



MUSINGS FROM THE OIL PATCH

February 18, 2014

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Note: *Musings from the Oil Patch* reflects an eclectic collection of stories and analyses dealing with issues and developments within the energy industry that I feel have potentially significant implications for executives operating and planning for the future. The newsletter is published every two weeks, but periodically events and travel may alter that schedule. As always, I welcome your comments and observations. Allen Brooks

Positive Keystone EIS Ignites Scorched Earth Environ Strategy

The conclusion of the EIS was favorable for approval of the permit to construct the pipeline

On January 31st, the U.S. Department of State issued its final Environmental Impact Statement (EIS) assessment of the proposed Keystone XL pipeline's northern section that crosses the US-Canadian border. The conclusion of the EIS was favorable for approval of the permit to construct the pipeline. The report stated that the construction of the pipeline would not promote more carbon emissions from the additional oil sands output that would be shipped in the line as those resources would be produced regardless of the line's existence. As expected, this positive environmental conclusion was hailed by TransCanada (TRP-NYSE), the pipeline's sponsor, the Canadian government that stands to benefit from the development of its natural resources, and a bi-partisan U.S. political coalition that sees the pipeline's construction promoting job creation. The critics of the pipeline, primarily environmental groups who consider oil sands bitumen as the "dirtiest oil" in the world and liberal politicians who see few permanent jobs being created by the pipeline's construction, railed against the timing of the issuance of the report because there is an ongoing investigation of the firm that authored the report. They were also outraged by the conclusion that the global environment would not be harmed by the additional oil sands output. With the EIS providing only minimal support for those opposing the pipeline, the battleground for the remainder of the climate war over the pipeline's construction was unveiled with litigation filed barely a week after the EIS release against the U.S. Army Corps of Engineers over its failure to provide documents associated with the pipeline's review.

The lawsuit, *Sierra Club v. U.S. Army Corps of Engineers*, 14-cv-00538, U.S. District Court, Northern District of California (San Francisco), was filed on February 6th. The Sierra Club claims that the Corps of Engineers has to make public documents related to its

Three times the Sierra Club had sought the records through freedom-of-information act (FOIA) requests

review of the project, especially those describing the pipeline's path in relation to communities and sensitive water resources. Three times the Sierra Club had sought the records through freedom-of-information act (FOIA) requests. They believe the documents are "crucial for a full understanding of the pipeline's impacts and areas threatened by a tar sands oil spill." Therefore, the Sierra Club demanded a court order requiring the Corps of Engineers to turn over all documents they sought via FOIA requests.

If the Sierra Club loses, it will appeal to the Ninth Circuit Court of Appeals, which is known for its left-leaning bearing and highly-favorable environmental orientation

The Corps of Engineers has refused to provide the documents based on its privilege under the doctrine of "deliberative process." The Sierra Club argues that this privilege doesn't apply to documents filed by private parties such as TransCanada. The suit was filed because the Corps of Engineers failed to rule on the Sierra Club's appeal of its decision by the required deadline. We would point out that the lawsuit was filed in the District Court in San Francisco, meaning that if the Sierra Club loses, it will appeal to the Ninth Circuit Court of Appeals, which is known for its left-leaning bearing and highly-favorable environmental orientation. This court has the distinction among all the circuit courts in the country as having the highest rate of its decisions overturned by the U.S. Supreme Court.

Environmental groups have previously sued the U.S. government over its actions with regard to energy policies and management. For example, they have sued over issues such as the quality of the oil spill analysis requirement for drilling on Gulf of Mexico leases sold to oil companies following the Macondo oil spill. They've also sued over allowing drilling in the Arctic and the proper management of minerals on federal acreage leased to energy companies. This lawsuit, filed literally days after the issuance of a favorable EIS report about the Keystone pipeline, suggests the legal battle over this project is just beginning and its disruptive impact will be measured in years and not days or months! Defeating the Keystone pipeline has become a "line in the sand" for the environmental movement. One needs to only look at the decision to promote civil disobedience by the Sierra Club to understand the significance of the environmental opposition.

The board of the Sierra Club voted to waive the organization's 120-year old policy against civil disobedience

On January 24, 2013, the board of the Sierra Club voted to waive the organization's 120-year old policy against civil disobedience for one time to allow protest at a rally in front of the White House against the Keystone pipeline. A joint statement by Sierra Club President Allison Chin and Executive Director Michael Brune said:

"Some issues demand the strongest defensible response. That's why the Sierra Club's Board of Directors voted enthusiastically to permit an act of civil disobedience in order to hold President Obama to his words and elevate the discussion about climate disruption, the defining issue of our time.

“This peaceful resistance will be the first in the Sierra Club’s 120-year history. Specifically, the Board has suspended the Club’s policy against civil disobedience to allow, for one time, a select team of Club leaders and prominent Sierra Club supporters to face arrest during a peaceful protest, in partnership with 350.org.”

On February 14, 2014, at the White House demonstration, approximately 48 protestors were arrested including environmental lawyer Robert F. Kennedy, Jr., actress Daryl Hanna, civil rights leader and politician Julian Bond, environmental writer Bill McKibben, and Sierra Club executive Michael Brune. Prior to his arrest, and after the Sierra Club voted to allow civil disobedience, Mr. Brune was interviewed by *Grist* magazine about why the club made the change in its long-standing policy and why this protest is targeting the Keystone XL pipeline. His response was:

“We simply can’t transport 700,000-800,000 barrels of oil [a day] from one of the dirtiest, most carbon-intensive oil sources on the planet”

“Two reasons: One, by itself, Keystone is a climate disaster. We simply can’t transport 700,000-800,000 barrels of oil [a day] from one of the dirtiest, most carbon-intensive oil sources on the planet and say that we’re sincere in our commitment to fight climate change. You can’t cut carbon pollution and expand production of a carbon-intensive fuel source.

“The other reason is that we learned last year from [the International Energy Agency] and Bill McKibben the “New Math.” We know that we have to keep at least two-thirds of all coal, all oil, all gas reserves in the ground if we’re to have a shot at keeping warming below 2 degrees Celsius — which is, in itself, a reckless goal to embrace as a society. If we’re to have a shot at transforming how we look at fossil fuel energy resources, and convincing policymakers, we need symbols. We need to find high-profile, extreme sources of energy and turn away from them, as a way to begin and lead a transition away from dirty fuels.

“We picked the tar sands because it’s among the most high-profile and highly destructive”

“So when you look at North America, those extreme energy sources are the tar sands, first and foremost. But also mountaintop-removal coal mining, drilling for oil in the Arctic — sadly, there are plenty of targets to choose from. We picked the tar sands because it’s among the most high-profile and highly destructive and it’s going to be one of first big decisions coming from the president in the first half of the year [2013].”

President Barack Obama has been an unabashed proponent of actions to minimize global warming and tame climate change trends while criticizing those industries he, and his liberal and youth supporters, who form the base of his political support, believes are causing the problem. These supporters are motivated by President Obama’s rhetoric such as in his 2013 State of the Union speech in which he said, “Unchecked, climate change will pose unacceptable risks to our security, our economies, and our planet.” While dismayed by the State Department’s release of the favorable

President Obama said the job-creation figures Mr. O'Reilly quoted were wrong

Keystone EIS report, its environmental opponents seized on a discussion in the report of an alternative energy scenario that calls for rejection of the pipeline permit. They were also probably buoyed by the President's pushback to Bill O'Reilly's pre-Super Bowl interview questions about the jobs that would be created by building the pipeline. President Obama said the job-creation figures Mr. O'Reilly quoted were wrong.

Counter insurgency struggles in the form of lawsuits and regulatory challenges can not only stop the pipeline's permit momentum but also turn the war into one of attrition

There is little doubt that the Keystone battle is political, but for the environmental movement it is a war. Wars are made up of a series of battles, of which the EIS is but one, in the Keystone XL pipeline war. While the tide of emotion and momentum would seem to be favoring the pipeline's proponents, counter insurgency struggles in the form of lawsuits and regulatory challenges can not only stop the pipeline's permit momentum but also turn the war into one of attrition. ExxonMobil's (XOM-NYSE) announcement that it is going ahead with a \$250 million investment in a rail-loading facility near Edmonton, Canada for oil sands output may signal how delay (attrition) may ultimately make the Keystone pipeline unnecessary. Maybe analysts should rethink the Keystone permit struggle as more like World War II or Vietnam – a series of battles in a multi-year war and less like the first Gulf War blitz that counted in hours.

Understanding Oil Industry Restructuring Currently Underway

Now, the restructuring movement has moved up the food chain and is being driven by the actions of larger integrated oil companies

The weak financial results reported by the oil majors for 2013's fourth quarter and full year should be viewed within the context of the industry's structural transition that is likely to last for some time. With the advent of activist shareholders, management changes and financial pressures due to the costs of the shale revolution, companies have been forced to re-examine their business models and corporate focus. Many analysts and investors are narrowly focused on the near-term impact these restructuring steps are having on company cash flows and production growth. While these are important near-term considerations, they should be viewed from a higher level and with a long-term perspective. From that level, the first observation is that the restructuring movement commenced several years ago and it began within smaller companies in this industry group in response to the desire of their managements and boards of directors to improve their corporate performance in light of the more limited capital and investment options they had available. Now, the restructuring movement has moved up the food chain and is being driven by the actions of larger integrated oil companies. The changes they are making are partially in response to how the American shale revolution is impacting the dynamics of the domestic crude oil and natural gas markets, and that are now beginning to impact the petroleum industry globally.

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Many of these high-profile projects have been the subject of corporate reviews over the past six months due to cost-overruns that are raising questions about the project's financial viability

The current obsession on the industry's restructuring actions was driven by the mid-January earnings pre-announcement from Royal Dutch Shell (RDS.A-NYSE), which marked the company's first such earnings miss in a decade. The prior miss was the result of a corporate scandal in the form of an overstatement of oil and gas reserves, which ultimately cost several senior executives their jobs. Shell's press release announcing that its fourth quarter earnings would be \$2.9 billion, down 48% from the \$5.6 billion earned in the same quarter a year ago, and importantly \$1 billion below the consensus analyst estimate, created significant turmoil within the investment community. Shell also said that its 2013 full-year earnings would total approximately \$19.5 billion, compared with \$25.3 billion in 2012, which reflected a disappointing year.

Effective January 1st, Shell now has a new chief executive officer, Ben van Beurden, a 30-year employee of the company and an unconventional choice to run the company given his downstream career. While some investors suggested Shell was merely "kitchen sinking" the bad news to provide a relatively clean slate for the new CEO, Mr. van Beurden said that the company's performance in 2013 was "not what I expect from Shell" and that changes would be made. He went on to tell investors that his focus would be on improving Shell's financial results and "achieving better capital efficiency," code words for re-establishing an earnings growth trajectory. It is also code for cutting and re-ordering capital spending, streamlining the business and shifting priorities, which probably got employee attention.

Subsequent to the earnings warning, the financial media began evaluating the performance of the major oil companies. This led to several articles about the challenges major oil companies were encountering in managing their mega-projects needed to increase their oil and gas output. Many of these high-profile projects have been the subject of corporate reviews over the past six months due to cost-overruns that are raising questions about the projects' financial viability. Chevron's (CVX-NYSE) Gorgon project off the coast of Australia to produce and export liquefied natural gas (LNG) and co-owned with ExxonMobil (XOM-NYSE) and Royal Dutch Shell, has seen its cost estimate escalate from the original budget of \$38 billion to \$54 billion, a roughly 45% increase. This is only one mega-project, but the oil majors have seen similar cost escalations at other mega-projects around the world driven by labor shortages, regulatory requirements and delays, and bad weather.

The surprise announcement last May that Shell CEO Peter Voser, the company's former chief financial officer, would retire at the end of 2013 after less than four years at the helm set in motion not only a search for a new chief executive but also a high-level review of the company's investment performance and capital spending plans. Mr. Voser was highly regarded by investors as Shell had outperformed all but one of its oil company peers since he became CEO. In July,

A decision about constructing a petrochemical plant in the U.S. Northeast to capitalize on the growing gas and liquids output from the Marcellus and Utica formations was postponed

The company cut total capital spending 20% below 2013's level and targeted increasing organic investment by 8% to \$35 billion

Shell's directors surprised the investing community by naming Mr. van Beurden the new CEO. He was the head of Shell's refining operations and had been a decade-long head of its chemicals operations, but he had also held a position for two years evaluating and trying to improve the operating performance of downstream operations. In anticipation of taking over, Mr. van Beurden spearheaded a review of Shell's capital investment plans including a proposed gas-to-liquids plant targeted for Louisiana that was canceled and its investment in Arrow, a LNG project in Australia that was deferred. A decision about constructing a petrochemical plant in the U.S. Northeast to capitalize on the growing gas and liquids output from the Marcellus and Utica formations was postponed.

When Shell reported its earnings, Mr. van Beurden announced a change in direction for the company, partially reflecting the company's capital spending review and clearly a statement about its view of the company's needs for the future. Shell will curb its spending, temper its growth plans, increase divestments and restructure parts of the business. At the same time, Shell's confidence in the future was reflected by the decision to increase its dividend by 4%. At the same time, however, the company cut total capital spending 20% below 2013's level and targeted increasing organic investment by 8% to \$35 billion. The company is stepping up its divestment program with plans to sell an additional \$15 billion of assets during 2014 and 2015.

Exhibit 1. Assets To Be Sold By Shell Oil

Already announced	Country	Buyer	Value (\$bn)	Comment
Wheatstone-Iago JV (8%) & Wheatstone LNG project (6.4%)	Australia	Kufpec	1.1	Insufficient stake size to be meaningful
Parque das Conchas – BC10 (23%)	Brazil	Qatar Pet.	1.0	Follows 23% pre-emption in December 2013 for same price
Macquarie Estimated				
Woodside (23.1%)	Australia	N/A	6.2	Market value, non-core
Liquid Rich Shale (Niobrara, Mississippi Lime, Eagle Ford and Utica)	US	N/A	2.5- 3.5	Restructuring Onshore North Americas core to improving profitability of Upstream
OML 18, 24, 25 and 29	Nigeria	N/A	1.0	Already announced intention to sell down
Other Nigerian assets	Nigeria	N/A	3.0-4.0	Estimate total net production divestment of 100kboe/d
Media/Company Reported				
Ho-Ho Pipeline	Onshore US	N/A	1.0	Source: Financial Times (28/1/2014)
Australian downstream	Australia	N/A	2.5	Source: Australian Financial Review (6/1/2014)
UK North Sea Assets	UK	N/A	N/A	Source Telegraph (14/1/2014)
Norwegian downstream	Norway	N/A	0.5	Assumed \$0.5bn to make it material
Total			18.8-20.8	

Source: MACQ Energy: Jan 31, 2014 Macquarie Securities

To a certain degree one can attribute some of the recent corporate moves to the growing and perceived success of the American shale revolution

Rethinking the oil company business model is not a new phenomenon, and to a certain degree one can attribute some of the recent corporate moves to the growing and perceived success of the American shale revolution. In 2011, ConocoPhillips (COP-NYSE) elected to split its company into an exploration and production-focused company and a downstream-focused company. The split was completed at the end of April 2012 and new management took over running the businesses. The split enabled the E&P business to

At year-end 2013, ConocoPhillips reported that its organic oil and gas replacement ratio had reached 179% of last year's production

focus its efforts on growing its liquids output following the company's untimely investment in dry natural gas with its 2005 purchase of Burlington Resources. That deal boosted ConocoPhillips's gas reserves by 88% and its gas production by 77%, making the company the second largest natural gas producer behind BP Ltd. (BP-NYSE). Since the split, new management has continued to target liquids production over gas output and it has sold investments lacking solid profit growth such as in Algeria and its share of the Kashagan field in Kazakhstan's sector of the Caspian Sea. At year-end 2013, ConocoPhillips reported that its organic oil and gas replacement ratio had reached 179% of last year's production. It also highlighted that production in the Eagle Ford, Bakken and Permian, three attractive liquids-rich plays, had increased by 31% last year. These three areas are highly favored by investors who boost the value of companies active in the plays.

Exhibit 2. Major Oil Company Share Prices



Source: Big Charts

ConocoPhillips and Marathon Oil have been transformed into focused E&P companies

The chart in Exhibit 2 shows stock price trends over the past two years for three majors (ExxonMobil, Royal Dutch Shell and Chevron) and two smaller majors – ConocoPhillips and Marathon Oil (MRO-NYSE) that have been transformed into focused E&P companies. The chart shows some interesting trends. Marathon initiated the growing integrated company restructuring in 2011. Since its split into separate producing and refining companies, Marathon has focused its E&P efforts on expanding its unconventional production, especially in the Eagle Ford region of South Texas. A new CEO took over the top spot in mid-2013 and is helping direct this effort. Although some disappointing production results late last year hurt the stock's performance, management continues to execute its game plan.

As shown in the chart, over the two-year period ending February 2, 2014, the Standard & Poor's 500 Index produced the highest return to shareholders. While underperforming for most of the first half of

The two worst performing stocks for the entire period were Marathon and Royal Dutch Shell

2013, ConocoPhillips actually matched the S&P 500 performance by the end of the year only to drop as we entered 2014. The two worst performing stocks for the entire period were Marathon and Royal Dutch Shell. Their performance convergence by early 2014 was due to the extended slide by Marathon from late fall and the rise in Shell's share price toward the end of the year as shareholders turned more optimistic about the company's future under its new leader. Both stocks subsequently declined in January along with the overall market and the entire petroleum sector. The shares of ExxonMobil and Chevron converged at the end of 2013 as ExxonMobil's share price was boosted by the revelation of a significant new investment by Warren Buffett's Berkshire Hathaway (BRK.A-NYSE). Up until that revelation, Chevron had outperformed ExxonMobil for virtually all of 2013.

The integrated model generates enormous amounts of cash, and implicitly attractive organic returns

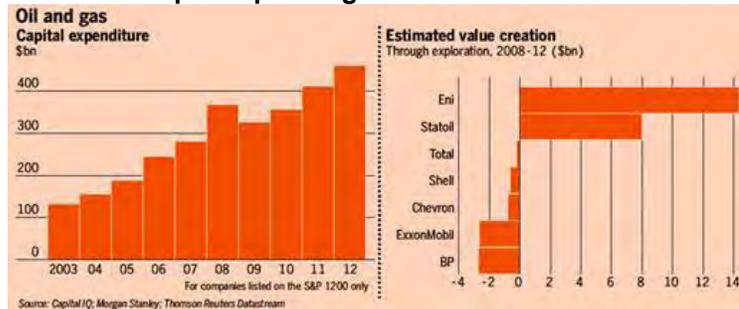
A mid-December Lex Column in the *Financial Times* asked the question "Why own shares of Big Oil?" The writer offered an explanation – the integrated model generates enormous amounts of cash, and implicitly attractive organic returns. The writer examined Shell's financial performance based on interim results and research estimates. For 2013, Shell generated cash flow from operations of \$16.5 billion and total cash flow after tax of \$40.4 billion. Total capital expenditures for 2013 were \$40.1 billion and the company paid \$7.2 billion in dividends. It increased its debt outstanding by \$2.2 billion and repurchased \$5 billion of shares outstanding. Essentially, Shell failed to generate any free cash flow last year, which certainly supports Mr. van Beurden's statement about unacceptable results and the need to change how things are done at the company.

In terms of value creation, only two oil companies of the seven analyzed generated positive returns, yet the industry has continued to ramp up capital spending

The lack of financial performance is demonstrated in the series of charts that accompanied another *Financial Times* article dealing with the need for the major oil companies to adjust their capital spending. The charts show oil and gas capital expenditures from 2003 through 2012 and the estimated value creation through exploration for 2008-2012. Note that in terms of value creation, only two oil companies of the seven analyzed generated positive returns, yet the industry has continued to ramp up capital spending during this period as companies have pledged to grow their production even as the cost to find and develop new oil and gas reserves escalates.

So with Shell's performance as an example of a company generating substantial cash flows but failing to earn meaningful returns, the Lex Column suggested that the returns attracting investors must be coming from merger and acquisition activity. The example pointed to by the Lex Column of the industry's failure in this regard was ExxonMobil's purchase of XTO Energy for \$40 billion at the end of 2009, just in time to catch the collapse of domestic natural gas prices. As ExxonMobil's CEO Rex Tillerson said early last year, the company was losing its shirt on its gas activities. The Lex

Exhibit 3. Capital Spending Fails To Match Value Creation



Source: Financial Times

“What matters now is to rein in capex and start focusing on returns”

Column pointed out that since the acquisition ExxonMobil’s shares were up only 30%. It also pointed out that U.S. oil companies lagged the S&P 500 by “a distance” over two- and five-year periods, which is confirmed by Exhibit 2 and also by the chart above.

The Lex Column concluded: “What matters now is to rein in capex and start focusing on returns. This will happen in two ways. One is by asset disposals – 2014 could see a flood of oil and gas assets come on the market. The other is through a clampdown on capex and greater control of costs.” It is rapidly becoming clear that both of these strategies will be executed this year and likely for a while longer. On the one hand, energy transaction facilitators – investment bankers and petroleum asset brokers – may be looking at a better year in 2014 than in 2013. On the other, oilfield service companies may be facing a tougher year for generating pricing gains, meaning they, too, will need to tighten their belts and strive to become operationally more efficient if they want to generate adequate returns on the investments they have already made. We could also experience a wave of restructurings within the oil service sector. The American shale revolution isn’t entirely to blame for these developments, but it has to be examined within the context of how it has reshaped investment opportunities and challenges, especially given the significant over-investment in shale developments relative to the cash flows those plays are generating. Games can only be played for so long.

LNG And Challenges Facing Global Gas Market

In the last issue of the *Musings*, we discussed the decision by the Dutch government to cut back natural gas production from the country’s giant Groningen field due to growing concern over an increase in earthquake activity. We pointed out that this cutback decision opened the door for Russia to sell more of its natural gas into Europe, especially as more liquefied natural gas (LNG) volumes from Qatar are going to Asia rather than Europe due to better prices. As we monitor the growing global gas market, and the role LNG plays in its dynamics, there have been a series of interesting developments that may impact the market’s future dynamics.

The Cameron terminal becomes the sixth export facility approved by the government to ship gas to countries without FTAs with the U.S.

In the United States last week, Sempra Energy (SRE-NYSE) subsidiary Cameron LNG LLC won approval from the Department of Energy to export domestic natural gas to countries that do not have free trade agreements (FTA) with the United States. Additionally, the Federal Energy Regulatory Commission okayed the firms' environmental impact statement, which allows Sempra to move forward in selecting a contractor to build the three cooling trains needed to liquefy up to 1.7 billion cubic feet (Bcf) per day of gas for export. The Cameron terminal becomes the sixth export facility approved by the government to ship gas to countries without FTAs with the U.S. The six terminals have a combined 8.5 Bcf per day approved export capacity when fully up and running, which represents 11.2% of the current monthly gross volume of natural gas withdrawn from fields based on the latest data as of November 2013 (the latest data available) from the Energy Information Administration's (EIA) Form 914 survey of gas producers.

The projected LNG export volumes would represent 9.7% of future domestic gas production volumes if production grows at 2.5% a year

If we assume that only these six terminals are built and operate at peak volumes, which would be in 2019 as cited by the press release from Sempra Energy, the 8.5 Bcf per day of LNG exports would represent a lower percentage of estimated gas output – 9.4% if gas production grows at 3% per year, which is below the 3.3% growth rate posted for the last 12 months of reported data. (We calculated the increase between the revised estimate for November 2012 from the Form 914 survey to the initial estimate for the month of November 2013.) The projected LNG export volumes would represent 9.7% of future domestic gas production volumes if production grows at 2.5% a year, an estimate below the 2.8% growth for the latest 12 months based on measuring the change from the initial monthly production estimates for the months of November 2012 and 2013, respectively.

The EIA projects natural gas output to grow by 2.1% in 2014 and 1.3% in 2015, respectively

We found it interesting that the November 2013 Form 914 gross production estimate is about 5 Bcf per day higher than the Lower 48 gas supply estimate employed by the EIA in its Short-Term Energy Outlook (STEO) that forecasts energy markets for the next two years and is revised every month. The EIA projects natural gas output to grow by 2.1% in 2014 and 1.3% in 2015, respectively. The EIA provides quarterly estimates for production and other gas market measures, but if we look at the annual averages that reflect the agency's growth projections, dry gas production volumes would be 70.26, 71.49 and 72.28 Bcf per day for 2013, 2014 and 2015, respectively. To put these numbers in perspective, the initial November 2013 Form 914 production estimate for the Lower 48 states was 75.94 Bcf per day.

While it may appear we are splitting hairs over differences in projections of future natural gas supply, those differences will become important to the extent the DOE and FERC continue to approve applications for LNG terminal export permits from among the remaining 20 projects already in the approval queue. The

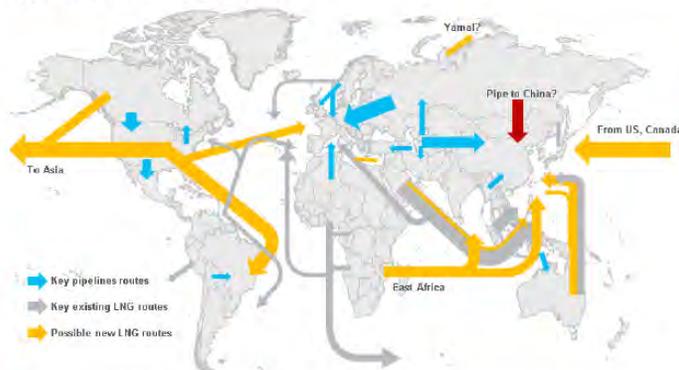
At what percentage of supply will exports significantly begin to impact natural gas prices?

projections are also important because of the difference in the base from which the projection is made and the higher Form 914 growth rate compared to the STEO growth rates. At what percentage of supply will exports significantly begin to impact natural gas prices? That topic will become the center of the debate over whether the federal government should approve additional LNG export terminals. Manufacturing companies that use natural gas and who are building new plants to capitalize on low U.S. prices will be up in arms if the current cost competitive advantage these manufacturers have against producers from other regions of the world narrows or possibly disappears due to government policies. There does remain the possibility that the federal government could rescind or restrict export approvals if it determined that shipping natural gas out of the United States was no longer in the nation's best interest. We remind you that this would not be the first time the federal government reversed energy policies when faced with conditions that could harm the general public. A reversal, or significant limitation of LNG exports, would certainly upset the current view of how the global LNG market will be functioning by the end of the decade.

Panama has been building bigger locks and dredging deeper and wider channels to allow the larger container ships and LNG carriers that are increasingly populating the global shipping fleet to traverse the isthmus

Another development that could upset the global LNG market is the current expansion of the Panama Canal. Panama has been building bigger locks and dredging deeper and wider channels to allow the larger container ships and LNG carriers that are increasingly populating the global shipping fleet to traverse the isthmus and reduce the time necessary to move cargos from the Atlantic to Pacific basins. Reducing the travel time could materially improve the profitability of trade, although Panama will extract some of that profit for the use of its canal. For the emerging U.S. LNG export business, the most attractive market on a relative profit measure is to ship gas from the Gulf Coast to Asian markets rather than European buyers. Today, the price difference between Japan and Europe may be as much as \$5 per thousand cubic feet of natural gas, not all of which is consumed by extra transportation costs.

Exhibit 4. Future Global LNG Trade Potential

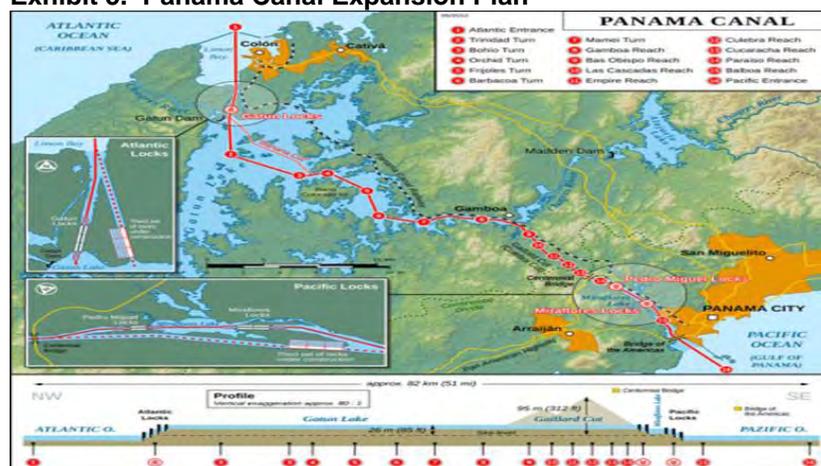


Source: Citi Research
 Note: Schematic only; size of arrows not reflective of actual flow; arrow directions indicative only
Source: Citi Investment Research and Analysis

With the addition of the third set of locks to enable the canal to capture the largest ships to be available by 2025, the project will not be finished until 2019

A significant issue for the Panama Canal expansion is that the contract was likely underbid. In addition, there appear to be issues with the design specifications and the soils involved in the construction. As a result, the project has fallen behind its original construction schedule and now the third locks' construction is considerably over budget. The cost overrun is estimated at \$1.6 billion out of a total estimated project cost of \$5.25 billion. The project was approved by the Panamanians in a referendum in 2006 and commenced work in 2007. The Panama Canal Authority successfully arranged \$2.3 billion in financing from a consortium of international banks in December 2008 at the height of the financial crisis. How to resolve the cost overrun has been an issue for several months but recently reached a critical point when the construction consortium led by Spanish construction company Sacyr said that without resolution it would be forced to stop work. In the past week, reports are that progress on resolving the problem has been made and construction will continue. The original completion date for the expansion was 2015. With the addition of the third set of locks to enable the canal to capture the largest ships to be available by 2025, the project will not be finished until 2019.

Exhibit 5. Panama Canal Expansion Plan



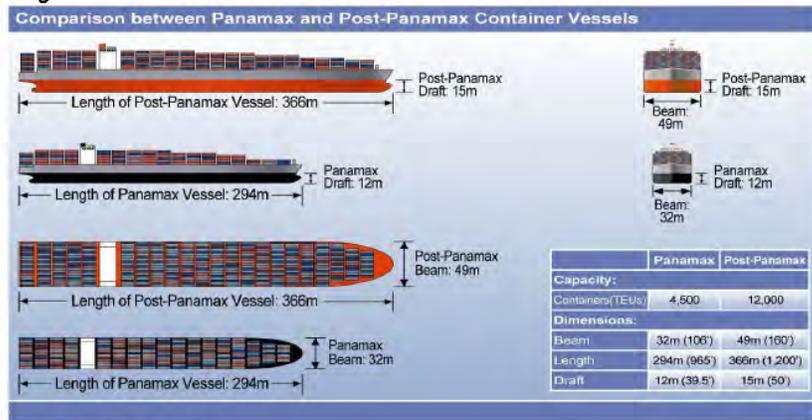
Source: Panama Canal Authority

The new, large carriers – Q-Max – that were built to move gas from Qatar to customers worldwide are 1,132-feet long, 177-feet wide with a draft of 39-feet

The expansion will allow larger cargo ships to pass through the canal. Now, those large ships must offload their containers at one end of the canal, have them loaded on smaller ships that traverse the canal and then have them re-loaded on to the large ships waiting at the other end. To understand the impact the canal expansion will have on shipping economics, note the relative size difference between ships that can currently pass through the canal compared to those that can pass once the expansion is finished. The impact will also be true for LNG carriers. The new, large carriers – Q-Max – that were built to move gas from Qatar to customers worldwide are 1,132-feet long, 177-feet wide and have a draft of 39-feet. This puts them in the same category as the post-panamax ships in Exhibit 6.

Being able to move very large LNG carriers through the canal will open up more profitable Asian routes to US exporters. Based on the delay in the canal's expansion, access to Asia may not be available until close to the end of this decade.

Exhibit 6. How Shipping Will Capitalize On Larger Canal

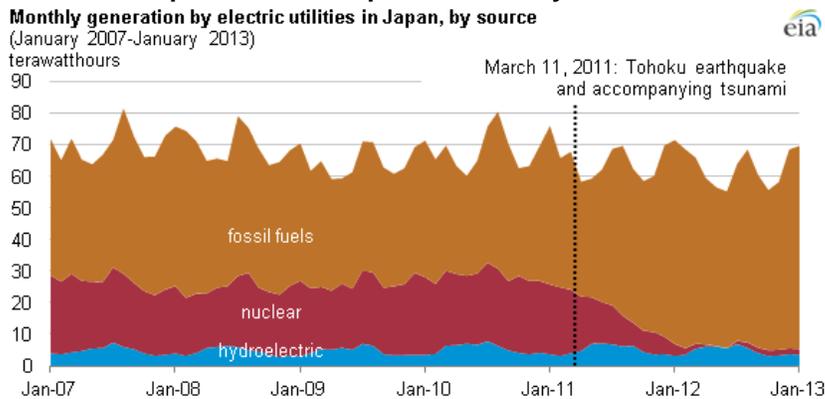


Source: ACP Report

The opposition candidate attempted to make the election a referendum over nuclear power

The third major issue to potentially impact the global LNG market was the February 9th election for the governor of Tokyo. Japanese voters elected the candidate backed by Prime Minister Shinzo Abe who favors reducing the country's reliance on nuclear power in the medium- and long-term and increasing the share of power generated from renewable resources. The opposition candidate attempted to make the election a referendum over nuclear power. Surveys continue to show that the Japanese people favor abandoning nuclear power, either immediately or in the longer term. However, these surveys also show that nuclear power is not as high on the list of voter concerns as jobs, the Japanese economy, an aging population and growing welfare payments.

Exhibit 7. Japan's Power Depends Primarily On Fossil Fuels

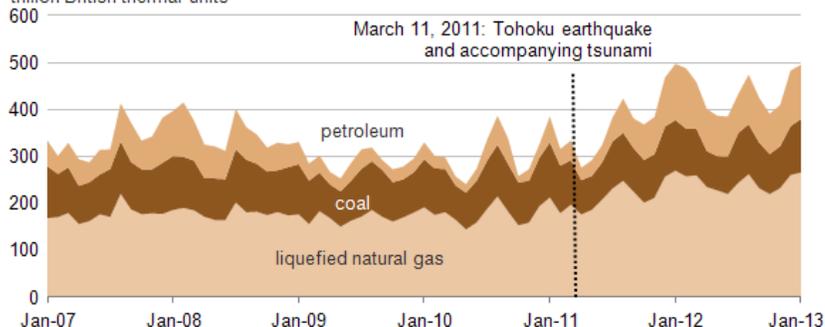


The Japanese utility industry has been an aggressive buyer of LNG to fuel its gas-powered plants and the 14 new ones scheduled to enter service between April 2014 and March 2015

The last of the country's nuclear power plants were shut down last September, although there are efforts underway to convince certain provinces to allow restarting some plants. In the interim, the Japanese utility industry has been an aggressive buyer of LNG to fuel its gas-powered plants and the 14 new ones scheduled to enter service between April 2014 and March 2015. Japan accounts for about one-third of all the global LNG shipments. At the same time, the government waved the country's carbon emissions restrictions, thus enabling utilities to burn more coal. The industry responded last year by increasing its coal consumption by 16% during the first ten months, while it imported 11% more coal. The use of coal will continue to increase for the foreseeable future as the industry plans to construct more coal-fired power plants. Cheap coal contributed to a 0.7% decline in the value of coal imports for the first ten months of 2013 while LNG costs soared by 14.3%. Some forecasters believe that the attraction of cheap coal may undercut the LNG market in Japan, although others say gas purchase decisions are not impacted by low coal prices.

Exhibit 8. Japan's Fuel Mix Now Favoring More Coal

Monthly consumption of fossil fuels for power generation by Japanese power companies (January 2007-January 2013)
trillion British thermal units



Source: EIA

Whatever we may think about how the LNG business will evolve by 2020, those thoughts should probably include alternative scenarios

Taken together, the continued approval of U.S. LNG export terminals, the potential delay in the expansion of the Panama Canal and Japan's push to use more coal and renewables to help offset expensive LNG, along with the Groningen field output reduction and the resulting increase in Russian gas supplies to Europe, these developments make clear that the global LNG market will be subject to headwinds, tailwinds and crosswinds through 2020. Whatever we may think about how the LNG business will evolve by 2020, those thoughts should probably include alternative scenarios. The global gas industry certainly isn't going to shrink given the momentum from consumers, producers and regulators, but the projections of market growth may need adjusting. Those adjustments will create knock-on effects in other markets – some relatively easy to forecast, but others unforeseen. It is these unintended consequences that we should worry about. Stay tuned, and stay alert.

Do Recent Auto Trends Portend Problems For Energy?

The study showed the first decline in the reliability of late-model used cars since 1998

We were intrigued by four very recent data points involving the domestic automobile industry and wondered whether they reflect new trends that could impact the level of fuel consumption in the future. The first data point was the release of the J.D. Power annual Vehicle Dependability Study showing the most reliable three-year-old vehicles. The study showed the first decline in the reliability of late-model used cars since 1998. That represents a break in a 13-year trend. Is this an anomaly or should it be a concern?

The shift to smaller engines that have been beefed up to produce more power and greater fuel-efficiency has been in response to federal regulations tightening the corporate average fuel efficiency standard on its way to 54.5 miles per gallon in 2026

The study says that owners of three-year-old vehicles (2011 models) reported 6% more troubles than owners of three-year-old vehicles (2010 models) did last year. The biggest contributor to the increased troubles is new engines and transmissions that accounted for nearly six of the seven additional problems per 100 vehicles reported in the current study. The study reports, "The decline in quality is particularly acute for vehicles with four-cylinder engines." The move to smaller engines has grown in recent years, with many more vehicle models offering a four-cylinder engine as standard, and possibly the only option. The shift to smaller engines that have been beefed up to produce more power and greater fuel-efficiency has been in response to federal regulations tightening the corporate average fuel efficiency (CAFE) standard on its way to 54.5 miles per gallon in 2026. According to Power, this shift means that auto buyers are faced with cars with "engine hesitation, rough transmission shifts and lack of power." No wonder the owners view the vehicles as less reliable. For auto companies, high vehicle reliability rankings are associated with future purchases of that brand's cars.

Due to a programming error these gas-electric hybrid power systems could shut down

Our second data point was the announcement by Toyota (TM-NYSE) that it was recalling all of the 1.9 million new model Prius cars it has sold worldwide due to a software issue. Due to a programming error these gas-electric hybrid power systems could shut down. Auto experts commented that this problem reflects the growing technological sophistication of automobiles, designed to make our driving experience more pleasurable and to improve the performance of the vehicle, mostly to help meet tighter fuel-efficiency goals. As Jack Nerad, the executive editorial director at Kelley Blue Book was quoted saying, "Cars are getting more complicated. Twenty years ago, we weren't having software glitches." Most new car owners can relate to that problem as their repair options have been restricted by the need for a computer analysis of the vehicle in order to diagnose problems. As cars become increasingly more sophisticated, they will cost more and require more expensive repairs.

The third data point was the announcement by General Motors (GM-NYSE) that it was recalling 620,000 late-generation compact cars in the United States because a heavy key-ring or jarring of the key-ring

Maybe the growth of auto inventories has to do with the reality that we are completing the catch-up phase of the auto replacement cycle that was delayed by the bad economic times that pushed the average age of the car fleet to 11 years

can cause the ignition to switch off. The models involved in the recall are 2005-2007 model Chevrolet Cobalts and 2007 model Pontiac G5s. Not only are those vehicles subject to possible ignition-switch failures, but the timing of the failure could prevent the activation of the vehicle’s air bags in the event of a crash.

The last data point was that auto manufacturer’s inventories have swelled to levels last seen immediately prior to the 2008-2009 financial crisis and resulting recession. Some analysts are dismissing the inventory build-ups as an issue created by the carmakers withdrawing selling-incentives, while others suggest it has to do with the bad winter weather. Those analysts believe spring and more buyer incentives will correct the unbalanced inventory situation. On the other hand, maybe the growth of auto inventories has to do with the reality that we are completing the catch-up phase of the auto replacement cycle that was delayed by the bad economic times that pushed the average age of the car fleet to 11 years. If the inventory build is associated with a maturing of the replacement cycle, then the current stagnant wage growth and weak employment picture might suggest that we could be looking at lower auto sales this year, which would certainly undercut the optimistic thinking about U.S. economic growth for 2014. In fact, we have seen forecasts that call for only 15.2 million vehicles to be sold in 2014, down from the 15.6 million sold last year and expectations that 16 million units will be sold this year. Could that be the reason why the share prices of Ford (F-NYSE) and General Motors have collapsed in recent weeks?

Exhibit 9. Do Falling Car Share Prices Signal Sales Weakness?



Source: *Agora Financial*

In the past, in order to meet higher fuel-efficiency standards, cars were made smaller, and they became inherently less safe in crashes

Data points are nothing more than data points. However, just as the first robin sighting of the year signals the impending arrival of spring weather, data points often signal emerging new trends. The vehicle recalls we cited, and there have been others, point to the growing challenges of building vehicles to meet more stringent vehicle emission and fuel-economy standards. In the past, in order to meet higher fuel-efficiency standards, cars were made smaller, and they became inherently less safe in crashes. The software programming issue strikes us as the most troubling data point since merely a few weeks ago Americans were being educated on the state of the auto industry's effort to build and introduce autonomous cars. Self-driving cars depend almost entirely on voluminous sensor data input and real-time computer interpretation of the data, in order to direct the car's motion. Software glitches and autonomous cars are mutually exclusive! If you don't want to drive, just embrace the old Greyhound bus tag line – Take the bus and leave the driving to us.

Here Is An Example Of Why Private Equity Likes Energy?

The group is much larger today than it was merely 12 months ago and the composition and focus of the participants has changed

Last week, we attended the monthly Private Equity Breakfast meeting in Houston, which many PE firms, commercial and investment banks and third-party support service vendors attend. We have been attending these sessions for a number of years and have observed two trends – the group is much larger today than it was merely 12 months ago and the composition and focus of the participants has changed. In the past, we used to know many of the PE players at these breakfasts as they were affiliated with funds totally or primarily focused on energy – a natural fit in Houston. Last week, we saw virtually no energy-focused PE firm representatives present, or at least that we recognized. That may reflect that senior PE executives are sending their juniors who we do not know, or that the energy fund PE people are too busy with deals to spare the time to network and learn about what is going on in the PE world in general.

Over the life of the firm through 2012 their deals have generated a 47% internal rate of return

The presentation at this PE breakfast was made by Andy Foskey of Transition Capital Partners, a Houston-based PE firm that does not operate a fund but rather has a stable of wealthy current or former CEOs and entrepreneurs who fund deals on a deal-by-deal basis. Mr. Foskey has a long career in the PE industry having served with two private family offices in Dallas and Houston, as well as having worked for several traditional PE ventures in Texas. While discussing his experiences as a PE principal, he reviewed some of the recent deals of Transition Capital – both those that have been sold recently and those currently in its portfolio. Over the life of the firm through 2012 (he admitted they needed to update their figures) their deals have generated a 47% internal rate of return (IRR).

Mr. Foskey highlighted his most recent investment success that produced a 200% IRR over the 20-month ownership, and showed how this deal reflected his firm's target deal-size and willingness to

Mr. Foskey said they liked the owner and saw potential for the company

confront difficult situations. This particular business was located in Houma, Louisiana and was a rental company focused on mobile homes for oilfield work sites, water-hauling trucks and frac tanks. The business was run by a former salesman with oilfield rental company Stallion and his first three pieces of equipment were provided by his father. The firm had 17 employees and the books were “a mess” when Transition Capital was presented with the investment idea by a business broker in Louisiana. Mr. Foskey said they liked the owner and saw potential for the company. The business was generating about \$2 million of EBITDA (earnings before interest, taxes, depreciation and amortization), the low end of Transition Capital’s \$3-\$8 million EBITDA range. Twenty months later, the firm had 120 employees; a new CEO recruited from Stallion and was generating EBITDA at a \$20-million annual run-rate when it agreed to sell to a larger oilfield service company.

We estimate that the transaction value was roughly \$10 million, or about 5-times the annual \$2 million EBITDA run-rate

Based on Mr. Foskey’s presentation, we pieced together the following analysis, which admittedly is very rough, but demonstrates why PE firms are often attracted to oilfield service investments. Transition Capital, purchased 70% of the company while the owner retained a 30% interest. We estimate that the transaction value was roughly \$10 million, or about 5-times the annual \$2 million EBITDA run-rate. Transition Capital would have put in about \$7.5 million of capital, but it may not have been all equity. Based on comments that the deal generated an 8-times cash-on-cash return and that the seller made a \$25 million profit on the exit, we estimate that the company was sold for somewhere around \$100 million, which would suggest a valuation multiple similar to that of the purchase, or five times EBITDA.

One of the attractions of small companies is that there is always market share to be taken

The attraction of PE firms to these types of deals is a reflection of how the value can be enhanced (200% IRR) by finding a company with a successful market niche – either geographic or business line – and run by a passionate owner/founder that needs management help and capital to expand. If the business-cycle is positive and/or the region where the business operates is expanding, there is substantial upside to be captured. As Mr. Foskey put it, one of the attractions of small companies is that there is always market share to be taken. He also told the audience of PE professionals, to substantial laughter, that all of them in the room are trying to do the exact same thing: find a cheap business with growth opportunities that needs capital and management assistance and that allows the PE firm to sell at a higher valuation multiple when exiting the deal in order to make a lot of money. Buy low. Sell high. Welcome to the world of private equity investing.

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