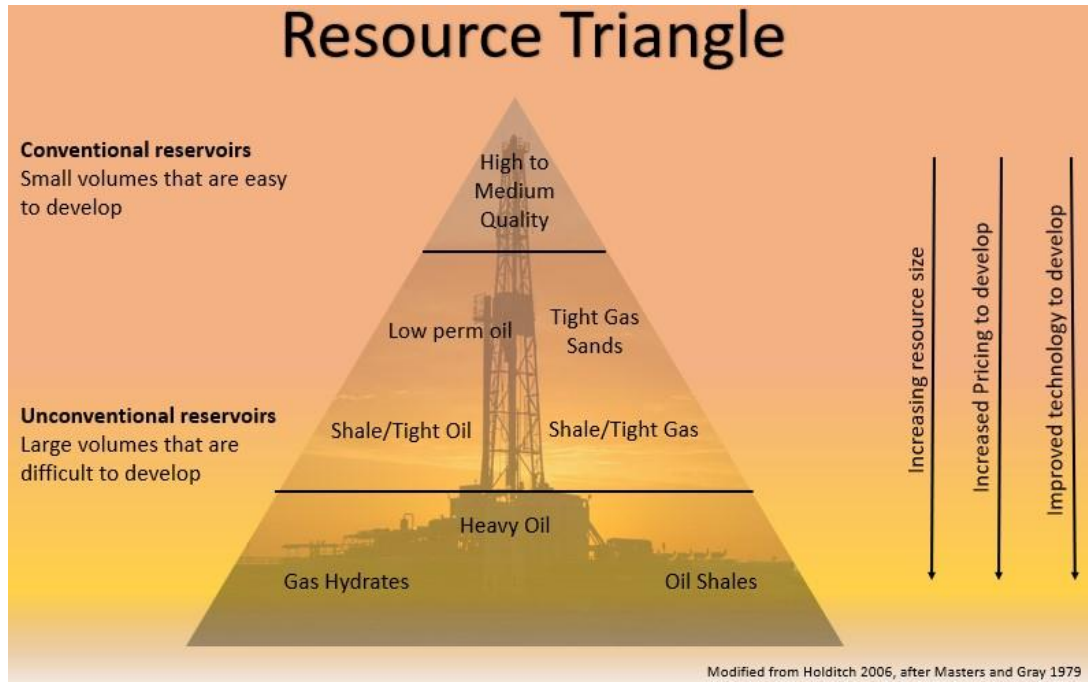


Infill Thinking

Is It Really Different This Time? The Future Of E&P Includes M&A And ESG



Guest Contributor Introduction From Joseph Triepke:

Paul Sparks is a 35-year E&P veteran. He joined Energen back in 1989 as an engineer when the company's market cap was \$200mm. He retired from a leadership role at the company in 2016, about two years before Energen was acquired by Diamondback for \$9.2bn.



Paul was one of Infill Thinking's first members, joining in our second month online about three years ago.

In the time since, I've considered myself lucky to have the opportunity to compare notes with Paul from time to time and learn from his deep thinking about our industry. From big picture strategy to regulation to operational issues, Paul is always a great sounding board.

Two years ago, Paul penned [this guest post](#) making the case that a wave of E&P consolidation was coming. He was right, and we track 24 meaningful E&P business combinations since then (total deal value north of \$85bn). While watching the deals pile up this year, we asked Paul if he'd weigh back in with a follow up post on what's next.

His latest contribution shares a critically important message regarding the current state and future of the E&P industry. This work was originally shared in a two-part series on InfillThinking.com in September 2019. In [Part 1](#), Paul set the stage on the current environment, the state of the oil industry, and the tiers that have developed in the E&P industry. In [Part 2](#), he addressed potential future outcomes. We've consolidated both parts into this PDF of the complete thought piece.

While Infill Thinking members had an exclusive first look at this thought piece, we believed it was too vital to keep it selfishly contained on our platform. This work provides perspective that is badly needed across the broader E&P and supporting industry. We encourage Infill Thinking readers with access to this PDF to share it with everyone in the industry that could benefit from reading it.

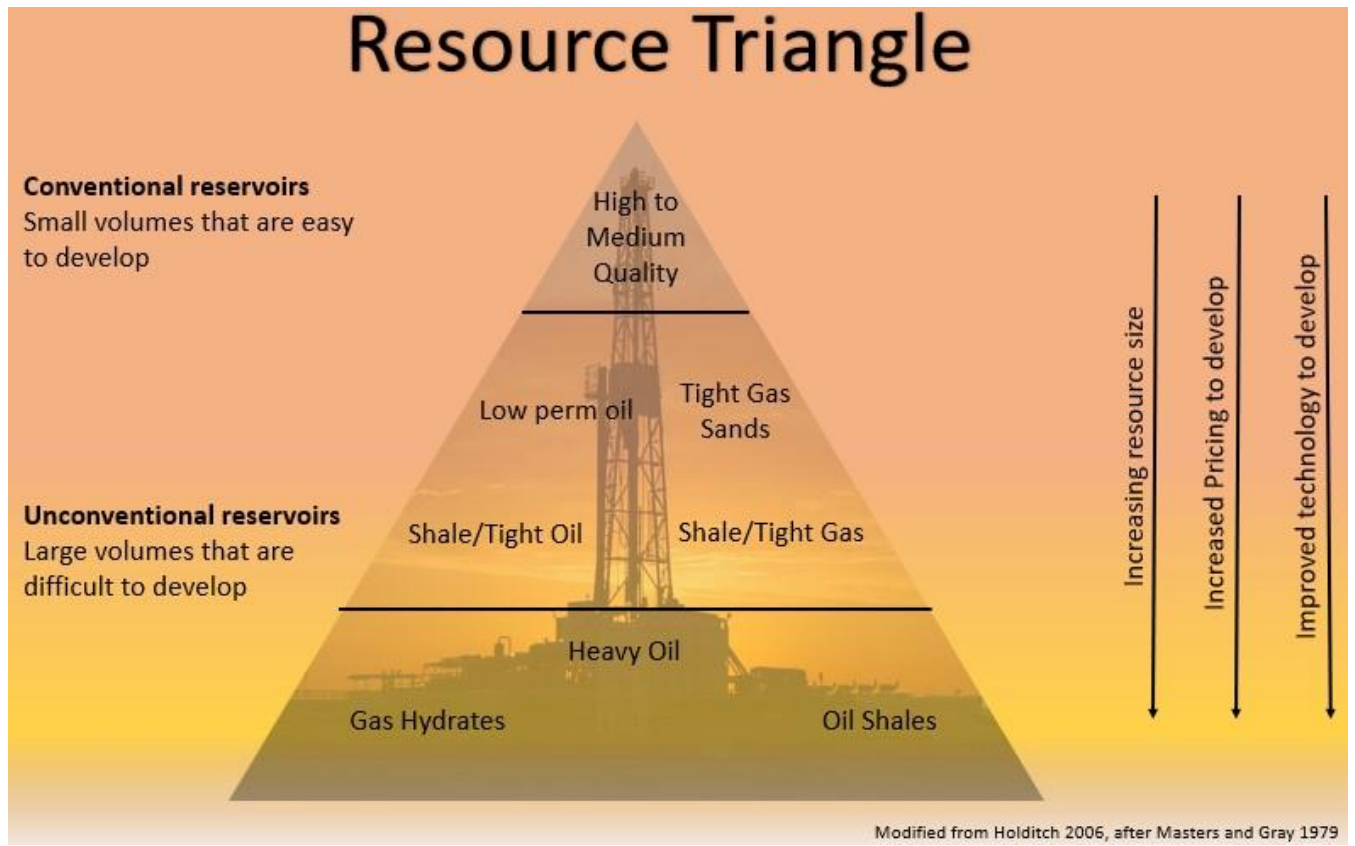
In the pages that follow, we have combined both parts as an invaluable resource for leaders, executives, and investors in the industry we serve. We thank Paul for taking the time to put it together. And we hope it proves helpful in your business.

Is It Really Different This Time? The Future Of E&P Includes M&A And ESG

*Paul Sparks
September 2019*

Is this environment really different from where the industry has been before?

The best way to understand where we are in the exploitation of our hydrocarbon bounty is to review a resource triangle. The confluence of oil and gas in a high-quality reservoir at easy to reach depths is a series of occurrences that doesn't statistically happen very often.



Those massive, higher quality fields at the apex of the triangle are the ones that started our industry. Classic examples domestically are the East Texas Field, Spindletop, Midway/Sunset, or the Yates field all developed in the early portion of the 20th century. On an international basis fields like Ghawar, Burgan and Lake Maracaibo pushed the technology and production even further. Those are the high volume, high value fields that formed the backbone for a young industry to establish the science, technology and the cheap hydrocarbon production for the modern world’s energy needs.

If we look back in time, we can see that as we moved down the resource triangle we faced more technical challenges, increased capital and in most cases higher prices to provide the economic buffer for lessons learned (or as a friend says “failures with a purpose”).

As an industry, we continue to work into the more unconventional resources, and as in the past, should not expect it to be given up cheaply or without great effort. It is interesting to note that some of the best run companies have a strong C suite with technical people in the highest ranks. Those leaders understand the unique challenges that these lower quality reservoirs present and what the limits are.

As we stand here today, if energy prices were to climb again you would see continued thoughts into the true known “bottom” of the hydrocarbon resource triangle. The oil and gas industry is not unique, every mineral industry has the same distribution model whether it is gold, coal or oil.

The capture of the more difficult resources (deeper into the triangle) requires large programmatic development with intensive use of capital to capture single digit recoveries of the resource. In some of these reservoirs (shale/tight oil and gas), to compound the capital demand, is the very high initial production and the rapid declines that now constitute a large percentage of our daily US production. As can be easily visualized the treadmill of production and decline has a pretty good pace for capital spend.

This simple resource graphic has so many implications for who are the long-term winners and losers in this “new” industry. The early winners from my perspective were those who established an acreage position in the best areas and either sold to larger entities or grew themselves to a formidable position. They understood the capital demand that it would entail and the need to establish a program that could stand the test of lower prices which always show up in this cyclical business.

Higher prices early in the resource play cycle allowed the risk takers the ability to define the resource, learn how to increasingly exploit the resource and define how large the production response would be in each of their companies.

The stress of oil oversupply with corresponding lower prices separates companies, defines different basins and provides clarity to acreage quality. Investors (both public and private) start picking winners and losers. The groups as envisioned by me can be broadly described as follows:

- The “purgatory player” is a company paying for “past sins” of large capital spending and a challenging debt maturity schedule. This starts for companies who can’t access the capital markets on reasonable terms but have a good but smaller acreage position. They are not interested in selling the company into a lower priced environment but can’t get enough interest to be relevant. Their stock prices sink relative to larger peers and one wonders how long they can resist before capitulating to the market forces of “merger of equals” or an outright sale. As they are trying to determine their fate, they continue to drill up their best acreage and diminish their future value to an acquirer. Oftentimes, this is where activist will become involved with management teams, trying to force change. The results from those activist actions are somewhat mixed and seem to be more a function of timing than great strategy.
- Companies in unfavorable basins can’t attract attention and may not have many options if not in a good financial position. These teams are challenged to be relevant in a capital rationing environment and ultimately will change form in one way or the other.

- Privates/Private Equities that were built to sale but can't find an exit in this market will be challenged. They most likely were not built for activity as a long-term operating company but a "prove it and flip it" asset holder. These entities may not have enough of the operating types on staff to become a viable company. In most instances their sponsors do not have the appetite for the risk and expense associated with running a small oil and gas company over a longer period of time. The "mundane" day to day grind of operations optimization doesn't fit well with this model.
- Large cap independents and majors with contiguous high-quality acreage have the advantage in this market due to financial strength and the ability to aggregate with their balance sheets. The ability to have an inventory that they can continue to develop in a lower priced environment while bringing capital discipline could be a true attribute of a larger entity. The opportunities for these larger entities do not end with financial strength but if they are technically and operationally savvy, they have the edge in this long game. If the companies can take advantage of upstream pricing power for services, pipeline availability and downstream margins it helps to bring size and scale to the table.

Almost all the above companies that are challenged could have most of their woes solved with higher prices giving them an exit to the next entity. This is not a strategy but a hope for something that we cannot control.

We all would love to see higher prices, but prudent operators would not think it is wise to wish for only higher prices as part of a solution to a business plan. This would leave a company at the mercy of events outside of one's control.

Today, the stress of oil oversupply with corresponding lower prices separates companies, defines different basins and provides clarity to acreage quality. In this environment and in the context of the resource triangle, firms in the US E&P industry are starting to separate into clear tiers.

So what's next, and what's the future of E&P?

What could a possible outcome to the above challenges look like in this more moderate price environment?

Most resource plays are past the acreage aggregation and discovery process and are maturing into the slow incremental gains associated with manufacturing and optimization. In fact, some data may suggest that we may have reached an effective plateau in well productivity when normalized per lateral foot. If the plateauing assumption is true and large incremental gains will be hard to attain, how can companies give themselves the best chance to win in this new environment?

Some of the facts that are starting to emerge are:

- Optimal spacing in three dimensions is important for parent to child interactions in the same horizon or even in horizons above or below the parent well (referred to as a cousin relationship). Hydraulically fractured wells are truly a three-dimensional problem and if not planned for properly are a waste of capital dollars for minimal reserve growth.

- The treadmill starts now and the ability to handle large production declines in a moderate price environment requires sound capital discipline, great acreage and an excellent team to execute.
- There is a tremendous amount of oil and gas in place in the resource plays but with current technology less than ten percent will probably be produced. Just a small incremental increase in recovery factor can appreciably change a play's economics.
- Capital spend per foot of horizontal lateral has not gone down at the pace that was forecasted by most companies. This has frustrated investors and has some in the financial community doubting whether the resource plays can be economic in a sub \$55/bbl or \$3/mcf gas price.
- Companies that provide goods and services cannot continue to cut prices for drilling, completions, and operations to support operators. These industry partners have the same issues that the operators have but with even less control on the revenue cycle since the product they sell is not oil or gas but the service to the operator. All good operators believe in competition for services but also understand that value is the discriminator for profitability of all parties. In other words, most will pay more for a demonstrated service that increases profitability and meets the operational needs for service quality, safety and environmental stewardship.

So, who are the companies that can tackle the issues above and continue to grow? I believe that those entities will understand how to standardize processes to drive down costs and get as close to repeatable results within the geologic domain as possible. Geologic variability will always be part of the challenge, but smart operators will seek to understand the geologic drivers and where the resource challenges cannot be overcome with current technology (lower tier acreage).

Winning companies will stay the course on technology and take the long view. Historically the larger oil and gas companies warehoused basic science and R&D. In some cases, it became too institutionalized and lost sight of the client (the business unit). Most of these big R&D organizations were “right sized” in the late 1980’s and 1990’s and the researchers became more development than true researchers. As a senior executive at a major oil and gas company told me “we want little R and big D”. This company helped to patent hydraulic fracturing but had lost the appetite for research dollars. Whether it is right or wrong, only the true super majors have R&D staffs that focus on basic science and more formal R&D. Now R&D is dispersed among many organizations:

- Service companies
- Larger oil and gas companies
- Tech start-ups funded by majors and large service companies
- Universities
- Some governmental entities

The organization that pulls all the information together to form a cognitive view to problems and solutions can make small incremental changes that compound over time. The resource base is so large that only a few percent change in recovery is potentially like finding a new unconventional basin. A small sample of these pressing technologies as applied to resource plays could be data analytics, enhanced oil recovery, a common use of probabilistic modeling for a range of economic outcomes and operational methods to produce the wells at the lowest operating costs.

On the cost side of the equation, engagement in the supply chain at depth can drive out costs from the system and increase profitability without sacrificing quality. Supply chain management is something that these larger capital spend plays will need for efficient economic development. Again, as you drive toward a more standard process and procedure it should increase efficiency and drive down costs.

A prime example of a smaller company that drove results was Mitchell Energy in the late 1980's and 1990's. Their long effort to crack the code on the Barnett Shale (which is the predecessor to all current large resource plays) is not the overnight success nor go it alone story that many in the industry have [come to believe](#). I was fortunate enough to have a front row seat into this research as an advisor to the GRI on their unconventional research efforts. After Mitchell put their acreage position together, they closely collaborated in the early 1990's with the DOE and Gas Research Institute (GRI) on the basic science of reservoir description, hydraulic fracturing, micro seismic, and horizontal drilling technology. Mitchell Energy's genius was consistent utilization by their staff of the basic and applied science to their acreage, while spending capital and monitoring results.

Some of these techniques were provided by some very bright researchers. The true path was sometimes slow and was not overnight nor was it without risk and a long view by the management team. What companies have that long term perspective or patient capital today?

Who are the winners and what is next?

The current environment of moderate prices, defined play boundaries, and sector rotation away from oil and gas favor the larger cap companies and majors. They have the balance sheet, the ability to standardize the processes and procedures, the technologists to advance the science, and have managed mega projects around the globe to completion.

The traditional knock on the majors has been the loss of focus domestically, but when capital plans have some super majors directing almost half of all budgets towards domestic resource plays it seems they are all in. Will those majors and very large independents be the final consolidators in some of the larger basins?

I think so for selective acquisitions that core up their acreage and are accretive. It will be harder for players with acreage outside of the core, or private equity companies that were funding a team to expand the play to gain attention. These smaller companies (public and private) most likely will combine to try to reach size and scale to be relevant.

The coming 12 to 18 months should again be interesting as each company finds their proper place in the oil and gas food chain. I predict there will be fewer players in the resource plays and they will be very large in size. Scale will become important to the investment community and those will be the winners for investor dollars.

One final thought on trending issues is the ESG (environmental, social and governance) movement that we all are reading about. As an industry, we have always had a hard time telling people what we do, why we do it and how it helps them. Our collective industry trade groups have carried the message, but that is now not enough in this new social media environment.

Each of us should be engaged and supportive of the industry through our contacts and local organizations. The next generation of investors, employees and mineral owners will be more in tune with this than the prior generation. I guess what I am trying to say is, the ESG movement is here to stay regardless of what many in the industry think. The best news is in many cases we have good stories to tell but historically we have not been engaged on these issues, that cannot be the path forward. If we do not engage on ESG and similar issues we will be seen as obstructionist and have our ability to operate in places at risk.

We need to be viewed as part of the solution to vexing questions of increasing energy usage.....as a matter of fact, that is how we were trained and what we have spent our whole career doing, solving very difficult problems.

To be considered as an Infill Thinking guest contributor in the future, please email hello@infillthinking.com with your story idea. Original ideas spanning the gamut will be given fair evaluation, but commercials will not be considered (spots are not for sale, this is not “sponsored content” and no transactions are involved). We actively seek out folks that wish to share their knowledge for sharing’s sake. We curate content submissions carefully to provide useful information for our members.