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Sourcing critical oil field services for shale plays in a tightening supply market

Successful operators are responding to the market by adopting a more strategic view of the role of their supply management organizations and implementing advanced contracting strategies to manage costs and secure supply.

Deloitte Center for Energy Solutions

The current low price environment for natural gas favors economically advantaged shale gas resources, which combined with a need for operators to drill to maintain leases, has led to a rapid recovery in drilling and completions activity in unconventional basins. The resulting boom has led to a rapid tightening of critical services and equipment capable of developing these onshore, unconventional resources. Given the continued volatility in commodity prices and fluctuating cost drivers, operators must focus on achieving low cost lean operations, which requires stable and reliable sources of critical services and materials. Securing supply in the face of a tightening supply market of intermittent availability, interruptions to operations, and increasing costs has become the number one challenge for today's unconventional resource focused oil and gas supply chain organizations.

Marcellus shale

Nowhere has the growth in unconventional exploration and production (E&P) been illustrated faster than the Marcellus Shale, where drilling activity has tripled since January of 2008. This has put an enormous strain on the regional supply base for drilling and oilfield services (OFS), which until recently has been relatively small. For example, Pennsylvania has a drilling and OFS workforce of about 1/7th the size of Oklahoma's. The rig count has leapt from about 20 to over 100, mostly through new builds and moving rigs in from Canada, Texas, Arkansas, and Oklahoma. The subsequent increasing drilling activity and the high number of fracturing stages per well has greatly affected demand for services. Pricing has rebounded handsomely for services in the Marcellus with the dwindling availability of suitable rigs and fully utilized stimulation crews in the area. As a result, rig day rates are up 25-40% from recent lows and stimulation costs jumping nearly 100% since the lows of 2009.

Given the strong interest in recent Marcellus acreage sales and high levels of shale oriented mergers and acquisitions (M&A) and joint venture (JV) activity, Operators' demand for services will likely continue to outstrip service provider's ability to expand supply and infrastructure for this play. With estimated breakeven prices of natural gas for Marcellus Shale of $2.5-$3.5 per mcf, operators can still profit handsomely in this play as long as they keep finding and development (F&D) costs down.

Securing supply while managing costs

The economics of unconventional resource plays demand that E&P companies run efficient, "production line" style operations at low cost. The tightening supply market presents two major challenges: securing stable supply and simultaneously managing costs.

Securing supply

In today's shale gas operating environment, operators would ideally lock in a rig or dedicated stimulation crew under contracts to ensure that operations flow smoothly from pad to pad, but this is a seller's market. Some service providers are avoiding longer term agreements with operators, reasoning that missing out on anticipated price increases is not worth guaranteeing future utilization given current conditions. As such, they either want to play the spot market and avoid dedicating their resources to one operator, or require a premium for term contracts. For example, drillers have sought 10-20% premiums on their day rates to enter contracts greater than 12 months. In the case of stimulation, a market dominated by three main players, service providers have carefully segmented their customer base, and have allocated portions of their fleet to dedicated crews for their top tier customers while allocating an ever-growing percentage of their crews to spot-market work for other customers who are willing to pay higher pricing for services.

Operators who look to the market for a rig or stimulation crews only a few weeks prior to their need may find that there are few options on the spot market. In addition to the high premiums associated with spot work, operators may also have to settle for less technically efficient or capable equipment. Given these challenges, operators should go to market for critical services months in advance of the commencement of work. This widens availability as there will be more opportunities to be worked into the suppliers' schedules, in addition to providing the operator with a greater amount of leverage during negotiation. When a supplier detects that an operator needs their services urgently, it significantly reduces the operator's ability to negotiate concessions – not just on pricing but also on important contractual terms and conditions.

Managing costs

In addition to the supply constraints encountered by operators as they go to market to source critical services, there has been continued upward pressure on pricing from service providers. Recent pricing for spot-purchased stimulation work in the Marcellus Shale is averaging $150,000 per stage, up from $50,000 - $75,000 in mid-2009 – and crew availability is becoming more limited with each day that passes. Some of the pricing increases can be attributed to service providers taking advantage of the tight market. Other price increases are tied to higher costs-to-serve incurred by the service providers that must be passed on to customers in order to maintain margins. In the case of stimulation, demand for frac sand in many basins has increased dramatically, and the market has already shown signs of 5-10% increases in sand prices since the beginning of the year.

Active rig and drilling permit counts have been generally trending higher week to week, indicating that the current tightening supply and escalating price environment will continue in the near term. These dynamics risk undermining long-term investment plans and operational improvement programs, yet there are new supplier relationship models that can help operators mitigate these risks.

New supplier relationship models

Operators that rely on traditional, transactional business models with service providers will experience schedule delays and significant rate increases. There are two alternative models that leading operators are pursuing: strategic partnerships and developing sources of supply.

Strategic relationships

Operators looking to gain a competitive edge have started to initiate strategic relationships with their key service providers. These go beyond the traditional provider managed alliance and include provisions that align operator and service provider interests over a long-term period. One key mechanism being utilized is the use of long term (over 12 months) contracts with rates linked to public indices designed to manage price fluctuations in cost components tied to commodity prices and labor rates. This provides the operator with a stable source of supply, enables the service provider to secure long term utilization for its crew and equipment, and gives both parties a mechanism to share market pricing risks. Another mechanism is collaborative improvement agreements in contracts, where both parties agree to work together to manage costs. In one recent example, a long-term agreement for stimulation services included a provision for collaborative efforts to improve materials and transport costs. In accordance with this provision, the service provider is working to develop a rail spur that will enable the transport of frac proppant closer to the operator's acreage. It is estimated that this move will reduce the per-stage cost to the operator by 10-15% in stimulation costs over the life of the contract.

A third mechanism that has been seen in these alliances is the concept of including gain share provisions in contracts. This is created by aligning both parties' interests in achieving highly efficient operations. This can be achieved through pricing models structured to promote productivity. For instance, payments for a dedicated stimulation crew should cover fixed costs, and then provide additional revenue for the number of fracs performed in a month. Structured correctly, the operator can realize a volume discount for high usage of the crew in a month, while the service provider earns additional revenue and margin. Such a partnership encourages collaboration towards continuous performance improvements, as each party is incented to maximize the number of fracs performed per month. Implementing this involves adopting shared targets for key performance indicators, tracking performance against these over time, and regular meetings to review performance and launch improvement initiatives. It is critical that these performance metrics cover both operational and health, safety and environment (HSE) related measures.

Developing alternative supply sources

Moving rigs across a continent and making required equipment upgrades (such as installing a top drive) can run from $500,000 to over $2 million. A new frac spread could cost upwards of $30 million. With recent market volatility, both for commodities and OFS, many suppliers are reluctant to make speculative investments in capacity. When the market lacks the required capacity for an operator to develop a strategic partnership, one alternative is to induce the investment in supply. This strategy works best when an operator can identify a smaller service provider that still offers sufficient technical and HSE capabilities, and offer that provider a large and long enough contract to induce them to invest in capacity for the work.

This model turns the table on the normal balance of power in the relationship between small, independent operators and their much larger service providers. The operator will likely become the service provider's largest and most important customer, ensuring their best efforts. Such arrangements also enable operators to contract under favorable terms and conditions and require the service provider to implement desired operational and HSE programs.

Implementing these models at North American E&P companies will require a larger and more sophisticated role for supply chain organizations than in the past.

Enhanced roles for supplier management

The legacy operations view of supply chain is that of an "order-taking" department with little or no contribution to supply strategies. This is an outdated philosophy that can leave a tremendous amount of value on the table if followed. Those operators who have been most successful have learned to use their supply management organizations to drive the creation of supply strategies based on operational demands. Through clear channels of communication between operations and supply chain, supply chain organizations are able to better manage the balance between securing supply in a tight market while managing costs. Operations should provide timely updates informing supply chain of its development and production plans as they are compiled. This will allow the supply chain professionals to poll the market and determine availability, lead time and costs of materials and services, and then craft an appropriate go-to-market strategy. This allows for cross-functional coordination of sourcing supply and management inventory of wells to be drilled and completed. As this information passes between the two groups, schedules can be adjusted, budgets can be maintained and targets can be met or exceeded. One successful operator has established weekly meetings between their supply chain and operations personnel where operations shares updated stimulation schedules and supply chain reports on the Stimulation market and supplier availability. Through the two-way communication established in these meetings, supply chain can stay apprised of any changes in demand that may require sourcing efforts, and operations can maintain an awareness of market availability and costs for stimulation services. Through this collaboration, both parties can take a longer term view and work together to achieve the goals of the company in a more impactful way.

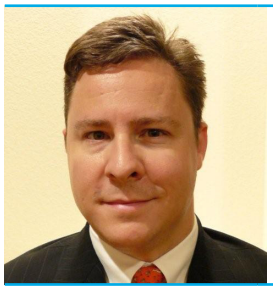
As supply chain organizations mature and become responsible for increasing amounts of spend, many Operators are opting to use a category management approach to the handling of key areas of spend. category managers at the most successful operators have responsibility for monitoring the supply market. As category managers become commercial subject matter experts for their area, the value that can be extracted from supply chain organizations by operators. Category managers hold responsibility for monitoring the market, understanding supply availability and maintaining contact with key service providers. Category managers are closely tied with operations and understand supply needs for both the short and long term. Category managers also act in reverse "business development" roles, seeking out new suppliers in tight markets to increase competition and improve the likelihood of securing supply. Opening up sourcing events to a broad a pool of suppliers as possible will both identify the widest range of available capacity as well as ensure a competitive process that limits supplier pricing power. For example, an operator in Marcellus was recently able to add three rigs to its fleet when most operators were struggling to find any available rigs capable of horizontal shale drilling. This fleet expansion was the ultimate outcome of a category management and sourcing process that they had initiated months earlier. As such, they were able to add these rigs at approximately 15% below market rates with the most favorable contractual terms and conditions on any of their drilling contracts to date.

Additionally, the different perspectives and market intelligence that can be gained from maintaining contact with numerous suppliers can provide category managers with a broader view of the market. Many operators are increasingly turning to category managers to provide strategic advice and analysis to drive decision making company-wide. One operator recently initiated the creation of a should-cost model to better understand their suppliers' costs-to-serve for stimulation. As a secondary goal, the company also wanted to understand if a wide price variance that had existed between the company's operating areas in what was being paid for services between geographic regions was justified. Through the resulting analysis, the company's executives were able to substantiate the price differential, and also extract valuable information to utilize in negotiations with service providers to drive towards more attractive terms.

Conclusion

Given the economics of many unconventional plays and increased scrutiny on meeting production targets, the current tight supply markets pose a significant risk to operators. Any operator intending to maintain or expand operations in unconventional developments should review their approach to securing supply of critical drilling and completions given today's market dynamic. Tomorrow's successful Operators will be those who adopt a more strategic view of the role of their supply management organizations, and implement advanced contracting strategies to manage costs and secure supply.

About the authors



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