U.S OIL & GAS SECTOR

SKILLS SHORTAGE UPDATE & SOLUTIONS

MARKET UPDATE

May 2014

tenlive

PROVIDING PEOPLE POWER

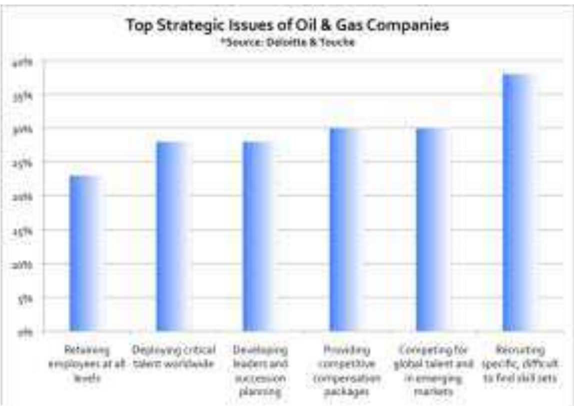
TEN LIVE GROUP

We understand the resource issues oil & gas companies operating in the U.S. are facing in 2014.

Read our quick update on the U.S. oil & gas skills shortages and how Ten Live can help your business.

If you want to succeed and achieve your business goals, you will need a strong relationship with a resource provider who can deliver a 360° service to assist you - Contact Ten Live!

U.S. OIL & GAS CONTINUING SKILLS SHORTAGE



Sourcing key skills remains the top concern of U.S. oil and gas executives, particularly **a**s U.S. oil and gas production continues to expand at an unprecedented rate.

Skills shortages are most acute in North America (59%) given the rapid growth of shale oil and gas production there and the changing nature of projects.

47% of respondents in a recent survey consider skills shortages as the top barrier to growth

- Globally, the positions that will be hardest to fill within the oil and gas industry are **project managers** (38%), who are most in demand in Asia Pacific (42%) where many of the world's largest projects are located. Also in demand globally are **offshore-related engineers (e.g. marine, technical, operational, piping) (24%) and safety and risk engineers** (16%).
- Legislative and technological change alongside a drive to acquire skills to identify and exploit unconventional reserves is generating demand for highly specialised geoscience skills ;
    - **Most in-demand are geoscientists with localised knowledge of the USA and highly specific skills. These include geologists with unconventional drilling and geosteering experience, reservoir engineering professionals with extensive enhanced oil recovery (EOR) experience, such as flooding and hydraulic fracturing**. Many candidates lack in one or both of these skill sets as the technologies driving them are relatively new to the US market. As a result, job seekers are choosing assignments on the basis of the experience they will gain, not the salary. Candidates are growing into the skills as they are hired and then gain experience and new skills 'on the job'. Employers are also investing in training and development to fill skills gaps
    - Canada's oil and gas firms have hit on one retention strategy that is working well. "Experienced and highly skilled white and blue collar workers approaching retirement are being encouraged to move into contract roles, making space for junior colleagues. Keeping on experienced workers as contractors retains valuable knowledge in the business and allows more time to train the next cohort of leaders. Employers are seeing this as a good investment."
- 67% of employers in the USA and Canada plan to increase headcount during 2014, backed up by the large number of onshore shale deals with an increase in drilling operations activity has also meant a need for skilled and experienced workers

Note: Global study of 450 oil & gas senior executives, Aprl 2014 Hays Oil & Gas Global Salary Guide 2014 http://social.hays.com/oil-gas/north-american-growth-continues-oilgas-salary-guide/#.U2jGdvldUWI http://www.dnvgl.com/news-events/news/shortage-of-key-skills-will-be-greatest-barrier-to-oil-and-gas-industry-growth.aspx/Survey of 450 oil and gas executives, April 2014, Deloitte and Touche via helblingsearch.com http://accelrys.com/materialsinnovation/?p=1278#sthash.oKEcZ3LX. dpuf

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U.S. OIL & GAS CONTINUING SKILLS SHORTAGE

Demographics is also still a major contributing factor to the skills shortage.

According to the Interstate Oil and Gas Compact Commission;

- The average age of industry employees is between 46 and 49. Although it may appear like they still have a few more years of solid work ahead, the average age for retirement in the industry is 55, not 65 as in other industries. **That means that within the next five years, the bulk of senior scientists and engineers could potentially be leaving the field.**
- Due to the technical nature of the industry today, the current open positions cannot be filled by simple labourers. They need to be filled by an individual with technical expertise. **New hires need to be experienced scientists and engineers** who understand the technology, and can make contributions to operations immediately. According to some reports, it can take anywhere from 7 to 10 years to develop a senior engineer or scientist.
- The challenge then is attracting young technical workers into the industry today, so that they can take over when the older generation retires in the next 5 to 10 years**. The problem that arises with this strategy is that the labour pool for younger, technically trained workers is extremely competitive**. The oil & gas sector is frequently competing for the same talent pools as computer and aerospace industries and finding itself outcompeted. It is difficult for oil and gas companies based in Houston, Texas, to recruit software developers and engineers when the technology giants are offering the glowing lights of Silicon Valley
- Also, a study in March 2014 also showed that the U.S. workforce is increasingly opting to work abroad where higher salaries and often better opportunities exist meaning companies at home are having to become increasingly competitive to retain the vital skills they need.

  Hays Oil & Gas Global Salary Guide 2014 http://social.hays.com/oil-gas/north-american-growth-continues-oilgas-salary-guide/#.U2jGdvldUWI
  http://accelrys.com/materialsinnovation/?p=1278#sthash.oKEcZ3LX.TJNOka6O.dpuf

SKILLS SHORTAGE & SALARY TRENDS

- The global skills shortage is also impacting on the salaries being offered within the U.S. oil & gas sector too., "*we are seeing a marked trend in salaries being offered at unprecedented levels in some areas.*" Some oil & gas companies operating in the U.S. admitted they are willing to pay individual contractors an average daily rate of US$1,000 in technical areas with a particular expertise shortage in 2014
- Houston and the surrounding Oil and Gas regions are reporting the biggest increases in salary and unfilled positions. http://www.oilandgaspeople.com/news/?st=skills%20shortage http://www.dnvgl.com/news-events/news/shortage-of-key-skills-will-be-greatest-barrier-to-oil-and-gas-industry-growth.aspx http://www.worldwide-rs.com/action-needed-on-growing-skills-shortage-in-oil-and-gas-industry

Ten Live : Global Customer Centric Solutions

Programs created and continuously improved to deliver our service to assist you in meeting your business objectives:

- **Ten Live : INSIDE**
- **Ten Live : ENGAGE**
- **Ten Live : DELIVER**
- **Ten Live : MAINTAIN**

Customer Centric Services to choose from, either full 360° or individual services from:

Global Resource Management

- **Ten Live : ENGAGE©**
- Attract and Engage skilled PEOPLE to achieve business goals
- Attract and maintain availability of Flexible Contract Staff to either retain consistently on long term assignments or manage their availability for peaks when you need them, hiring and off hiring when relevant
- Bulk Payroll and Invoicing both Contract and Internal Staff
- Advertising & Response Handling
- Training, Inducting and Coaching
- Staff Retention
- Legal Services
- Accountancy Services

Technology Services

- **Ten Live : DELIVER**
- Identify the most up to date technology to cost effectively overcome your challenges to meet and exceed your business objectives
- Install technology by our highly skilled operations teams
- Train your staff to use the technology effectively
- Project Management of the installation operation
- **Ten Live : Maintain**
- Product Maintenance by highly skilled operations teams

Consultancy & Project Management

- **Ten Live : INSIDE**
- **Work Internally with Customers to identify key areas where we can provide solutions and support**
- **Project Management**
- People / Employee Engagement Consultancy
- Business Strategy Management Consultancy
- Continuous Improvement Certification, Compliance and Auditing Services
- ISO, Six Sigma, TPM
- Training
- Risk Assessment
- QHSE Consultancy

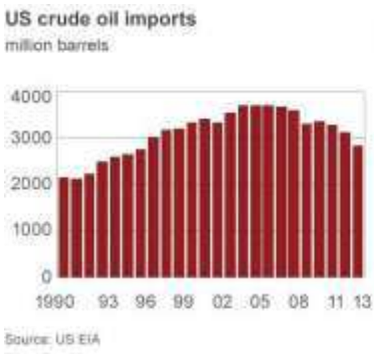
MARKET UPDATE APPENDIX 1

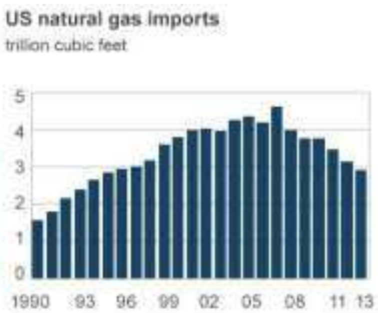
U.S. OIL & GAS MARKET OVERVIEW – APRIL 2014

- The North American oil and gas market started 2014 on a good note during the first quarter
- Moderately strong demand growth is forecast over the second half of the year
- US oil production expansion continues to be strong
- Gas producers in the US experienced strong demand resulting in US gas storage levels reaching record seasonal lows
- US gas production remains relatively high and the higher prices will incentivize further production. Prices will likely need to remain reasonably high to incentivize the necessary storage build over the summer, but higher gas prices will slow the switch from coal to gas in the power sector, E&Y said.

http://www.ogj.com/articles/2014/04/e-y-north-american-oil-gas-industry-staves-off-geopolitical-strife-in-1q.html

CONTINUING DECLINE IN IMPORTS - U.S. ON ITS WAY TO BECOMING ENERGY INDEPENDENT





U.S. energy imports continue to decline with the increase in shale gas production

For the past four decades energy independence has been the goal of successive U.S. governments and now, thanks to shale oil and gas, **the U.S. could be energy independent by 2035**

IMPACT OF ENERGY INDEPENDENCE

- Energy independence and ending oil imports would be a significant boost to the U.S. economy, including reducing the annual trade deficit (in 2013 the U.S. spent about $300bn (£180bn) on importing oil, representing almost two-thirds of the country's entire annual trade deficit)
- A number of countries export huge amounts of oil to the U.S., exports that would all but disappear if the US achieves energy independence. The impact on these economies, particularly in South America, Africa and the Middle East, would be significant
- The U.S. is currently the world's biggest importer of oil, so if it was no longer buying, the oil price would inevitably drop, hurting all oil producers and compound the problem for big exporters to the U.S.

http://www.eia.gov/forecasts/aeo/er/executive_summary.cfm

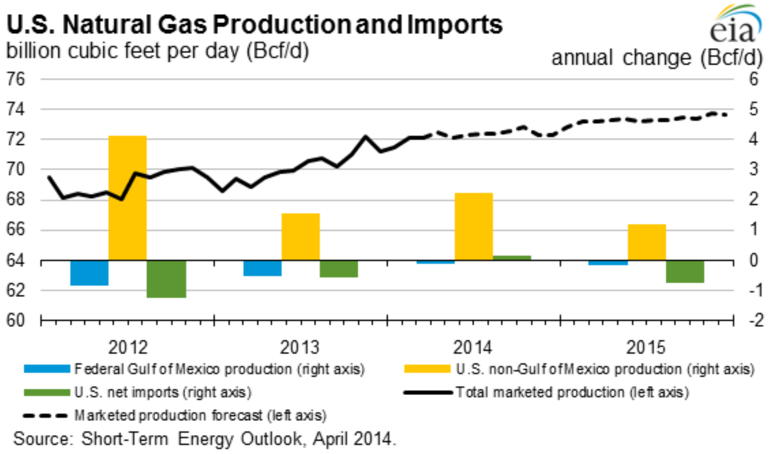
MARKET UPDATE APPENDIX 2

U.S. ENERGY PRODUCTION – CONTINUING INCREASE IN CRUDE OIL & NATURAL GAS PRODUCTION, DECLINE IN COAL

U.S. Energy Markets Summary Publication Date: April 8, 2014		**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Energy Supply							
Crude Oil Production[a]	(million barrels per day)	5.47	5.65	6.48	7.44	8.37	9.13
Dry Natural Gas Production	(billion cubic feet per day)	58.4	62.74	65.73	66.53	68.45	69.45
Coal Production	(million short tons)	1084	1096	1016	984	1024	1022

- Coal production continues to decline
- Growing domestic production of natural gas and crude oil continues to reshape the U.S. energy economy, with crude oil production approaching the historical high achieved in 1970 of 9.6 million barrels per day
- Ongoing improvements in advanced technologies for crude oil and natural gas production continue to lift domestic supply and reshape the U.S. energy economy
- Domestic crude oil production is expected to level off and then slowly decline after 2020 http://www.eia.gov/pressroom/presentations/sieminski_01042014.pdf

CONTINUED INCREASE IN NATURAL GAS PRODUCTION

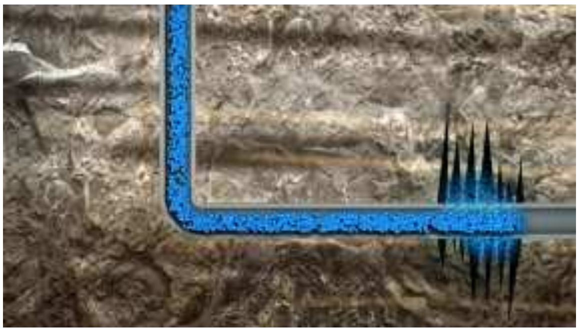


- Natural gas production is forecast to continue to grow by an average rate of 3.0% in 2014 and 1.5% in 2015, with a 56% increase between 2012 and 2040 forecast
- Liquefied natural gas (LNG) imports have declined over the past several years because higher prices in Europe and Asia are more attractive to sellers than the relatively low prices in the U.S. Several companies are planning to build liquefaction capacity to export LNG from the U.S. Net imports of 3.7 Bcf/d are projected for 2014 and 3.0 Bcf/d in 2015, the lowest level since 1987
- Natural gas production is set to grow steadily, with a 56% increase between 2012 and 2040, when production reaches 37.6 trillion cubic. Shale gas and tight gas production continue to drive increase in natural gas production
- Over the longer term the U.S. is forecast be a net exporter of natural gas beginning in 2018

http://www.eia.gov/forecasts/steo/report/natgas.cfm

MARKET UPDATE APPENDIX 3

SHALE GAS - The boom is set to continue



It has taken over 25 years for the U.S. shale industry to develop, with the U.S. government ploughing millions of dollars into scientific research since the 1980s
http://www.bbc.co.uk/news/business-267350007 April 2014

In 2014 the U.S. had the 2nd largest shale gas resources (recoverable resources in billion barrels of oil) and the 4th largest shale gas resources (recoverable resources in trillions of cubic feet of gas) in the world

Shale Gas Resources	
China, 1,115	Russia, 75
Argentina, 802	US, 58
Algeria, 707	China, 32
US, 665	Argentina, 27
Canada, 573	Libya, 26
Mexico, 545	Australia, 18
Australia, 437	Venezuela, 13
South Africa, 390	Mexico, 13
Russia, 285	Pakistan, 9
Brazil, 254	Canada, 9
Technically recoverable resources in trillions of cubic feet of gas.	Technically recoverable resources in billion barrels of oil

Source: US Energy Information Administration (EIA) April 2014

- In 2013 the International Energy Agency (IEA) predicted the U.S. would surpass Russia and Saudi Arabia to become the world's largest energy producer by 2015 on the back of shale gas, but would run out of gas in the 2020s. The U.S. Energy Information Administration (EIA) made a similar assessment in 2013, predicting production would decline after 2020 and then increased demand would drive up gas prices
- However, experts in 2014 refuted this claiming technology will be able to extend the life of shale wells;

  "*It's amazing how much is out there and we have very high confidence on most of these plays that they're going to be very long lived," Most shale oil wells today start strong but taper off quickly compared to conventional wells, and some cease production in 7.5 to 8 years",*
  "*Drilling technologies are evolving quickly to change that - There are a lot of bright minds working today to make the wells have higher rates of production, slower decline curves, better terminal production and at less cost. In the long term I think there will be technological solutions to fast decline curves and short-life wells,"*
  Robert Beck, who explores for Anadarko Petroleum Corp.
  & James King, vice president for unconventional multi-stage completions with Baker Hughes, an oilfield services company.

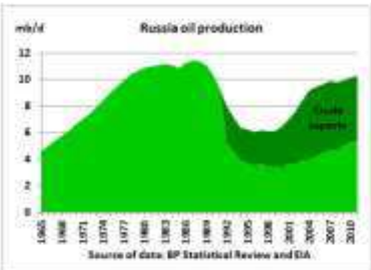
http://www.forbes.com/sites/jeffmcmahon/2014/05/04/fracking-insiders-see-no-end-to-boom/

THE U.S. – TO START EXPORTING CRUDE OIL?

Now that the U.S. is poised to be a major player in global oil production in the coming decades and will no longer be one of the biggest importers of energy, the U.S. is now looking to export its ample resources from shale to the rest of the world. One major problem with that trajectory is the ban on crude oil exports. Since the 1970s, the U.S. has kept a strict ban on the export of crude oil products: the reasons, at the time, were related to the crude oil itself and national security.

- Until now, export restrictions have meant that under current rules companies need an approval to export gas to countries which do not have a free trade agreement (FTA) with the U.S. and companies who do get approval still need to build facilities that can handle gas exports, which currently don't exist. These facilities take a long time to build and the first terminal is only expected to be ready by late 2015, at the earliest.
- However, companies have been getting around the ban by refining crude and then exporting it. 7 projects have been approved by the U.S. energy department have a combined capacity to export nearly 10 billion cubic feet (bcf) of gas per day. Changes to the U.S. crude export ban are starting to appear however, when Enbridge (ENB) announced in April 2014 that it obtained a limited license to re-export Canadian oil from the United States. Enbridge's re-export license will likely be followed by other companies, and could be an entree to more thoroughgoing changes in the crude export regime.

UKRAINE , SANCTIONS AND THE IMPACT ON THE U.S. OIL & GAS SECTOR – AN EXPORT OPPORTUNITY?



At the end of April 2014 the U.S. deepened sanctions on Russia, closing in on energy and finance. including Igor Sechin, the chairman of Russian oil major Rosneft and a gas pipeline construction company owned by oligarch Arkady Rotenberg. Until now, sanctions have been targeted towards politicians deemed responsible for funding or promoting unrest in Ukraine. All told, more than 20 Russian officials have been sanctioned in the last month

The Russian energy sector could be the next target for sanctions. If Russia escalates, companies important to the Russian economy, like Rosneft and Gazprom (Europe's largest single supplier of natural gas), could be targeted. A ban on Russian natural gas would hurt the European economy. Russian gas accounts for nearly a third of Europe's supply.

Oil and petroleum products represent more than two-thirds of Russian export earnings, financing just over half of the federal budget. Crude exports have becoming an increasingly big factor for Russia in the last decade, and particularly the last five years; (*Source: crudepeakoil.info*)

Some have suggested that US natural gas could help challenge Russia's dominance in the sector and reduce its political influence in the region. In April 2014 it was estimated that increased US competition could drive down Russia's revenues from natural gas exports by as much as 30% over the next five years. Russia's revenues could fall by as much as 60% in the longer term, even if takes five to 10 years for US gas exports to reach a substantial level,It is an entirely conceivable scenario that, if Russian oil companies come under export sanctions, the U.S. government may seriously consider lifting the ban on crude oil exports. That would be big news for U.S. domestic oil producers, who would suddenly have a world market for their product e.g. The Keystone XL pipeline, which would move Canadian oil sands through the heartland of the United States, could be a key beneficiary in that case could seriously help with moving supply of crude onto the world market.

http://www.forbes.com/sites/kenrapoza/2014/04/28/washington-deepens-russia-sanctions-energy-sector-now-in-crosshairs/, http://seekingalpha.com/article/2131073-russia-unrest-could-be-good-for-u-s-oil-companies, http://www.forbes.com/sites/kenrapoza/2014/04/28/washington-deepens-russia-sanctions-energy-sector-now-in-crosshairs/ http://www.marketwatch.com/story/oil-buoyed-by-ukraine-woes-2014-04-28,http://www.bbc.co.uk/news/business-26761346, http://www.bbc.co.uk/news/business-26761346

About Ten Live

Ten Live is an international recruitment and resource management company with over 40 years' combined experience in the recruitment sector, the expertise and the commitment to work together with the oil & gas industry to find the right recruitment and retention solutions to ensure success.

With our roots in Scotland, Ten Live operate across the United Kingdom, U.S Australia, MENA, Asia Pacific and Africa.

Officially one of the Top 90 companies in Scotland.

We offer a range of specialist recruitment and resource management services in Energy, Telecoms and Logistics markets – not only recruiting but ensuring staff are fully trained prior to joining your organisation. Ten Live go above and beyond simply placing a candidate; we work continually with them, providing training to ensure they are offering you the best they can.

ten live have immediate access to a global pool of highly-skilled oil & gas personnel and personnel in a range of other sectors with the transferrable skills & experience which can be easily integrated into oil & gas.

Ten Live's unique TEN LIVE : ENGAGE program offers both employers and job seekers a high degree of certainty in sourcing the right person for the right role.

http://www.tenlivegroup.com/sectors/energy

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