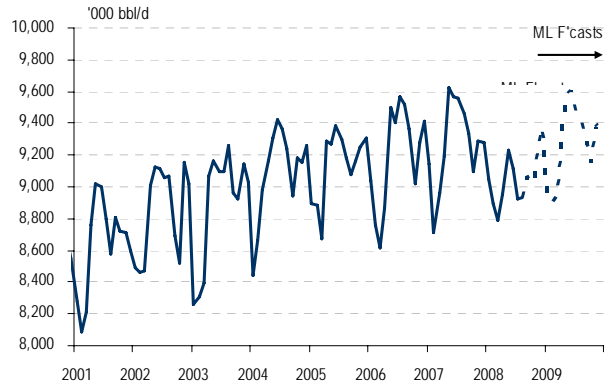
## US Products Forecasts

**Chart 78: US gasoline demand**



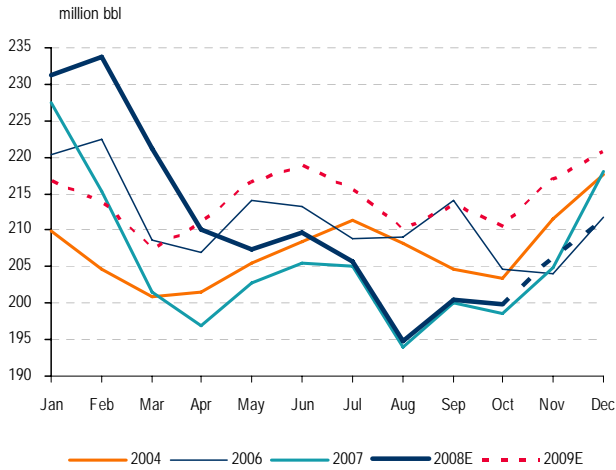
Source: Merrill Lynch Commodity Research

**Chart 79: US gasoline supply**



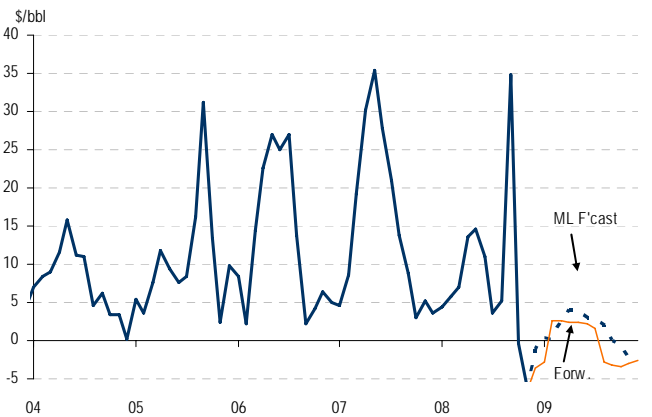
Source: Merrill Lynch Commodity Research

**Chart 80: US gasoline stocks**



Source: Merrill Lynch Commodity Research

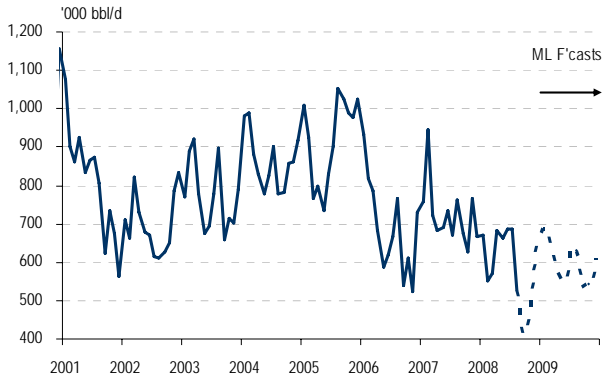
**Chart 81: US RBOB gasoline crack spread**



Source: Merrill Lynch Commodity Research

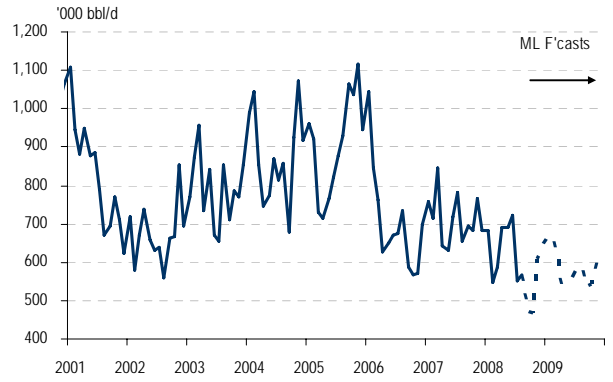
## US Products Forecasts

**Chart 82: US residual demand**



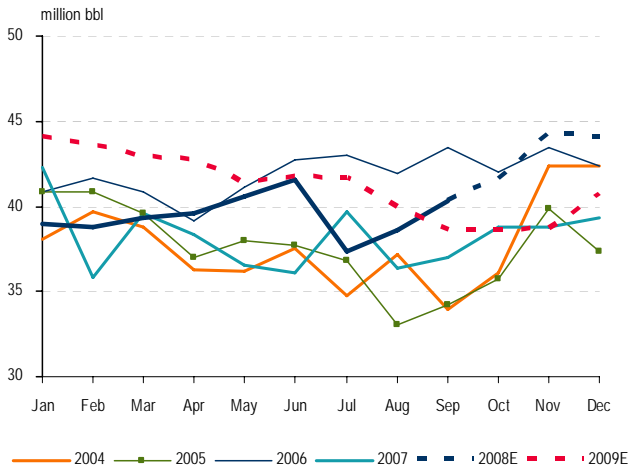
Source: Merrill Lynch Commodity Research

**Chart 83: US residual supply**



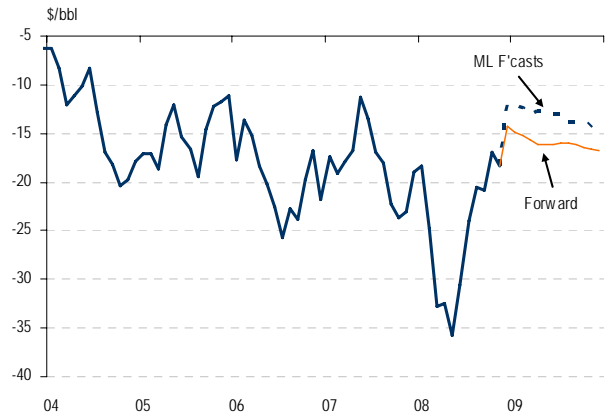
Source: Merrill Lynch Commodity Research

**Chart 84: US residual stocks**



Source: Merrill Lynch Commodity Research

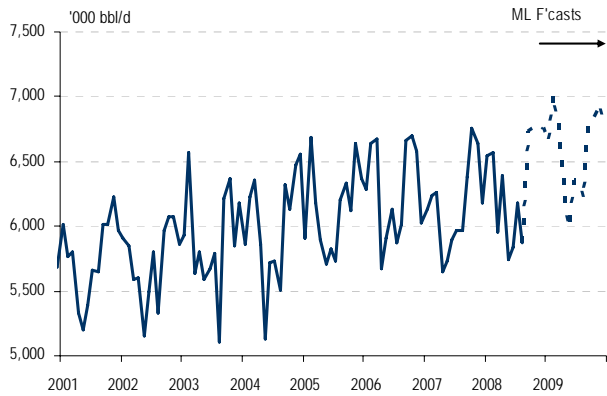
**Chart 85: US residual crack spread**



Source: Merrill Lynch Commodity Research

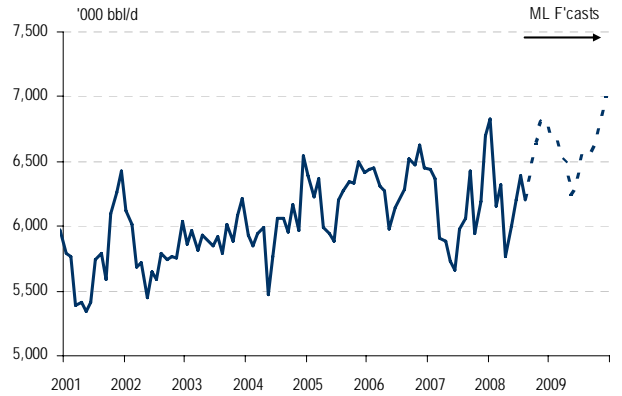
## OECD Europe Products Forecasts

**Chart 86: Europe distillate demand**



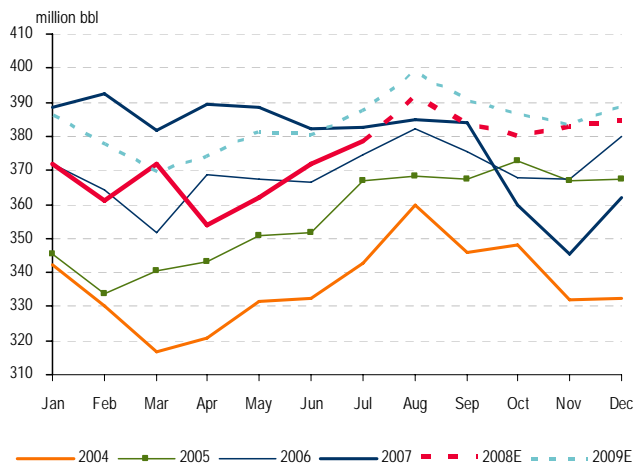
Source: Merrill Lynch Commodity Research

**Chart 87: Europe distillate supply**



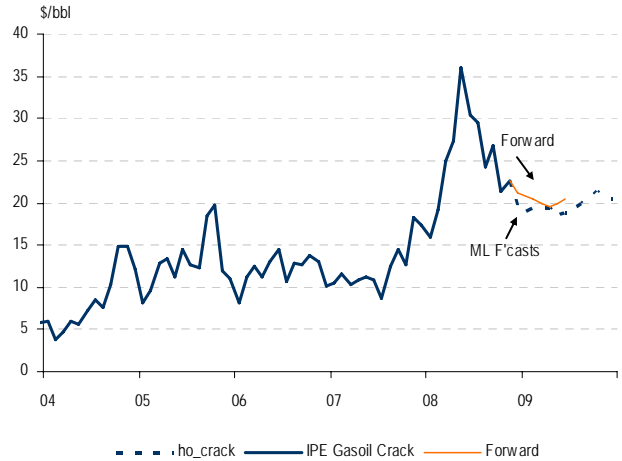
Source: Merrill Lynch Commodity Research

**Chart 88: Europe distillate stocks**



Source: Merrill Lynch Commodity Research

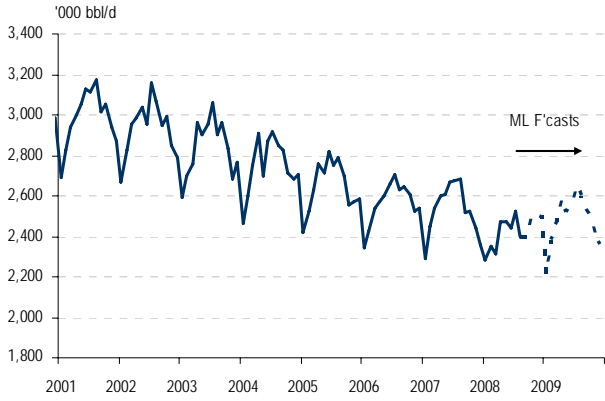
**Chart 89: Europe distillate crack spread**



Source: Merrill Lynch Commodity Research

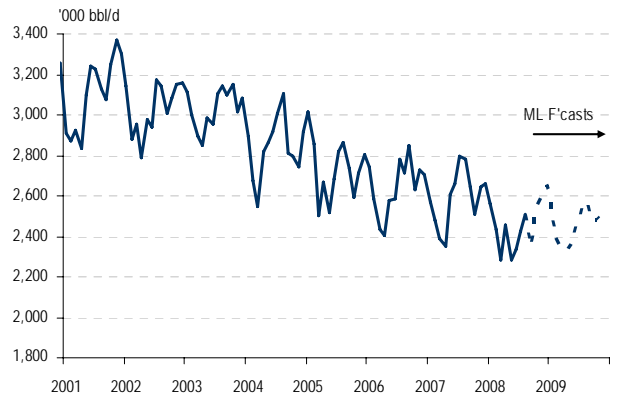
## OECD Europe Products Forecasts

**Chart 90: Europe gasoline demand**



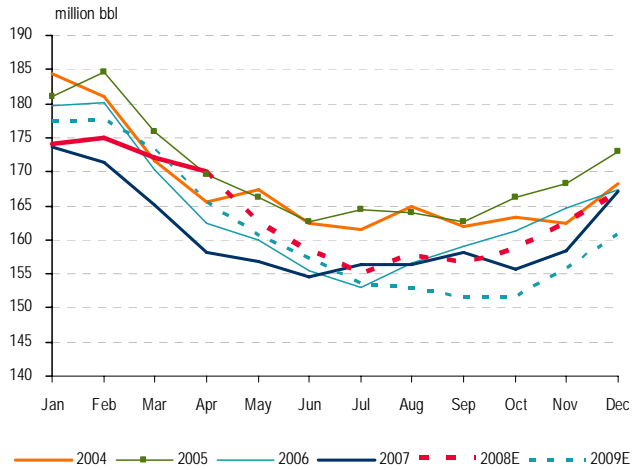
Source: Merrill Lynch Commodity Research

**Chart 91: Europe gasoline supply**



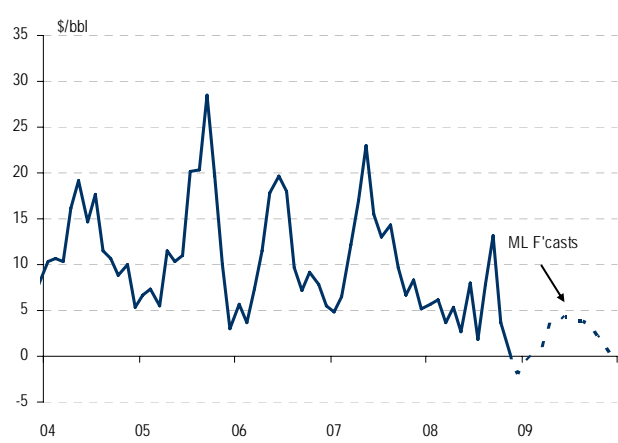
Source: Merrill Lynch Commodity Research

**Chart 92: Europe gasoline stocks**



Source: Merrill Lynch Commodity Research

**Chart 93: Europe gasoline crack spread**



Source: Merrill Lynch Commodity Research

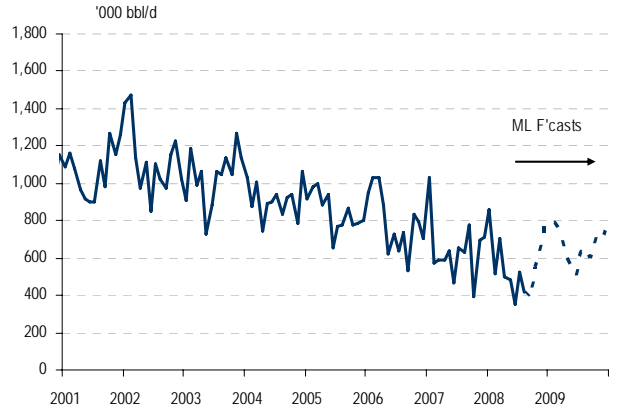
## OECD Europe Products Forecasts

**Chart 94: Europe residual demand**



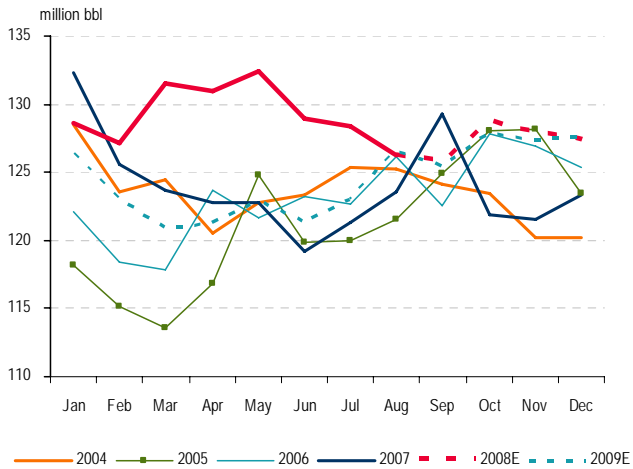
Source: Merrill Lynch Commodity Research

**Chart 95: Europe residual supply**



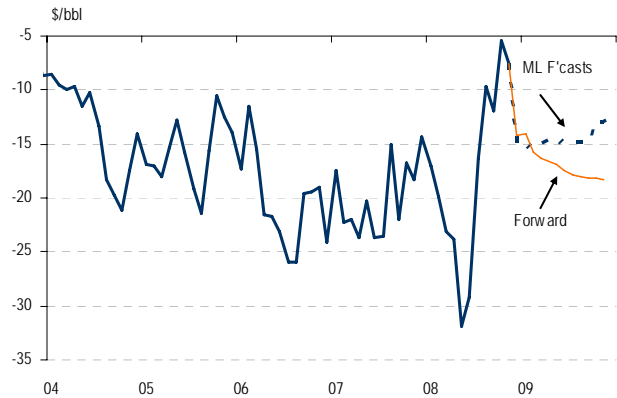
Source: Merrill Lynch Commodity Research

**Chart 96: Europe residual stocks**



Source: Merrill Lynch Commodity Research

**Chart 97: Europe residual crack spread**



Source: Merrill Lynch Commodity Research

## Merrill Lynch Refined Product Model:

### Prices

#### Gasoline:

- US Gulf Coast RBOB gasoline spot price
- NWE unleaded premium 98 octane gasoline FOB

#### Distillates:

- US Gulf Coast No.2 heating oil spot price
- NWE 0.2% sulphur gasoil FOB

#### Residual Fuel Oil:

- US Gulf Coast residual fuel oil 1.0 % sulfur LP spot price
- NWE 1% sulphur residual fuel oil FOB

#### Crude Benchmark:

- US WTI cushing crude oil spot price
- Brent Dated

#### Flows:

Supply = domestic production + net imports (+adjustments for US gasoline), in thousand barrels per day

Demand = product supplied, in thousand barrels per day

#### Stocks:

Total inventories, in thousand barrels

#### Underlying fundamental data:

- US Department of Energy, EIA
- OECD Europe: International Department of Energy (IEA).

# ML US natural gas supply and demand balance

Table 6: US natural gas supply and demand balance

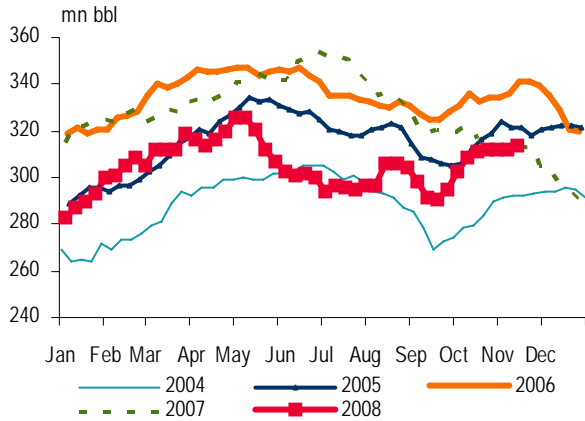
bcf/d	Q106	Q206	Q306	Q406	2006	Q107	Q207	Q307	Q407	2007	Q108	Q208E	Q308E	Q408E	2008E	Q109E	Q209E	Q309E	Q409E	2009E	
<b>Total Supply</b>	59.24	60.05	60.82	60.29	60.10	62.17	63.03	64.01	63.44	63.16	64.22	63.83	63.28	65.71	64.26	64.59	64.63	63.67	66.01	64.72	
Dry Prod	49.84	50.62	51.00	50.99	50.61	51.46	52.28	53.07	54.41	52.80	55.83	56.36	54.85	57.51	56.14	56.63	57.56	56.05	59.01	57.31	
Total Imports	11.44	11.33	11.62	11.48	11.47	12.96	12.62	13.09	11.77	12.61	11.95	9.83	10.44	11.00	10.81	11.43	9.34	9.68	9.88	10.08	
<i>Pipeline Imp</i>	10.20	9.27	9.99	10.02	9.87	10.92	9.54	10.63	10.91	10.50	11.12	8.76	9.33	10.30	9.88	10.40	7.98	8.32	8.98	8.92	
<i>LNG Imp</i>	1.24	2.06	1.62	1.46	1.60	2.03	3.07	2.46	0.86	2.11	0.83	1.07	1.11	0.70	0.93	1.03	1.37	1.36	0.90	1.17	
Total Exports	2.04	1.90	1.81	2.18	1.98	2.25	1.87	2.15	2.74	2.25	3.56	2.36	2.02	2.80	2.68	3.46	2.28	2.07	2.88	2.67	
<i>Pipeline Exp</i>	1.86	1.72	1.64	2.05	1.82	2.08	1.76	2.02	2.61	2.12	3.46	2.21	1.83	2.69	2.55	3.31	2.11	1.88	2.77	2.52	
<i>LNG Exp</i>	0.19	0.18	0.16	0.14	0.17	0.16	0.11	0.13	0.12	0.13	0.10	0.15	0.19	0.10	0.13	0.15	0.17	0.19	0.10	0.15	
Net Imports	9.40	9.42	9.81	9.30	9.48	10.71	10.75	10.95	9.03	10.36	8.39	7.47	8.43	8.20	8.12	7.97	7.06	7.62	7.00	7.41	
<b>Total Cons</b>	71.56	52.22	53.87	59.95	59.40	79.55	53.86	56.31	63.58	63.32	82.11	55.06	54.82	61.48	63.37	79.94	53.29	57.11	64.87	63.80	
Plant	3.06	3.06	3.08	3.11	3.08	3.12	3.17	3.22	3.30	3.20	3.38	3.41	3.24	3.33	3.34	3.46	3.49	3.32	3.40	3.42	
Pipe	1.95	1.40	1.45	1.62	1.60	2.15	1.45	1.52	1.72	1.71	2.22	1.52	1.53	1.73	1.75	2.27	1.55	1.57	1.77	1.79	
Delivered	66.55	47.76	49.34	55.22	54.72	74.28	49.24	51.57	58.57	58.41	76.51	50.13	50.04	56.43	58.28	74.22	48.25	52.22	59.70	58.60	
<i>Residential</i>	22.76	7.71	3.80	13.88	12.04	25.98	8.39	3.77	14.08	13.05	25.94	8.54	3.87	14.01	13.09	25.34	7.73	4.04	14.67	12.94	
<i>Commercial</i>	12.72	5.73	4.15	8.60	7.80	14.11	6.19	4.10	8.76	8.29	14.35	6.27	4.12	8.68	8.35	13.65	5.89	4.28	9.28	8.27	
<i>Industrial</i>	19.08	17.10	16.91	18.14	17.81	19.80	17.07	17.06	18.87	18.20	20.53	17.63	16.50	18.47	18.28	20.13	17.13	17.03	18.87	18.29	
<i>Vehicle</i>	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.09	0.08	0.09	0.09	0.09	0.10	0.09	
<i>Electricity</i>	11.92	17.15	24.41	14.53	17.01	14.32	17.51	26.57	16.80	18.80	15.61	17.61	25.48	15.20	18.47	15.01	17.41	26.79	16.80	19.00	
Stocks (bcf)	1,692	2,617	3,323	3,070	0.70	1,603	2,580	3,316	2,879	(0.16)	1,247	2,118	3,154	3,534	0.89	1,852	2,723	3,413	3,516	0.92	
Nat gas Forecast	7.88	6.67	6.14	7.26	6.99	7.18	7.65	6.24	7.39	7.12	8.75	11.48	8.95	6.75	8.98	6.20	5.50	5.70	6.60	6.00	
Nat gas Forward															6.65	8.96	6.51	6.65	6.94	7.72	6.95

Source: EIA, IEA, various company sources, Merrill Lynch Commodity Research



# Petroleum - US

**Chart 98: US crude oil stocks**



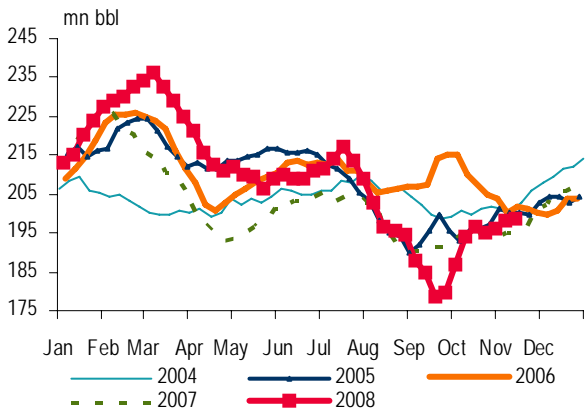
Source: US Department of Energy

**Chart 99: WTI crude oil price**



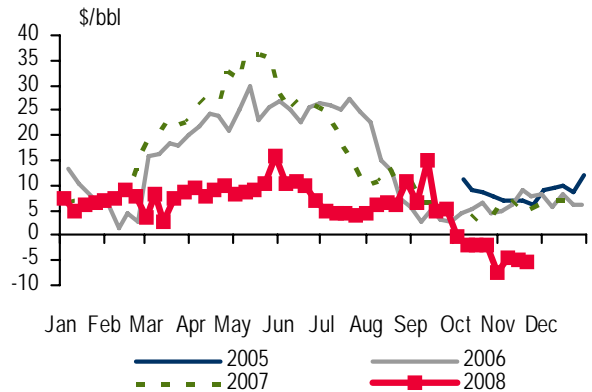
Source: NYMEX, Bloomberg

**Chart 100: US gasoline stocks**



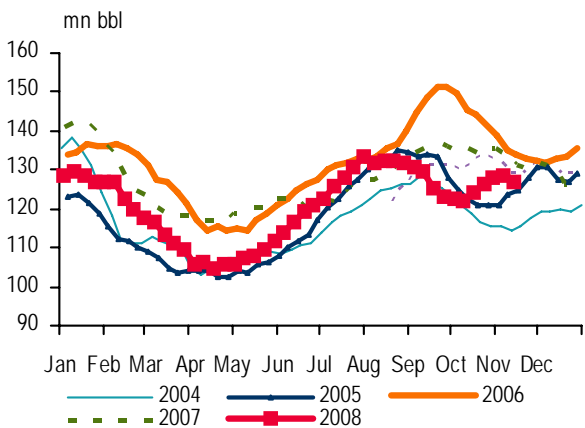
Source: US Department of Energy

**Chart 101: US RBOB cracks**



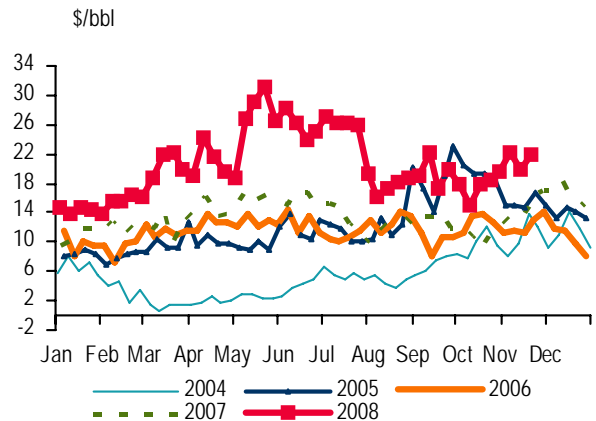
Source: NYMEX, Reuters

**Chart 102: US distillate oil stocks**



Source: US Department of Energy

**Chart 103: US distillate oil cracks**



Source: NYMEX, Reuters

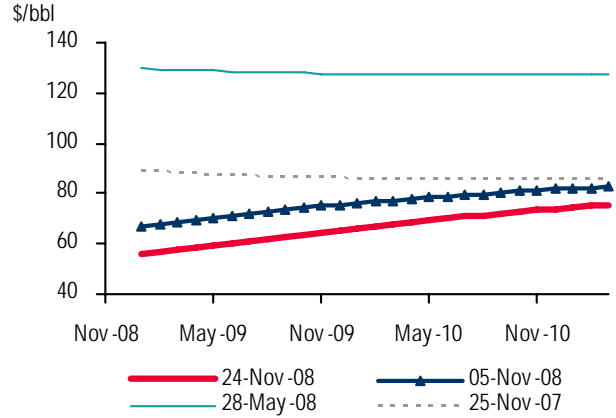
# Petroleum - US & Europe

Chart 104: WTI implied volatility



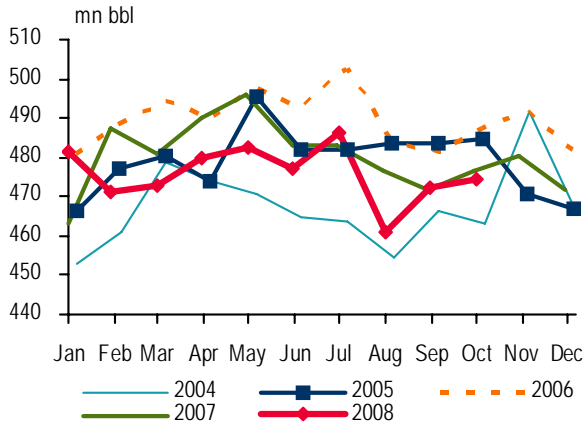
Source: NYMEX, Bloomberg

Chart 105: WTI Term Structure



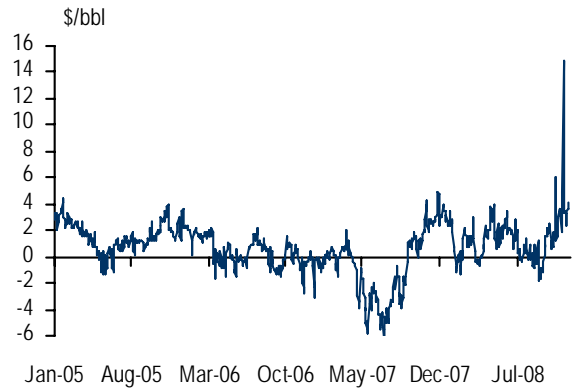
Source: NYMEX, Reuters

Chart 106: European crude oil stocks



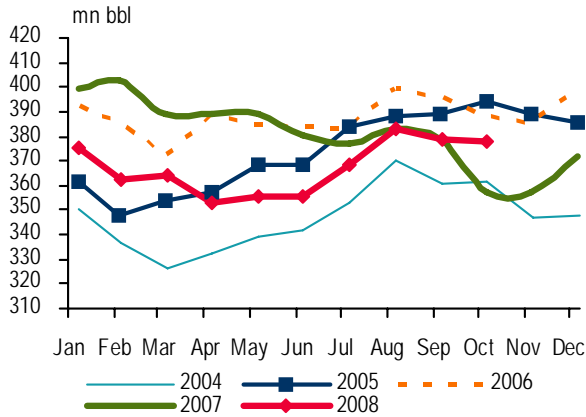
Source: Euroil

Chart 107: WTI - Brent crude spread



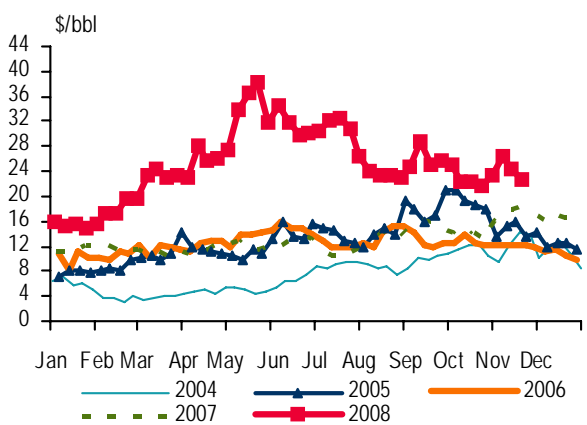
Source: IPE, Bloomberg

Chart 108: European distillate stocks



Source: Euroil

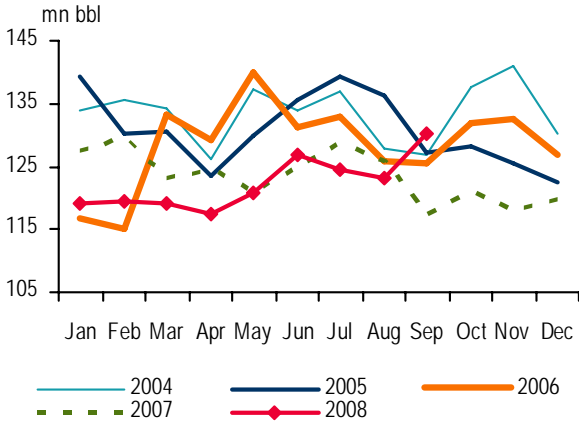
Chart 109: IPE gasoil cracks



Source: Reuters

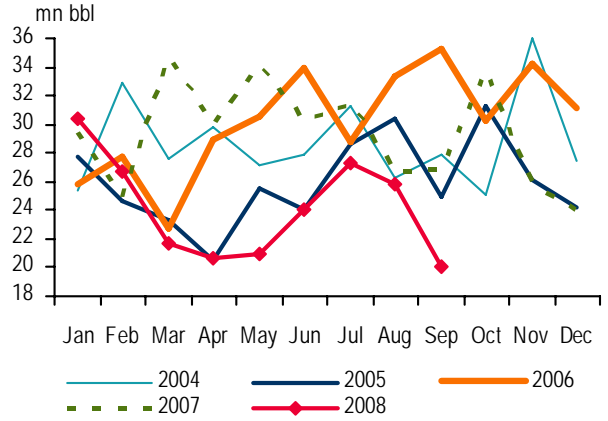
# Petroleum - Asia

**Chart 110: Japanese crude oil stocks**



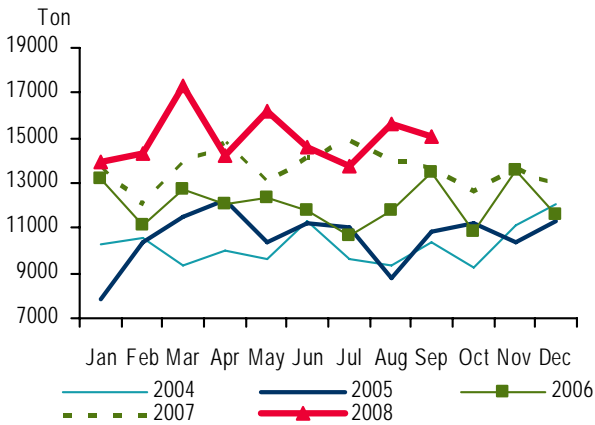
Source: International Energy Agency

**Chart 111: South Korean crude oil stocks**



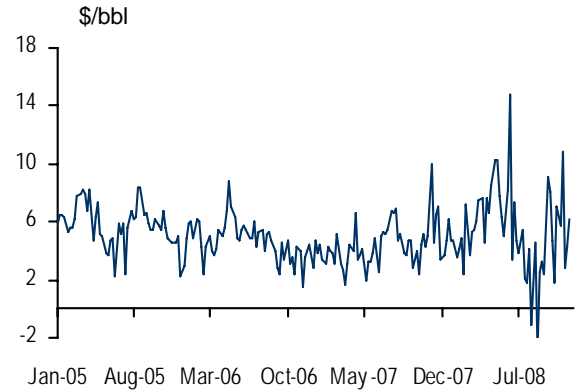
Source: International Energy Agency

**Chart 112: China crude oil imports**



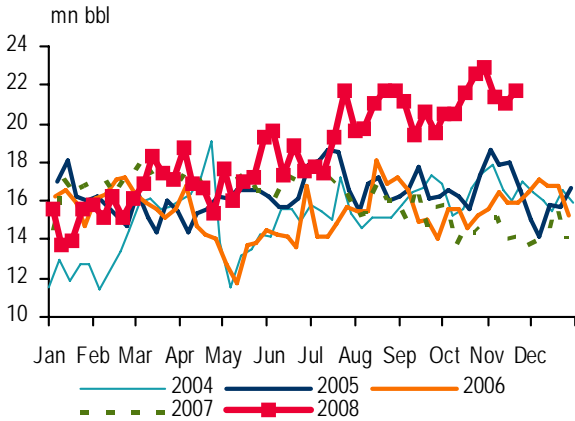
Source: Reuters

**Chart 113: Brent - Dubai crude oil spread (1-month contract)**



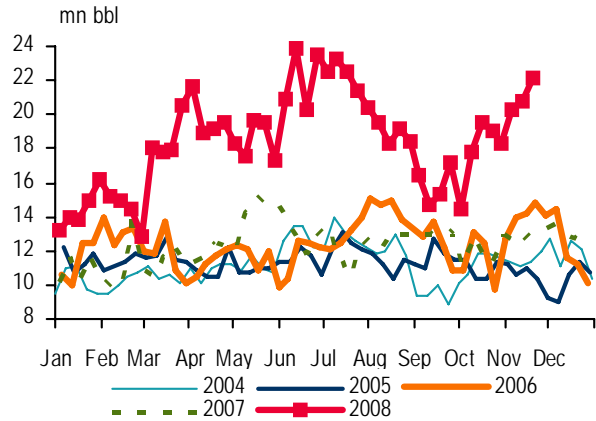
Source: Reuters

**Chart 114: Singapore light & mid distillate stocks**



Source: Reuters

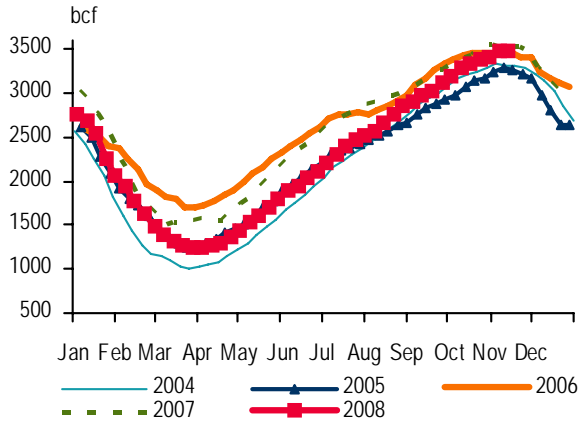
**Chart 115: Singapore residual stocks**



Source: Reuters

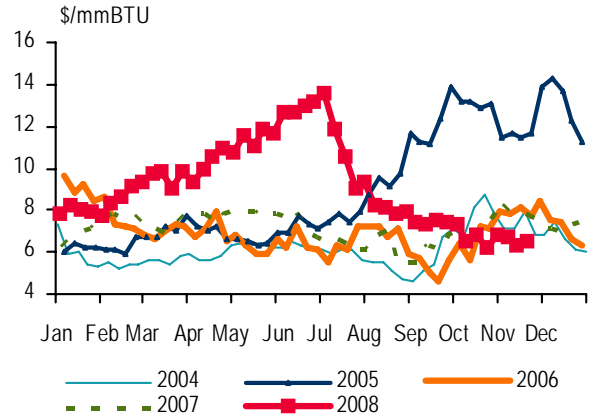
# Gas & Power - US

**Chart 116: US natural gas stocks**



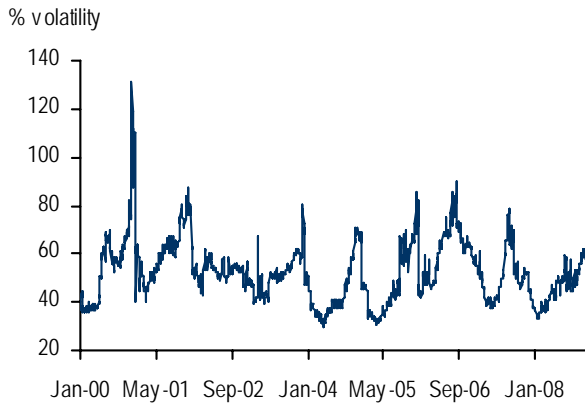
Source: US Department of Energy

**Chart 117: US natural gas price**



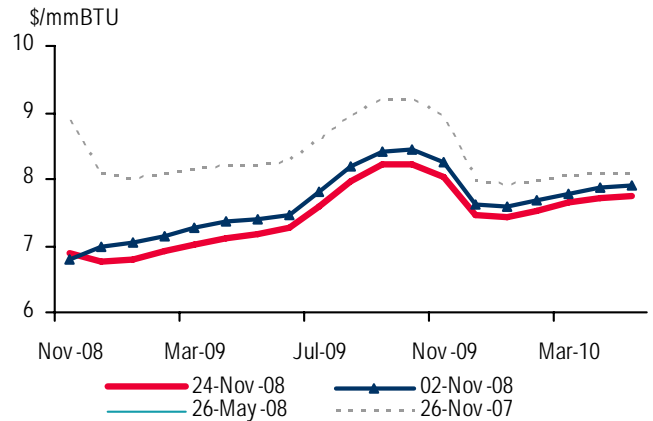
Source: NYMEX, Reuters

**Chart 118: US natural gas implied volatility**



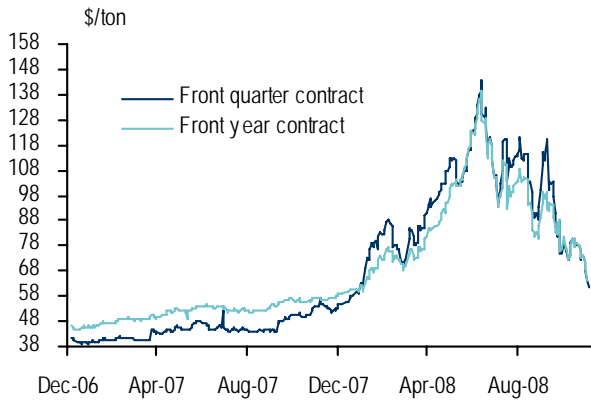
Source: NYMEX, Bloomberg

**Chart 119: US natural gas term structure**



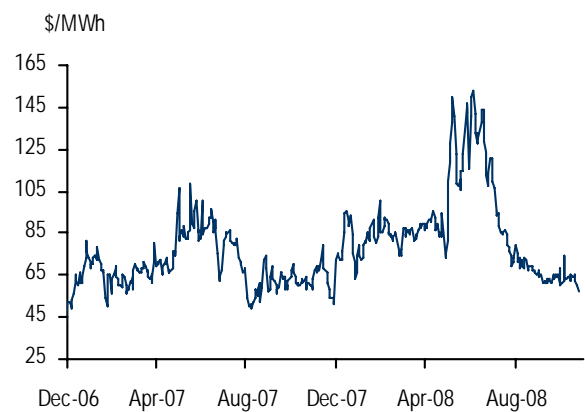
Source: NYMEX, Reuters

**Chart 120: US NYMEX forward coal prices**



Source: NYMEX, Reuters

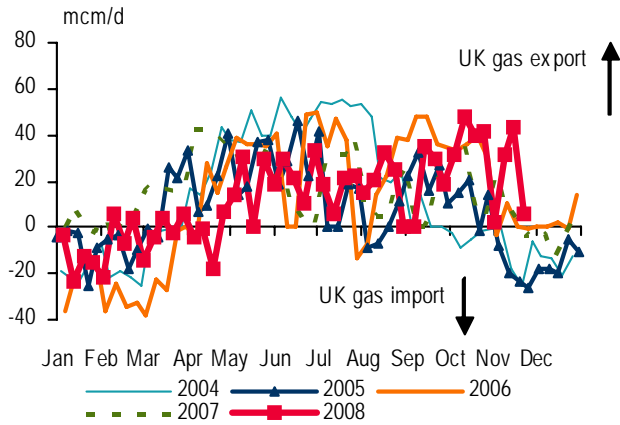
**Chart 121: US spot PJM power prices**



Source: NYMEX, Reuters

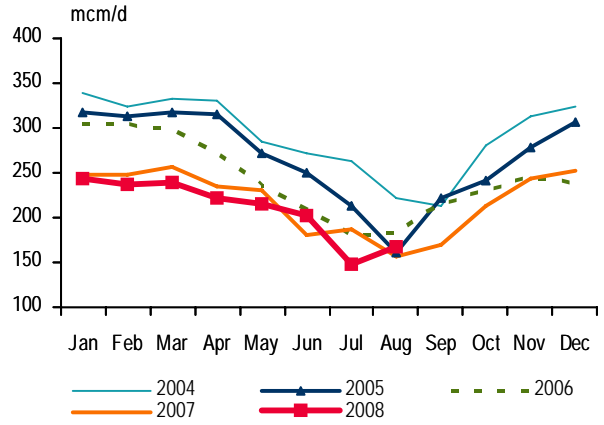
# Gas & Power - Europe

**Chart 122: UK Interconnector gas flows**



Source: UK Interconnector Flows

**Chart 123: UK gross gas production**



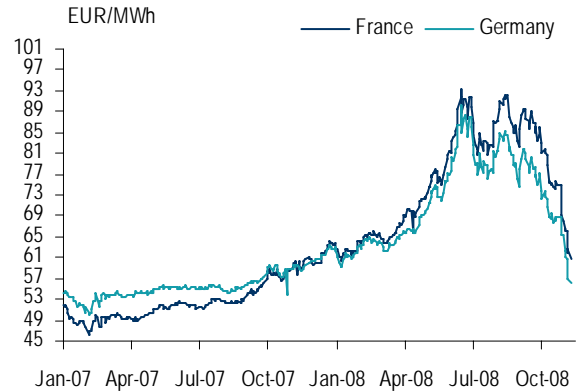
Source: UK Department of Trade and Industry

**Chart 124: UK National Balancing Point (NBP) day ahead**



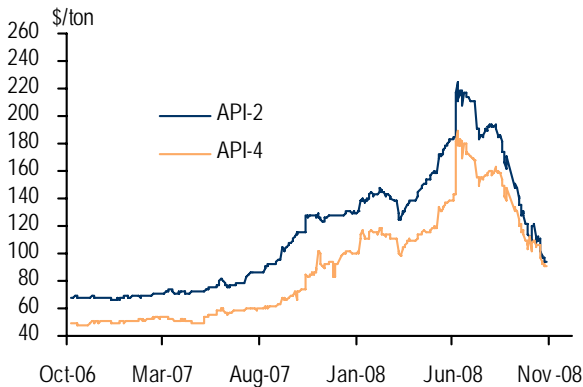
Source: Bloomberg

**Chart 125: Germany and France CAL09 Baseload**



Source: Reuters

**Chart 126: TFS API2 coal in Rotterdam**



Source: Reuters

**Chart 127: European CO2 Emissions Price 2008**



Source: Reuters

## Important Disclosures

## Other Important Disclosures

UK readers: MLPF&S or an affiliate is a liquidity provider for the securities discussed in this report.

\*144A. This security may only be offered or sold to persons in the U.S. who are Qualified Institutional Buyers ("QIB's") within the meaning of Rule 144A under the Securities Act of 1933, as amended.

### Information relating to Non-U.S. affiliates of Merrill Lynch, Pierce, Fenner & Smith Incorporated (MLPF&S):

MLPF&S distributes research reports of the following non-US affiliates in the US (short name: legal name): Merrill Lynch (France): Merrill Lynch Capital Markets (France) SAS; Merrill Lynch (Frankfurt): Merrill Lynch International Bank Ltd, Frankfurt Branch; Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd; Merrill Lynch (Milan): Merrill Lynch International Bank Limited; MLPF&S (UK): Merrill Lynch, Pierce, Fenner & Smith Limited; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited; Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd; Merrill Lynch (Canada): Merrill Lynch Canada Inc; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa; Merrill Lynch (Argentina): Merrill Lynch Argentina SA; Merrill Lynch (Japan): Merrill Lynch Japan Securities Co, Ltd; Merrill Lynch (Seoul): Merrill Lynch International Incorporated (Seoul Branch); Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd.; DSP Merrill Lynch (India): DSP Merrill Lynch Limited; PT Merrill Lynch (Indonesia): PT Merrill Lynch Indonesia; Merrill Lynch (KL) Sdn. Bhd.: Merrill Lynch (Malaysia); Merrill Lynch (Israel): Merrill Lynch Israel Limited; Merrill Lynch (Russia): Merrill Lynch CIS Limited, Moscow; Merrill Lynch (Turkey): Merrill Lynch Yatirim Bankasi A.S.; Merrill Lynch (Dubai): Merrill Lynch International Bank Ltd, Dubai Branch; MLPF&S (Zürich rep. office): MLPF&S Incorporated Zürich representative office.

This research report has been prepared and issued by MLPF&S and/or one or more of its non-U.S. affiliates. MLPF&S is the distributor of this research report in the U.S. and accepts full responsibility for research reports of its non-U.S. affiliates distributed in the U.S. Any U.S. person receiving this research report and wishing to effect any transaction in any security discussed in the report should do so through MLPF&S and not such foreign affiliates.

This research report has been approved for publication in the United Kingdom by Merrill Lynch, Pierce, Fenner & Smith Limited, which is authorized and regulated by the Financial Services Authority; has been considered and distributed in Japan by Merrill Lynch Japan Securities Co, Ltd, a registered securities dealer under the Securities and Exchange Law in Japan; is distributed in Hong Kong by Merrill Lynch (Asia Pacific) Limited, which is regulated by the Hong Kong SFC; is issued and distributed in Taiwan by Merrill Lynch Securities (Taiwan) Ltd.; is issued and distributed in Malaysia by Merrill Lynch (KL) Sdn. Bhd., a licensed investment adviser regulated by the Malaysian Securities Commission; is issued and distributed in India by DSP Merrill Lynch Limited; and is issued and distributed in Singapore by Merrill Lynch International Bank Limited (Merchant Bank) and Merrill Lynch (Singapore) Pte Ltd (Company Registration No.'s F 06872E and 198602883D respectively). Merrill Lynch International Bank Limited (Merchant Bank) and Merrill Lynch (Singapore) Pte Ltd. are regulated by the Monetary Authority of Singapore. Merrill Lynch Equities (Australia) Limited, (ABN 65 006 276 795), AFS License 235132, provides this report in Australia. No approval is required for publication or distribution of this report in Brazil.

Merrill Lynch (Frankfurt) distributes this report in Germany. Merrill Lynch (Frankfurt) is regulated by BaFin.

### Copyright, User Agreement and other general information related to this report:

Copyright 2008 Merrill Lynch, Pierce, Fenner & Smith Incorporated. All rights reserved. This research report is prepared for the use of Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of Merrill Lynch. Merrill Lynch research reports are distributed simultaneously to internal and client websites eligible to receive such research prior to any public dissemination by Merrill Lynch of the research report or information or opinion contained therein. Any unauthorized use or disclosure is prohibited. Receipt and review of this research report constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained in this report (including any investment recommendations, estimates or price targets) prior to Merrill Lynch's public disclosure of such information. The information herein (other than disclosure information relating to Merrill Lynch and its affiliates) was obtained from various sources and we do not guarantee its accuracy. Merrill Lynch makes no representations or warranties whatsoever as to the data and information provided in any third party referenced website and shall have no liability or responsibility arising out of or in connection with any such referenced website.

This research report provides general information only. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other investment or any options, futures or derivatives related to such securities or investments. It is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of any specific person who may receive this report. Investors should seek financial advice regarding the appropriateness of investing in any securities, other investment or investment strategies discussed or recommended in this report and should understand that statements regarding future prospects may not be realized. Investors should note that income from such securities or other investments, if any, may fluctuate and that price or value of such securities and investments may rise or fall. Accordingly, investors may receive back less than originally invested. Past performance is not necessarily a guide to future performance. Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

Futures and options are not appropriate for all investors. Such securities may expire worthless. Before investing in futures or options, clients must receive the appropriate risk disclosure documents. Investment strategies explained in this report may not be appropriate at all times. Costs of such strategies do not include commission or margin expenses.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or related investment mentioned in this report. In addition, investors in securities such as ADRs, whose values are influenced by the currency of the underlying security, effectively assume currency risk.

**Merrill Lynch Research policies relating to conflicts of interest are described at <http://www.ml.com/media/43347.pdf>.**

Convertible bonds are traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these securities are exempt from registration or have been qualified for sale. MLPF&S may make a market in the convertible bonds of this company.

To calculate theoretical values and return profiles, Merrill Lynch uses a proprietary arbitrage model to value the convertible as a combination of embedded options. The model is sensitive to, amongst other factors, the following inputs: stock volatility, dividend yield, interest rate levels, and credit spread, all of which we hold constant. Further, we assume a similar discount/premium persists over the entire investment horizon. Our theoretical valuation in no way constitutes a fundamental opinion, nor does a theoretical discount necessarily constitute a recommendation.