

GRANT THORNTON LLP SURVEY OF UPSTREAM U.S. ENERGY COMPANIES 2013

The state of the industry: New opportunities for growth



HARTENERGY

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Rebirth of U.S. oil and gas industry unfolding before us

To evaluate how far you've come, it is helpful to analyze where you were before. I'd like to take a moment to do exactly that in order to assess one of the greatest economic evolutions ever to occur in the United States, one that is still unfolding as I write the rebirth of the U.S. oil and gas industry in the 21st century.

During the mid-1990s, as we were full swing into Bill Clinton's first term as president, the United States was getting back on its feet after yet another recession, following the first Gulf War. Nearly all of us were being introduced to a few things called email and the Internet. Concern about the environment was certainly present at the time, but the focus seemed to be on anything ending in *.com*. What was also notable about that specific time in U.S. history? This past year, according to the Energy Information Administration, U.S. carbon emissions output reached its lowest point since that period (circa 1994) almost two decades ago. This is a significant accomplishment for a nation that was fixated solely on the technology industry as a vehicle toward becoming a self-sufficient nation. Little did most know that in just under a decade from that point in the '90s, the first horizontal natural gas well would be drilled into a geological formation called the Barnett Shale, located in the Fort Worth region of Texas. From that point on, our country would never be the same.

6 6 The benefits of U.S. shale drilling are astounding: dramatic job creation, a cleaner-burning fuel and major strides toward energy independence.

Sean P. McGrath Chief Financial Officer, Atlas Energy, L.P. **6 6** The U.S. oil and gas industry represents a permanent renaissance in the way we look at energy and how we provide energy security for future generations.

Sean P. McGrath Chief Financial Officer, Atlas Energy, L.P.

The dramatic decrease in carbon emissions since that time is just one of many positive outcomes from the technological development of extracting massive amounts of natural gas and oil through horizontal drilling. Trillions of cubic feet of natural gas and millions of barrels of oil — once thought to be unattainable and trapped in geological stasis — have now been released, which has caused a sea change in how we will see the future of U.S. energy written.

The benefits of U.S. shale drilling are astounding: dramatic job creation, a cleaner-burning fuel and major strides toward energy independence.

At Atlas Energy L.P., we have experienced this energy evolution intimately. Just more than five years ago, we witnessed the birth of the Marcellus Shale, sister formation of the Barnett, Fayetteville and Haynesville shales, and actively drove its development during the succeeding years. Since that time, not only has the United States become the world's leading supplier of natural gas from these and similar plays, but the application of these natural gas development techniques to oil and liquids shale plays has created an even greater opportunity than once imagined. To drill deeper with regard to the benefits of this energy evolution:

North Dakota claims the lowest state • unemployment rate in the country at 3.3% as of March 2013. This is no surprise to the oil and gas industry, as the Peace Garden State is home to the Bakken Shale, one of the most prolific oil plays in the United States. This basin has created new opportunities not only for North Dakota residents but also for those who have traveled thousands of miles looking for employment in this burgeoning industry. Williston, once a sleepy town in the Corn Belt, is now the epicenter of U.S. oil production, where starting salaries for rig workers rival those of MBA graduates. In fact, North Dakota now produces more oil than the entire country of Ecuador. And this all transpired within the past five years.





Success in the oily Bakken, as well as plays such as the Eagle Ford in south Texas and the rejuvenated Permian Basin in west Texas, has led industry analysts to predict that the United States will be the world's leading oil producer by 2020 — ultimately surpassing Saudi Arabia. This is more than a shift, more than a new label for our country, more than a simplistic rebalancing of supply and demand. The U.S. oil and gas industry represents a permanent renaissance in the way we look at energy and how we provide energy security for future generations.

As we move ahead into the next several chapters of the U.S. energy life cycle, we must remind ourselves of what is ultimately most important in cultivating these resources — namely, maintaining proper balance with the environment. After all, the benefits from the abundance of cleaner fuel such as natural gas are meaningless if improperly developed by harming existing natural resources. Fortunately, the collective energy industry continues to consistently create more efficient, environmentally friendly processes to accomplish this.

We look forward to the years ahead as this renaissance plays out. One thing is certain — the future for U.S. energy shows more promise than ever.

Sean P. McGrath Chief Financial Officer, Atlas Energy, L.P.

Price uncertainty energy industry's main issue – again

Exploration, acreage acquisitions also rate as top priorities

Uncertainty regarding natural gas and crude oil prices remains the primary concern of upstream U.S. energy companies for the second consecutive year, according to Grant Thornton LLP's 11th *Survey of Upstream U.S. Energy Companies*.

Expectations for the average 2015 natural gas price varied by about \$5.50 among respondents. Crude oil forecasts saw a \$100 price difference. With energy price volatility continuing to hinder the industry, fewer respondents expect an increase in capital expenditures during 2013. The survey also suggested little change in the industry's preferred method for accessing capital, indicating that private equity funding and debt instruments remained the preferred methods.

Employment levels still appear encouraging for the energy industry, as more than half of the survey's respondents expect employment to rise for the remainder of 2013. Yet, the expected rate of increase is down from the previous two years. Enhancing company value through successful exploration and acreage acquisitions again rate as top priorities for the survey's respondents and this trend is likely to continue.

Price expectations

- Our survey respondents expect the spot price of Henry Hub natural gas to average \$3.48 per 1,000 cubic feet (Mcf) in 2013, \$3.77 in 2014 and \$4.09 in 2015.
- The price at which survey respondents expect oil drilling to decline on average was \$69.84 per barrel. This is significantly lower than the expected average price for oil in 2013 through 2015.
- Respondents expect the price of West Texas Intermediate crude oil to average \$91.18 per barrel in 2013, \$92.04 in 2014 and \$94.12 in 2015.
- Expectations for the spot price of natural gas in 2015 range from \$2.50 to \$8.00 per Mcf; oil price forecasts for the same period range from \$70 to \$170 per barrel.
- Uncertain natural gas and crude oil prices remain the industry's top concern.



With energy price volatility continuing to hinder the industry, fewer respondents expect an increase in capital expenditures during 2013.

Capital spending outlook

- Nearly 60% of respondents anticipate increasing their domestic capital expenditures in 2013, down from 63% in 2012.
- Crude oil and natural gas price expectations, followed by availability of attractive drilling prospects, are respondents' key factors when making decisions regarding capital spending.

Employment outlook

- Fifty-three percent of respondents expect their company employment levels to rise in 2013, down from 71% in 2012 and 61% in 2011 (see Figure A).
- Only 31% anticipate difficulties hiring and retaining employees in 2013, down from 55% in 2012; availability of technical staff is still on the list of industry concerns, but not as high as in years past.

Industry issues and opportunities

- Uncertain oil and gas prices remain the most • significant threats to company value, followed by the ability to obtain capital. Eighteen percent of respondents said uncertain oil prices were the most critical problem, followed by 16% who pointed to uncertain natural gas prices.
- Successful exploration and acquisition of key acreage positions top our respondents' list of factors with the greatest potential for enhancing company value, followed closely by mergers and/ or acquisitions (see Figure B).
- Private equity funding and debt instruments were the most prevalent tools used in 2012 and 2013 for accessing capital.

expect their company employment levels to rise in 2013.

Figure A: Company employment will* Not sure No change • Decrease Increase 2014 2013 2012 0% 10% 20% 30% 40% 50% 60% 70% 80% *Responses do not total 100% due to rounding.

Figure B: What provides the most opportunity for enchancing the value of your company?





Energy prices remain volatile

Survey shows operators turning to joint ventures in 2013

Again in 2013, respondents to Grant Thornton's *Survey of Upstream U.S. Energy Companies* told us they continue to wrestle with the impact of unpredictable oil and gas prices. Furthermore, executives said persistent cost issues are frustrating their capital spending decisions. As with 2012, volatility has led to a reliance on hedging production as insurance against price fluctuations. For both 2013 and 2014, the majority of respondents indicated that more than 50% of their oil and gas production would be hedged.

Problems threatening company value

Uncertain oil and gas prices remain the most significant threats to company value, followed by difficulty of obtaining capital. Eighteen percent of respondents said uncertain oil prices were the most critical problem, followed by 16% who pointed to uncertain natural gas prices. In the 2012 survey, availability of a skilled technical staff was seen as the third-biggest problem for companies, but this factor dropped to eighth in 2013.

Rounding out the possible threats, in order of importance, are regulatory requirements, access to enough acreage, legislative initiatives, environmental concerns, competition with larger companies, access to midstream infrastructure; litigation and other concerns.

"Energy commodity prices can be incredibly volatile and, in the words of often quoted economist John Maynard Keynes, 'Markets can remain irrational longer than you can remain solvent.' Prices can change quickly and drastically, without warning."

Mercatus Energy Advisors, March 2013

Hedging

In the 2013 survey, 41% of respondents said their companies use hedging instruments to manage price risk. Sixteen percent of all respondents said hedging was required by lenders — a big drop from 77% in the 2012 survey. Of respondents who use hedging, just 36% are required to hedge by lenders. Financial hedging is by far the most common method (see Figure C).









Enhancing company value

Successful exploration and acquisition of key acreage positions top our respondents' list of factors with the greatest potential for enhancing company value, followed closely by mergers and/or acquisitions. Exploration was also at the top of the list in the 2012 survey. Meanwhile, price risk management, asset sales, capital infusion, and retaining/attracting people were considered less important (in that order).

Accessing capital

Private equity funding and debt instruments were the most prevalent tools used in 2012 and 2013 for accessing capital. Respondents indicated joint ventures would become more common, with 49% of respondents indicating use of that strategy in 2013 compared with 35% in 2012. More companies are looking to form a joint venture to help cover costs of production. In the past few years, many U.S. companies have teamed up with companies from outside the United States for exploration and production of oil and gas from shale.

Other strategies included in the survey were equity issues and asset sales (see Figure D).

2012 year in review

Slower economic growth and more oil supply

As originally posted on Hart Energy's North American Shale Quarterly website

Three years after the Great Recession, the global economy is still struggling. While 2010 delivered real gross domestic product (GDP) growth of 4.5%, the above-trend-line growth was achieved because of a low base owing to the 2009 deep contraction and extraordinary fiscal and monetary stimuli that followed the steep decline in global output. Fiscal stimulus has been off the table in most advanced countries because of debt overhang, and slowerthan-expected job creation hasn't provided a base of government revenue growth to restock coffers or pay down debt. Simply put, the past two years of belowtrend-line growth can be considered payback for the outsize growth in 2010.

Slower-than-forecasted economic growth will also impact crude oil and refined product demand, which has been expanding at a slower pace than GDP growth due to displacing gasoline/diesel volumes with biofuels and increased engine efficiencies in motor transportation. For example, in the United States, Corporate Average Fuel Economy is already having an impact on fuel demand as miles per gallon for the new car fleet is at an all-time high. In fact, fuel economy has been a big issue in Latin America and Middle Eastern countries. Mexico, Brazil and Saudi Arabia are just a few countries set to establish fuel efficiency standards in the near future. While petroleum demand isn't necessarily growing in conjunction with global economic growth, increased volumes of crude oil are hitting the market, from Iraqi crude oil to North American light tight oil. The bottom line: Non-OPEC supplies of crude oil are growing almost as fast as global oil demand.

With slower-than-expected oil demand growth, oil prices — according to our 2013 survey — are expected to remain muted over the next three years. Nevertheless, M&A activity and joint ventures continue to have an important impact as foreign operators look to gain an understanding of unconventional horizontal drilling and hydraulic fracturing techniques, and access to oil and gas supplies from North America.

Last year, we believed that 2012 would allow the industry players to pursue growth opportunities. In 2012, the total deal flow reached a record of \$116 billion, about \$40 billion of which came from international buyers, according to statistics from IHS Herold. During that year, \$41 billion was for deals in Canada and \$72 billion was for U.S. deals.



M&A activity and joint ventures continue to have an important impact as foreign operators look to gain an understanding of unconventional horizontal drilling and hydraulic fracturing techniques, and access to oil and gas supplies from North America. M&A activities, such as the CNOOC and Nexen \$15 billion merger, led the way in deal flow in 2012. Joint ventures — according to our 2013 survey — are also set to impact the industry in 2013 as they did in 2012. Sinopec inked a deal with Chesapeake Energy to acquire Mississippi Lime acreage in the first quarter of 2013.

Private equity firms — such as KKR, Natural Gas Partners, Riverstone Holdings and First Reserve Corp. — were active buyers in the energy market in 2012 and will remain busy in 2013. Strategic asset sales from mid-cap operators — such as SandRidge Energy's \$2.6 billion sale of Permian Basin producing assets — will also dot the landscape in 2013, as slowly recovering natural gas prices and double-digit oil prices force companies to rebalance asset sheets.



Cost instability still an issue for operators

Oil price expectations are flatlining; gas price expectations in contango

In the 2013 survey, natural gas prices have the most uncertainty. Survey respondents have the largest divergence in views regarding natural gas prices: The low and high estimates for 2013 natural gas prices varied by nearly \$2.50 per Mcf, and this gap grows to almost \$6.00 per Mcf by 2015. Yet, on average, natural gas prices are expected to increase over the survey period.

Oil price predictions also vary significantly from the minimum to maximum prices suggested by respondents, but not to the same degree as natural gas prices. More importantly, the average oil price is expected to be more or less stable over the next three years, according to our respondents.



Average price projections

Survey respondents do not expect natural gas prices to average more than \$4 per Mcf over a calendar year until 2015. Last year, respondents to our survey were more sanguine about natural gas prices. In the 2012 survey, respondents estimated the average gas price for 2012 to be \$3.91 per Mcf, rising to \$4.30 per Mcf in 2013 and then to \$4.69 per Mcf in 2014.

In the 2013 survey, respondents estimated the average gas price for 2013 to be \$3.48 per Mcf, rising slightly to about \$3.77 per Mcf in 2014 and reaching \$4.09 per Mcf in 2015 (see Figure E).

Expectations for rising crude oil prices have also been pared back when comparing the 2012 and 2013 surveys. Average crude oil prices for 2013 were expected to remain close to \$85 per barrel, rising marginally each year. In the 2012 survey, the crude oil prices were expected to top \$100 per barrel by 2014. Obviously the success of light tight oil production in North America has reduced expectations of price inflation.

The price at which survey respondents expect oil drilling to decline on average was \$69.84 per barrel. This is significantly lower than the average price for oil in 2013 through 2015, and lower than most shale break-even prices in Hart Energy's North American Shale Quarterly (see Figure F).

Figure E: Predictions for Henry Hub average natural gas prices



Figure F: Predictions for West Texas Intermediate average oil prices



Focus on the Utica

Companies are ramping up activity in the fast-growing play

One of the most exciting emerging plays in the United States today is the Utica Shale, which boasts three opportunities for exploration and production (E&P) players: an oil, dry-gas and wet-gas window, much as the Eagle Ford Shale does. The Utica is found mostly in eastern Ohio, but early drilling is also being pursued in western Pennsylvania.

"Because we have had the luxury of watching many other areas of the United States go through the shale development cycle in recent years, the industry and Ohio have been able to see what works and what doesn't," says Rick Gross, Audit partner and Energy practice leader in Grant Thornton's Cleveland office. "We believe Ohio is primed to promote the development and production of the Utica Shale in a way that benefits all stakeholders, both economically and environmentally."

The Utica Shale extends across 15 million acres through mostly Pennsylvania, Ohio, West Virginia and New York. The basin formed in the Late Ordovician Period with primary source rocks being the Utica, which underlies the Marcellus Shale by a few thousand feet.

The black shale facies is as much as 700 feet thick in southwestern Pennsylvania and New York, but the thickness typically ranges from 150–350 feet. Total organic carbon (TOC) values usually exceed 1% weight. There is a broad trending area from the northeast to the southwest across western and southern Pennsylvania, eastern Ohio, northern West Virginia, and southwestern New York where the TOC values are in a range of 2–3% weight.

Drilling is currently focused in Ohio, where the sweet spot for the play is in eastern Ohio, because the organic content is very high and liquids-prone there.

The Ohio Utica also extends to the west, where the Point Pleasant formation, a sub-member of the Utica, is present. The reservoir contains dry gas in the east, ranging to oil in the west and covering more than 100 square miles in the eastern part of the state.

The natural gas window extends through Pennsylvania into southern New York and northern West Virginia. The concentration of activity in Ohio is largely a result of low returns on dry-gas production, which has caused producers to move operations to the wet-gas window that is solely in Ohio and the Point Pleasant formation.

Infrastructure development is responding to the play's growth. "Close proximity to major interstate pipelines, along with commitments from many of the large midstream entities to construct or expand processing and transmission assets in the Appalachia region, is further evidence that the Utica Shale is quickly becoming a significant play in the United States," notes Gross.



Drilling is currently focused in Ohio... because the organic content is very high and liquids-prone there. We believe Ohio is primed to promote the development and production of the Utica Shale in a way that benefits all stakeholders, both economically and environmentally.

Rick Gross

Audit partner and Energy practice leader in Grant Thornton's Cleveland office

Drilling and permitting data

The North American Shale Quarterly, published by Hart Energy, tracks ongoing activity in Ohio where the majority of leasing and drilling activity is occurring. The following is the quarterly's Ohio Utica/Point Pleasant well summary from Dec. 1, 2012 to March 2, 2013:

- Total permits are up by roughly 76, for a total of 550 permits.
- The total number of wells drilled or being drilled increased by 67 to reach 255 total wells.
- Producing Utica wells in Ohio increased by 29, for a total of 74 producing wells.

Well results from companies active in the play have encouraged industry players to pick up their drilling cadence and increase their acreage in the play. (See Figure G, a public company acreage map assembled by Hart Energy.)

"As the Utica Shale continues to develop, there will likely be continued significant acreage transactions, including those between industry players, as they look to best consolidate acreage and capitalize on the development in this play," according to Gross.

Figure G





Rig activity

The rig activity is provided by Hart Energy's Unconventional Activity Tracker, based on Smith Bits data, which only tracks rigs currently drilling in the play. It does not count rigs that are moving between drill sites, rigging up, rigging down, shooting seismic or drilling brine wells.

Activity in the first quarter of 2013, particularly in Carroll, Columbiana, Guernsey, Harrison and Jefferson counties in Ohio, ramped up significantly, with 33 drilling rigs operating in the state at the beginning of March, according to the Ohio Department of Natural Resources' Division of Oil and Gas Resources. The state reported 27 rigs working in the Utica in December 2012.

Chesapeake Energy Corp., the largest acreage holder and most active operator in the Utica, ended 2012 with 14 rigs in the play and plans to maintain that number through 2013.

Gulfport Energy Corp. is accelerating its 2013 drilling program and recently added a third rig to the play, which spudded its first well during the first week of March. Gulfport has two rigs drilling its first and second wells of 2013 in the Utica. The company anticipated adding a fourth drilling rig in spring 2013.

CONSOL Energy Inc. currently has four rigs running in the Utica, two operated by CONSOL and two by its joint-venture partner, Hess Corp. The four rigs and all 27 wells planned for 2013 will be in the wet zone. Finally, privately held Antero Resources Corp. is currently operating two rigs in the play (see Figure H).

In 2012, there was a sharp increase in the presence of oil rigs, but toward year-end rigs drilling for gas became prominent again in the field.

The end of 2012 and start of 2013 saw a revival in the number of rigs drilling for gas in the Utica. From January through September last year, only three rigs were drilling for gas in the play, one during April, one in May and one in June. The count rose to 14 rigs drilling for gas in January and February of 2013.

Figure H: Utica, Ohio rig count by drilling rig type — from Hart Energy (raw data by Smith Bits)





Figure I: Utica shale production forecast for Ohio and Pennsylvania top public companies from Hart Energy

Company production forecasts

The Utica production forecast has been accelerated from Hart Energy's Q4 2012 NASQ outlook, because the play's production is expected to climb at a faster pace from 2012 through 2021. The pace will depend primarily on the growth and timing of additional midstream infrastructure to meet rising production levels.

Longer term, the annual growth rate slows after 2021, though production continues to grow. By 2021, Utica production is expected to reach 462,100 barrels of oil equivalent (BOE) per day, increasing about 300,000 BOE per day in less than 10 years. From 2021 through 2030, however, production is expected to increase at a more sluggish rate, climbing only about 40,000 BOE per day over nine years. Based on recent well results from the Utica, the proportion of crude oil and natural gas liquids from the play's production was adjusted to show faster production growth and the percentage of gas production was lowered. The proportion of crude oil from the Utica production stream, beginning in 2012, is seen increasing at a faster pace for about five to six years, and then the pace slows. Hart Energy forecasted oil production to peak in 2026 at 107,700 barrels per day, then drop to 96,200 barrels per day by 2030, as fewer drilling locations in the oil window will be available.

"Encouraging early production results in certain key areas of Ohio have prompted many of our clients and other stakeholders to significantly increase planned capital expenditures in the Utica to develop the resources and get them to market," says Grant Thornton's Gross.

"Furthermore, as this part of the country is known for its heavy focus on manufacturing and distribution, our clients involved in this sector are optimistic that the related supply chain to the oil and gas activity will see an increased demand for industry-related products and services" (see Figure I).

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State and local tax efficiencies mean bottom-line savings

Understanding obligations is critically important

John LaBorde and Scott Steinbring, State and Local Tax Partners, Grant Thornton

Cash-strapped state and local governments are looking to the booming energy sector as a prime source for new and expanded tax revenue. To respond effectively, energy companies need to understand state and local tax law complexities and implement compliance efficiencies.

Energy companies pay among the highest state and local taxes in the United States. Moreover, the strong uptick in demand for hydraulic fracturing has driven up the volume of oil and gas activities in certain states. With so much growth and movement into new states, many energy companies may not be aware of some of their state and local tax obligations.

Entity-level taxes, such as income taxes, are generally apparent and understood by most business professionals. However, other less visible taxes can be more costly, especially if not properly managed. Some of the more common non-income taxes imposed on energy companies include property taxes, sales and use taxes, and severance taxes. It is important for energy companies to stay up-to-date with emerging trends and current laws so they can lessen potential state and local taxes. No company wants to be caught off guard with an unexpected tax liability.

New trends raise new property tax questions

Under the traditional system of vertical drilling, tax jurisdiction determination was clear-cut. The physical location of the wellhead identified the taxing body as the city, county, school or special district such as water district. Directional drilling may complicate compliance by crossing multiple local taxing districts, all of whom may seek additional tax revenue. It is important for companies to understand their property tax responsibilities so they can accrue the costs in the correct period and be prepared to meet their compliance requirements for personal property.

Business personal property is subject to property tax in most states, and several of those states also impose property tax on inventory. Annual returns, or renditions, are required to be filed by taxpayers to report the location of their personal property, as well as provide information about the property that allows assessors to determine its value. Companies that are proactive in this compliance process may identify opportunities to reduce their assessed values by utilizing exemptions or identifying reasons as a basis to lower assessed values.

Energy companies should be mindful of property tax valuations for coal-burning electric plants, where the assessor's useful life calculations may be unrealistically extended to generate increased property tax revenue. Many coal-burning plants are either being shuttered or converted to natural gas. In either case, obsolescence is present due to government regulations that reduce these plants' market values.

Sales and use taxes can add significant costs

Sales and use taxes are a major source of tax revenue for the 45 states that impose them. (Alaska, Delaware, Montana, New Hampshire and Oregon do not impose this tax.) In Texas, for example, a recent study revealed total sales and use tax revenues of approximately \$27 billion for 2012, representing approximately 57% of the total 2012 Texas tax revenues. Tax rates and valued tax exemptions vary by state and local jurisdiction, with 7–9% being the general range for tax rates. The statute of limitations runs three to four years in most jurisdictions.

State and local governments either directly tax energy companies or require them to collect tax on customer transactions. Various studies indicate that sales and use taxes paid by businesses on purchases and capital equipment may represent anywhere from 25–35% of all state and local business tax revenues. This suggests that energy companies may pay significantly more in sales and use tax than they pay in entity-level taxes such as income or franchise taxes.

States differ on taxes, rates and exemptions

Because many energy companies operate in multiple states, it is vital for companies to understand the relevant types of taxes and their implications related to specific types of operations in those particular states.

For example, specific sales and use tax exemptions may apply to oil and gas companies, depending upon the states in which they operate. These include:

- processing/manufacturing equipment,
- mining/production equipment,
- pollution control equipment,
- services to increase or stimulate production of an oil/gas well,
- services to increase production at a refinery or chemical plant,
- services performed on qualifying exempt equipment,
- services to clear a well site or pipeline,
- scheduled or periodic maintenance services,
- remediation/reclamation services, and
- removal of industrial or hazardous waste.

Severance taxes are gaining more attention

As drilling and production activities have increased in the United States, so too have the amount of severance taxes paid to those states. This has had a very favorable impact on some states' budgets, and it has caused other states to consider enacting a severance tax or increasing their severance tax rates. Further complicating the matter, some states impose severance taxes based on price or market value, while others impose a tax based on volume.

Some companies have historically viewed severance tax reporting as a necessary compliance burden with little opportunity for tax minimization. However, certain exemptions or reductions in tax are available in many of the states that impose a severance tax. These incentives can be triggered by a variety of factors, including the cost of a well, volume produced or price of the commodity. It is in the best interest of E&P companies to be proactive in taking advantage of these incentives to reduce their severance tax liabilities.

State and local tax considerations for energy companies

State	Severance tax	Property effective tax rates	Sales and use tax considerations	
Texas	 4.6% of market value of oil produced in Texas or 4.6 cents for each barrel of 42 standard gallons of oil produced, whichever formula results in the greater amount of tax 7.5% of market value of gas produced and saved in Texas 	1.9–3%	Texas imposes tax on many services; however, specific exemptions and exceptions exist for various oil/gas operations. Texas also provides a manufacturing exemption for qualifying equipment used in oil/gas operations. It is important to pay close attention to the sales/use tax implications and have proper documentation in place to support a nontaxable or tax-exempt position.	
Louisiana	Oil: 12.5% of value at time and place of severance Natural gas: 14.8 cents per thousand cubic feet (July 1, 2012, to June 30, 2013)	2–2.8%	Louisiana deems the service provider to be the consumer of items and materials used to perform improvements to realty, which include a variety of oil field services. An oil/gas company should closely review the sales/use tax treatment of improvements to realty and oil field services to prevent significant tax overpayments.	
Ohio	Oil: 10 cents per barrel Natural gas: 2.5 cents per 1,000 cubic feet	1.1–1.6%	Ohio provides a sales/use tax exemption for qualifying equipment used in manufacturing or in the extraction of natural resources such as oil and natural gas. It is important to consider the sales/ use tax implications and to maintain proper documentation to support a nontaxable or tax-exempt position.	
North Dakota	 Oil and gas production tax: Oil: 5% gross value at oil well Gas: 11.43 cents per Mcf for fiscal year July 1, 2012, to June 30, 2013 Oil extraction tax: 6.5% of gross value extracted at the well, multiplied by a base rate adjustment that is calculated annually to adjust for inflation. Rate decreases to 4% if the average price of a barrel of crude oil for any year drops below the "trigger price." 	.075–1.2%	North Dakota provides sales/use tax exemptions for a variety of items used in the expansion or construction of gas processing facilities and systems. It is important to consider the sales/use tax implications and to maintain proper documentation to support a nontaxable or tax-exempt position.	
Pennsylvania	Pennsylvania has considered enacting a severance tax but currently does not have one.	1.9–2.4%	Pennsylvania provides exemptions from sales/use tax for qualifying manufacturing and mining items. These exemptions are relatively broad, and transactions should be closely reviewed to determine if an exemption exists in order to minimize sales/use tax overpayments.	
Kansas	8% of the gross value of all oil and gas	1.3–1.8%	Kansas provides certain exemptions for qualifying and approved manufacturers and processors, including integrated production machinery and equipment.	
Colorado	Under \$25,000 gross income: 2%	1.4–1.7%	Colorado deems the service provider to be the consumer of items and materials used to perform improvements to realty, which	
	\$25,000–\$99,999: \$500 + 3% of excess over \$24,999		include a variety of oil field services. An oil/gas company should closely review the sales/use tax treatment of improvements to really and oil field services to prevent significant tax overnayments	
	\$100,000-\$299,999: \$2,750 + 4% of excess over \$99,999		יישאל אווע או אפע פראובים נט ארפיבור פוצווווינמוו נמא טעפראמאווופו	
	\$300,000 and over: \$10,750 + 5% of excess over \$299,999			
West Virginia	5% of the gross value	1.5–1.8%	West Virginia provides exemptions from sales/use tax for qualifying manufacturing and mining items. These exemptions are relatively broad, and transactions should be closely reviewed to determine if an exemption exists in order to minimize sales/use tax overpayments.	

Tax process efficiencies can make a difference

Beyond staying up-to-date with trends and exemption opportunities, most energy companies can stand to benefit considerably from honing their internal tax compliance processes. Done correctly, these processes offer opportunities to achieve savings and minimize risks and liabilities. Following are four tips for companies to improve the effectiveness of their tax compliance processes:

- 1. Focus on compliance upfront. If companies have tax obligations and haven't accrued reserves for them, it can mean big income statement or balance sheet adjustments, leading to cash flow or financial statement problems. It's important to avoid problems by planning for compliance from the beginning.
- 2. Track personal property assets. Energy companies need to track personal property assets and where they are first used. For example, drilling rigs or compressors can be assessed different tax rates depending on their location at first use.

- 3. Maintain appropriate documentation and records to support claimed exemptions. The seller and purchaser of goods and services should work together to ensure that proper documentation is in place to support the relevant exemption and defend any state and local tax audits.
- 4. Establish mutual understanding around transaction and tax implications. A seller and purchaser should reach consensus regarding the tax implications and opportunities in any transaction.

Energy companies are being scrutinized due to industry expansion and state and local tax revenue shortfalls, and it's time to update and upgrade compliance processes. Managing state and local tax compliance effectively will help save money and avoid unpleasant surprises.

Hiring growth still robust but not as bullish as last year

Labor market tightening somewhat in 2014

The upstream U.S. energy companies that participated in this year's survey are confident that employment will increase in the coming months. In fact, more than 50% of respondents said industry growth is inevitable. This is, however, a marked decrease from last year's 71% of participants who indicated the industry's overall level of employment would escalate. Respondents also predicted that employment growth will be better in 2014 than 2013 (see Figure J).





Hiring and retaining talent

On the subject of recruitment and retention, this year's study found that the labor market may be looser in 2013. Sixty-eight percent of respondents don't expect to encounter any difficulties in hiring and retaining employees (an increase from 45% in last year's survey; see Figure K).

Interestingly enough, for the past two years, an identical proportion of respondents (57%) has indicated that they do not expect geologists, engineers or other professionals' compensation to significantly increase (more than 10%). Hence, wage inflation expectations going forward are somewhat muted (see Figure L). Figure K: Do you expect to encounter difficulties hiring and retaining employees in 2013?



Figure L: Do you expect significant compensation increases (greater than 10%) in the next year for geologists, engineers and other professionals?



"Every single company, every single operator in the international environment wants American experience and we simply don't have enough people."

Peter Richter, Vice President of Marketing and Technical Operations, Schlumberger The State of American Energy Report, 2013

Mergers and acquisitions at 10-year high

Overall deal volume for 2012 highest in decade; second six months especially busy

As adapted from the article originally published in the March 2013 edition of Oil and Gas Investor

By nearly every measure, 2012 was a banner year for mergers and acquisitions for North American E&P companies. Many factors combined to give companies extra incentives to reshuffle assets or buy out entire entities. These included the hunger of private equity firms and foreign buyers, the relative stability of energy prices, the lure of unconventional resources and the fear that taxes could possibly rise. Those factors are expected to drive additional deals throughout 2013.

"As demonstrated in our survey results, mergers and acquisitions continue to be a vehicle used by energy companies to enhance their value," says Brandon Cradeur, a managing director with Grant Thornton who leads the firm's Energy Transaction Advisory Services.

A recent report from Bernstein Research indicates that, since 2005, global M&A activity has averaged about \$150 billion per year, even as oil prices doubled over the same period. Last year, however, global M&A activity surged to a record \$260 billion, an all-time high if the figures are adjusted for inflation. Asian national oil companies (NOCs) again dominated as active buyers, including in North America. They continue to boost production and seek reserves as their economies show a growing need for energy supplies, and they remain aggressive in acquiring overseas oil and gas assets. In fact, last year they completed more than \$60 billion in deals, a record. However, this total includes the significant \$15 billion acquisition of Calgary-based Nexen Inc. by CNOOC Ltd., approved in December (but not yet closed). That deal was the largest overseas oil and gas deal by a Chinese company to date.

Most observers expect to see additional deals from Asian oil and gas buyers as oil and natural gas demand in Asia continues to rise, putting additional pressure on these companies to lock in reserves globally.

Cradeur expects to see this foreign investor activity continue. However, he thinks large acquisitions and investments by Chinese-owned companies will begin to slow or be delayed by political pressures, despite the fact that in recent years, Chinese companies have made significant investments in North American natural resources. "It's inevitable that political pressure based on 'national security' will begin to slow or delay future large acquisitions and investments by Chinese-owned companies," he notes. "The question is, when will this delay begin?"



was a banner year for mergers and acquisitions for North American E&P companies.

6 6 Mergers and acquisitions continue to be a vehicle used by energy companies to enhance their value.

Brandon Cradeur

Managing director and Energy practice leader in Grant Thornton's Transaction Advisory Services

Pursuing unconventionals

One of the reasons Asian NOCs are attracted to North America is the lure of unconventional resources. Partnering with a local operator who needs capital is one effective way to crack the shale code, take that technology home and apply it in other areas of the world. As a result, M&A transactions in unconventional resources have risen dramatically since 2007, when total activity in unconventional resources was about \$14 billion.

By 2012, the total rose to \$65.5 billion, according to IHS Herold data. Some clear global trends have emerged during the past five years. In the early days of unconventional development, around 2007 and 2008, U.S. independents took the lead and focused on gas shales. By 2009, with natural gas prices plummeting, there was a major shift to oil shales. That shift continues today.

In today's highly technical, capital-intensive world, the costs of drilling and producing oil and gas are enormous, prompting E&P companies with good quality assets in unconventional plays, liquefied natural gas (LNG) or deep water in strategic locations to seek partners. North America (British Columbia in particular) will continue to be the focus of asset deals this year. The potential for energy from unconventional sources will likely play an important role for three decades and require more than \$2 trillion in capital to fully develop — and M&A can be an important source of capital. That level of investment breaks down to an average of \$70 billion in capital needs every year for the next 30 years.

"With the recent shale land grab and increased price per acre, E&P companies have deployed a significant part of their capital to acquire highpriced acreage," notes Cradeur. "Now they are under pressure to fund the capital-intensive drilling programs, which have thousands of locations. Traditional lenders and public markets are becoming increasingly challenging, thus alternative or more expensive capital will be required — which will reduce return on investment to investors."

Nevertheless, observers think the North American onshore business is strong enough to support \$100 billion of deal flow per year. In 2012, the total reached a record of \$116 billion, about \$40 billion of which came from international buyers, according to statistics from IHS Herold. During that year, \$41 billion was for deals in Canada and \$72 billion was for U.S. deals. **6 6** Whenever a company is acquiring or merging with another, the corporate board members have a duty of care to make sure the executives perform proper due diligence (including reserves, financial, tax, operational) to ensure any potential risks are being evaluated and

addressed prior to close.

Brandon Cradeur

Managing director and Energy practice leader in Grant Thornton's Transaction Advisory Services

New kinds of buyers

Private equity firms and financial buyers were major players in 2012, and Cradeur says that will be true in 2013 as well. Many of the major funds — KKR, Natural Gas Partners, Riverstone Holdings, First Reserve Corp. — were active buyers in the energy market in 2012 and will remain busy in 2013. All of them have raised significant funds to pursue additional deals.

Two large deals in the fourth quarter reflected an emerging trend: the emergence of new kinds of buyers. Phoenix-based global mining giant Freeport-McMoRan Copper & Gold Inc. announced its plans to buy Houston-based Plains Exploration & Production Co. for about \$6.9 billion in cash and stock. The deal is part of a plan to diversify its operations and enter the Gulf of Mexico.

In addition, Calgary's Encana Corp. signed a joint-venture agreement with Nucor Corp. to lock in gas supplies for its steel manufacturing operations. This landmark deal is a way to fund development of Encana's gas assets in the continental United States. Buyers remain keen to get into oil- and liquidsrich areas, and they have limited interest in areas of dry gas. Meanwhile, sellers in areas that contain dry gas or costly formations to develop will likely have trouble finding a buyer.

The most profitable areas to drill lately include the wet Utica play in Ohio, the Marcellus (southwest Pennsylvania and West Virginia), wet areas of the Eagle Ford in South Texas, and the Mississippi Lime and Granite Wash. On the other end of the spectrum are predominantly dry gas areas, including the dry Eagle Ford, Haynesville, Barnett and Woodford shales.

Key Facts

- In fourth-quarter 2012, the number of U.S. oil and gas transactions reached a 10-year high of 75 deals.
- During that same quarter, total dollar value reached \$56.2 billion, the secondhighest level seen in 10 years (behind the \$79.1 billion deal value in fourthquarter 2011).
- Overall deal volume for 2012 also marked a 10-year high, with 204 transactions (only counting deals valued at more than \$50 million), representing \$146.2 billion.
- In 2012, 84% of all M&A deals were primarily oil-related.

Corporate deals or asset acquisitions?

Another major trend seen throughout 2012 was the shift away from corporate deals in favor of asset acquisitions. Bernstein Research reports that the M&A wave of the 1990s was marked by large corporate mergers, but the activity in 2012 was fueled primarily by asset deals. Many upstream companies do not have the cash to develop deep-water or unconventional resource plays by themselves. Rather than exit entirely, they prefer to seek a partner.

Many analysts expect additional consolidation of small-cap E&Ps, which have shale acreage or deepwater oil and gas discoveries but insufficient capital to develop them.

Meanwhile, the majors want to optimize their portfolios rather than make a radical change through large corporate acquisitions. Finally, the U.S., Canadian and Australian governments are more likely to approve asset deals rather than outright corporate acquisitions.

"Although 2012 was marked by an upswing in asset acquisitions, in 2013 year to date I've seen the pendulum swing back to corporate mergers," says Cradeur. "Whenever a company is acquiring or merging with another, the corporate board members have a duty of care to make sure the executives perform proper due diligence (including reserves, financial, tax, operational) to ensure any potential risks are being evaluated and addressed prior to close."



LNG

The U.S. and Canadian energy markets are generally very stable, a factor that underpinned M&A activity in 2012 and will do so going forward. Relative to other areas, North America has a relatively calm regulatory and fiscal environment, making it attractive for global buyers, Cradeur says.

Then, too, North America remains a resourcerich environment in a world that increasingly wants and needs access to those resources. A large part of M&A activity is driven by the access to those resources, including the Canadian tar sands and unconventional sources in the United States. These will continue to attract the attention of foreign buyers and fuel M&A activity in the future.

The possibility that the North American LNG market could open up is propelling additional interest in the M&A market. Some 24 companies have applied for U.S. Department of Energy permits for new or expansion projects to export LNG. But so far, only Cheniere Energy Inc.'s initial Sabine Pass facility in Louisiana has received all federal approvals. Asian firms are very interested in securing LNG supplies from the United States.

"When it comes to U.S. natural gas, a macroeconomic tipping point is inevitable," says Cradeur. "We must unlock the U.S. natural gas markets with exports to continue to compete globally. Otherwise, natural gas prices will remain too low and gas drilling will not recover until it is economical to do so."

A few risks

Although multiple factors bode well for an active M&A year ahead, there are always some risks. A general economic downturn in North America or China could dampen deal flow. Continued uncertainty about environmental policies set by the U.S. Environmental Protection Agency and the lack of a clear Washington-led energy policy for hydraulic fracturing could also slow deal flow. In addition, further political gridlock and continued delays around pending LNG permits might force some buyers to delay prospective deals (see Figure M).

Figure M: North America onshore M&A activity



Focus on the Mississippi Lime

This conventional play is being rejuvenated with horizontal drilling and fracturing technologies

The Mississippi Lime play in north-central Oklahoma and southern Kansas is a great example of a conventional play in a heavily drilled province that is being rejuvenated with horizontal drilling and fracturing technologies. The application of unconventional technology has allowed operators to access oil and gas reserves that were previously uneconomic to produce through vertical wells.

"It is exciting to see an area like this in the midcontinent, and particularly Oklahoma, that offers such great liquids potential at reasonable development costs. Although this area has been producing for more than 50 years, there is renewed eagerness and anticipation for its potential," says John Meinders, Audit partner and Energy practice leader in Grant Thornton's Tulsa office.

"The Mississippi Lime is opening up opportunities for many companies in the midcontinent region," he notes.

What makes this play tick? For one thing, it encompasses millions of acres identified by operators as the Mississippi Lime and Chat. Essentially, the play targets the thick oil-water transition zone that is developed in tight reservoir facies. Unlike shale plays such as the Eagle Ford, fracture stimulations in the Mississippi Lime play generally are smaller in size. These are shallow-water, shelf carbonates that overlie the Devonian Woodford shale source rock.

Hart Energy's North American Shale Quarterly provides some background on the play. According to the publication, the geology of the regional carbonate play is fairly well known, given the thousands of vertical wells that have been drilled through it. Operators have moved rather quickly since 2009, from delineation to optimization of the core area for horizontal drilling, along the Kansas and Oklahoma border.

This core area is west of the Nemaha Uplift. To the east of the Nemaha Uplift is the core extension, which is the liquids core area located mostly in Kay, Noble, Osage, Pawnee and Payne counties in Oklahoma. Two Kansas counties — Sumner and Cowley — also yield a higher percentage of liquids. In what can be considered the Kansas extension are appraisal areas from Finney and Hodgeman counties moving northwest to Cheyenne County in Kansas.

Although the Mississippi Lime is a "low-cost" horizontally drilled play with well costs running around \$3 million per well, water cuts are high, as much as 90%. The produced water adds costs by increasing the need for water-handling infrastructure and disposal facilities.



The produced water adds costs by increasing the need for water-handling infrastructure and disposal facilities.

Top counties

The top 10 Mississippi Lime counties, according to the North American Shale Quarterly base acreage map, suggests that Woods and Alfalfa counties in Oklahoma and Clark County in Kansas are the best when analyzing formation isopachs, TOC content and thermal maturity.

However, counties east of the Nemaha Uplift have higher oil splits than counties west of the geological structure. Therefore, players in Noble and Kay counties have sought-after acreage positions, given current commodity prices.

North of the Oklahoma border in Kansas, the six counties with the most potential are Comanche, Clark, Barber, Harper, Gray and Ford. SandRidge Energy has filed with the state the most intention to drill permits for Comanche County. Shell and SandRidge have the most permits in Barber County of publicly traded companies, but there are several small independents, such as Woolsey Operating Co., that have obtained permits to drill. In Harper County, Shell and SandRidge have the most permits by far (see Figure N).

The map in Figure O shows the acreage holdings of 17 companies in Mississippi Lime. Acreage positions are from company presentations.

Figure N





Figure O



Figure P: Mississippi Lime rig count split by counties

Lease and rig activity

Rig activity is provided by Hart Energy's weekly Unconventional Activity Tracker, based on Smith Bits data. The activity tracker counts only those rigs that are employed in drilling wells. It does not count rigging up or rigging down, rigs moving from one location to the next, rigs shooting seismic, or rigs employed drilling brine wells (very necessary in this high saltwater-disposal play).

The rig count continues to increase rapidly in the midcontinent as companies target liquids-rich plays. The Mississippi Lime saw a rapid increase in its rig count from first quarter 2011 to fourth quarter 2012. Since then, the rig count has hovered close to 70, with most of those rigs deployed in Oklahoma.

The chart in Figure P shows rig activities by county. The drilling rigs are concentrated mostly in Alfalfa, Grant and Garfield counties in Oklahoma, while Harper County in Kansas has the most rigs north of the state border. In the Mississippi Lime, there is almost an even split between rigs drilling to depths of less than 10,000 feet and those drilling deeper than 10,000 feet. While the rig count only includes horizontal rigs, the length of horizontal laterals can push the rig into either category. Remember that the play, at 4,000–6,000 feet, is relatively shallow compared to the Bakken and Eagle Ford shales. This reduces the cost of drilling a well. The liquids-rich nature and existing infrastructure also make the Mississippi Lime an economically viable play. The North American Shale Quarterly expects rig activities to increase steadily in the play as Range Resources, Devon Energy Corp. and SandRidge Energy increase their rig counts in 2013.

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North America still focused on unconventional resource development

Asset valuations rise on back of shale production

About the survey

This is the 11th Survey of Upstream U.S. Energy Companies, commissioned by Grant Thornton in partnership with Hart Energy. The survey was conducted via Internet from February through March 2013. It comprises more than 200 responses from senior executives in the energy industry across North America.

Survey topics included price and employment forecasts, capital spending plans, regulatory and legislative developments, and new areas of opportunity. Issues explored in the survey were identified by seasoned professionals from Grant Thornton's Energy practice and Hart Energy Institutional Research. The table in Figure Q illustrates the demographics of companies that responded to the survey.

While the majority of this year's respondents came from E&P companies (which has been the case in prior years), this year's survey also included an additional category - capital providers - which accounted for 5% of the survey's participants. The percentage share of responses from oil and gas service-providing companies increased to 18% this year, up from 13% last year.

Figure Q	NEARLY	
Demographics		CO
	Rate	
E&P	74%	
Gathering and transportation	3%	of respondents
Service provider	18%	predicted capit expenditures
Capital provider	5%	
		would increase
Average total assets at the end of fiscal 2012	\$4.7 billion	in 2013.
Average projected revenues for fiscal 2012	\$2.3 billion	
Public	17%	
Private — corporation	24%	
Private — corporation/partnership	54%	
Master limited partnership	5%	



NEARLY of respondents predicted capital expenditures

From a cross-sectional standpoint, one of the most significant changes in survey responses year over year is the increase in year-end average total assets. In last year's survey, respondents indicated that average total assets at the end of fiscal 2011 were approximately



*Responses do not total 100% due to rounding.

\$1.6 billion. When surveyed this year, respondents indicated that the average total assets at the end of fiscal 2012 were approximately \$4.7 billion. Similarly, average projected revenues for fiscal 2012 grew to \$2.3 billion from \$544 million in fiscal 2011.

On the topic of U.S. capital expenditures, nearly 60% of respondents predicted capital expenditures would increase in 2013 (29% believed these expenditures would increase more than 20%; see Figure R).

With regard to foreign capital expenditures, the majority of respondents indicated that the question was not applicable to their business, suggesting that their company is not engaged in foreign markets. Of those respondents whose companies are engaged in foreign markets, 96% indicated that capital expenditures abroad would either increase or remain unchanged in 2013 (see Figure S).

Figure S





4%

6%

8%

10%

12%

2%

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