Commodity Markets Outlook and Strategy

Defang Russia with the 1986 oil tactic?

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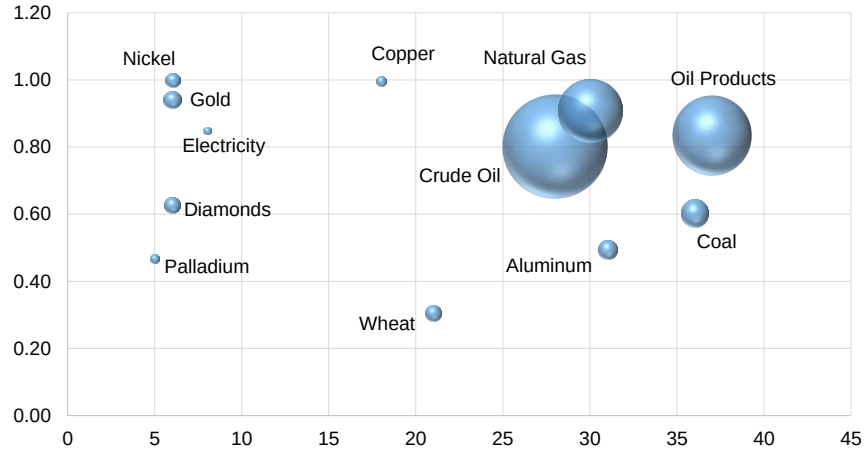
Exhibit 1: Russia relies heavily on energy sales to Europe for export earnings
(x-axis) # of European countries importing from Russia, (y-axis) Europe's share of total Russia exports



Source: Russia and European customs data, J.P. Morgan Commodities Research, Note: bubble indicates relative size

Concern over Russia's potential gas embargo must not overlook greater strategic considerations. The Kremlin's choices are causing longer-duration energy market risks to tilt strongly against Russia and in favor of the energy consuming nations of Europe and Asia, and the US.

The US strategic interest now is to remove barriers on US crude exports and to release large volumes of inventory from America's vast petroleum reserves. These actions would work to contain Russia through three interrelated objectives: (1) an intentional collapse of the oil price, (2) an intentional hit to oil-linked LNG prices in North Asia, and (3) gradual taking of market share in both oil and gas markets over the next five years.

The strategy of a large unilateral increase in sovereign crude exports to contain Russia and reset global oil production and trade shares has been successfully implemented before. In late 1985, in a rebuke to unfettered oil supply growth by the USSR, Mexico, and others, Saudi Arabia rapidly increased production in order to recoup lost market share.

This uplift drove Saudi Arabia's share of the world oil export market from 15% in 1986 to 23% in 1991. Correspondingly, the USSR's share fell from 10% to 4%, as production shrank by 2.0 mbd (–16%). The cumulative loss in FSU oil revenues from 1986 through 1998 was $2.4 trillion (2013$). To put this number in perspective, Russia's real GDP last year, at an oil export price above $100/b, was $2.1 trillion (2013$).

See page 24 for analyst certification and important disclosures.

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- **Oil and gas are 67% of Russia's export earnings. Europe buys 80% of Russian crude exports.**
- **US could sell SPR crude at rate of 864 kbd for 500 days without falling below 90 days import coverage.**
- **US crude exports would help sustain tight oil boom.**
- **NYM crude options look too cheap–buy put spreads**

President Putin has raised the commodity stakes in Russia's conflict with Ukraine. In an April 10 letter to 18 European heads of state, he explicitly threatens to cut off Russia's flow of natural gas through Ukraine unless Kiev pays arrears for already delivered gas supplies. Mr. Putin acknowledges this move would be "an extreme measure" and would halt large quantities of supplies "heading to European consumers" beyond Ukraine[1]. History shows his threat is not an idle growl: Moscow has already cut these flows on two occasions since 2006.

At the same time, concern over a potential gas embargo must not overlook the greater strategic considerations. The Kremlin's recent actions are popular with its domestic audience for now. But these choices are causing longer-duration energy market risks to tilt strongly against Russia and in favor of the energy consuming nations of Europe and Asia, as well as the United States. The math is relentless. Russia is hugely dependent on European consumers. According to Russian customs data, in 2012 twenty eight countries in Europe collectively spent $145 Bn on Russian crude, taking 3.8 mbd (80%) of all Russian crude exports (4.8 mbd). Thirty seven countries across Europe collectively spent another $86 Bn in 2012 on Russian oil products, procuring 2.4 mbd (83%) of that total outflow (2.8 mbd). Together, Russia's crude and oil product exports account for 54% of all of Russia's export earnings. Gas accounts for another 13% ($69 Bn). To put these numbers in perspective, the following commodities each accounted for about 1% or less of Russia's export earnings in 2012: aluminum (1.2%), gold (1.0%), wheat (0.9%), nickel (0.7%), and palladium (0.3%).

In the event of a gas embargo, Russia could divert a portion of its trade from Europe to Asia. However, logistical barriers would keep the portion modest. Russia already exports 1.4 bcfd of liquefied natural gas (LNG) to Asia, with most of the volume going to Japan, where it feeds 10% of LNG import demand. To the degree there are pending oil and gas term deals to be done, the buyer in Japan, South Korea, China, and other Asian countries will also now demand—and likely get—steeper discounts in pricing. More crucially, Russia is dependent on the energy export restraint of the US. The United States is the world's largest and fastest growing oil and gas producer, largest holder of strategic oil stocks, and most dominant naval force on the seas. The Kremlin appears to underestimate the economic power held in reserve by America's voluntary restraint on exporting energy. Or perhaps it doubts the American ability and will to use this power. This is a critical mistake.

Because of Russia's actions in Eastern Europe, it is now in the strategic interests of the United States and its allies to remove barriers on US crude exports and to release large volumes of inventory from America's vast petroleum reserves. These actions would work to contain Russia through three interrelated objectives: (1) an intentional collapse of the oil price, (2) an intentional hit to oil-linked LNG prices in North Asia, and (3) gradual taking of a large portion of Russia's market share in both oil and gas markets over the next five years. Therefore, the task of commodity analysts is to assess the drivers of these incentives and the likelihood that the US government will decide to proceed down this new path.

All of the incented objectives may be achieved legally and peacefully through the means of competitive markets. Specifically, the US government could simultaneously allow large and sustained draws (>430 million barrels) from its bulging strategic petroleum reserve (SPR), open domestic crude streams to free trade in global markets, and refill draws from the SPR, as needed, with fresh domestic production. Lost domestic revenue due to lower price could be offset by increases in quantity. Over the past two years, a 2.4 mbd increase in US production has driven US producer revenues $87 Bn higher, despite a $1.38/b drop in average price. If necessary, the federal government could partially indemnify those US producers struggling to cover marginal capital costs. One way to do this would be to refill SPR vacancies with barrels from negatively affected streams, at a guaranteed price floor unavailable to non-US producers. The US government has promoted comparable subsidy programs in the grain markets. The economic losses to the Russians, if the Americans decide to activate these energy economic tools in protest of the events in Crimea and Eastern Ukraine, will be measured in the trillions of USD.

[1] http://eng.kremlin.ru/transcripts/7002

Back to the Future

The strategy of a large unilateral increase in sovereign crude exports to contain Russia and reset global oil production and export market shares has been successfully implemented before. In late 1985, in a rebuke to unfettered oil supply growth by the USSR, Mexico, and other producers, Saudi Arabia launched a rapid production increase in order to recoup its lost market share. Previously, Riyadh had accommodated these upstarts by allowing its own crude production to slip from 10.3 mbd (1981) to 3.6 mbd (1985) in the interest of price stability. To maximize the new strategy's chances for swift success, Riyadh also shifted its crude oil pricing methodology to a netback scheme in order to make its supplies most attractive to refiners sourcing crude from global markets. A netback scheme determines crude spot prices as a function of received product prices. It thus prioritizes downstream returns over upstream returns.

The strategy worked as intended. After years of voluntary production restraint, Saudi crude production grew by 1.6 mbd (45% yoy) in 1986. By 1991, Saudi output was back to 8.8 mbd, which had been the average production level from 1973 through 1980. Just the 5.2 mbd *increase* from the 1985 trough was about 500 kbd (10%) larger than the combined output of Canada and Mexico in 1985. By 1992, Saudi Arabia was the largest oil producer in the world, a market position it held for 20 of the subsequent 22 years. Also as intended, the strong uplift in production enabled a large pickup in crude exports, from 3.7 mbd in 1986 to 6.6 mbd in 1991. This 12% compound annual growth rate lifted Saudi Arabia's share of the export market from 15% in 1986 to 23% in 1991. Correspondingly, the USSR's share of the world export market fell from 10% to 4% over the same interval, as its production shrank by 2.0 mbd (–16%). Even after the dissolution of the USSR in 1991, Former Soviet Union (FSU) production continued to contract through 1996, ultimately cratering at 5.3 mbd (–41%) below its 1986 level. It took yet another decade after that trough for the 1986 level (12.4 mbd) to be restored.

It is not hard to understand why Russian production was ultimately so badly bruised by the Saudi trade strategy. The immediate impact on oil prices in 1986 was large and jarring, especially for the Russians. In October 1985, Arab Light had averaged $27.15/b, or a little less than $59/b in 2013$. By December, that average price had slid to $22.49/b (–17%). Within weeks, it was about half of its October level and by July 1986, the average price was $10.76/b, for a decline of more than 60% in less than 9 months. A comparable price drop today would bring WTI to about $40/b by year end. Once the Saudi competitive strategy was in place, there was little the Russians could do to prevent the economic losses that followed.

Damage to the prices of other crude grades in 1986 was pervasive. The monthly average US crude import price dropped by 27% in February alone, from $24.93/b to $18.11/b. That average price slid further to $10.91/b by July 1986. Canada's Lloydminster stream fell from an average price of $22.38/b in January 1986 to $10.00/b six months later. Mexico's Maya grade dropped from $22.40/b in December 1985 to $8.14/b in July 1986 (–64%). Brent dropped from $29.38/b to $11.98/b in about eight months. In 1985, the annual average prices for Arab Light, Brent, Forcados (Nigeria), and WTI had settled within a 45-cent range around $27.71/b in the money of the day (i.e., 2% dispersion). This consistency reflected Riyadh's price stability objectives. By the end of the next year, those same four streams spanned a $2/b price range around a $14.27/b average (14% dispersion), reflecting the changed objectives of the Kingdom.

To this day, the 1986 decline in US average annual oil prices (–46% nominal, –49% real) is the second largest in the 155-year history of the oil market. The only year that surpasses it is 1873, when a major economic depression hit the US and other industrialized countries.

Unsurprisingly, US refiners responded to the 1986 price collapse with a large surge in asset utilization. Crude runs leapt by 714 kbd (5.9% yoy) in 1986. Even now, this astonishing growth is the strongest annual gain posted by the US refining industry over the past 35 years, either in volumetric or percentage terms. Since 1980, the average growth rate for US crude runs during economic expansions is 1.2% yoy.

The strong surge in US crude throughput in 1986 in turn increased oil product availability and lowered product prices. The downstream price decline further eroded the export earnings of Russia via its product exports. Notably, the USSR did not meaningfully increase crude runs within its own refining industry. They gained by just 148 kbd (1.6%) in 1986 and then declined over the next five years, contracting cumulatively by 470 kbd (–4.9%). Over the same interval, US runs showed a nearly opposite result, increasing by 585 kbd (+4.6%). By 1999, when the current commodity long-run investment cycle began, FSU refineries were processing just 4.5 mbd, lagging US throughput by more than 10.3 mbd. In 15 years, the FSU's refining industry had shrunk to half its 1985 size.

The drivers and stakes were different for Saudi Arabia in 1986 than for the United States in 2014. But the consequence of a repeat of the 1986 oil tactic would be the same for Russia: a deliberate, sudden, and destabilizing oil price swoon, with far-reaching implications for Russia's economy. In 1986, the convulsion in the oil price caused

the value of USSR oil production to fall by about $126 Bn (2013$), for a decline of 52% yoy and –58% versus the trailing 10-year annual average. By 1992, annual FSU oil revenues were $86 Bn, or $192 Bn (–69%) below the previous normal. By 1998, the value of the FSU's annual oil production halved again, to $42 Bn (85% below the 1976-1985 real average), of which Russia accounted for $35 Bn. The cumulative loss in FSU oil revenues from 1986 through 1998 was $2.4 trillion (2013$). To put this number in perspective, Russia's real GDP last year, at an oil export price above $100/b, was $2.1 trillion (2013$).

We believe that the severe damage to this critical funding source from 1986 accentuated the inherent weaknesses of the Soviet economy and, along with the enormous spending requirements of the strategic arms race with the United States, helped drive the collapse of the Soviet Union five years later. Russia remains vulnerable to this pressure today. IMF data show Russia's current account balance as a percentage of GDP has been sliding in recent years (1.6% in 2013 from 3.6% in 2012 and 5.1% in 2011) as the volume of exported goods stagnates (1.0% growth in 2013 from 3.3% in 2012 and 4.2% in 2011).

The building blocks of sentiment in the oil market in 1986 will sound familiar. Market participants who had come to expect that 'peak oil' would keep average crude prices above $100/b (2013$) through the indefinite future watched in shock as prices fell farther and faster than seemed possible barring a severe economic recession. Even in the fairly severe 1982 recession, the average price paid by US refiners to domestic producers had dropped by just 9%, from $34.33/b to $31.22/b in nominal terms. In today's money, that is the equivalent of a drop from $88/b to $75/b.

How the US government might implement the 1986 oil tactic in 2014

US tight oil production already needs export outlets. The pace of US upstream growth, thanks to the boom in tight oil, is breathtaking. Last year, US oil production grew by 1.2 mbd, an amount six times larger than the second fastest grower (Canada) and the 6th largest increase by any country, ever. (The 1986 Saudi increase is the 3rd largest.) Crude field production, including lease condensate, is now consistently above 8.0 mbd. This month it is still growing at an 852 kbd annualized rate. Including natural gas liquids (2.6 mbd) and biofuels (0.9 mbd), total US liquids production this year will exceed 11.5 mbd, making the US the largest oil producer in the world for the first time since 1974. The US reclaimed the title of world's largest gas producer in 2009. Russia was the largest liquids producer in 2010 and the largest gas producer in 2008. Thus, the data show that Russia has already been ceding market position to the United States.

US refinery output is now 17.6 mbd, against domestic oil product consumption of 18.3 mbd. This means more than 96% of US product demand can be met by production from domestic refiners and blenders. The rising challenge throughout the US oil supply chain is overcoming logistical deficiencies and regulatory bottlenecks. Russia's conflict with Ukraine could be the catalyst that motivates Washington to overturn outbound trade restrictions on crude at US ports. Liberalization of US crude exports would strengthen a wide range of manufacturing industries in the US and present competition to international suppliers accustomed to uncontested energy sales to Asia.

The SPR is a buffer for use in emergencies, as identified by the US president. US government-held stocks of crude oil in the SPR are enormous: 696 million barrels. If entirely drawn down at a steady daily rate over the next year (1.91 mbd), they would rank as the 16th largest producer in the world, just behind Qatar and Norway. The US Department of Energy (DOE) reports that SPR stocks can be drawn at a maximum rate of 4.4 mbd. Russia's crude oil exports in 2013 were 4.3 mbd, according to the IEA. We note that the fastest rate of draw from the SPR that has actually occurred is 864 kbd. This volume is still considerable: it is comparable to the oil output of Azerbaijan or India.

Last month the DOE announced a test sale of 5 mb, saying this plan has been in the works for months given the enormous changes in industry configuration since the 2011 SPR withdrawals spurred by the Arab Spring. We accept this explanation. The latest EIA data indicate this test draw has begun: for the week ending April 4, 2014, the SPR released crude at a rate of 34 kbd.

As an IEA member, the United States is obliged to maintain 90 days of crude import coverage. With 384 million barrels of commercial crude stocks in addition to the SPR stocks, the US now holds more than a billion barrels of crude oil, sufficient to cover 150 days of its import demand. The US holds a further 700 mb of commercial product stocks. Even if the US were to honor its IEA agreement (it could choose not to), the US presently holds 60 days of 'surplus' crude. This remainder amounts to 432 million barrels at the latest 4-week run rate for US crude imports (7.2 mbd). Thus, contingent on logistics, the US could choose to draw SPR stocks at the maximum rate for 100 days, or alternatively at 1.18 mbd for the next year, or at 864 kbd for 500 days, and so on. Any of these rates would weigh on spot oil prices.

Europe also holds meaningful quantities of strategic oil stocks and working gas inventory. Meanwhile, the European members of the IEA also hold strategic oil stocks and working inventories of gas. The IEA counts more than 502 mb of crude stocks in Europe as of January 2014. Governments hold 206 mb (41%) of these stores. Thanks to the warm winter in Continental Europe, commercial gas inventories are more ample than normal. Reuters reports that European gas stocks in most countries range between 60 and 120 days of demand coverage heading into the summer injection season. Nonetheless, pipeline data this week show that Germany, Italy, and France tripled daily injections after their governments received Putin's letter. Reuters also reports that a German utility has started shipping gas to Ukraine this week in order to bolster stocks in case Russian shipments are severed. These German-Ukraine flows are governed by an existing commercial contract.

Russia's large but untested share of world oil exports is vulnerable to competition. In 2012, the FSU accounted for 16% of world petroleum exports, second only to the Middle East (36%). Thanks to the oil boom of the past decade, Russia has more than reclaimed the market share lost due to Saudi Arabia's strategic actions in 1986. Europe gets 46% of its petroleum imports from the FSU. China gets 17% of its import supplies from the FSU.

In contrast, due to self-imposed restraint, the United States' share of world petroleum exports is just 5%, largely in the form of refined products. This fact reveals both a significant opportunity for the United States and a key commercial risk for Russia. If Washington were to aim to capture another 5%-points of petroleum export world share for commercial and/or geopolitical reasons, success would translate into 2.8 mbd of additional outflow of some combination of crude and products. As shown by the production and inventory statistics above, this is a feasible objective and comparable to what the Saudis accomplished in the late 1980s.

Now, consider that this volumetric growth is also so large, that even if the annual average price for US crude were to drop to $75/b from last year's $103/b, US annual petroleum export earnings would increase by nearly 50% ($48 Bn) despite the 27% slump in annual average price. Then, consider where the US sources its petroleum imports: in 2012, 5% came from the FSU. Those flows could be embargoed, forcing them to find another home, probably at a lower price. Meanwhile, the United States' other petroleum suppliers are relatively evenly balanced in their shares of inbound trade into the US: Canada (28%), Middle East (20%), Latin America (19%), and Mexico (10%).

Deflection of US LNG imports is the energy policy tool in 2014, not LNG exports. When the Russian parliament ratified annexation of Crimea three weeks ago, the world media briefly focused on the idea of curbing Russia's territorial ambitions with US gas exports. Soon after, various energy experts trotted before the cameras to point out the requisite infrastructure is under construction and will not be available for years. There the conversation stopped.

It is true that new US liquefaction infrastructure will not be available until 2016 at the earliest. But this statement of fact misses the larger point. Russia is changing the rules of the energy markets. Consequently, the risks and behavior of all other agents in these markets are changing. For example, the US could voluntarily halt all of its LNG imports, freeing up 0.5 bcfd for European use. Looking across all of the Americas, upwards of 2.6 bcfd could potentially be diverted. This volume alone is the equivalent of 14% of Russia's gas exports by pipeline to Europe in 2012, inclusive of the flows to Belarus, Ukraine, and other FSU countries in Europe. It is worth 21% of Russia's gas exports to the European Union.

Existing LNG trade flows are large enough to divert large volumes of Asian-bound trade to Europe in the event of an emergency. Global LNG trade flows were 31.7 bcfd in 2012. Asia accounted for about 22 bcfd (69%) of global imports, led by Japan (11.5 bcfd). Europe's share was much smaller, at 6.7 bcfd. Qatar is by far the world's largest supplier, sending 10.2 bcfd to its trading partners. The aforementioned 1.4 bcfd of Russian LNG flows into Asia could be re-exported to Europe, if Japan were to choose solidarity with Ukraine. Moreover, nuclear power plants idled in Japan and Germany after the Fukushima crisis could be restarted on an emergency basis. Japan is currently sitting on the oil-equivalent of 1.3 mbd of unused nuclear capacity. On Friday April 12, the Abe government announced it will start to bring nuclear power capacity back online. A return to pre-earthquake operating levels would trim Japanese gas demand by as much as 2.0 bcfd. In Germany, idled nuclear capacity is worth the equivalent of 1.1 bcfd of gas. Coal and direct crude burn could further fill in the gaps in power generation in a number of industrialized countries, enabling redirection of LNG to where it is needed most in Europe.

Often overlooked: Russia relies heavily on Europe for commodity earnings

Europe is roundly castigated for allowing itself to become so dependent on Russian energy supplies. Less attention is paid to how dependent Russia is on Europe as the primary buyer of its commodities, even as Moscow's actions place Russia in conflict with those buyers. This dimension is often overlooked, in part, because of the way data are tabulated. In particular, this tabulation reduces to an essential question: where is the boundary between 'Europe' and 'Eurasia'?

Moscow has a very specific answer to this question. By 2015, Russia, Belarus, and Kazakhstan aspire to launch a Eurasia Union that will ultimately welcome members from the various former states of the USSR. Clearly, Moscow believes Crimea is part of Eurasia rather than Europe.

Most media articles (whether they consciously realize it or not) implicitly agree. They exclude Belarus and Ukraine from their definition of 'Europe'. Thus, they report that Russian gas flows into Europe feed 34% of the region's demand. More than half of the gas demand for this restricted definition of Europe is supplied from within OECD Europe, with shares from Norway (28%), the Netherlands (14%), and the UK (3%). Algeria supplies 9%.

But the heart of the current conflict is many non-Russian observers say Crimea is part of Ukraine and Ukraine is part of Europe. Including Belarus and Ukraine in 'Europe' in our commodity risk assessment, we count 25 countries in Europe collectively imported $64 Bn (18.0 bcfd) of Russian pipeline gas and other gas products (e.g., butane) in 2012, feeding about 26% of the region's total gas demand.

Similarly, an analysis that defines Europe only as the EU-28 will find that those countries account for 67% of Russia's crude exports, with 21 of 28 (75%) countries as buyers. A more complete analysis that recognizes the FSU countries in Europe, including Ukraine, will find that 'Europe' accounts for 80% of Russian crude exports. Of the 49 countries we allocate to our definition of Europe, 28 of them (57%) buy crude from Russia. In refined products, the change in share is even starker. The EU accounts for 59% of Russian exports, but total Europe accounts for 83%.

If NATO, the EU, and the UN believe the current conflict in Eastern Europe really is about maintaining the territorial integrity of Ukraine, Poland, the Baltic states, and other former satellites of the USSR, then precision on this point is important. In an appendix to this note, we quantify Russia's major commodity flows into each European country.

If the US deployed the 1986 oil tactic, what would happen to long-dated oil prices?

In our 2014 year-ahead outlook, we detailed how the marginal cost of oil production, inclusive of capital cost, is around $90/b in international crude markets but only $80/b in US domestic markets. Long-dated prices in the ICE Brent and NYM WTI forward curves converge toward these levels for this reason. The current differential in these long-dated prices is atypically wide, given the chemical similarities and geographical closeness of these two grades. It persists mostly because of US trade barriers on crude exports.

If the US opted to liberalize exports of crude oil, the marginal cost economics of the Green River Basin in Wyoming would likely begin to exert a greater downward influence on the crude acquisition costs for refiners in China and India, as EM refiners gained access to competitive and reliable supplies currently denied to them. An open export policy could lower long-dated international marker prices by upwards of $5/b to $7/b. This reduction, over time, would also reduce realized spot prices by several dollars per barrel.

What would be the effect on short-dated oil prices?

In the short run, there is a widespread assumption that oil and gas price risk is skewed higher because of the potential for a Russian energy embargo and/or escalation of violent conflict into full-blown war. Historical experience confirms that the initial impulse of energy prices to supply shocks can be to go much higher. As the Persian Gulf War emerged in late 1990, for example, monthly average landed costs of Arab Light into the US more than doubled between June and September. However, the more grave the supply shock, the more likely there will be an extraordinary response to counteract it. Thus, risk managers evaluating the current situation in Europe should be prepared for the possibility of a price spike and a price swoon both happening in a relatively short period of time.

Yet, an examination of recent options prices for NYM WTI crude oil reveals a curiously high level of complacency about tail risks. Over the past few weeks, those markets have consistently assigned a 0% probability to the prompt contract expiring either below $85/b or above $115/b. They assign about even odds that the Nov-14 contract will expire above or below the $96/b level, which happens to be the trailing 3-year average for the rolling prompt price at daily settlement. These facts tell me that oil traders have no conviction beyond the six month window. Nor will they believe that the low volatility regime of the past five years has ended until there is firmer evidence to the contrary. This risk position is especially bold given that other commodity markets have already broken out of their low vol regimes. Think of what happened in gold a year ago this week and in US natural gas this past winter. Copper, live cattle, and other markets are also on the move in volatility space.

At the same time, do not forget that the equations that bring us these specific estimates of market-assigned probabilities were developed by the same people who brought us the Long Term Capital Management debacle in August 1998. At that time, LTCM's risk models were thoroughly upended because they had not properly acknowledged the possibility that Russia would simply default on its external debt.

The seeming exactitude of the numbers produced by the Black-Scholes model, plus the ubiquity of smart phones, laptops, and tablets, may be giving some oil traders a false sense of security about conditional probabilities that actually have a higher chance of realizing if the Russians once again default, this time on commercial gas delivery obligations.

In any case, for short run price analysis, a large SPR release, coupled with liberalized trade policy and perhaps subsidies on marginal US production, can be thought of as an increase in spare capacity or working inventory or both. When we analyze the numbers, without heroic assumptions it is fairly easy to arrive at modeled contango curves with prompt prices of $75/b or lower, assuming the US deploys the 1986 oil tactic. Given that we are simply exploring this scenario in this note and have not yet adopted it as our baseline view, we maintain our forecast that the WTI spot price will average $88/b in 2Q2014, down from $98.61/b in 1Q2014. We estimate that the cold winter in the United States added about $4/b to the 1Q2014 realized average, relative to our prior expectations.

Given that the weighted average cost for the oil barrels parked in the SPR is $29.70/b, selling all of the 'surplus' crude at a market-prevailing price around $75/b would still net a near $39 Bn profit for the American taxpayers, while helping deliver a $100 Bn haircut on the value of Russia's oil production. The Americans' $39 Bn gain could be reinvested in a new tranche of strategic crude inventory or some other priority of the US government. The Russians' $100 Bn loss would forever be foregone revenue.

Conclusion

As feared, Russia has now directly threatened Europe with a gas trade embargo. This threat is unambiguously linked to the political events unfolding in Ukraine and the diplomatic meetings scheduled in Geneva for today.

What are the odds that the US and its allies opt to deploy the 1986 oil tactic? It is difficult to handicap this risk. It seems unlikely that Russia will reverse its annexation of Crimea without substantial pressure from the international community. Oil is one of the few levers that would deliver sufficient pressure to change facts on the ground in Crimea and Eastern Ukraine. My sense is the US government is aware of–but not yet leaning toward using–its oil-focused policy option. But if Putin does not change his posture within the next few days, or if there is an escalation in violence or political intrigue, US policymakers may swiftly arrive at the conclusion that the 1986 oil tactic is one of the few effective policy tools open to them. As such, the probability that they break with current US export policy and SPR policy is rapidly approaching 50%, in my view.

Whatever course eventuates, Putin has threatened his customers in order to punish his partner. His April 10 letter confirms to 18 European countries that Moscow will restrict critical commodities from Russia's commercial customers in order to pursue Russia's broader geopolitical aspirations for a Eurasia Union. This action has broken commercial trust. In commercial markets, there is always a cost when trust is broken. Year to date, the cost on MICEX has been 12% of its value. The ruble has slipped by 7.3% versus the USD. If Russia's oil and gas revenues drop by a trillion USD or more over the next five years, then global markets are likely not done exacting their full penalty on Russia.

Removal of America's self-imposed barriers on oil production and export is now a strategic incentive of the United States. This means the probability of strategic releases from the US SPR has increased. The probability of free export of US crude oil has increased. The probability of an end to oil-linked LNG pricing in Asia has increased. The Kremlin is driving the world toward these outcomes. None of them are good for Russia's energy producers.

Trading ideas

The low level of implied volatility in oil options markets, paired against the extraordinary physical energy market risks evolving by the day in Europe, suggests significant value in owning near-dated options (<3 months), even those with ATM strikes.

US producers might want to look at the pricing of $95/b – $85/b put spreads on Sep-14 NYM WTI. International producers might consider the same strikes on Jul-14 ICE Brent, where prompt timespreads are more vulnerable to refinery turnarounds over the next four weeks.

Consumers may want to take a look at owning OTM calls or OTM call spreads on 2H2014 crudes, while also evaluating put spreads on summer contracts. Institutional investors who own structured products geared toward short volatility in energy futures might want to think about whether it is time to trim these exposures.

Overall, whether or not the US government decides to use the 1986 oil tactic, we expect any dive below $80/b in spot prices to precipitate a production response in the US Midcontinent—unlike the 2010 experience in natural gas. In the absence of a policy shift by the US government on crude trade and the SPR, production cuts of 60 kbd (or comparably-sized trims to new investment) would likely prove sufficient to stabilize the domestic balance and send crude prices higher. If the 1986 oil tactic is pursued, then downside price risks will be sized by the aggressiveness of trade liberalization, inventory release, and indemnifications.

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Europe's Main Energy Commodity Imports from Russia.

Total Value = $367 Bn
Share of Total Commodity Export Earnings = 70%

	Coal		Crude oil		Oil Products		Natural Gas		Electricity	
	mt	Rank	b/d	Rank	b/d	Rank	bcfd	Rank	US$ '000	Rank
Albania	34,110	27					0.00	26		
Andorra										
Armenia					110	34	0.00	30		
Austria	2,177	35			10	36	0.48	10		
Azerbaijan	69	36			442	30			3,098	8
Belarus	315,471	19	423,017	3	197,383	3	1.81	5	232,567	2
Belgium	2,700,835	8	1,995	26	40,454	12				
Bosnia and Herzegovina			13,551	21						
Bulgaria	749,374	15	85,424	12	7,404	24	0.23	16		
Croatia	10,839	31	7,178	25	519	28				
Cyprus	410,303	16			39,798	14	0.00	27		
Czech Republic	40,872	25	60,405	14	2	37	0.41	11		
Denmark	1,256,028	12	9,702	24	8,259	21				
Estonia	116,842	23	20	27	86,547	9	0.06	21		
Finland	2,293,921	9	162,368	6	20,656	19	0.37	13	212,281	3
France	1,920,546	10	38,370	17	99,347	7	0.65	8		
Georgia	7,931	32			2,216	25	0.00	28	37,513	5
Germany	3,326,630	7	426,695	2	27,224	17	2.81	2		
Greece	35,176	26	73,174	13	36,747	15	0.22	17		
Hungary	5,691	33	108,051	9	16,095	20	0.74	7		
Iceland					395	31				
Ireland										
Italy	972,462	14	392,862	5	182,406	4	1.90	4		
Kazakhstan	246,284	21	127,878	7	40,389	13	0.30	14	115,019	4
Latvia	4,587,683	6			146,985	6	0.14	19		
Liechtenstein										
Lithuania	298,011	20	52,516	15	7,805	23	0.48	9	252,398	1
Luxembourg							0.03	23		
Macedonia										
Malta	4,712	34			57,818	11				
Moldova	15,421	30					0.01	25		
Monaco										
Montenegro										
Netherlands	7,789,536	4	1,008,843	1	742,190	1	0.19	18		
Norway	108,511	24	10,054	22	920	27			4,923	7
Poland	6,632,978	5	410,985	4	480	29	1.08	6		
Portugal			9,909	23	266	32				
Romania	317,883	18	25,611	19	8,098	22	0.30	15		
San Marino										
Serbia	30,938	29			201	33	0.00	29		
Slovakia	1,135,642	13	108,498	8	20	35	0.40	12		
Slovenia	224,777	22			1,275	26	0.04	22		
Spain	1,915,957	11	96,127	11	31,032	16				
Sweden	325,150	17	96,344	10	26,109	18	0.02	24		
Switzerland	33,725	28	6	28	199,534	2	0.08	20		
Turkey	9,479,200	3	27,080	18	174,751	5	2.42	3		
Ukraine	10,987,122	2	14,524	20	71,642	10	2.90	1	7,034	6
United Kingdom	20,281,910	1	43,278	16	93,023	8				
Vatican City										
TOTAL EUROPE	**78,614,715**		**3,834,466**		**2,368,553**		**18.1**		**864,833**	
EU-28	57,355,932		3,218,357		1,680,569		10.5		464,679	
TOTAL WORLD	**130,408,458**		**4,779,553**		**2,839,242**		**19.9**		**1,019,251**	
IN MILLION USD	$ 13,015		$ 180,930		$ 103,624		$ 68,835		$ 1,019	
PRODUCT'S SHARE OF RUSSIA'S TOTAL EXPORTS	2.5%		34.5%		19.7%		13.1%		0.2%	

Share of Russia's world exports:					
Europe	60.3%	80.2%	83.4%	90.8%	84.8%
EU-28	44.0%	67.3%	59.2%	53.0%	45.6%

Russia's count of sovereign trading partners:										
Europe	36	73%	28	57%	37	76%	30	61%	8	16%
EU-28	25	89%	21	75%	26	93%	20	71%	2	7%

Source: Russia and European customs data, J.P. Morgan Commodities Research

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J.P.Morgan

Europe's Main Non-ferrous Metal Commodity Imports from Russia.

Total Value = $18 Bn
Share of Total Commodity Export Earnings = 4%

	Aluminum		Copper		Nickel		Gold		Palladium	
	mt	Rank	mt	Rank	mt	Rank	kg	Rank	kg	Rank
Albania										
Andorra										
Armenia	23,118	9								
Austria	42	30								
Azerbaijan	1,506	22								
Belarus	21,879	11	7,084	3	289	4	9	4	115	4
Belgium	457	24	220	7						
Bosnia and Herzegovina										
Bulgaria	14,151	13								
Croatia	5,643	16								
Cyprus	13,491	14								
Czech Republic	297	27								
Denmark										
Estonia	7,464	15	41	12						
Finland	904	23	48	10						
France	3,043	18	15	14			78	3		
Georgia										
Germany	2,667	19	93,821	2					12,109	2
Greece	38,402	6								
Hungary	21	31								
Iceland										
Ireland	161	28								
Italy	31,004	7	35	13					93	5
Kazakhstan	314	25	1,737	4	50	6	1	5		
Latvia			205	8						
Liechtenstein										
Lithuania			42	11						
Luxembourg										
Macedonia										
Malta										
Moldova	56	29								
Monaco										
Montenegro	3,547	17								
Netherlands	663,563	1	148,230	1	215,589	1				
Norway	57,624	5								
Poland	14,279	12	103	9						
Portugal										
Romania										
San Marino										
Serbia	304	26								
Slovakia	1,824	21	1,237	5						
Slovenia	1,870	20			2,080	2				
Spain			0	18						
Sweden	22,538	10								
Switzerland	138,844	3	0	17	966	3	40,335	2	17,171	1
Turkey	539,822	2	1	16						
Ukraine	24,001	8	541	6	142	5	1	5		
United Kingdom	74,121	4	3	15			48,201	1	4,722	3
Vatican City										
TOTAL EUROPE	**1,706,956**		**253,363**		**219,116**		**88,625.0**		**34,210**	
EU-28	895,942		244,001		217,669		48,279.0		16,924	
TOTAL WORLD	**3,445,467**		**254,314**		**219,119**		**94,113.0**		**73,099**	
IN MILLION USD	6,334		$ 1,927		$ 3,721		$ 5,128		$ 1,464	
PRODUCT'S SHARE OF RUSSIA'S TOTAL EXPORTS	1.2%		0.4%		0.7%		1.0%		0.3%	

Share of Russia's world exports:					
Europe	49.5%	99.6%	100.0%	94.2%	46.8%
EU-28	26.0%	95.9%	99.3%	51.3%	23.2%

Russia's count of sovereign trading partners:										
Europe	31	63%	18	37%	6	12%	6	12%	5	10%
EU-28	20	71%	13	46%	2	7%	2	7%	3	11%

Source: Russia and European customs data, J.P. Morgan Commodities Research

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Use of Imported Natural Gas by Industry.

Use of imported natural gas by industry, EU		
1	Electricity, gas, steam and hot water domply	71.9%
2	Chemicals and chemical products	11.2%
3	Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction excluding surveying	4.5%
4	Basic metals	3.5%
5	Food products and beverages	1.1%
6	Other non-metallic mineral products	1.1%
7	Pulp, paper and paper products	0.9%
8	Fabricated metal products, except machinery and equipment	0.6%
9	Motor vehicles, trailers and semi-trailers	0.5%
10	Other transport equipment	0.5%
11	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	0.4%
12	Rubber and plastic products	0.4%
13	Machinery and equipment n.e.c.	0.4%
14	Public administration and defence; compulsory social security	0.3%
15	Electrical machinery and apparatus n.e.c.	0.3%

Use of imported natural gas by industry, Germany		
1	Electricity, gas, steam and hot water domply	34.0%
2	Chemicals and chemical products	15.0%
3	Basic metals	9.6%
4	Other non-metallic mineral products	5.5%
5	Food products and beverages	4.3%
6	Pulp, paper and paper products	3.9%
7	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	3.4%
8	Fabricated metal products, except machinery and equipment	2.8%
9	Motor vehicles, trailers and semi-trailers	2.6%
10	Public administration and defence; compulsory social security	2.2%
11	Crude petroleum and natural gas; service activities incidental to oil and gas extraction excluding surveying	1.9%
12	Rubber and plastic products	1.7%
13	Health and social work	1.6%
14	Machinery and equipment n.e.c.	1.6%
15	Other business activities	1.1%

Use of imported natural gas by industry, France		
1	Electricity, gas, steam and hot water domply	96.0%
2	Chemicals and chemical products	4.0%
3	Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction excl surveying	0.0%

Use of imported natural gas by industry, Slovakia		
1	Electricity, gas, steam and hot water domply	20.2%
2	Chemicals and chemical products	18.7%
3	Pulp, paper and paper products	10.4%
4	Other non-metallic mineral products	9.6%
5	Basic metals	9.5%
6	Wholesale trade and commission trade, except of motor vehicles and motorcycles	8.4%
7	Textiles	2.4%
8	Food products and beverages	2.4%
9	Fabricated metal products, except machinery and equipment	2.3%
10	Hotels and restaurants	1.8%
11	Health and social work	1.5%
12	Collection, purification and distribution of water	1.3%
13	Education	1.2%
14	Construction	1.1%
15	Real estate activities	1.0%

Source: Euro Stat, J.P. Morgan Commodities Research

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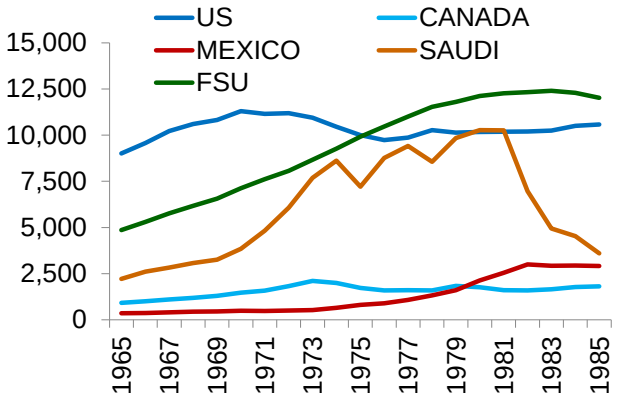
The 1986 Oil Tactic.

Oil production, select countries, 1965-1985

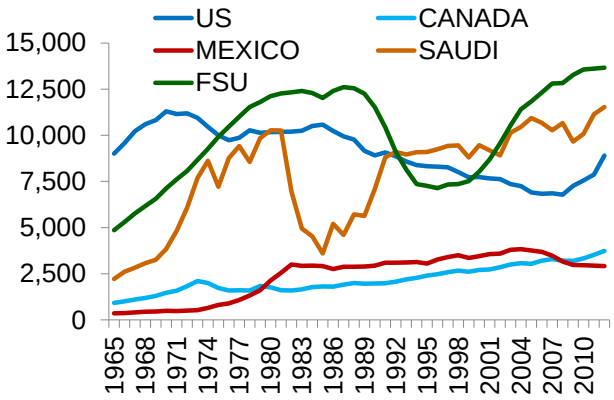
kbd



Source: BPSR, J.P. Morgan Commodities Research

Oil production, select countries, 1965-2012

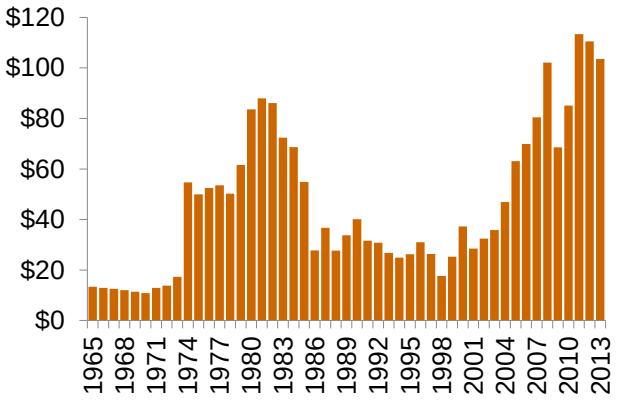
kbd



Source: BPSR, J.P. Morgan Commodities Research

Real annual average price of crude oil

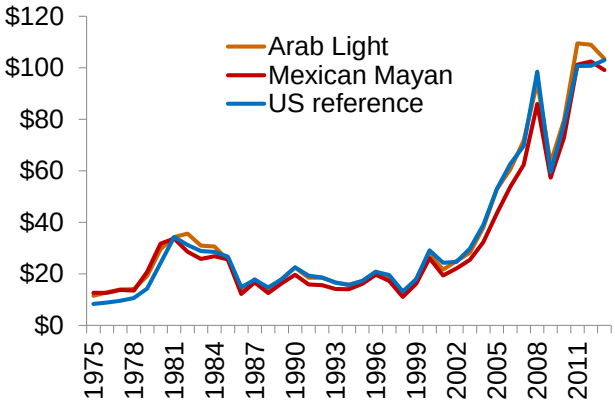
USD per barrel (2013$), 1965 - 1985 Arabian Light, 1986 - 2012 Dated Dubai.



Source: BPSR, EIA, J.P. Morgan Commodities Research

Nominal annual average price of crude oil grades

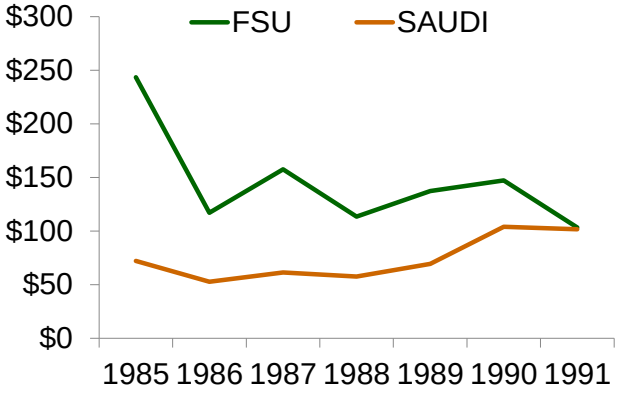
USD per barrel



Source: EIA, J.P. Morgan Commodities Research

Oil revenues

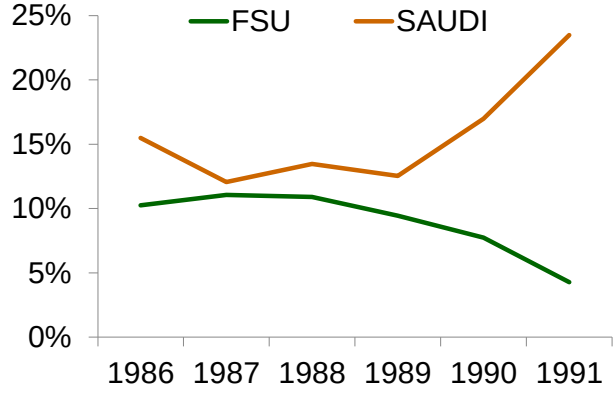
US$ Bn (2013$)



Source: EIA, Russian Central Bank, BPSR, J.P. Morgan Commodities Research

Petroleum exports

Percent of global export market



Source: BPSR, J.P. Morgan Commodities Research

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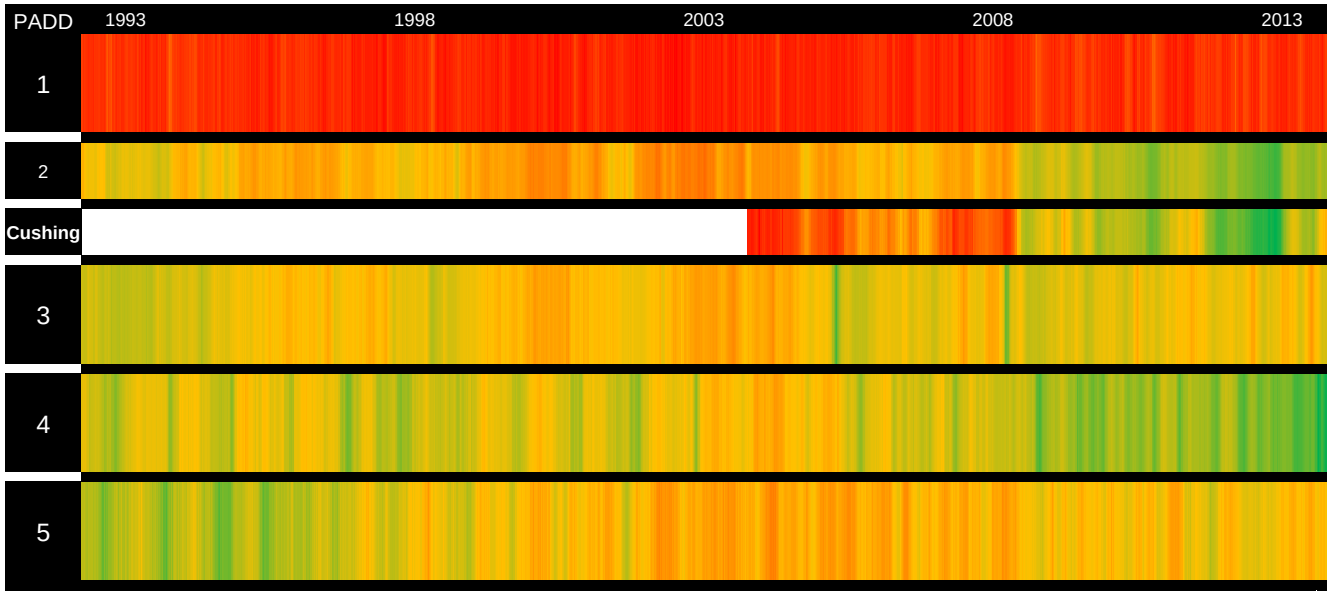
New production growth is looking for new markets.

US Crude inventory coverage

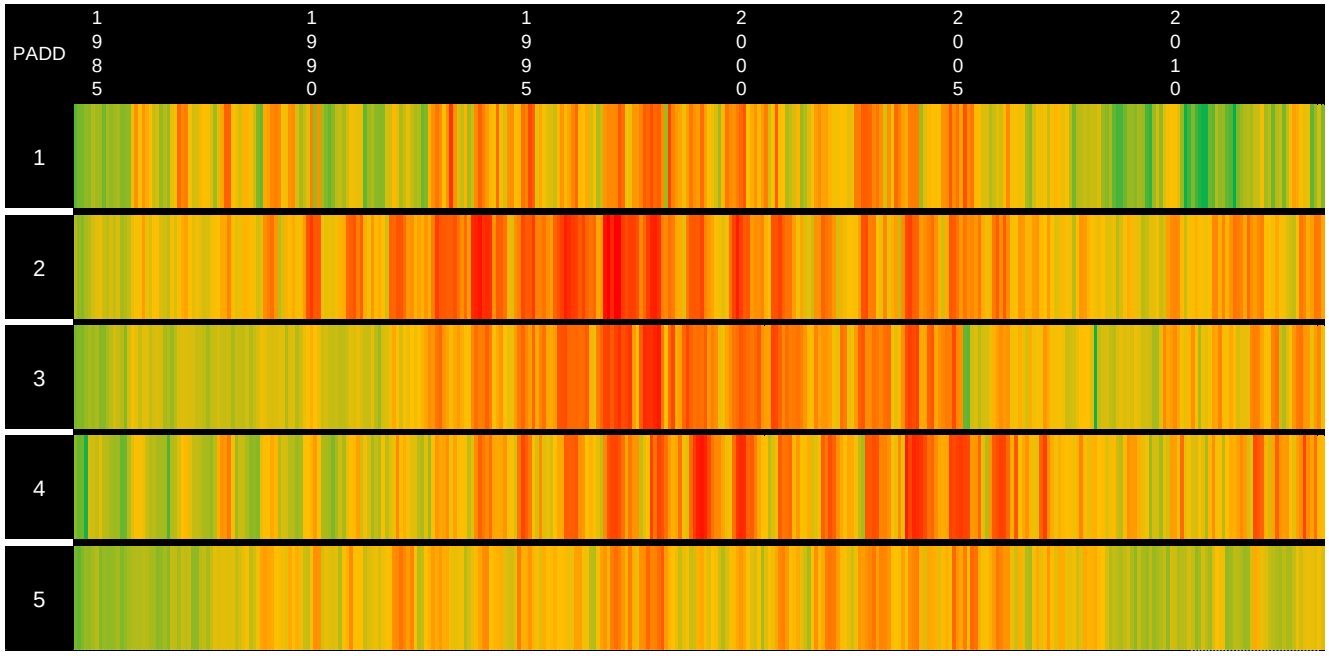
Relative US crude supply by region. Deepest red signals tight crude stocks to refinery use, deepest green signals loose crude stocks to refinery use. Weekly, Oct-1992 to April-2014.



Source: EIA, J.P. Morgan Commodities Research. Note: Cushing inventory is relative to PADD 2 refinery use and is scaled relative to its own maximum and minimum.

US crude oil refinery utilization

US refinery utilization. Deepest red signals high utilization, deepest green signals low utilization. Monthly, Jan-1985 to Jan-2014.



Source: EIA, J.P. Morgan Commodities Research

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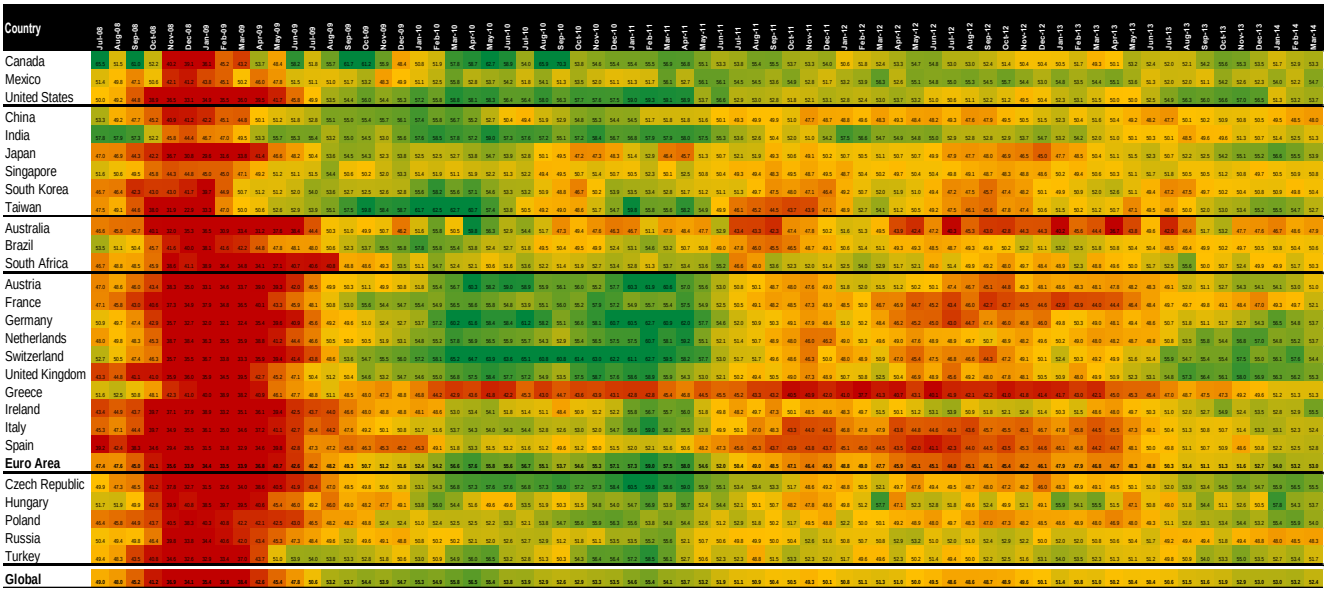
Global growth is the strongest it's been in years.

PMI (manufacturing) heat map

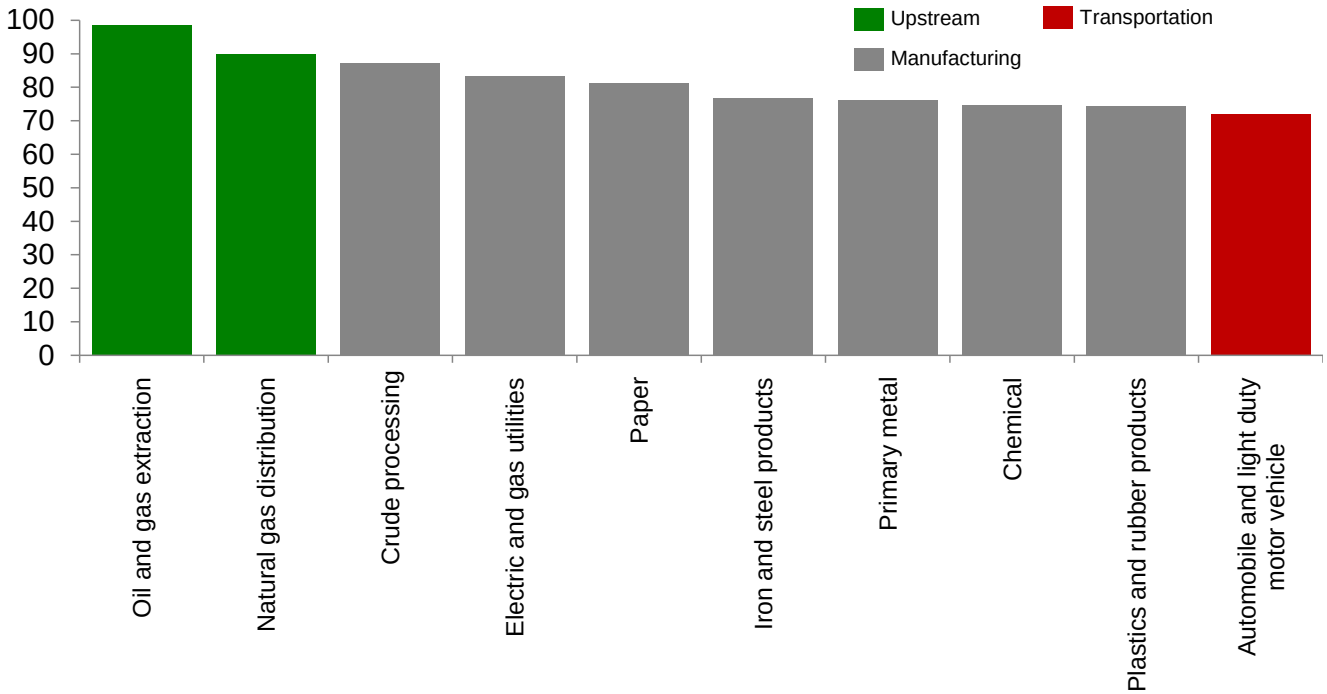
Economic scale moves from below normal (deepest red) to above normal (deepest green)



Source: Government and industry sources, J.P. Morgan Commodities and Economics Research

Capacity utilization by industrial sector, Jan 2014

Percent



Source: Federal Reserve, J.P. Morgan Commodities Research

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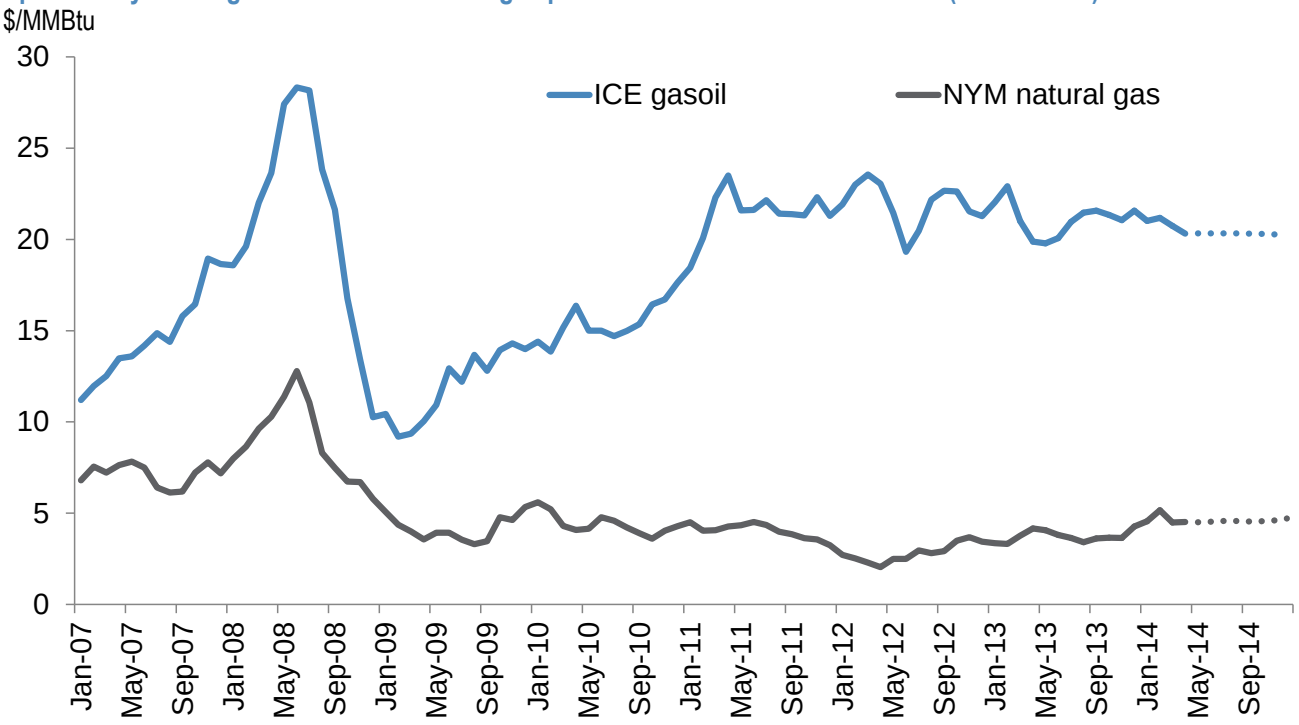
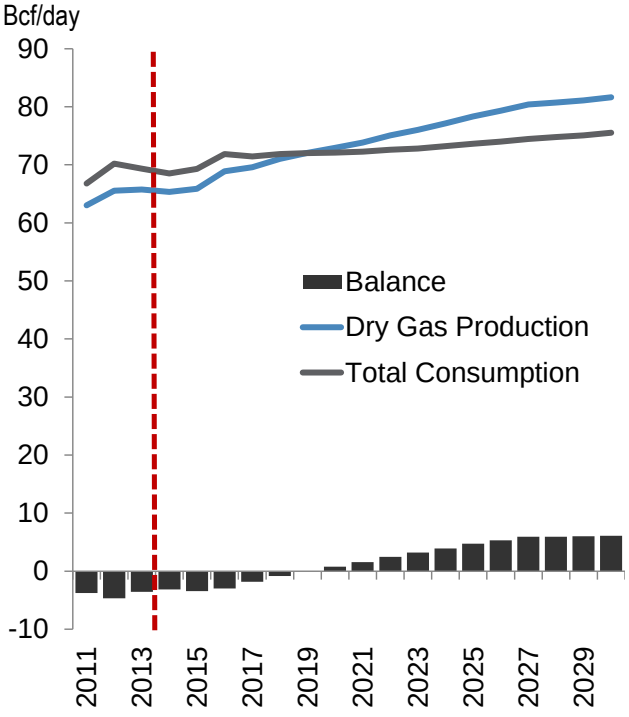
Gas and Transportation.

Spot history of ICE gasoil and NYM natural gas prices with current forward curves (dotted lines)



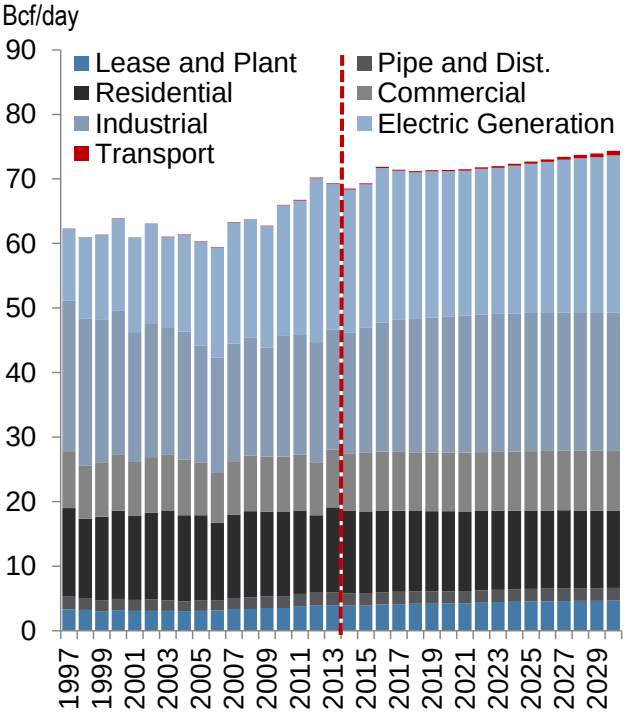
Source: ICE, NYM, J.P. Morgan Commodities Research. Note: dotted line depicts forward curve as of 17-Apr-14.

US natural gas production and consumption balance



Source: EIA, J.P. Morgan Commodities Research

US natural gas demand annual decomposition



Source: EIA, J.P. Morgan Commodities Research

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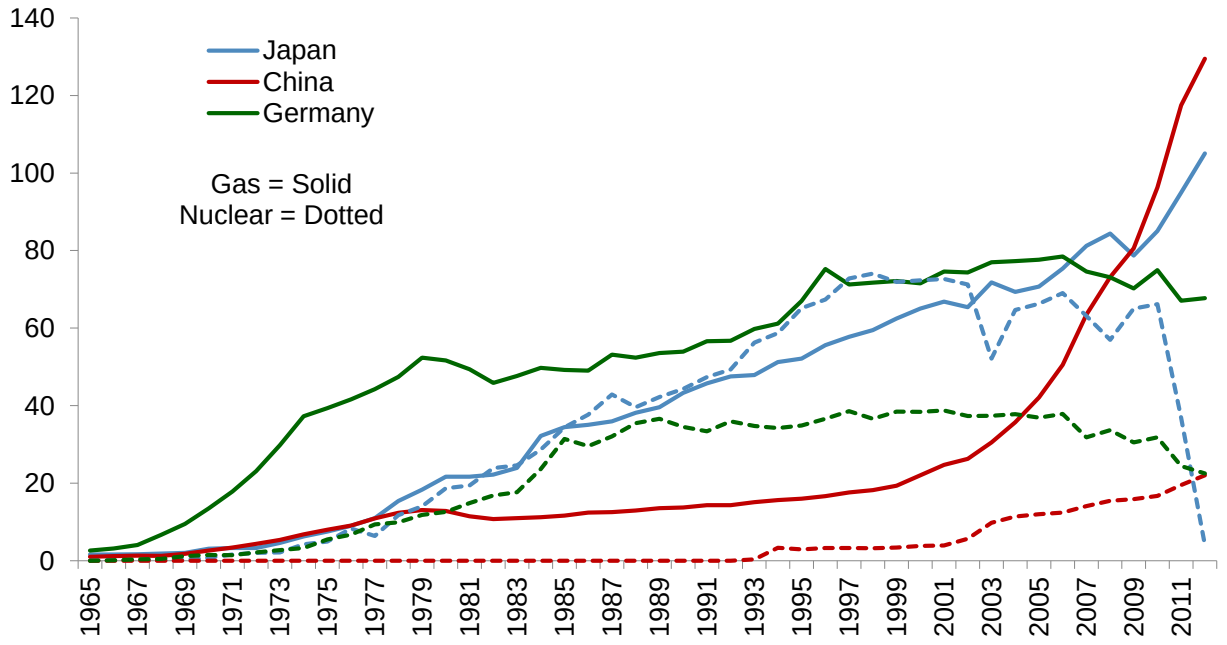
Scope to switch some gas demand back to nuclear.

Consumption of natural gas and nuclear energy, select countries
Million tonnes oil equivalent



Source: BPSR, J.P. Morgan Commodities Research

Oil price probabilities, according to the options market.

Market based probability of oil price at expiry for these futures contracts:

	NYM WTI CONTRACT			
	May-14	Jul-14	Sep-14	Nov-14
7-Apr-14 price	100.44	99.03	97.32	95.59
Below $85	0%	5%	12%	18%
Below $96	24%	39%	46%	51%
Below $100	51%	58%	62%	64%
Above $105	17%	21%	22%	22%
Above $110	3%	8%	10%	11%
Above $115	0%	2%	4%	6%

Source: NYM. Note: at settlement for prompt NYM WTI, 3-year average is $96.02, one-year high is $110.53, one-year low is $87.73.

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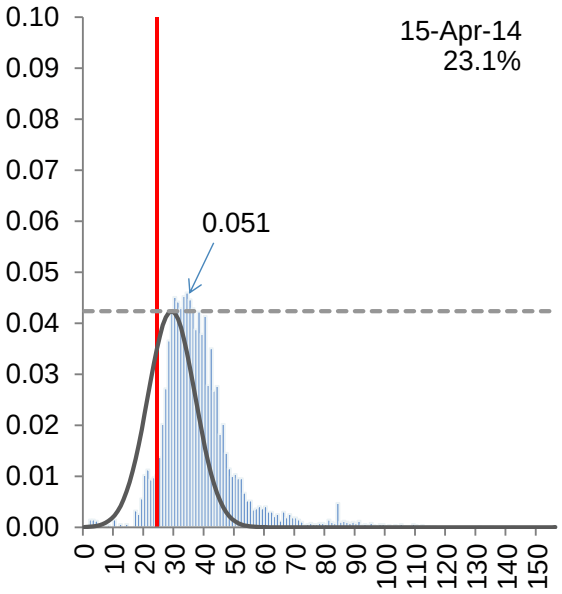
Implied Volatility Distributions.

Prompt NYM WTI crude oil

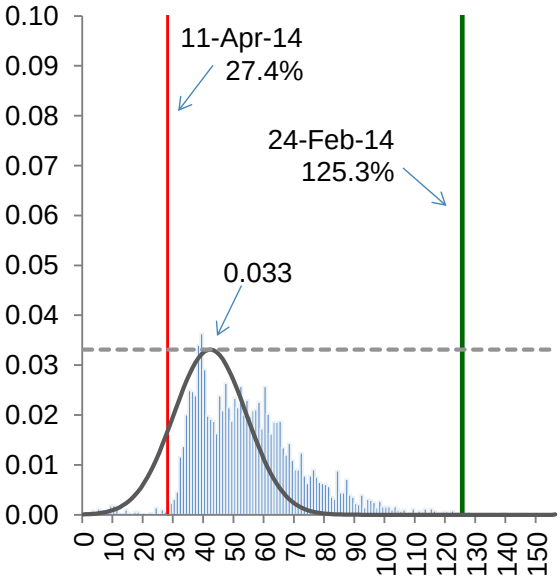
Frequency by implied vol (%). Histogram since 15-Jul-93. Solid gray line is the distribution since 15-Dec-09. Dotted gray line is max of this distribution. Red line is current implied vol.



Source: NYM, J.P. Morgan Commodities Research

Prompt NYM natural gas

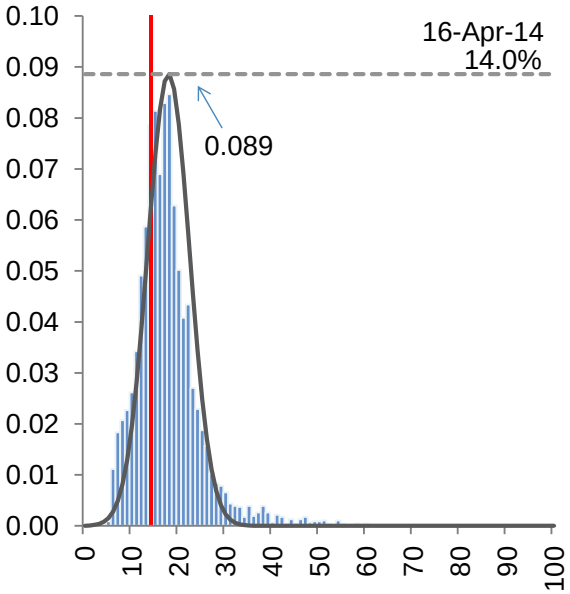
Frequency by implied vol (%). Histogram since 16-Mar-93. Solid gray line is the distribution since 15-Dec-09. Dotted gray line is max of this distribution. Green line is implied vol as of 24-Feb-2014 and solid red line is current implied vol.



Source: NYM, J.P. Morgan Commodities Research

Prompt CMX gold

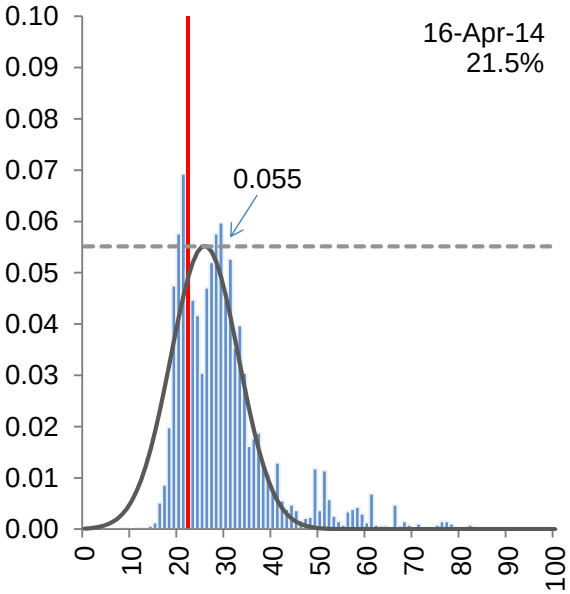
Frequency by implied vol (%). Histogram since 14-Dec-93. Solid gray line is the distribution since 15-Dec-09. Dotted gray line is max of this distribution. Red line is current implied vol.



Source: CMX, J.P. Morgan Commodities Research

Prompt CMX copper

Frequency by implied vol (%). Histogram since 27-Dec-93. Solid gray line is the distribution since 15-Dec-09. Dotted gray line is max of this distribution. Red line is current implied vol.



Source: CMX, J.P. Morgan Commodities Research

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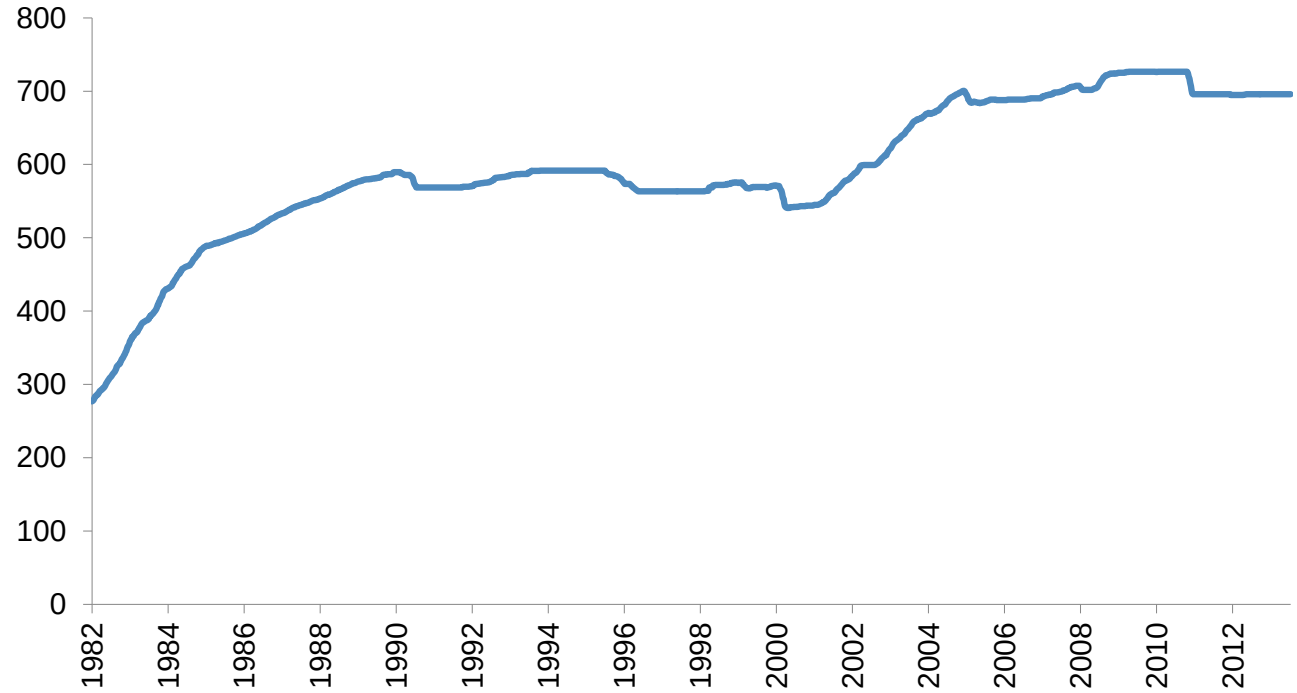
The US SPR.

US crude oil SPR

Million barrels



Source: EIA, J.P. Morgan Commodities Research

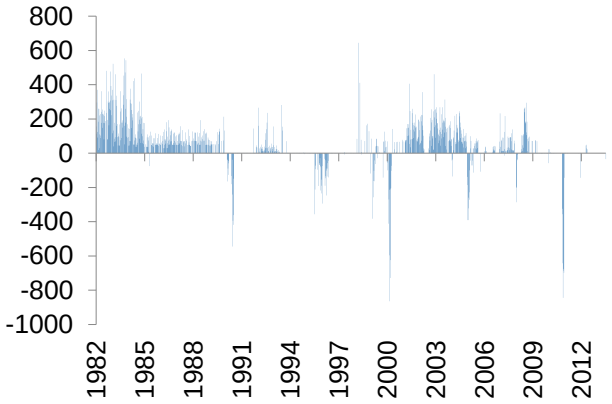
Breakdown of US crude oil SPR

Average Acquisition Cost = $29.70/b	Quantity mb	Market Price $/b	Value $bn
Sweet	261.9	94	25
Sour	433.8	80	35
Total	695.7	85	59

Source: EIA, J.P. Morgan Commodities Research

Historical weekly rate of change of US crude oil SPR

kbd



Source: EIA, J.P. Morgan Commodities Research

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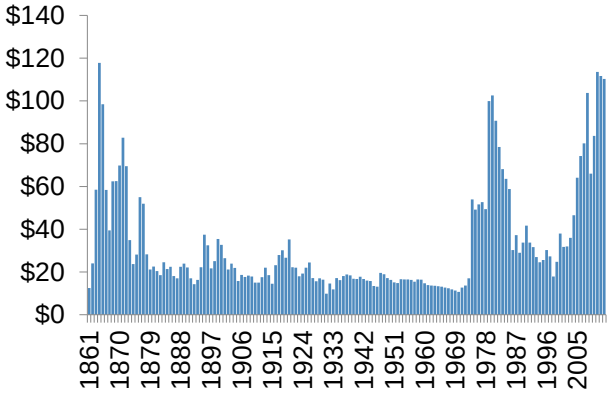
The long view on oil prices.

Real annual average price of crude oil, 1861-2013

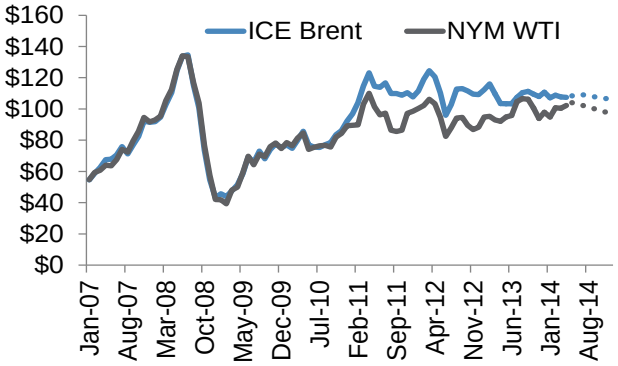
USD per barrel (2012$), 1861-1944 US average, 1945-1983 Arabian Light, 1984-2013 Dated Brent.



Source: BPSR, J.P. Morgan Commodities Research

Spot history of ICE Brent and NYM WTI crude oil prices with current forward curves (dotted lines)

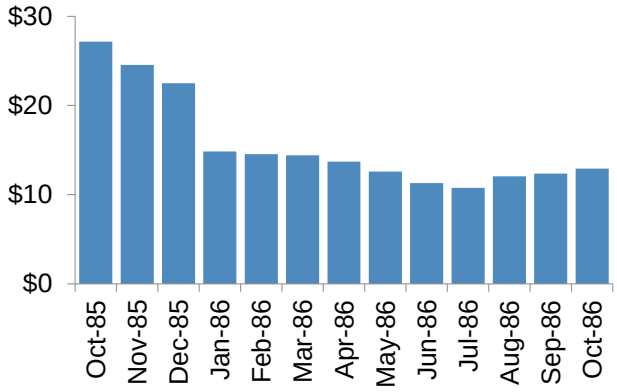
USD per barrel, nominal



Source: ICE, NYM, J.P. Morgan Commodities Research. Note: dotted line depicts forward curve as of 17-Apr-14.

U.S. landed cost of Arab Light crude

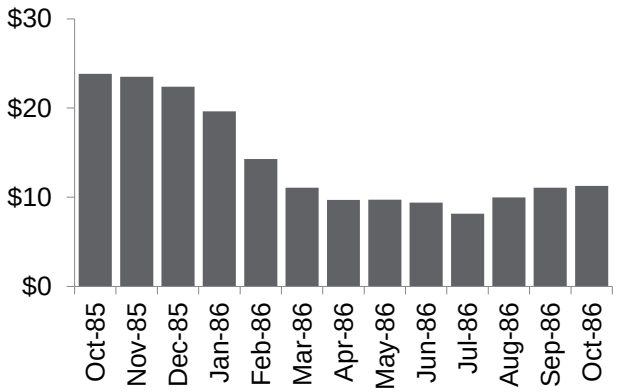
USD per barrel, nominal



Source: EIA, J.P. Morgan Commodities Research

U.S. landed cost of Mexican Maya crude

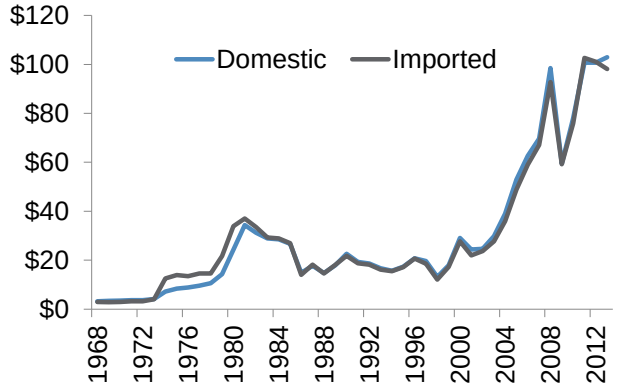
USD per barrel, nominal



Source: EIA, J.P. Morgan Commodities Research

US average refinery acquisition cost by crude origin

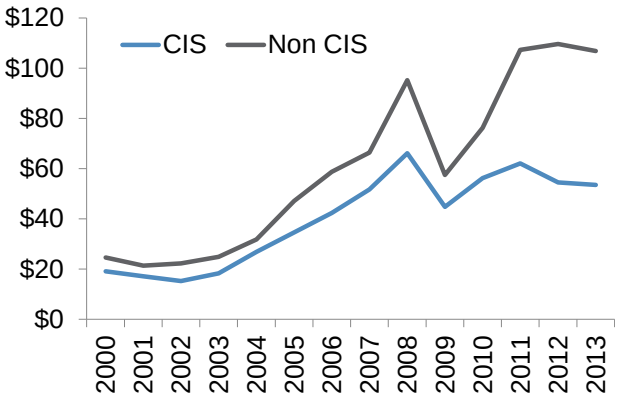
USD per barrel, nominal



Source: EIA, Russian Central Bank, BPSR, J.P. Morgan Commodities Research

Russian average crude export price by destination

USD per barrel, nominal



Source: Russian Central Bank, J.P. Morgan Commodities Research

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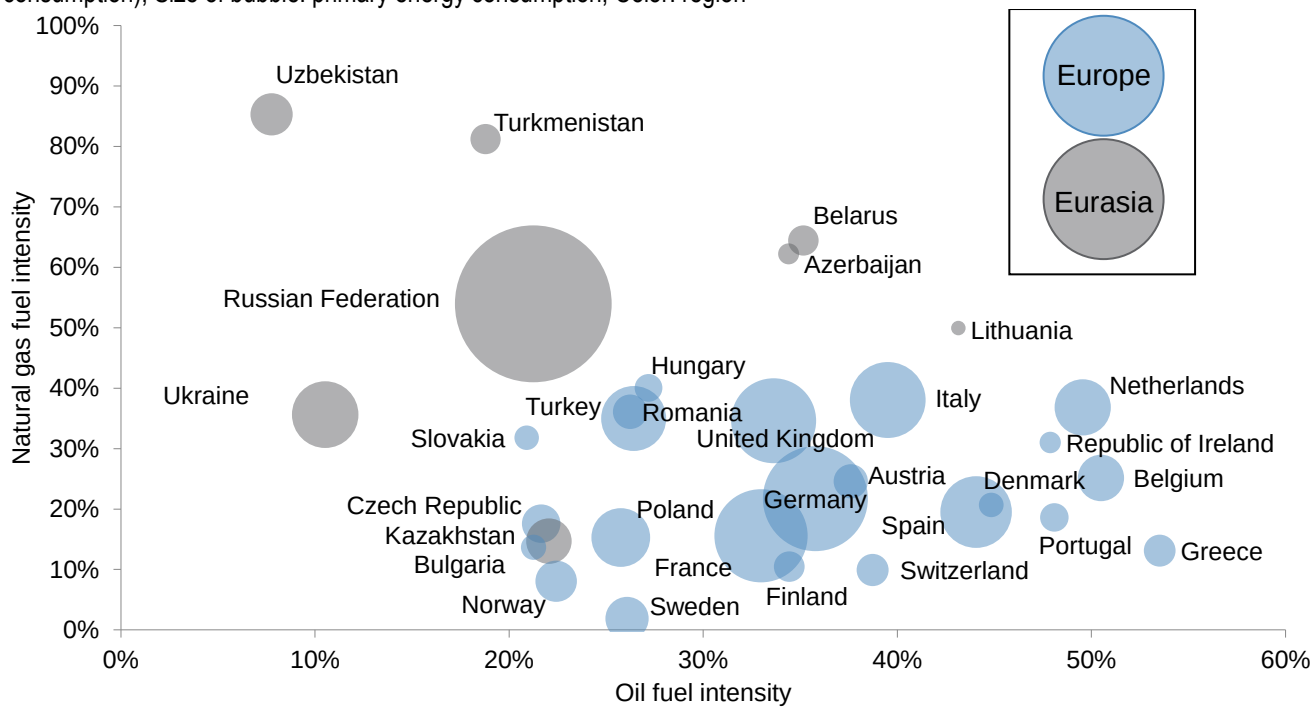
European Fuel Intensities.

Fuel intensity for European and Eurasian countries

X-axis: oil fuel intensity (percent of total energy consumption), Y-axis: natural gas fuel intensity (percent of total energy consumption), Size of bubble: primary energy consumption, Color: region



Source: BPSR, J.P. Morgan Commodities Research

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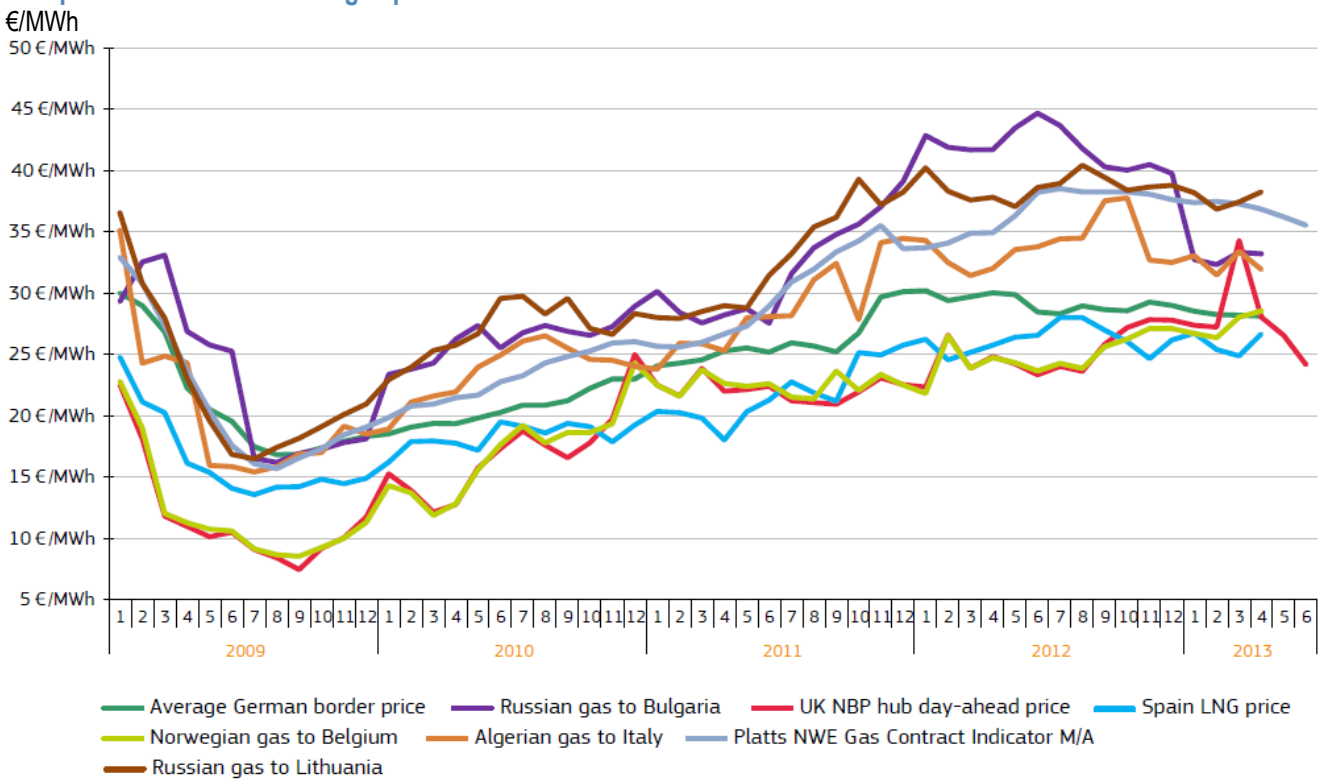
European Natural Gas Prices and Infrastructure.

Comparison of EU wholesale gas price estimations



Source: Eurostat COMEXT, European Commission estimations.

Note : Border prices are estimations of prices of piped gas imp orts paid at the border, based on information collected by customs agencies, and is deemed to be representative of long-term oil-indexed gas contracts.

Natural gas storage in the EU-28, Switzerland, and Turkey, at 1 January 2013

	Number of storage facilities	Maximum working volume *	Maximum withdrawal capacity **
AUSTRIA	7	7 451	85.1
BELGIUM	2	928	57.0
BULGARIA	1	550	4.2
CROATIA	1	553	5.8
CYPRUS	0	0	0.0
CZECH REPUBLIC	8	3 487	57.3
DENMARK	2	1 035	25.2
ESTONIA	0	0	0.0
FINLAND	0	0	0.0
FRANCE	16	15 487	212.0
GERMANY	50	22 672	626.0
GREECE	0	0	0.0
HUNGARY	5	6 130	80.0
IRELAND	1	230	2.7
ITALY	10	15 620	274.6
LATVIA	1	2 325	30.0
LITHUANIA	0	0	0.0
LUXEMBOURG	0	0	0.0
MALTA	0	0	0.0
NETHERLANDS	5	5 078	177.0
POLAND	8	2 048	36.6
PORTUGAL	3	181	7.1
ROMANIA	8	3 100	30.3
SLOVAKIA	1	2 940	43.0
SLOVENIA	0	0	0.0
SPAIN	4	2 443	12.8
SWEDEN	1	9	0.9
UNITED KINGDOM	8	4 330	154.0
EU-28	142	96 597	1 921.7
SWITZERLAND	0	0	0.0
TURKEY	1	2 661	20.0

** Units: million cubic metres.*
*** Units: million cubic metres per day.*

Source: Eurogas

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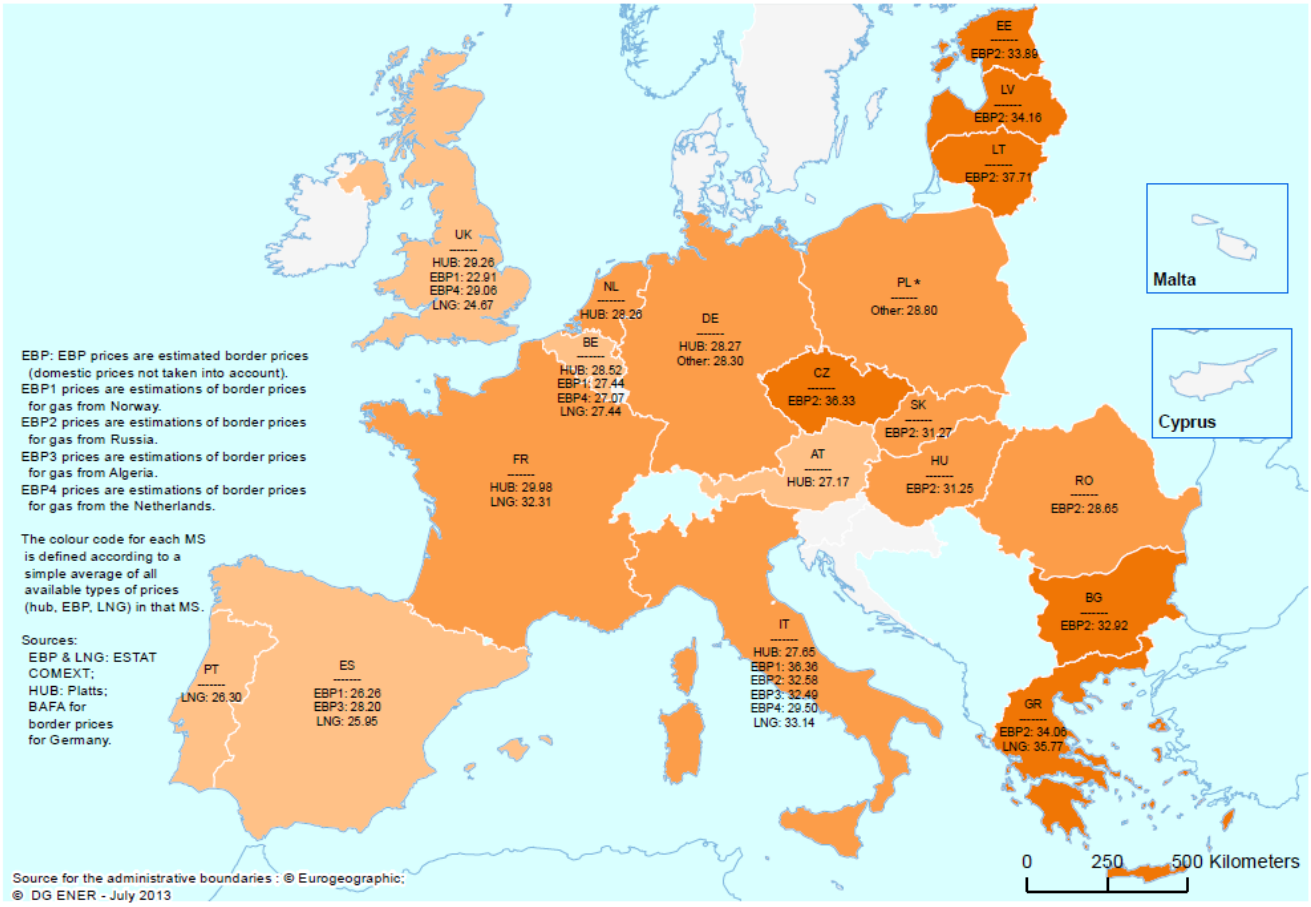
Comparison of EU Wholesale Gas Prices.



Source: DG ENER, European Commission

Note: Border prices are estimations of prices of piped gas imports paid at the border, based on information collected by customs agencies, and is deemed to be representative of long-term oil-indexed gas contracts.

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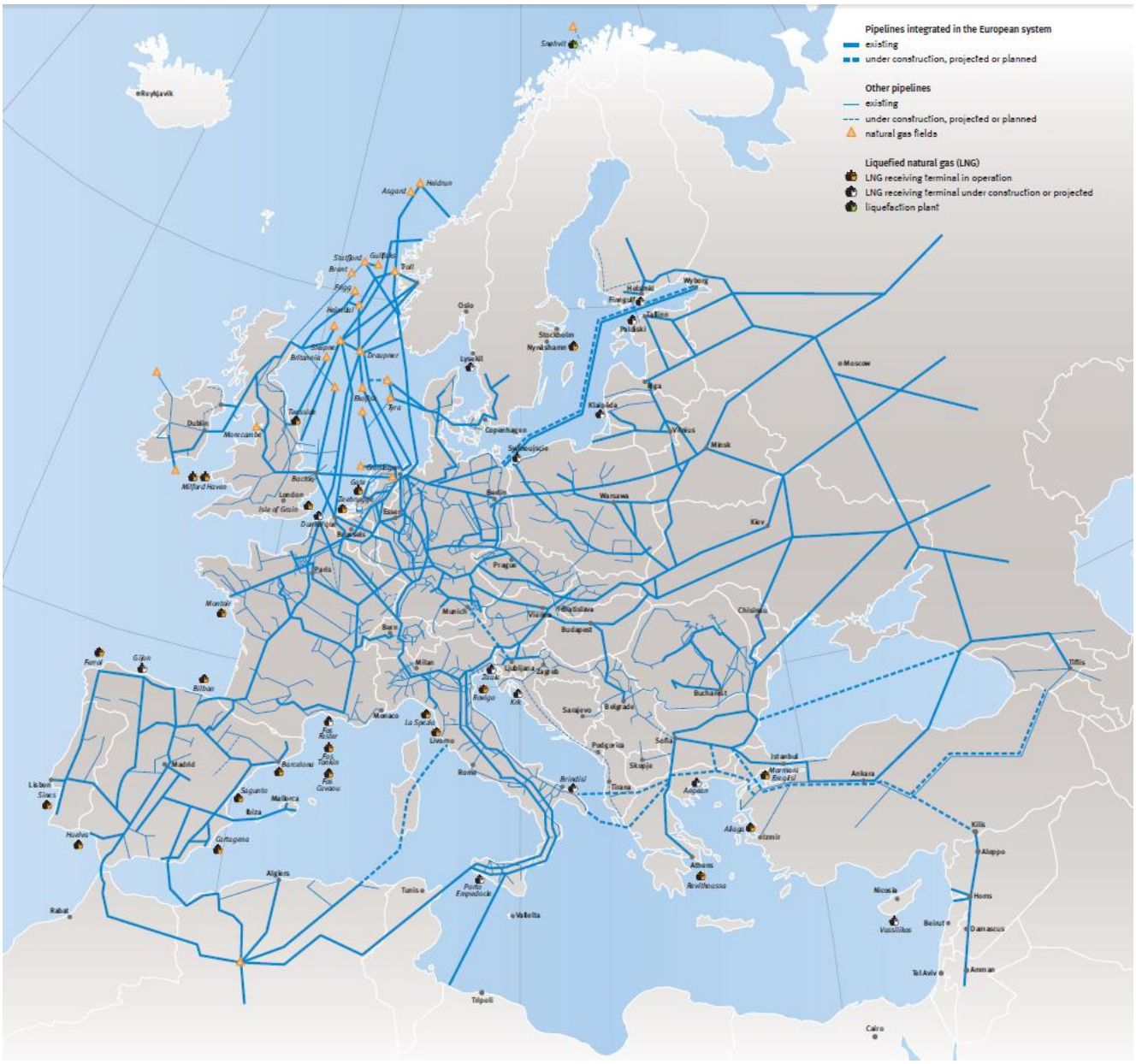
The European Natural Gas Grid in 2013.



Source: Eurogas

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The JPM View: Forecasts for Commodity Prices

Quarterly and annual averages

	Units	Current Price	2013 1Q	2Q	3Q	4Q	avg	y/y	2014F 1Q	2Q	3Q	4Q	avg	y/y
Energy														
WTI Crude	US$/bbl	103.76	94.30	94.14	105.82	97.61	98.05	4.1%	98.61	88.00	93.00	91.00	92.70	-5.5%
Brent Crude	US$/bbl	109.60	112.57	102.43	110.29	109.24	108.63	-2.7%	107.87	102.00	105.00	105.00	104.97	-3.4%
Natural Gas	US$/MMBtu	4.53	3.48	4.02	3.56	3.85	3.73	32.2%	4.72	3.75	3.80	4.05	4.08	9.5%
Precious Metals														
Gold	US$/t oz.	1303	1631	1417	1327	1274	1412	-15.4%	1294	1250	1260	1285	1272	-9.9%
Silver	US$/t oz.	19.63	30.05	23.16	21.37	20.83	23.85	-23.4%	20.45	21.25	21.50	21.75	21.24	-11.0%
Base Metals														
Aluminum	US$/mt	1839	2002	1836	1782	1769	1847	-8.6%	1710	1825	1860	1850	1811	-2.0%
Copper	US$/mt	6627	7927	7159	7079	7163	7332	-7.9%	7032	7100	6750	6950	6958	-5.1%
Nickel	US$/mt	17807	17311	14963	13947	13915	15034	-14.2%	14659	15250	15100	16000	15252	1.5%
Zinc	US$/mt	2053	2030	1842	1860	1907	1910	-2.0%	2026	2025	2050	2075	2044	7.0%
Lead	US$/mt	2121	2293	2051	2100	2114	2139	3.8%	2102	2150	2275	2350	2219	3.7%
Tin	US$/mt	23528	24056	20889	21259	22905	22277	5.7%	22624	23100	23050	23100	22969	3.1%
Agriculture														
Corn	US$/bu	4.98	7.16	6.61	5.14	4.30	5.80	-15.9%	4.52	4.40	4.40	4.40	4.43	-23.6%
CME Wheat	US$/bu	6.88	7.39	6.95	6.50	6.55	6.80	-9.3%	6.17	6.30	6.20	6.10	6.19	-8.9%
Soybeans	US$/bu	15.19	14.50	14.68	14.07	13.04	14.10	-3.4%	13.56	11.00	10.50	10.00	11.27	-20.1%
Soybean Oil	US cents/lb	43.71	50.76	48.83	43.58	40.34	45.90	-12.2%	39.82	35.50	34.00	33.50	35.71	-22.2%
Soybean Meal	US$/short ton	491.00	421.33	430.62	450.60	428.46	432.80	0.7%	447.30	350.00	335.00	320.00	363.08	-16.1%
Sugar	US cents/lb	16.92	18.43	17.14	16.70	17.69	17.50	-19.0%	16.43	17.05	17.25	17.50	17.06	-2.5%

Source: Exchanges, J.P. Morgan Commodities Research. Data updated as of the close on 16-Apr-14.

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