Natural Gas Market Update

National Australia Bank

- **US natural gas prices trend higher on rising exporting prospects and forecasted warmer-than-average temperatures in the upcoming summer.**
- **British natural gas prices have returned to more normal levels as supply pressures ameliorate from restored Qatari deliveries and Norwegian production.**
- **Prices in Asia Pacific mostly turned southwards in March, albeit still at historical highs. Weak Chinese industrial data and softer Brent oil prices were responsible.**
- **Henry Hub prices to lift in near term on summer cooling demand and positive global sentiments from US export prospects.**
- **Asian LNG prices forecast to ease from an inventory supply overhang and imminent gradual resumption of nuclear reactors.**

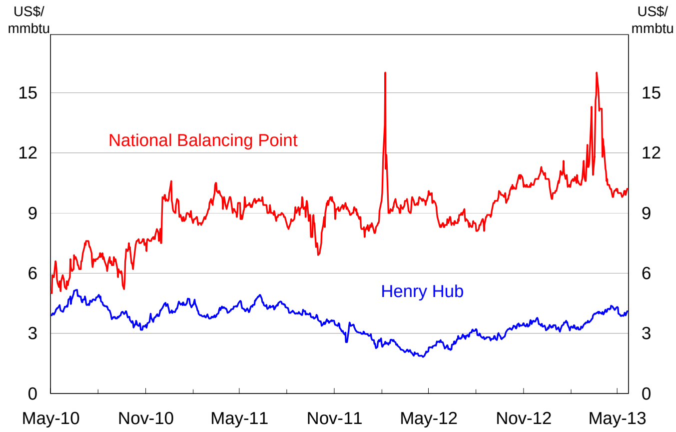
Last few months had been marked by some highly interesting developments, some arguably historic, in the dynamics of global natural gas markets. In a landmark move that potentially signals a new era of US energy exports, the US government approved the second application to export liquefied natural gas (LNG) to countries lacking a free trade agreement (FTA) with the US on Friday 17 May, opening up the scope for the US to play a larger role in the global energy space. The approval of Freeport LNG's facility in Quintana Island, Texas ended nearly two years of delays in processing export permits, which were held up as lawmakers weighed the pros and cons of exporting the nation's newly discovered wealth of natural gas to markets abroad. While this is clearly economically sensible from a resource allocation viewpoint, it has taken time to get the politics out of the way. Supporters of the arrangement suggest that increasing US energy exports would help to create jobs and reduce trade deficits, while in a geopolitical sense, challenge the iron grip by rivals such as Russia and Iran in Europe in natural gas and benefit import-reliant allies such as India and Japan. Conversely, opponents have been urging the Department of Energy to more widely consider the upward pressure of unrestricted exports on domestic prices which would adversely affect the consumer utilities and manufacturing sectors.

This proves to be unequivocally positive news for Japan, the largest LNG importer in the world, which has been proactively negotiating with the US government in hope of importing LNG from low-cost US despite not having a FTA with the country.

Recent Price Movements

The US natural gas spot prices were on a broad upward trend through March and most of April, hitting a 20-month high in recent weeks. An unseasonally cold March spurred prices higher after three months of relative flat prices, as space-heating demand increased through much of the country and led to large storage withdrawals. Prices continued to rise in April as lingering cold in the Midwest kept demand elevated. The Henry Hub spot price averaged $4.17 per MMBtu in April, the highest monthly average price since July 2011. At the turn of month in May, US natural gas prices tracked lower as seasonal conditions turned milder. However by the second week of May, dramatic shifts in temperatures in parts of the country to be warmer-than-average steered prices in the opposite direction. That said, the monthly average is lower than that of April to be approximately $4.05, which is as expected as the northern hemisphere enters the shoulder period between heating demand in winter and heating demand in summer. Hot and humid temperatures forecast for most parts of the Midwest and East Coast over the second half of May and most of June point to increasing energy demand as homes and businesses turn on air conditioning.

Henry Hub and National Balancing Point Prices



Sources: NAB; Thomson Reuters

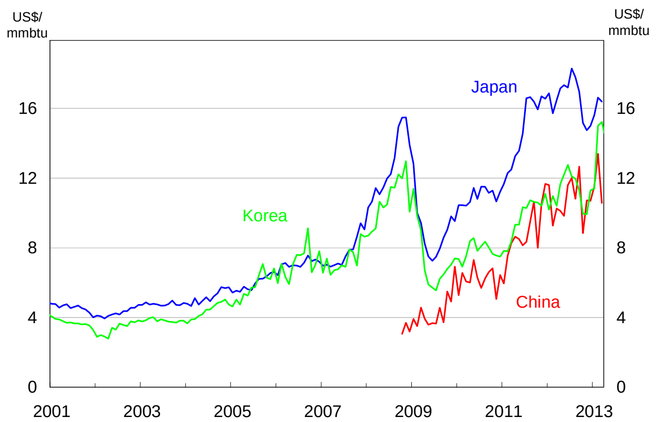
Looking ahead, we anticipate the recent strength in natural gas prices to consolidate going into the US summer. At the moment, summer is forecast to be warmer than average for much of the continental US, which is likely to induce an uplift in cooling demand. Positive global sentiments associated with the imminent liberalisation of the US LNG export market to allow access to its relatively cheap supply by non-FTA partners is also likely to lend some support to prices. Also appearing to support prices is the slowing growth in production and inventory accumulation from their trailblazing pace from late 2011 through most of 2012, with "deficits" – actual monthly underground storage levels -- to be below their five-year averages occurring from February to May. While we expect that price strength is likely to be maintained, we are a little cautious on the degree of upside risk to prices. Since May 2012, higher gas prices have resulted in a steady switch to coal for electricity generation. In recent times, the US$4 mark is typically the resistance price level where the switch from natural gas to coal occurs, acting to limit upside pressures to gas prices. That said, the likely entry of the US as a legitimate world natural gas supplier could potentially be a game changer as demand from countries like Japan and India, which have very few cheaper energy substitutes, more than compensates for the diversion of domestic demand in the US. This will consequently result in the closing of gap between low US prices and the average world price.

In the UK, natural gas prices have fallen about 4% in April since the advent of the natural gas shortage "scare" that caused the

National Balancing Point price to spike to its record high in the second last week of March. Lower Brent oil prices have also served as a factor in the fall. Supply pressures have since been alleviated with deliveries from Qatar and restored production in Norway helping to replenish stocks. The March incident highlighted the fragility in the UK energy policy which relies predominantly on imports, further exacerbated by the intense competition from higher paying Asian buyers absorbing supplies from Qatar and the Atlantic Basin. Recognising the potential significant implications of the US shale gas revolution, European Union leaders have urged faster integration of the bloc's power and natural-gas markets to lower energy prices as the EU's cost gap widens from its largest trading partner, threatening to undermine EU's industrial competitiveness. If the EU becomes a fully integrated market, it could save as much as 35 billion euros ($45 billion) a year in electricity costs in 2015 compared with 2012, according to the European Commission, the bloc's regulatory arm.

In Asia, the LNG market has broadly turned southwards in March, with the sharpest drop observed in China. In Japan, LNG import prices were down 3.0 per cent in the month although still at historically high of at US$16.40/mmbtu. The notable depreciation in yen in recent months has resulted in strong upward pressures in the import price of LNG. The Korean LNG prices, which follow the lead of Japanese LNG prices, fell 6%. Chinese natural gas prices suffered the most severe fall of 21%. More recently, the downturn in prices in the Asian spot LNG market over March were largely attributable to weak industrial activity data from China and softer Brent prices.

Asian LNG Prices

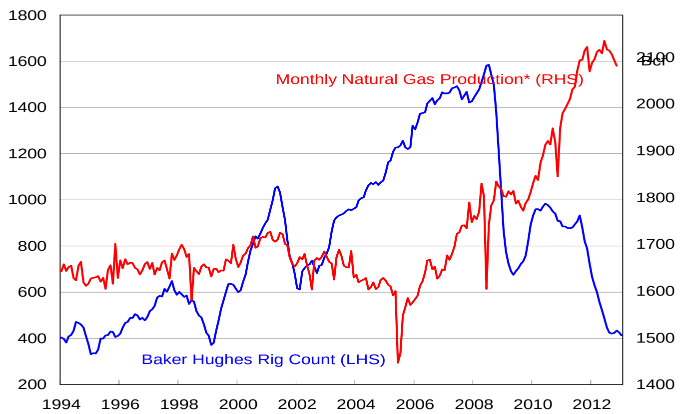


Sources: Thomsons Datastream; CEIC; NAB Economics

Market Conditions

Production in the US is at a historical high, despite having come off its peak in September 2012. A sustained period of low natural gas prices has triggered a steady decline in the number of rigs to its lowest level in more than 13 years. According to Baker Hughes, the US natural gas rig count was down to 413 in April, the lowest monthly reading since May 1999 and down significantly on levels in excess of 900 at the same time last year. That said, an increase in efficiency and focus on productive wells and oil-targeted drilling have contributed to flush natural gas supply despite a dramatic cutback in rigs. After accounting for seasonal factors, monthly marketed production was down 0.6 per cent in February (the latest data available), to around 2081bcf, a level which is still elevated by historical comparison. However, a massive withdrawal in March as a result of unseasonally cold weather has culminated in deficits relative to the five-year averages, the first of such deficits since September 2011. This has prompted natural gas imports – which accounted for around 8% of total natural gas consumption in the US in 2012 – to increase in the month relative to a year ago, mainly via pipelines from Canada and some from Mexico. However, the overall import trend has been declining in recent years from the peak of accounting for about 16% of consumption in 2007. In the near term, the impact of reduced drilling activity is expected to slow production growth further; particularly as current price levels still imply that dry gas drilling is very unprofitable. The caveat to that is of course the highly fluid policy directions implied by the heated debate surrounding natural gas exports currently. The future production trajectory in the US will be contingent on the pace at which the US government approves natural gas projects to have unrestricted access to export markets in the next few months, with the recent precedent made out of the Freeport terminal sparking renewed hopes for a string of applications by such projects still waiting for approval. In the longer term, some factors which will affect US export prospects may include the development of new production capacity in foreign countries, particularly from deepwater reservoirs, shale gas deposits, and the Arctic. In addition, the speed and extent of price convergence in global natural gas markets and the degree to which natural gas competes with liquids in domestic and international markets will also affect exports. In its recent report of Annual Energy Outlook, the Energy Information Agency (EIA) forecasts natural gas production to grow by just 0.4% in 2013 and decline in 2014 by 0.6%, reflecting an inflection point where the industry consolidates from the rapid rise since 2006. More rapid expansion in production will ensue in 2015 as export markets become more accessible.

US Production and Rig Count



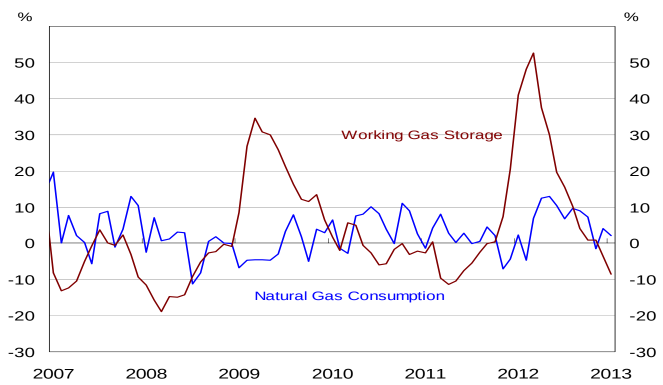
Source: Baker Hughes, EIA, NAB Economics

*Seasonally Adjusted

US natural gas consumption in the past autumn and winter months was up significantly compared to a year earlier, except for December where consumption was less. In February (for which the latest consumption data is available), natural gas consumption was up 2% year-on-year. Helping drive the monthly figures, residential consumption was up 14% y-o-y and commercial consumption 10%. This was partly offset by a sharp 13% decline in the consumption by the electric power sector as the rising natural gas prices since May last year induced a substantial switching to coal-powered electricity generation. This is evident in the latest figures published by the EIA which suggest that natural gas, while accounting for an equal share of 32% of total electricity generation as coal in April 2012, has been only fuelling about 25% of generation each month since November 2012, with coal having gained ground to 40% or more. Despite the recent reversal of fortune, coal's share of total electricity generation remains below the historical average prior to 2009. In the seven years to 2008, coal's share of total generation ranged from 48% to 51%. In the near-term, the EIA expects natural gas consumption to increase by 0.7% in 2013 and to fall by 0.9% in 2014.

In response to falling drilling activity, the growth in monthly injections has slowed considerably in recent months. In February, natural gas storage levels were down more than 4% on a year earlier, dwarfed by the stratospheric year-on-year growth rates that were evident in early 2012 (see Graph). Reflecting this, natural gas inventories started to lapse into deficit late March, hitting a low of 1673 bcf in the first week of April. Looking ahead, inventories should start building up again as the weather turns milder, but not to the levels observed late last year.

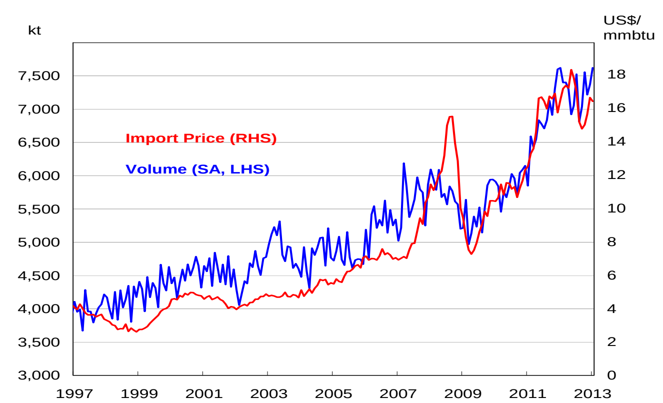
US Natural Gas Storage and Consumption (y-o-y % change)



Source: EIA, NAB Economics

The increasing prospect of the US becoming an unrestricted gas exporter has been greeted with enthusiasm by several import-reliant major natural gas markets in Asia, of which unsustainably high energy import bills have escalated to become a major issue of national concern. Natural gas trading in the region predominately relies on long-term contracts in which the price of gas is linked, or indexed, to that of oil. However this practice has kept Asian gas prices much higher than those in other markets, to around four times the price paid by North American gas trading hubs. As such, countries such as Japan and China have launched a number of initiatives, including negotiations with the US government and providing incentives to the energy firms in their respective countries to make inroads into securing relatively cheaper US supplies.

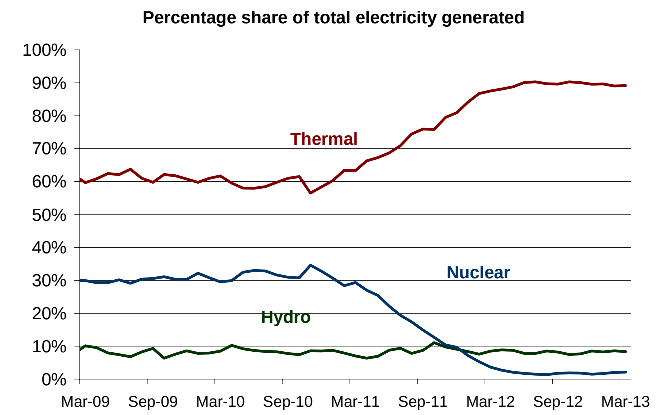
Japanese Imports and Implied Price



Source: CEIC, NAB Economics

After seasonal adjustment, Japanese imports of LNG have fluctuated around 7300 kilo tonnes per month since early 2012, having picked up by more than 20% since the aftermath of the Fukushima nuclear incident. Import prices during this period have also risen to a corresponding. In the next few months, imports are expected to remain somewhat subdued with high level of inventories and summer shoulder period approaching. However, a pickup in industrial activity in Japan spurred by the recent round of aggressive monetary easing by the Bank of Japan could see imports rising towards the end of 2013. Nuclear generation hit a record low in 2012, accounting for just 2.3% of Japan's electricity generated while thermal power is responsible for almost 90%. Soaring energy inflation and massive losses faced by utilities companies since the shutdown of nuclear reactors are exerting immense political pressure on the Japanese government to respond quickly to contain any further spill-over effects, as Japanese households have already been burdened with higher utility rates. This has in turn stoked rife speculation that Japan authorities are inching closer towards restarting two of its nuclear reactors, led by utilities firm Tokyo Electric Power Co which operated the stricken Fukushima Dai-Ichi plant. It appears that so far the two major political parties (Democratic Party Japan and Liberal Democratic Party) have successfully silenced public debate on the issue, which means the resumption in nuclear generation is likely to gain traction once the new independent nuclear regulator, Nuclear Regulation Authority, finalises the compilation of safety standards in July.

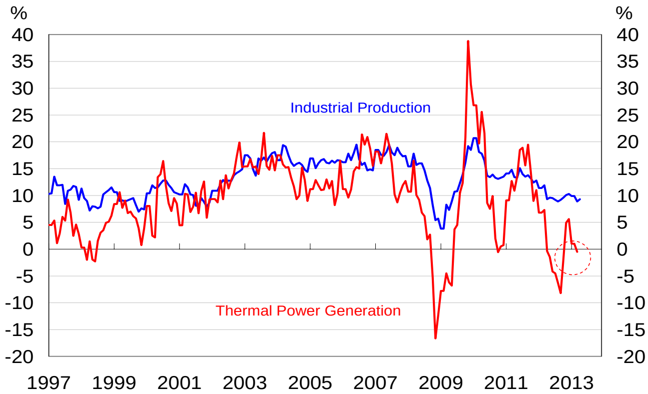
Japanese Electricity Generation



Growth in China's thermal power generation has slowed notably since its peak in the second half of 2011, consistent with a broad downward trend in industrial production. As a result, Chinese imports of LNG only grew by 19% compared to a year ago – a modest figure compared the average of 30% in 2012. That said, natural gas still only comprises a small share of around 4% of total power generation, although the Chinese government has set explicit targets in boosting the share of natural gas of total energy consumption to 10% by 2020 stemming from its intention to reduce pollution (as a result of heavy coal use) and diversify fuel mix in end-use sectors. China's ambitions in this area are evident in its recent active exploratory activities in shale gas but so far they have yielded very little success due to technological and physical barriers. Meanwhile, the Chinese government is looking to secure long-term supply from external sources and encourage technological capabilities in the area. It is currently in the finalisation process of a 30-year supply deal with Russia and has made inroads tapping into US expertise in shale developments for domestic development. For example, Sinopec in 2011 paid $2.2 billion for access to five shale plays in a deal with US company Devon Energy Corp.

Steady progress in China's LNG exploration and import program has taken place against the backdrop of a weakening domestic economy. Chinese GDP growth was below expectations at 7.7% year-on-year in the March quarter, casting doubt over expectations for a robust recovery in the Chinese economy in the first half of the year. Partial economic indicators also showed lack in momentum, highlighting the slack that remains in private demand despite government efforts to jump start the economy last year. Industrial production has been growing around the 9% mark in recent months – a level below the long-run average, while the official PMI published by the NBS has been around the neutral point since May 2012, signalling very gradual expansion in manufacturing. In our latest monthly note on China, we have revised our forecast for China's GDP growth down further to 7¾% in 2013 and 7½% in 2014 (both were 8% previously).

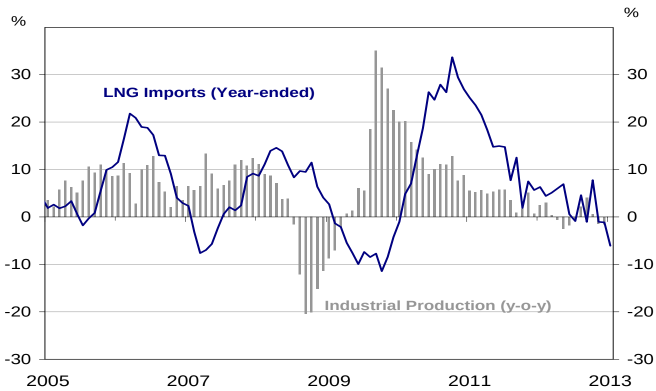
Chinese Thermal Power Generation (y-o-y % chg)



Souces: CEIC, NAB

A similar story can be told for the rest of Asia which saw their demand growth for LNG notably deteriorate through the March quarter. In Korea, year-ended growth in LNG imports contracted in February and March. While this partly reflects the general weakness in demand, a pick-up in natural gas prices since November might also be responsible for the moderation in imports as utility plants preferred to deplete inventories instead. That said, natural gas prices actually moderated in April from plenty of cargo supply and as the country entered into the shoulder season before summer's cooling demand ramps up. Industrial production, a reasonable proxy for energy production, has remained largely stagnant since the beginning of last year from slowing external demand, with recent data suggesting contractions in February and March. Nevertheless, the slowdown in industrial activity was downplayed somewhat by the relatively bullish GDP growth data of 0.9% growth in the March quarter.

Korean LNG Imports

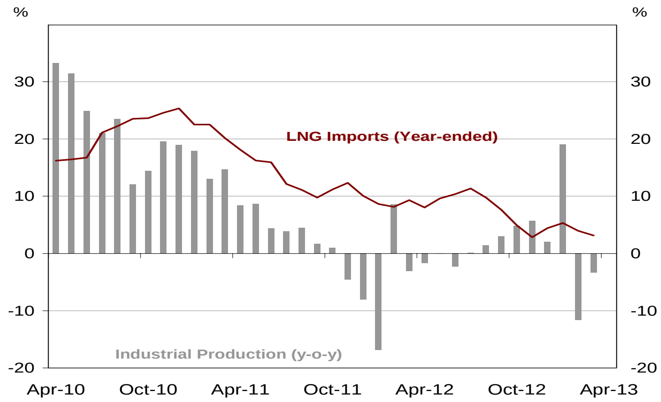


Source: CEIC, Datastream, Korean Customs Service, NAB Economics

Despite an uptick in GDP growth in the March quarter, the risks to Korea's near-term economic outlook are skewed to the downside. Coming to the fore as the biggest threat is the sharp yen depreciation lately from an aggressive round of quantitative easing in Japan, which significantly undercuts the competitiveness of Korean exports. Monetary easing options by the Korean central bank are also hamstrung by the high levels of household debt, which is feared to spiral further upwards in an accommodative environment, Overall, this suggests that industrial demand in the energy sector is unlikely to experience any revival anytime soon unless more drastic policy actions are taken.

In Taiwan, year-ended natural gas import growth has slowed since mid 2012. Similar to Korea, Taiwan's economy had been held back by slowing external demand from both China and Europe, which had acted as a significant drag on the industrial sector which in turn lowered industrial demand for electricity. The weakening yen is also posing significant risks to Taiwan's exports. As a result, electricity generation growth is generally soft, up by only 0.2% in March from a year earlier. Having said that, prospects of domestic consumption and private investment in Taiwan appear to be more robust compared to that of South Korea, which suggest their near-term demand for natural gas will be more resilient.

Taiwanese LNG Imports



Source: CEIC, Datastream, NAB Economics

Forecasts

The potentially historically significant implications of the recent developments in global natural gas dynamics makes it very timely to cover natural gas in depth this month, since our last detailed update was a while back in November. It has also changed, to some extent, our fundamental views on the future paths of natural gas prices in various regions, as the emergence of the US as a likely unrestricted global exporter suggests that the currently fragmented global natural gas market is likely to consolidate and prices paid by different regions will begin to converge, although the momentum will only start to build up substantially in 2015 when Sabine Pass, the first export terminal approved in the US starts its operation. However, we believe that Henry Hub prices are likely to track higher in the lead-up as more export projects get approved. As such, we have lifted our forecasts of Henry Hub prices slightly over the forecast period since our last monthly report. On the other hand, Japan is likely to be a beneficiary of the loosening of US exports policy, which will see the currently stratospheric prices it is paying for imported natural gas moderating over the next few years, as indicated by our downward revisions in Japanese gas prices this month. The imminent resumption of a number of nuclear reactors during the second half of this year is also likely to gradually reduce Japan's reliance on imported natural gas, exerting downward pressure on prices.

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Quarterly Price Profile

Natural Gas Forecasts – Quarterly Average

	Actual	Forecasts							
US$/mmbtu	Mar-13	*Jun 13*	*Sep 13*	*Dec 13*	*Mar 14*	*Jun 14*	*Sep 14*	*Dec 14*	*Mar 15*
Henry Hub	3.49	4.15	3.90	4.20	4.40	4.50	4.30	4.35	4.40
Japan LNG	16.21	15.75	14.80	15.00	15.20	14.50	14.00	14.00	13.50
Brent Oil	113	103	105	106	105	106	105	104	104

Source: Datastream, CEIC, NAB Economics

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Important Notices