

Capital Efficiency Driving Oil And Gas Industry Changes

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In this era of historically low prices, oil and gas companies are tightening their belts on all levels of capital expenditures. This is especially true on the exploration side, where vendors are required to renegotiate drilling and other well completion contracts, and companies are less willing to explore in undeveloped or unproven fields.

In addition, we will see more joint venture arrangements on the exploration side than in the past, as a reflection of companies' desire to spread risk. Finally, we have seen technological advances that would not have likely taken place in an up market.



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Traditional Oil and Gas Exploration Model

Unlike many other industries, oil and gas exploration involves physical and natural limitations. More specifically, since oil and gas reserves are constrained by natural geologic formations and equipment capabilities, traditional oil and gas exploration was done under a geophysical approach.

To further complicate the process, oil and gas exploration involves the confluence of geology and commodity market driven prices. Additionally, a purely geophysical perspective does not take into account the influence of government regulation.

As we well know from the Keystone Pipeline saga, federal and state governments control access to exploration acreage and set the conditions for operations. In addition, at a state level, each governmental entity sets its own severance and excise tax schedules.

With the demise of OPEC and the ongoing bearish outlook on oil and natural gas commodities, production companies have been forced to come up with alternative economic and operational avenues.

Changes in Oil and Gas Exploration

Layoffs, Mergers and Capex Reduction

In response to the dramatic price drops, the major players have made substantial layoffs and attempted at least one historic merger. Tens of thousands of employees were let go in 2015 and 2016, and Baker Hughes attempted a merger with Halliburton (which, had it succeeded, would have undoubtedly

resulted in thousands more layoffs).

In addition, specialized companies like Anadarko dramatically reduced their capex spend for 2016. This trend is just starting to level off, and rig counts have just started to rise again for the first time in almost 18 months.

Restructuring

Hundreds of companies have restructured their balance sheets in order to optimize access to capital. While restructuring is not a capital efficiency issue in and of itself, access to capital is critical to capital deployment. Most energy companies have been dealing with deleveraging, mainly through restructuring, over the last 24 months to address the access to capital issue.

In dozens of cases, including two in which this author represents the debtor, the lenders are converting all, or substantially all, of their debt to equity. This deleveraging allows the company to focus on business development rather than trying to simply survive to service its debt.

Focus on Oil Production

In light of the fluctuation in gas prices and the continued depression in natural gas prices specifically, many companies are focusing on oil wells with little to no gas production.

Not only is there a potential for more profit and a greater margin for error compared with natural gas production, but natural gas is always traditionally more expensive to process, due to processing equipment, compressors and additional contracts. Further, until natural gas prices rise and stabilize, the focus will remain in geographically proximate regions.

Technology

Technological improvement has been one of the biggest drivers of capital efficiency in the upstream business. The industry has achieved better production results (yield) due to technology improvements that have continued to progress through the downturn.

Companies are getting more yield from the same, or reduced, operating procedures. This has been apparent in increased drilling rate of penetration efficiencies (drilling the same amount of wellbore in fewer days), enhanced completion designs (setting less casing, etc.), and more efficacy from fracking. This author would argue that the industry achieves more technological advancement and improvement during a downturn because markets demand improved economics.

For example, if one is drilling several 50 percent internal rate of return (IRR) wells at \$100 per barrel, little thought is put into improving on the IRR, because all efforts are put into repeating that 50 percent IRR well. When commodity prices drop, rate of growth slows, and companies start trying to figure out how to boost IRRs. Many technology improvements have resulted from those efforts.

Consolidation and Utilization of Vendor Resources

From an operational standpoint, producers are now moving away from local, smaller contractors and consultants to regional or national contractors and consultants. Many of the newer players in the business are using large engineering firms to oversee the majority of operations, as such firms have

more specialization than the smaller firms.

An added benefit of this approach is companies' ability to align their acreages or projects near the larger firms so that they can benefit from the engaged vendors' research and development.

In addition to the consolidation of vendor resources, there has also been a substantial drop in asset utilization rates with vendors. The lack of demand for vendor services shifted the service industry from vast over-demand (higher prices) to vast oversupply (lower prices).

This has allowed upstream companies to create a bidding environment with vendors desperate for work, which has pushed vendor prices way down. That, in turn, has improved capital efficiency for the upstream companies.

Strategic Alliances

While the traditional model had operators engaging geologists, landmen and others as employees or independent contractors, some producers are forming joint ventures with these service producers to lower capital outlays and capture top talent. These arrangements also provide the traditional service providers with added incentive to increase production at lower costs.

Modular Approaches

Since engineering is a key component in oil and gas production, producers are looking to modernize design specifications and fabrication. Modularizing the process will speed up delivery times and reduce costs.

While this author has not seen any reference to Southwest Airlines, Southwest perfected this art through its utilization of the 737 as its sole aircraft. This approach provided Southwest a huge competitive advantage on training, parts and maintenance. It only makes sense to apply this concept to oil and gas exploration, which also has many engineering and production commonalities.

Conclusion

In these trying times for oil and gas companies, we have seen an expansion in critical thinking with respect to operational and technological issues. While many of the operational adjustments may revert back with a rise in commodity prices, many of the technological advances are here to stay.

What remains to be seen is the outcome of the ongoing tension between regulatory standards seeking to curb production and expansion projects (such as fracking) and American consumers' demand for plentiful oil and gas at affordable prices.

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