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# Greater China Oil & Gas M&A and greenfield FDI investment spotlight

2013 edition

M&A Services

# Contents

# Introduction

In what was otherwise a relatively eventful year from an economic and political standpoint, Global Oil & Gas investments remained stable during 2012, with over 1,000 investments and M&A deals coming to market throughout the course of the year. At the same time, total investment expenditures rose by more than 5 percent over the year, demonstrating to good effect that the desire to continue to grow operations remains strong among industry players.

This was especially the case among operators based in the Greater China region (People's Republic of China, Hong Kong, Macau and Taiwan). Over 2012, deals and greenfield investments worth a cumulative US$22.5bn were consummated, the bulk of them involving local bidders buying overseas assets. The proverbial jewel in the crown of this particular asset class saw China's CNOOC bid for (and ultimately win) control of Canada's Nexen for a cool US$17.4bn.

I hope that you enjoy reading the 2013 edition of the Greater China Oil & Gas M&A and greenfield FDI investment spotlight as much as we have enjoyed writing it. I welcome any input and advice as to anything we may have missed, new items that could be included in the next report, and overall comments on the industry. Please do not hesitate to reach out to me directly if you have any questions or comments.

I would like to thank our contributors for providing their insight and expertise, and I hope that you will find this report informative and insightful.

**Adi Karev**
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# Methodology

- Data was derived from Bloomberg and FDImarkets for the period January 1 2005 to December 31 2012,

- Any reference to Greater China refers to the following:

  - The People's Republic of China;
  - Hong Kong;
  - Macau, and
  - Taiwan

- Any M&A transaction that was recorded by Bloomberg but not ascribed a bidder or target country was excluded from the analysis

- The following definitions should be adopted when examining investment types:

  - **FDI**: Includes all formally-announced greenfield, brownfield or joint-venture investments (the latter only included when they lead to a new physical presence in the target geography). Merger & Acquisition deals, privatizations and equity investments are excluded.

  - **M&A**: Mergers & Acquisitions (M&A) deals are included where there is a transfer in ownership of an economic interest in an ongoing business concern. M&A transactions are dated from their announcement and might not result in a successful transaction being undertaken.

- In an M&A context, the following definitions should be adopted when examining deal types:

  - **Acquisition**: The part or whole procurement of one company by another.

  - **Divestment**: The agreed sale of an asset or assets from one company to another, distinguished from other transactions by the fact that it is the vendor which actually initiates the transaction.

  - **Joint Venture:** A transaction that involves the pooling of assets between firms in a new company or existing subsidiary, whereby the ownership of the new company is shared between the parent companies involved.

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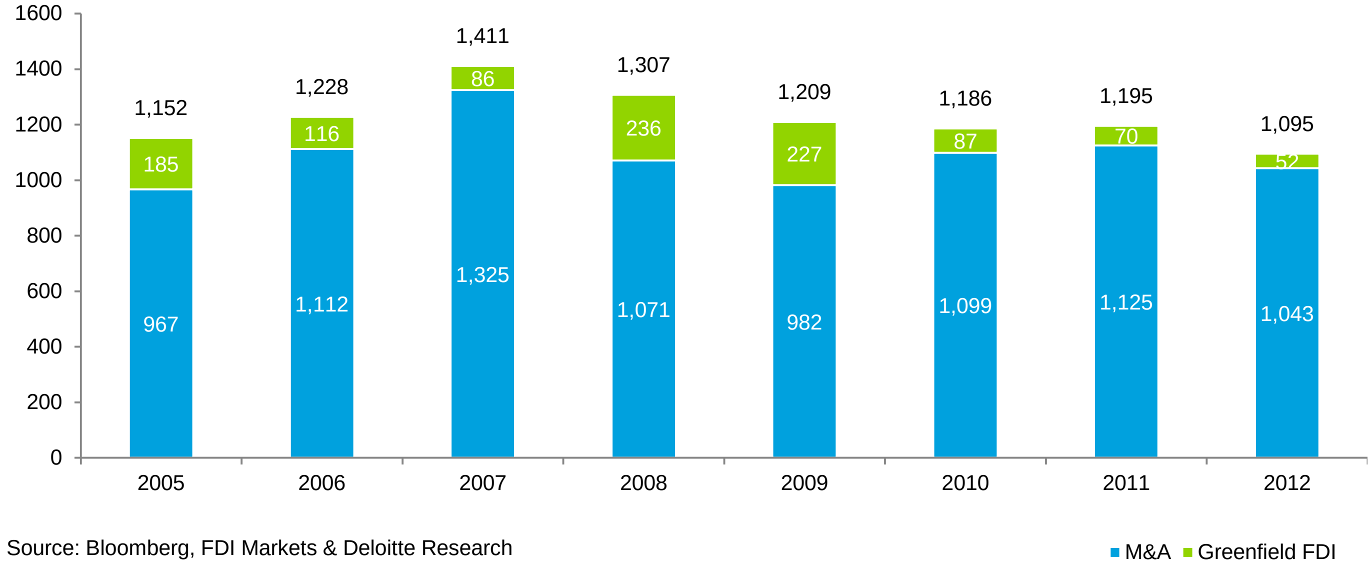
# Global Oil & Gas M&A and greenfield investment activity

*"The decline in greenfield investments is symptomatic of an industry where existing build-outs are becoming increasingly attractive."*

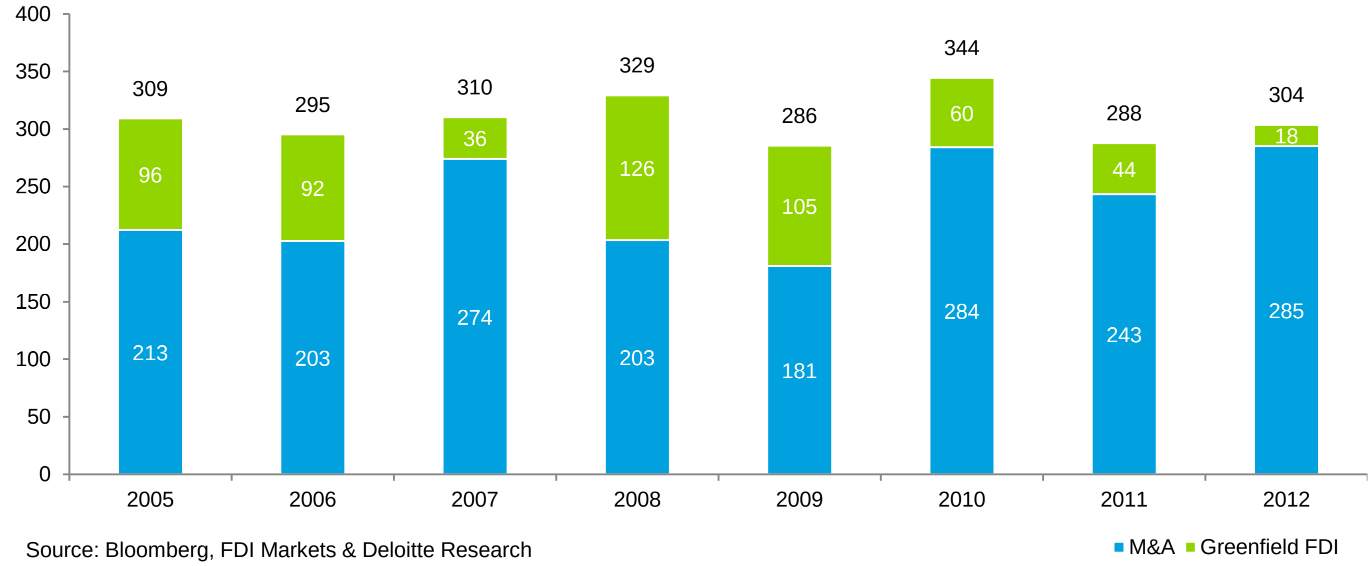
Adi Karev, Global Leader, Oil & Gas, Deloitte

**Global Oil & Gas M&A and greenfield FDI investments by volume (2005 -2012)**




Source: Bloomberg, FDI Markets & Deloitte Research

**Global Oil & Gas M&A and greenfield FDI investments by value (US$bn) (2005-2012)**




Source: Bloomberg, FDI Markets & Deloitte Research

## Greenfield Oil & Gas investment increasingly giving way to M&A activity across the globe

Across the globe, more than 1,000 Oil & Gas industry M&A and greenfield FDI investments were announced in 2012, with a cumulative worth of more than US$300bn. As has been the case over the past seven years, the bulk of this activity took place within the M&A space, with a record-breaking US$285bn being spent on Oil & Gas-related acquisitions over 2012 alone. In stark contrast, Oil & Gas-related greenfield investments by expenditure hit a low of just US$18bn in 2012, illustrating to good effect the relative decline in greenfield investment in this particular sector – between 2005 and 2008, Oil & Gas players invested some US$351bn across more than 600 projects. Over the subsequent four-year period, capital expenditures fell by more than 35 percent, while the number of projects initiated declined by 30 percent.

It should also be noted that while the average value of an Oil & Gas-related greenfield project has fallen over the eight years in question, corresponding figures for M&A have risen – an interesting finding that reinforces the perception that sector players' preferences are increasingly skewed towards making big-ticket acquisitions as opposed to making initial investments.

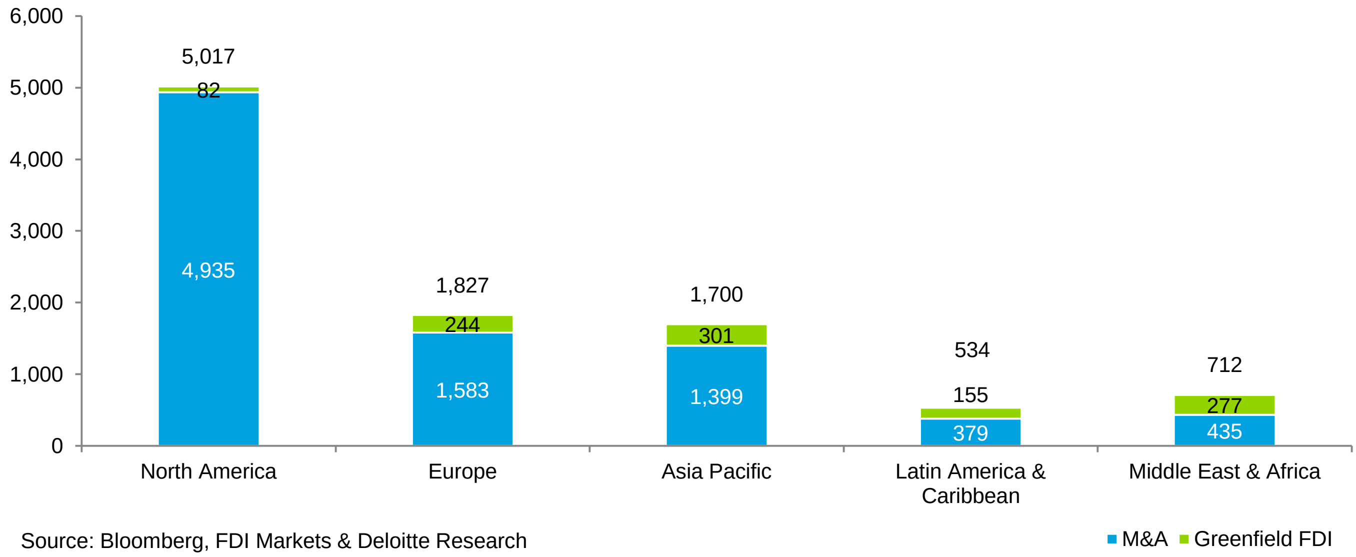

### Summary

- Global Oil & Gas-related M&A and greenfield investment volumes fell by around 9% over 2012 compared to the previous year.
- At the same time, the total spent on Oil & Gas-related M&A transactions as well as greenfield investments rose from US$288bn to US$304bn in 2012.
- Industry players' efforts are increasingly focused on buying existing assets via M&A transactions as opposed to making initial investments themselves.


### Where is this investment going?

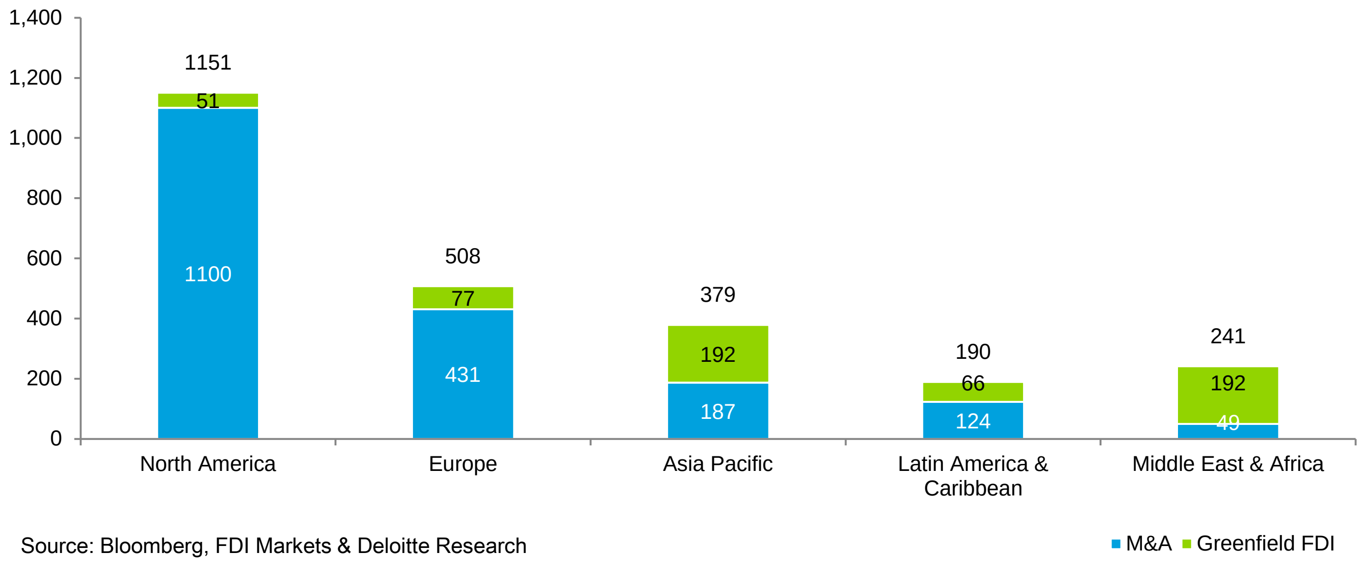
***Oil & Gas investment activity overwhelmingly focused within North America***

**Global Oil & Gas M&A and greenfield FDI investments by volume (target region) (2005-2012)**




Source: Bloomberg, FDI Markets & Deloitte Research

**Global Oil & Gas M&A and greenfield FDI investments by value (US$bn) (target region) (2005-2012)**




Source: Bloomberg, FDI Markets & Deloitte Research

Unsurprisingly, over the 2005-2012 period, acquisitions and greenfield investments into the North American Oil & Gas sector made up the lion's share of global activity, accounting for more than half of the total number of projects and transactions initiated by volume, and 47 percent of the total in terms of expenditure. European purchases and investments comprised a further 19 percent of the total number of projects and deals instigated, as well as just over one-fifth of all investments by value. The Asia-Pacific region accounted for a further 17 percent and 15 percent of the total respectively, while the remaining investments and deals took place in Latin America, the Caribbean, the Middle East and Africa.

While such a geographical dispersion of Oil & Gas-related investments is perhaps expected, it is of more interest to note that for every one greenfield investment announced in North America, 60 M&A deals also came to market. For Europe, the ratio was roughly 1:6, for the Asia-Pacific region, 1:4, for Latin America & Caribbean, 1:2, and for the Middle East & Africa, approximately 1:1.

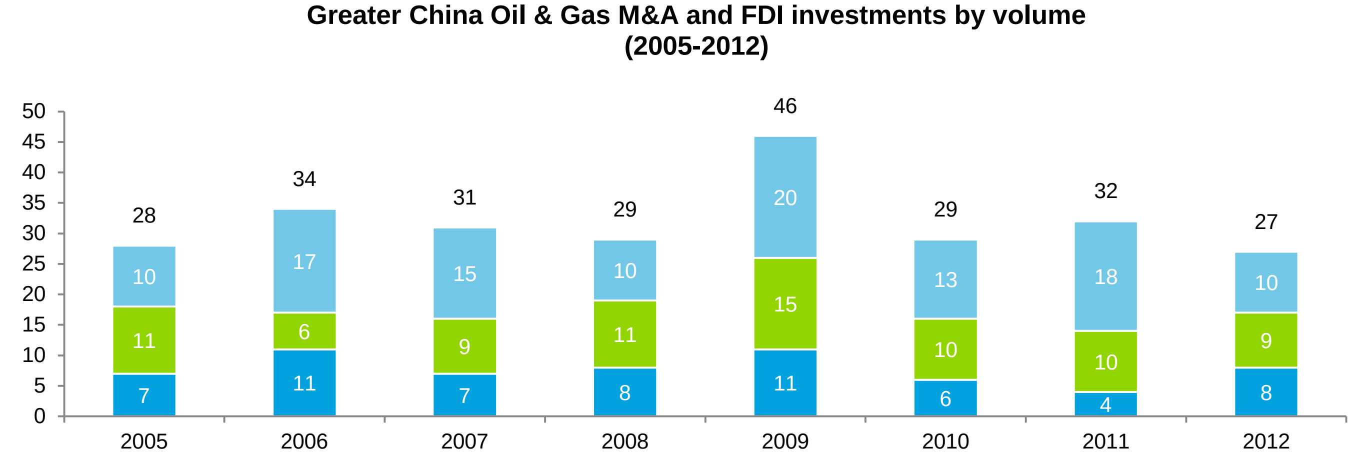
These divergent ratios (which were similarly mapped when examining M&A/greenfield investments by value over the same timeframe), are most likely a direct function of the *corporate maturity* of that particular market as opposed to the size of the Oil & Gas market in that particular region. In other words, market participants are more likely to undertake M&A acquisitions in markets where infrastructure build-outs already exist and are managed efficiently and to a good standard by a reputable business. And if such conditions are not met, then the seeds of a greenfield investment are more likely to be sown.

**Summary**

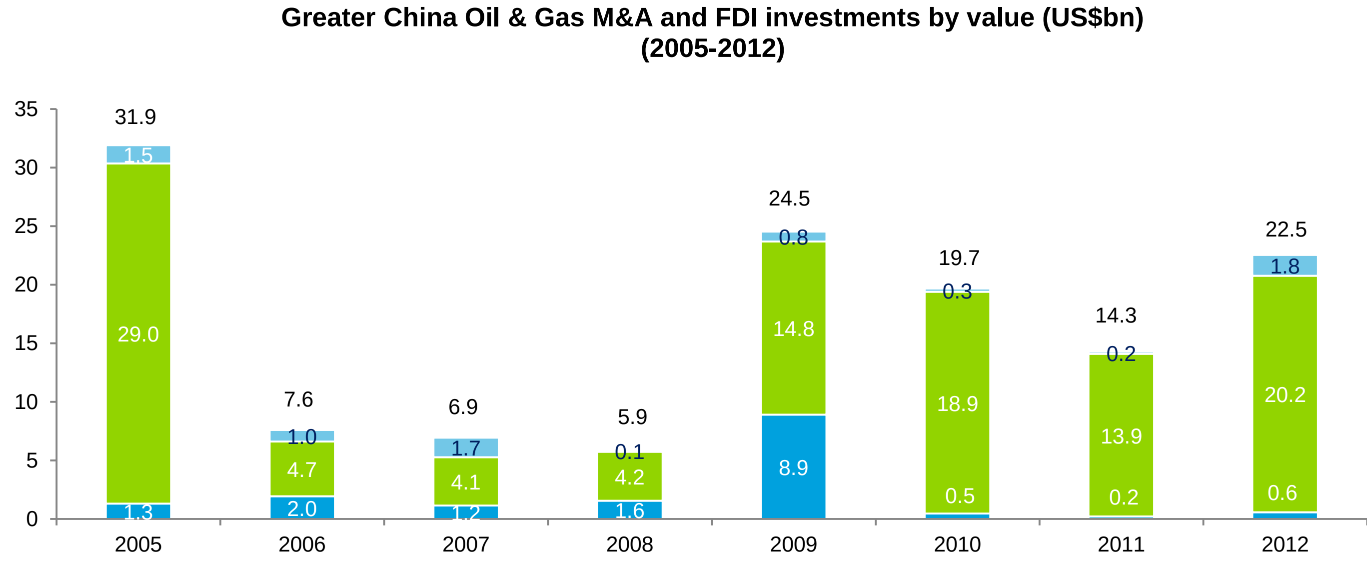
- Over the 2005-2012 period, acquisitions and greenfield investments into the North American Oil & Gas sector accounted for more than half of the total number of projects and transactions initiated by volume, and 47% of the total in terms of expenditure.
- For every one Oil & Gas-related greenfield investment announced in North America, 60 M&A deals also came to market. For Europe, the ratio was roughly 1:6, for the Asia-Pacific region, 1:4, for Latin America & Caribbean, 1:2, and for the Middle East & Africa, approximately 1:1.

# The Greater China angle

**Oil & Gas investments and M&A trends**




Source: Bloomberg, FDI Markets & Deloitte Research




Source: Bloomberg,FDI Markets & Deloitte Research

Over the 2005-2012 period, investment activity across the Greater China region has accounted for roughly 2-3 percent of global Oil & Gas-related M&A deals and greenfield projects by volume and 5 percent in terms of total expenditures. And in line with recent global trends, just 27 investments were made in Greater China over 2012, the lowest number on record. However, the total amount spent on these deals rose from US$14.3bn in 2011 to US$22.5bn, a figure that was no doubt boosted by CNOOC's US$17.4bn acquisition of Canada's Nexen in a deal that was announced in July that year.

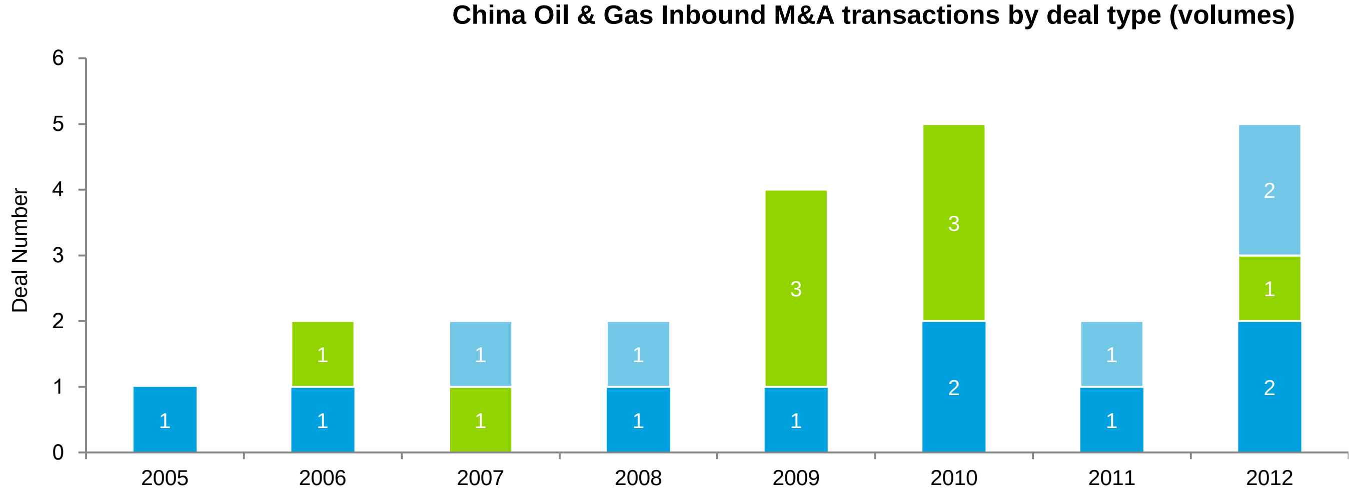
**Summary**

- Investment activity across the Greater China region has accounted for roughly 2-3% of global Oil & Gas-related M&A deals and greenfield projects by volume and 5% in terms of total expenditures.

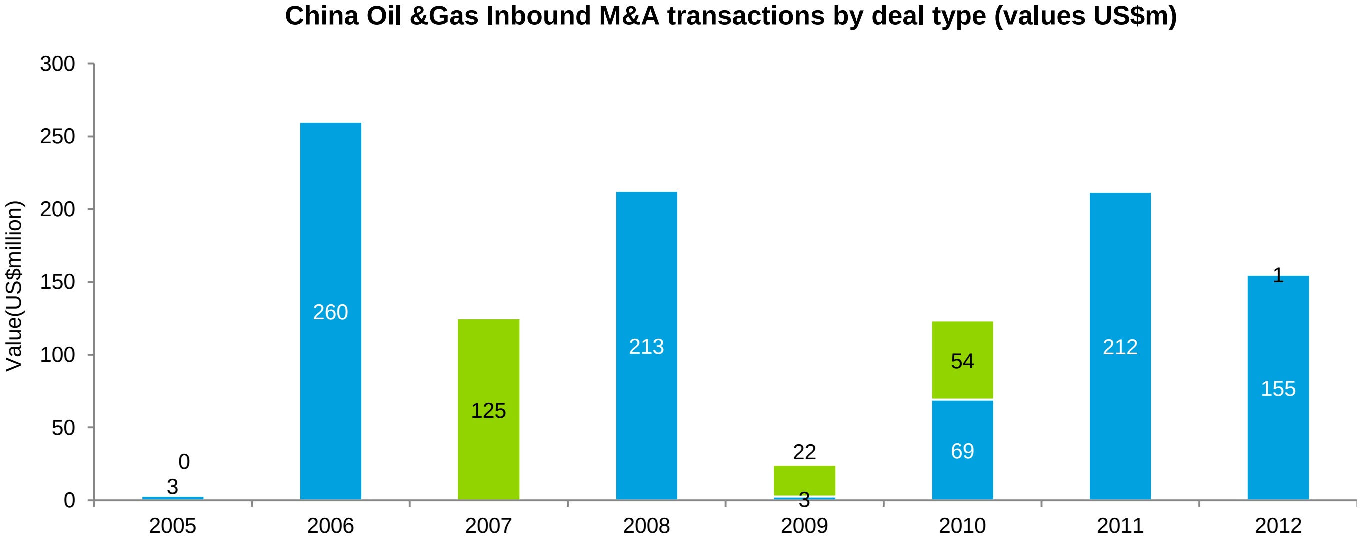
### Foreign investments into China's Oil & Gas sector

For what was otherwise a weak year for inbound investment into China, foreign interest in Chinese Oil & Gas investments remained solid over 2012, with eight M&A and greenfield projects being initiated, worth a combined US$600m. In contrast, just four deals and/or projects, worth a combined US$200m, came online in 2011.

Isolating inbound Oil & Gas-related M&A transactions by volume over the eight-year period in question, it is difficult to see any concrete shifts in investment themes emerging, primarily due to the low number of deals that have taken place of late. It is interesting to note that over the whole eight-year period however, the bulk of activity driven by the buy-side took place over 2009 and 2010.



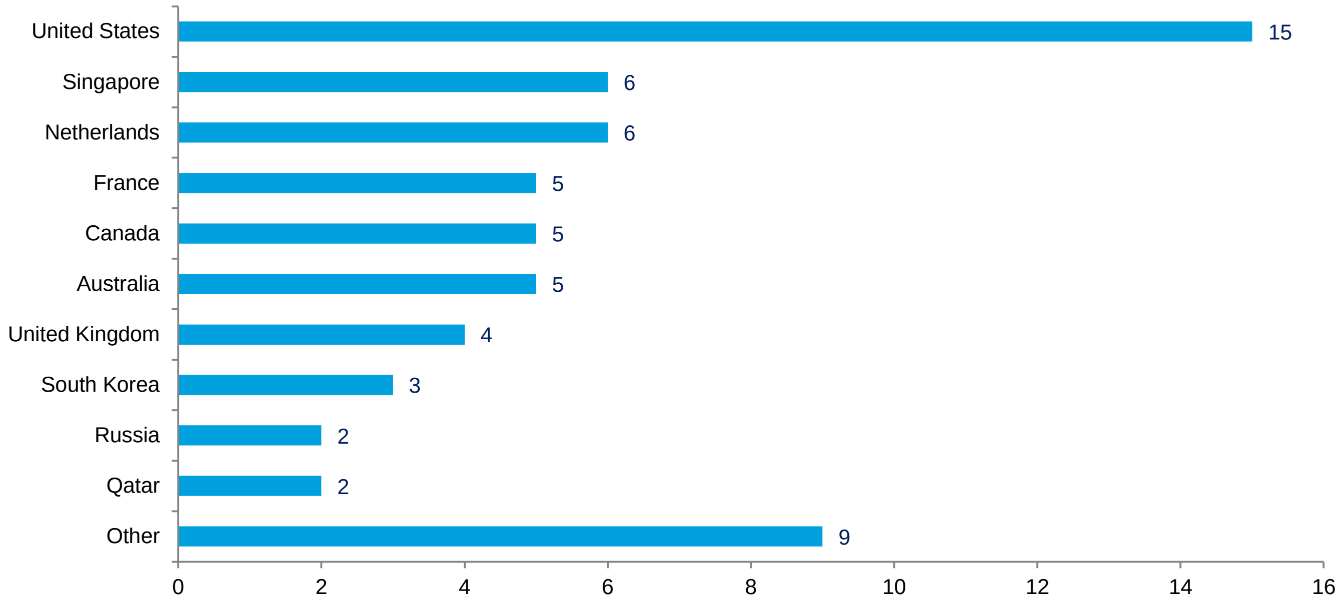

Source: Bloomberg, & Deloitte Research




Source: Bloomberg, & Deloitte Research

The largest inbound Oil & Gas-related M&A transaction to be announced over the course of the year was the US$150m proposed acquisition of Wenling Xinghai, a petroleum products transportation business, by Hisaka Holdings, a Singaporean based manufacturing concern as it looked to diversify into the Oil & Gas sector. However, the deal was terminated just three months after the initial MOU was signed due to disagreements between the two parties.

**Greater China inbound Oil & Gas greenfield FDI and M&A investor countries by volume (2005-2012)**

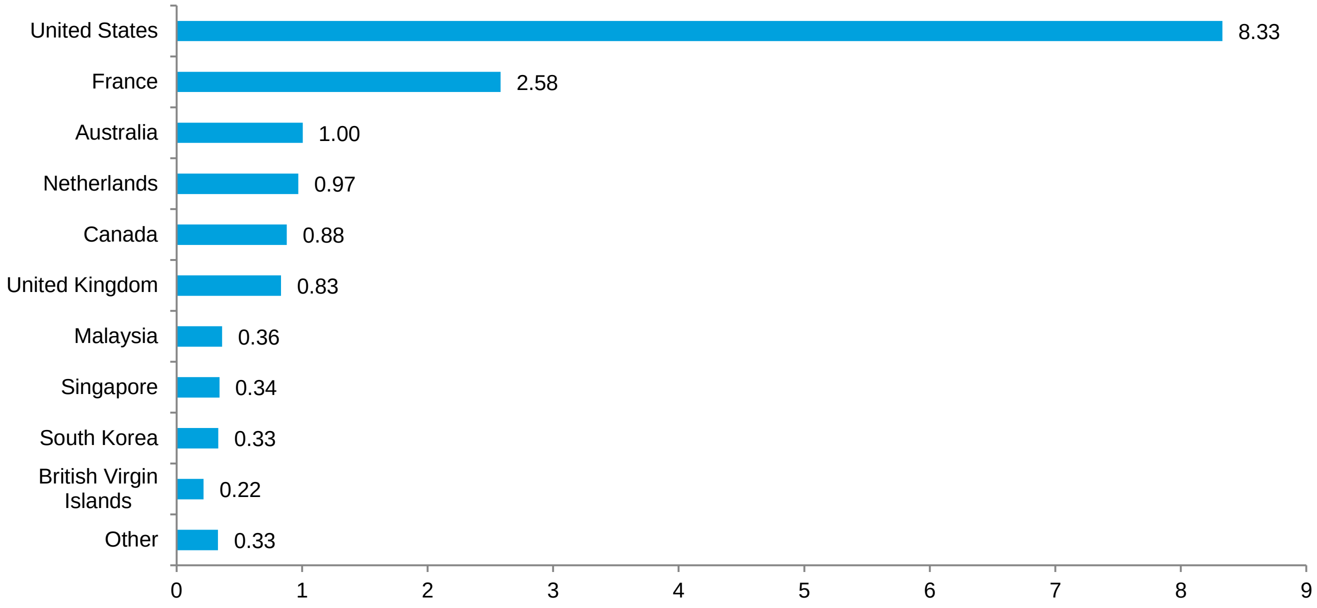



Source: Bloomberg,FDI Markets & Deloitte Research

Another interesting M&A deal that took place over the course of 2012 saw US chemicals manufacturer Huntsman Corporation enter into a joint venture with a subsidiary of Chinese oil giant Sinopec to build and operate a chemical plant in China. According to reports, the JV, which was made public in November 2012, will see Huntsman control 49 percent of the new company, with Nanjing Jinling Huntsman New Materials and Sinopec Jinling holding the remaining proportion. The plant, to be built in Nanjing, will produce propylene oxide, a chemical used in the production of polyethers, the primary component of polyurethane foams.

Meanwhile, the largest inbound greenfield investment into China to take place over the course of the year saw GreatPoint Energy, a US clean technology firm, sign a deal with China's Wanxiang to develop a coal-gasification plant in China. GreatPoint Energy will construct what has been billed as the 'world's most efficient' gasification plant, one which converts carbon-rich feedstocks - such as coal, petcock and biomass – into methane-rich natural gas. The plant will be located in the Gobi desert and is expected to supply natural gas to the country's eastern urban and industrial region via a pipeline being built by Sinopec. The facility will have an annual production capacity of 30bn cubic-feet of natural gas by 2015.

**Greater China inbound Oil & Gas greenfield FDI and M&A investor countries by value (US$bn) (2005-2012)**




Source: Blaoomberg,FDI Markets & Deloitte Research

While it is unsurprising to find US Oil & Gas companies topping the China investment leaderboard, French Oil & Gas investments into the country have also been plentiful, thanks in part to Total SA, the French NOC which has made a quartet of investments into China, the largest of which saw the French firm invest US$1.5bn to develop the South Sulige field in China. The development will include the drilling of up to 2,000 wells over the life of the field, which is estimated to be between 20 to 25 years.

Other serial investors include Chevron Corporation, which has undertaken three greenfield investments in Sichuan Province to the tune of US$5.4bn since 2009, US-based Far East Energy (three greenfield investments), Ivanhoe Energy (two investments) and Royal Dutch Shell (three greenfield investments and three M&A acquisitions).

**Summary**

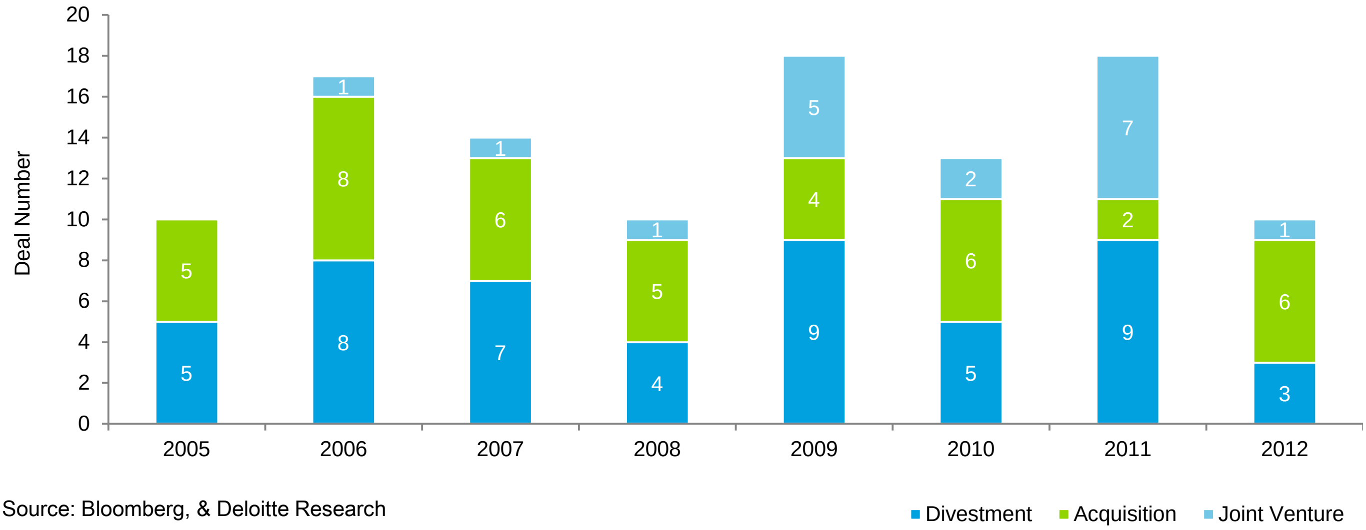
- Foreign interest in Chinese Oil & Gas investments remained solid over 2012, with eight M&A and greenfield projects being initiated, worth a combined US$600m. In contrast, just four deals and/or projects, worth a combined US$200m, came online in 2011.
- US-based Oil & Gas-related businesses have invested the most into China over the period in question, having initiated 15 deals or greenfield projects, cumulatively worth US$8.33bn.
- While it is unsurprising to find US Oil & Gas companies topping the China investment leaderboard, French Oil & Gas investments into the country have also been plentiful, thanks in part to Total SA, the French NOC which has made a quartet of investments into China.

## Domestic investment activity in China's Oil & Gas sector

During 2012, Greater China domestic investment activity in the Oil & Gas sector was very much a big-ticket game, with average deal sizes hitting their highest level over the eight years in question. Some ten transactions, worth close to US$1.8bn, came to market over the year, a massive increase (at least from a valuations perspective) on the US$191m of Oil & Gas-related deals that took place over 2011.

Two trends emerge when looking at Greater Chinese Oil & Gas consolidation activity. Firstly, buy-side interest in domestic tie-ups increased by a large proportion over 2012, accounting for more than half of all deal types last year. Secondly, joint ventures, which hit a high of seven transactions in 2011, fell off over 2012, with just one such agreement being announced.

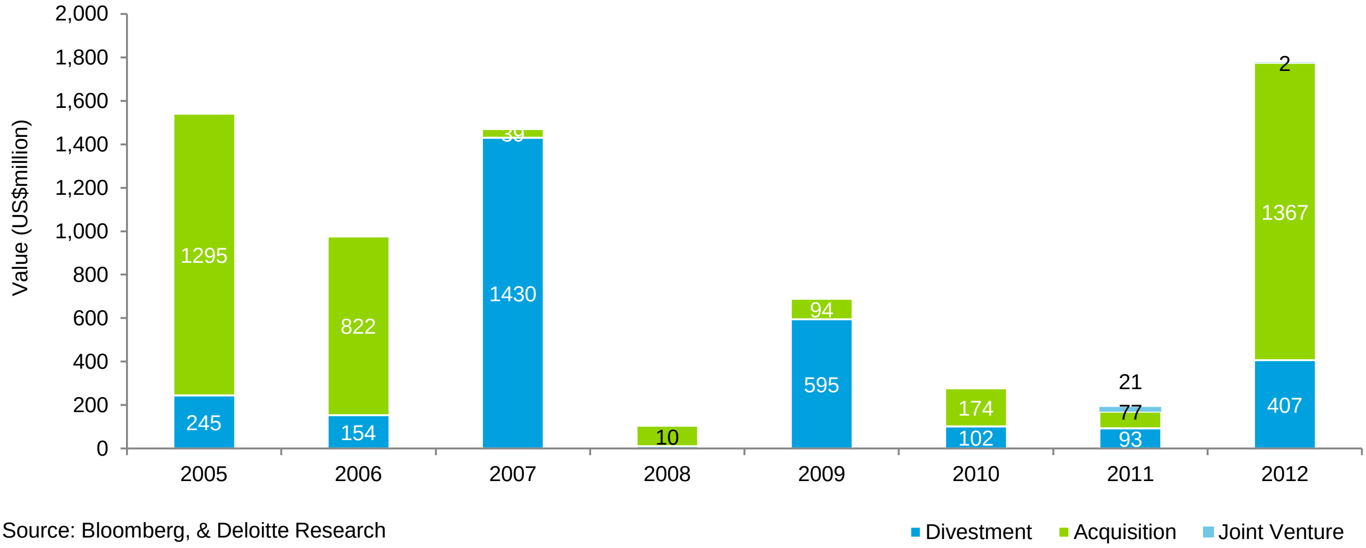
**China Oil & Gas Domestic M&A transactions by deal type (volumes)**




Source: Bloomberg, & Deloitte Research

The most prominent domestic Oil & Gas-related transaction that was announced over 2012 was the planned US$600m acquisition of HK-listed Titan Petrochemicals, the firm that is billed as China's largest independent petrochemical logistics services provider, by Guangdong Zhenrong Energy, a Chinese oil trader. The deal, which faced opposition from a Titan shareholder, US private equity firm Warburg Pincus, dragged on throughout the year, only to be finally resolved in early 2013 – albeit in a vastly different format than before.

**China Oil & Gas Domestic M&A transactions by deal type (values US$m)**




Source: Bloomberg, & Deloitte Research

Another important domestic tie-up saw China Gas Holdings Limited, a HK-listed firm, acquire Fortune Oil's natural gas assets in China for US$400m. The acquisition includes a coal bed methane project, gas pipeline infrastructure in Beijing, Tianjin, Chongqing, and seven other provinces, as well as compressed natural gas (CNG) and liquefied natural gas (LNG) operations in 200 other Chinese cities.

**Summary**

- During 2012, Greater China domestic investment activity in the Oil & Gas sector was very much a big-ticket game, with average deal sizes hitting their highest level over the eight years in question.
- Buy-side interest in domestic tie-ups increased by a large proportion over 2012, accounting for more than half of all deal types last year.
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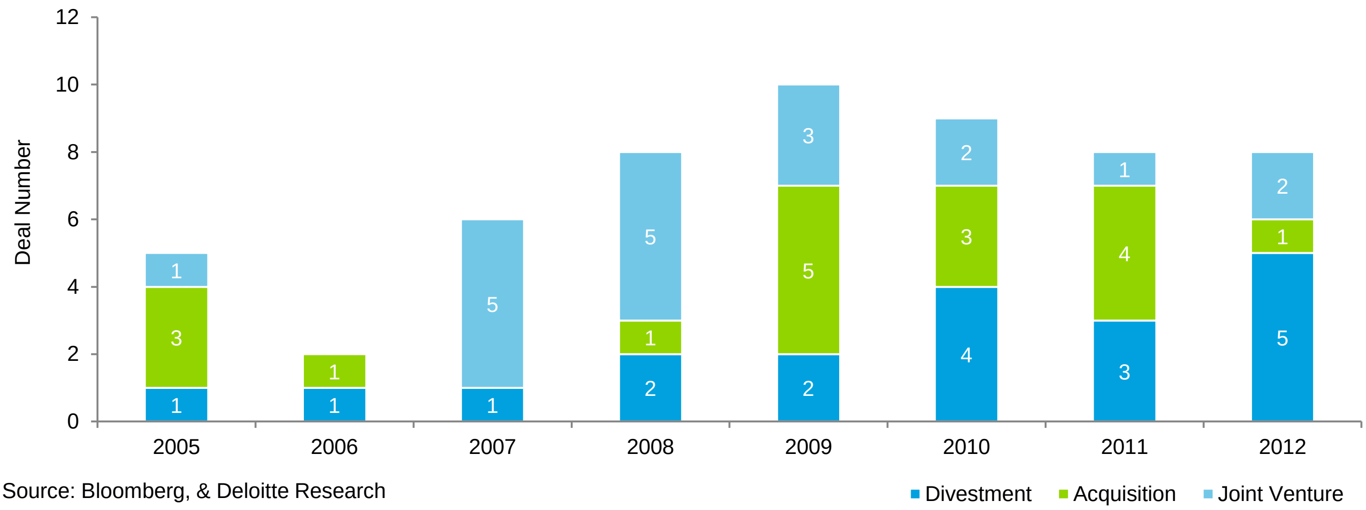
## Greater China's Oil & Gas investments overseas

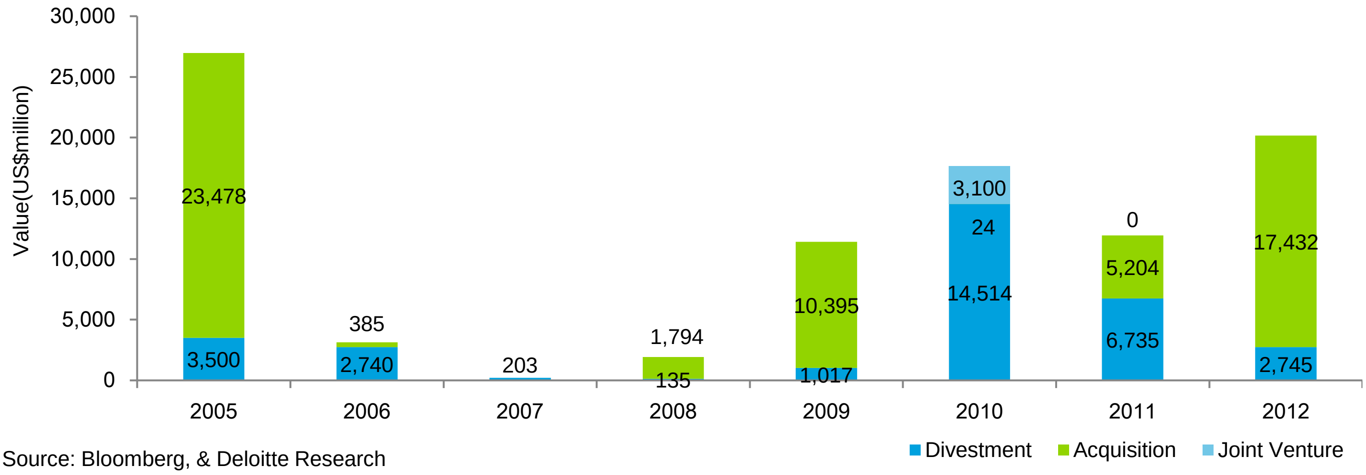
Outbound acquisitions and greenfield investments stemming from Greater Chinese Oil & Gas-related business reached new highs in 2012, with nine deals and projects worth an aggregated US$20bn being announced over the course of the year. In 2011, nine such investments, worth US$13.9bn, were undertaken, demonstrating that China's appetite for overseas Oil & Gas assets remained undiminished.

**China Oil & Gas Outbound M&A transactions by deal type (volumes)**




Source: Bloomberg, & Deloitte Research

**China Oil & Gas Outbound M&A transactions by deal type (values US$m)**




Source: Bloomberg, & Deloitte Research

What is interesting to note when looking at outbound Oil & Gas-related M&A transactions by deal type is the increasing proportion of divestments that are taking place from a volume perspective. Between 2005 and 2008, just five outbound deals were initiated by the sell-side – over the subsequent four year period, this figure rose to 14.

However, while the number of divestments of overseas Oil & Gas assets to Chinese companies has risen, the amount spent by bidders acquiring them has fallen from US$14.5bn in 2010 to just US$2.7bn last year – indicating that by now, foreign sellers have already divested the bulk of their non-core assets, and that going forward, bolt-on purchases are likely to comprise the bulk of outbound Oil & Gas buys.

Of course, the biggest outbound transaction (indeed, Greater China's largest overseas transaction to date), was CNOOC's acquisition of Nexen, the Canadian oil major, for US$17.4bn. Despite some regulatory interference, the deal was completed in early 2013, and will give China a presence in a number of oilfields, including ones off the Gulf of Mexico, the oil sands in Alberta, the North Sea and off the coast of Nigeria. The deal will also provide access to alternative energy sources such as LNG and deep water reserves that CNOOC currently lacks exposure to.

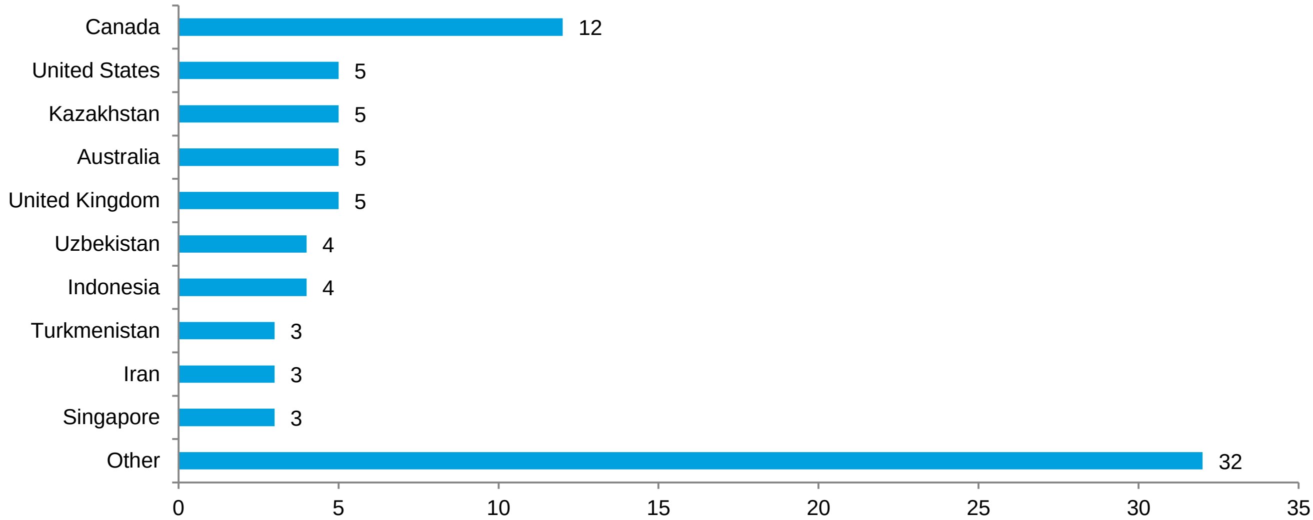
Other multi-billion dollar outbound Oil & Gas investments that took place over the year include Sinopec's US$1.5bn acquisition, via its subsidiary, Addax Petroleum, of a 49 percent stake in Canada's Talisman Energy, in order to gain access to the company's North Sea assets, as well as its US$1.1bn transaction to acquire a 10 percent stake in Australia Pacific LNG, the Australian coal seam gas miner, from ConocoPhillips and Origin Energy.

Chinese interest in emerging market Oil & Gas-related assets and opportunities also remained strong over 2012, with Sinopec Kantons, the logistics and trading unit of state-owned Sinopec, recently announcing that it will undertake the construction of South East Asia's largest oil storage terminal at the Batam free trade zone in Indonesia, in an investment valued at US$850m. In return, Sinopec Kantons will take a 95 percent stake in the PT West Point Terminal project within the Batam Free Trade Zone, which will ultimately facilitate the storage of up to 16 million barrels of crude and refined fuels.

Prior to this, Sinopec purchased the Ecuadoran subsidiary of Spain's Repsol, Amodaimi Oil, for an undisclosed amount as its beleaguered parent company looks to divest assets in order to 'improve the financial structure of the group'. In return, Sinopec gets a 20 percent share in the Block 16 and Tivacuno service contracts. For its part, Repsol will keep a 35 percent share in a consortium operating the contracts and remains its operator.

Closer to home, China National Petroleum Corporation (CNPC) continued to invest in Turkmenistan throughout 2012, opening a second office in Bagtyiarlyk, Lebap province. In late 2011, CNPC announced that it would construct a second gas processing plant that will process approximately eight billion cubic meters of gas annually in the province. The move comes off the back of a previous 2008 investment by CNPC, which saw the building of a major gas processing plant with a processing capacity of 5.7 billion cubic meters per year.

**Greater China outbound Oil & Gas FDI and M&A target countries by volume (2005-2012)**




Source: Bloomberg, FDI Markets & Deloitte Research

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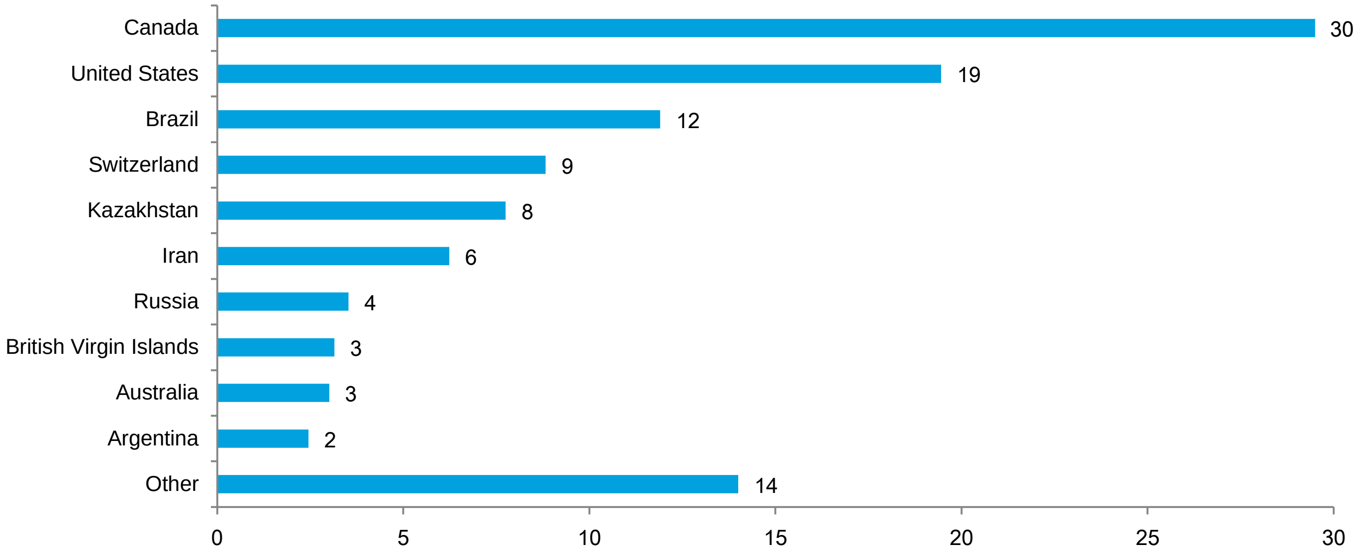



Source: Bloomberg, FDI Markets & Deloitte Research

**Summary**

- Outbound acquisitions and greenfield investments stemming from Greater Chinese Oil & Gas-related business reached new highs in 2012, with nine deals and projects worth an aggregated US$20bn being announced.
- While the number of divestments of overseas Oil & Gas assets to Chinese companies has risen, the amount spent by bidders acquiring them has fallen from US$14.5bn in 2010 to just US$2.7bn last year – indicating that by now, foreign sellers have already divested the bulk of their non-core assets.
- The biggest outbound transaction (indeed, Greater China's largest overseas transaction to date), was CNOOC's acquisition of Nexen, the Canadian oil major, for US$17.4bn. Despite some regulatory interference, the deal was completed in early 2013, and will give China a presence in a number of oilfields, including ones off the Gulf of Mexico, the oil sands in Alberta, the North Sea and off the coast of Nigeria.

# Looking forward – Potential deal opportunities and investment themes

## Potential deal opportunities

***Outbound investments likely to continue over 2013…***

One of the most dominant Oil & Gas themes emerging from Greater China today is the continued appetite to acquire overseas assets in order to secure energy inputs to power China's economy. Indeed, PetroChina, a subsidiary of China National Petroleum, made this very clear last year when the company announced that it had earmarked US$15.7bn for overseas investment as it aims to source 50 percent of its production outside China by 2020. It plans to use the funds to invest in joint ventures with international oil companies and in overseas exploration and acquisitions.

Not one to be outdone, Sinopec also made it public knowledge that the company was looking to invest overseas in refining, petrochemicals, and warehousing and logistics operations in order to integrate its upstream and downstream business. The company is also looking into investing in unconventional natural gas and oil to boost its output and offset losses in its refining operations.

Meanwhile, Shanghai Huayi, the Chinese state-owned chemical conglomerate, was recently reported saying that it is looking to buy natural gas assets in South America and Australia to secure upstream material supplies. The company source continued to note that Huayi can afford to make investments of around US$1bn.

However, it's not just the NOCs and SOEs who are looking to acquire and invest overseas. China's Wahaha Group, the country's largest beverage manufacturer, recently announced that it is considering expanding its business in Australia and South Africa beyond its core beverages business, and into agriculture and/or natural resources. Others, such as Hong Kong's United Energy Group, are keen to invest overseas, especially within South East Asia, because, as the company's CEO noted, high regional demand for petroleum products means the company could sell its production across the South East Asia and thus boost margins by saving on transportation costs.

***..While foreign/Chinese Shale gas development joint ventures are likely to become more frequent with time***

While the shale gas revolution is almost certainly set to alter the face of the industry, the success that US shale gas developers have enjoyed of late will be difficult to replicate elsewhere.

Given this, it should come as no surprise that Chinese shale gas developers, such as Wintime Energy, a Shanxi-based coal company, is searching for joint venture partners from the US to jointly develop shale gas projects in China. Wintime was one of the first two non-state owned companies that won shale gas mining rights in the Chinese national shale gas mining rights auction in December 2011. Wintime, through its subsidiary Huaying Shanxi Energy Investment, won the bid for the mining right of a block covering 1,030.40 square kilometers in Guizhou province.

At the same time, SOEs like Shandong Energy Group are also trying to get in on the game. In this particular case, Shandong Energy is actively seeking to buy overseas shale gas resources for sustainable development, according to the China Business News. The report went on to note that the firm's largest subsidiary had signed an agreement with Pan-Pacific Management Institute (PPMI) recently, which will see PPMI render M&A services within the shale gas resources and equipment manufacturing sectors in North America and Europe.

Summary

- Large Chinese Oil & Gas players are continuing to hunt overseas for exploration and production assets
- On the domestic front, local shale gas development players are seeking joint ventures with more experienced international shale gas developers in order to develop local shale gas blocks.

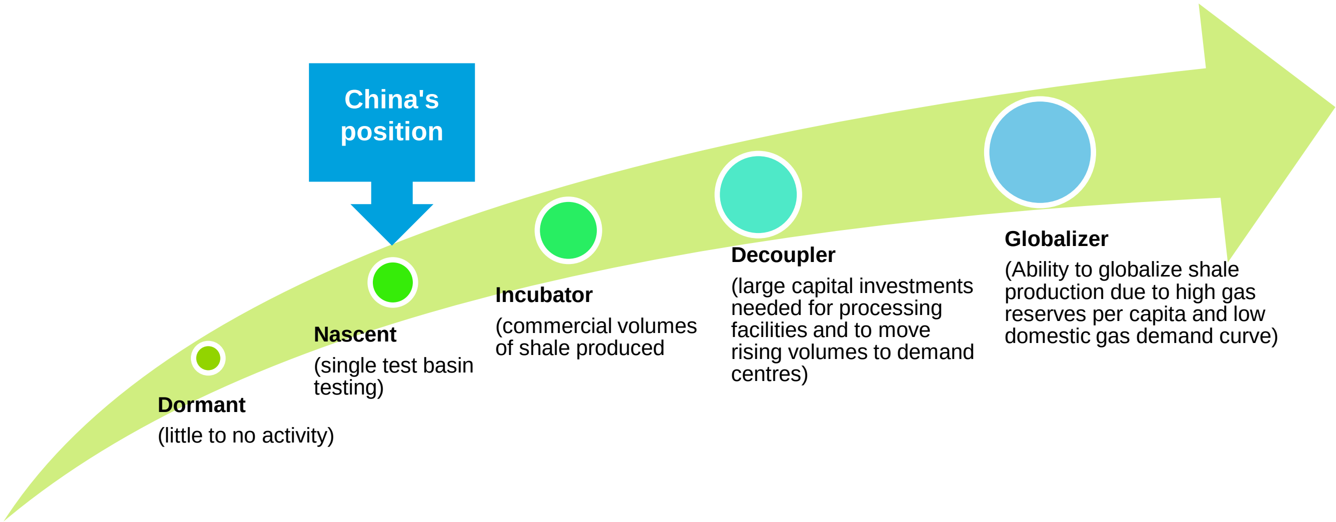
## Macroeconomic themes

Deloitte's 2013 Oil & Gas Reality Check highlighted three major factors that were likely to influence Greater Chinese Oil & Gas investment and deal flows over the foreseeable future. They are as follows:

### The shale gas revolution

The North American shale gas revolution has created a large amount of interest in duplicating the results in other countries. Indeed, an April 2011 study by the Energy Information Administration (EIA) estimated that world shale technically recoverable resources outside the US were 5,760 trillion cubic feet (Tcf), an increase of more than 40 percent in world gas resources.[1] The study sparked widespread interest in international shale as other countries such as China, looked to increase energy supply security and boost economic growth. However, the presence of shale gas in the ground does not guarantee the unearthing of a fortune.

### Stages of Development for Shale Gas




China is moving from a dormant to a nascent stage of shale development but is unlikely to become a Globalizer in the foreseeable future. The US *Energy Information Administration* (EIA) estimates that China has 1,275 Tcf of technically recoverable shale gas resources, while China's Ministry of Land and Resources has a more conservative 886 Tcf estimate.[2]

The most active shale basin is the Sichuan Basin with nearby access to water resources, a fact that makes it suitable for hydraulic fracturing despite the country's low per capita water supply.[3] The basin is a mature region of conventional natural gas production with over 11,000 miles of gas pipelines.[4] However, the eastern part of the Sichuan basin contains extensive steep folding and faulting, which complicates horizontal drilling techniques, and the western part is deeper, which increases drilling costs. As a result of this geological complexity, drilling costs for shale gas can run as high as $16 million per well.[5] The region also has high population density, which can make land more difficult to access.

In summary, over the short-term, China will continue in a Nascent stage with success in the Sichuan basin a critical indicator of its transition to an Incubator. China's 12th Five Year Plan sets aggressive targets for shale gas production of 0.6 Bcf/d by 2015, with plans to scale-up production to 5.8-9.6 Bcf/d by 2020.[6] In order to meet these targets, between 1,200-1,500 wells need to be drilled in the country,[7] but only 60 exploration wells have been drilled to date.[8] To improve project economics, in 2012 the Chinese government initiated subsidies for shale gas production through 2015 that will reduce costs by 20-30 percent and has been experimenting with liberalized gas prices in the Guangdong and Guangxi regions since 2011.[9]

[1] US DOE/EIA, "World Shale Gas Resources: An Initial Assessment of 14 Regions Outside the United States", April 5, 2011

[2] Ibid. 1; Bloomberg News, "China Estimates Exploitable Shale-Gas Reserves at 25.08 TCM", Mar 1, 2012

[3] Deloitte, "Water Tight: The top issues in the global water sector", January 2012

[4] China National Petroleum Corporation, Li Luguang, "Status and Practices of Shale Gas Exploration and Development in Sichuan Basin", September 25, 2011

[5] Wall Street Journal, Kevin Jianjun Tu, "Beijing's Problems with Shale", October 25, 2012

[6] China's 12th Five-Year Plan (2011 – 15), March 14, 2011

[7] J.P. Morgan, "China oil and gas : Coal gasification ahead of shale gas in China?", Asia Pacific Equity Research, May 18, 2012

[8] Xinhua News Agency, "China Mulls More Policies on Shale Gas", November 26, 2012

[9] Metis Energy Insider, "Note on Shale Gas Development in China", December 10, 2012; Bloomberg News, "China May Raise Natural Gas Prices This Year, Barclays Says", January 23, 2013

China also will be challenged by a service industry that is inexperienced with shale and with limited domestic drilling technology for multi-stage hydraulic fracturing. Although China is making investments in North American shales to acquire the necessary technology and expertise, it will take time to apply this knowledge to the home market.

Despite its prospects, China is unlikely to become a shale Globalizer because of low reserves of 80 Mcf per capita and a steep gas demand curve, with a 13 percent CAGR over the past five years, driven by an energy policy prioritizing gas over coal to meet future energy demand. Confronted with these constraints, China will be compelled to satisfy domestic gas demand rather than seek new demand in external markets.

**Summary**

- Over the next one to three years, shale gas will continue to be a largely regional resource with only a limited impact on global markets.
- Although other countries want to replicate the North American shale gas revolution, they must overcome more challenging geology, and gaps in technology, infrastructure and domestic service capability before commercial production can begin – as well as political and environmental obstacles in some jurisdictions.
- As a result, it is not envisioned that China will become a major Shale Gas player in the foreseeable future, primarily due to the fact that its reserves per capita are low and that domestic demand is likely to remain strong over the forecasted period.

## LNG pricing – the end of oil indexation?

### *Asian LNG pricing remains fractured*

The prospect of the US globalizing its shale gas resources via LNG exports has many observers (especially in Asia), hopefully that US LNG indexed to Henry Hub prices will also be exported, eroding the hold of long-term LNG contract price formulae indexed to crude oil.

LNG has grown from less than 5 percent of world gas consumption in 2000 to over 10 percent, enabling gas to be more of a global commodity. Despite this growth, the global gas market remains regionally fractured due to high transportation costs and regulatory barriers. Thus, gas prices remain localized. LNG pricing is therefore regionally fractured with North America referencing Henry Hub, UK and potentially parts of Continental Europe referencing the UK's National Balancing Point (NBP) gas hub, Continental Europe referencing fuel oil or Brent prices, and Asia Pacific referencing the Japanese Crude Cocktail (JCC) benchmark, the basket of crude oil imported by Japan.

Market conditions are now ripe for the next evolution in LNG pricing – indexing to gas hubs (i.e. Henry Hub) and supplementing non-price terms. This is not to say that oil indexation will be abandoned, but that pricing will be established along a spectrum of varying options. Non-price terms that “sweeten” contract negotiations have been common practice, most notably the removal of cargo destination clauses in contracts, but the difference now lies in the range and types of non-price options that are increasingly possible, due to surplus capacity and diversity across producers and buyers.

### *Going forward*

As diverse supplies enter the LNG market over the next 12 months through to 2017, the dynamics of supply competition will drive transition away from contracts purely indexed to oil prices and at high oil price parity in the Asia Pacific region. Rather, we will likely begin to see a mixture of contract pricing approaches; prices set lower from oil price parity, hybrid indexation, and full gas hub indexation.

US LNG exports will be a major catalyst for the transition away from oil price indexation. However, it is important to stress that not all US-sourced LNG will be indexed to Henry Hub prices, and pricing will be dependent on project economics, buyers' price sensitivity, and the relative competitive landscape. On the other hand, even limited US LNG export volumes indexed to Henry Hub will be sufficient to spark competitive pricing among existing and up-and-coming LNG suppliers. For Asia Pacific buyers, supply competition and diverse pricing approaches are welcome new developments.

Over the long term, it will be important to watch the development of domestic gas markets in key Asian countries to see when the next evolutionary step in Asia Pacific LNG pricing will be feasible - a regional gas hub index. Despite Singapore's goal, and to lesser extent, Shanghai's ambition, to serve as regional trading hubs, significant regulatory and infrastructure obstacles make the prospect of a regional gas hub index a long shot in the near-term.

**Summary**

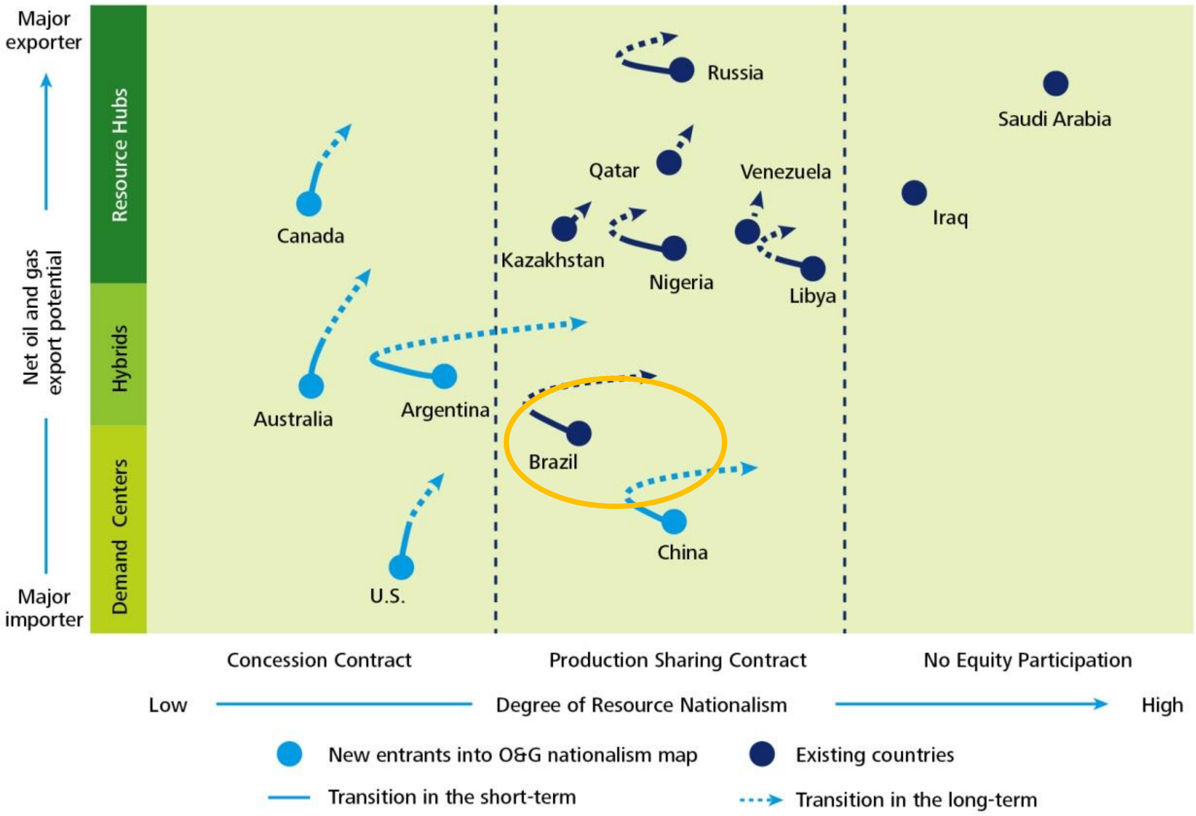
- Oil indexation will be one of several pricing approaches for long-term LNG contracts in Asia Pacific.
- Additionally, diverse supply coming online from 2017 will create competition on price and non-price terms, including use of gas hub and hybrid indexation.
- Prospects for an Asian regional gas price benchmark are dim, due to challenging regulatory and infrastructure barriers.

### Resource nationalism

Resource nationalism is a continuous challenge in the oil and gas industry, and follows an ebb and flow pattern. The recent discoveries of new resources and burgeoning demand in developing countries have produced a new crop of supply and demand centers, making industry players sensitive to a potential rise in resource nationalism. From the point of view of investors and global oil and gas companies, resource nationalism may seem to be an unmanageable risk, but as Joseph A. Stanislaw, independent senior advisor to the Deloitte member firm in the US, reminds us, from a government perspective, "resource nationalism is a legitimate right for sovereign countries. What matters is how it is applied."[10] Understanding what drives resource nationalism and how it is applied can help companies develop proactive strategies and approaches to manage potential risks, or cultivate opportunities.

Deloitte sees resource nationalism across China diminishing in the short-term until producers advance in resource development; ultimately this brings a rise in restrictive resource policies in the long-term. The below chart shows the transition of new and existing producing countries (including China) over the long-term.

**Figure: Resource Nationalism Transitions for Major Oil and Gas Resource**




[10] Joseph A. Stanislaw, "Power Play — Resource nationalism, the global scramble for energy, and the need for mutual interdependence", Deloitte, 2009

***Chinese resource nationalism in the short-term…***

The degree of resource nationalism within China will subside, primarily because the country will open its newly found resources to foreign oil and gas companies in order to access technology and technical expertise. For example the Chinese authorities have already allowed foreign players to bid jointly with local companies in its second shale gas licensing round. And, although no foreign joint venture bids won, it is likely that there will still be foreign partnership opportunities as was the case after the first round of licensing.[11]

***…and in the long-term***

Nonetheless, it is likely that resource nationalism in China will increase over the long-term as Chinese Oil & Gas-related countries progress through the stages of resource development, adopt best practice technological practices and, as a result of these first two factors, will moderate the pace of resource development.

Energy security will continue to be a concern for China as its growing demand will maintain its status as a major demand center. China's natural gas demand is expected to increase by more than 300 percent over the next 20 years, which will outweigh the expected supply growth from the country's shale plays.[12] China's PSCs already have provisions for the country's NOCs to take a majority stake in the future. For example, CNOOC Ltd signed two PSCs with Chevron that allow the NOC to own a 51 percent stake in any commercial discoveries in the region, while all exploration expenditures will be borne by the foreign partner.[13]

**Summary**

- Resource nationalism in China will recede in the short-term as the country seeks to attract investment and access technology.
- In the long-term, resource nationalism will rise in China as its progresses through the stages of resource development and its Oil & Gas-related businesses gain technological expertise.

[11] Joseph Boris, "Resourceful Thinking?", *China Daily*, February 8, 2013, <http://usa.chinadaily.com.cn/epaper/2013-02/08/content_16216684.htm>

[12] US DOE/EIA, "International Energy Outlook", 2011, accessed date February 14, 2013

[13] "CNOOC Signed Amendment Agreements to PSC for Three Deepwater Blocks", *CNOOC Web site*, September 7, 2010, <http://www.cnoocltd.com/encnoocltd/newszx/news/2010/1462.shtml>

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