

Hydraulic Fracturing Presents a Most Profitable Market Opportunity for Pump Manufacturers

The hydraulic fracturing pump market is one of the Most Profitable Markets (MPM) for pump suppliers. It is large and will grow, at close to double digit rates, over the next few years. As the application is extremely challenging, a situation arises where a better designed pump can be sold at a much higher price. The fact that the repair parts market is bigger than the new equipment market ultimately results in a large combined market.

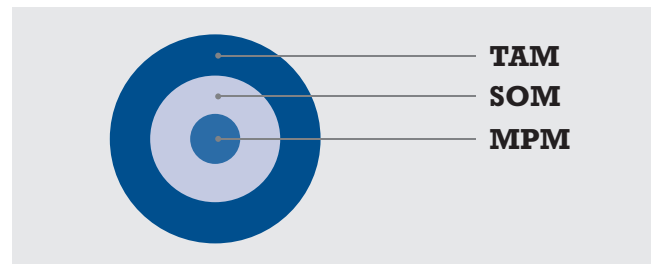
By Robert McIlvaine, President & Founder, The McIlvaine Company

There are a few major purchasers, each of whom will spend more than USD\$50 million per year on pump hardware, repairs and services. Their involvement in the market makes direct sales possible. Without the sales commissions and/or distributor markup, the purchasers' gross profit is higher. It is therefore recommended that pump companies invest in very detailed market forecasting which is focused on increasing profits, not just revenues.

A forecast that is focused on profits can be considered the "Most Profitable Market" (MPM). The USD\$70 billion industrial pump market is known as the Total Available Market (TAM)⁽¹⁾, and the Serviceable Obtainable Market (SOM) is the market which has the lowest priced product. The MPM is the market in which suppliers can most profitably supply their products and services to, given their capital and knowledge resources.

Hydraulic fracturing offers a large, and fast growing, MPM for pump manufacturers. New developments, over the last month, will cause a large increase in fracking pump sales. There is now a good a chance that, by 2025, the U.S. will be able to produce up to 25 million bbl/day of liquids. Many of the oil companies are therefore saying that The Organization of the Petroleum Exporting Countries (OPEC) and the International Energy Agency (IEA) are wrong.

The OPEC expects shale growth to slow after 2023, causing U.S. output to peak at 14.3 million barrels a day



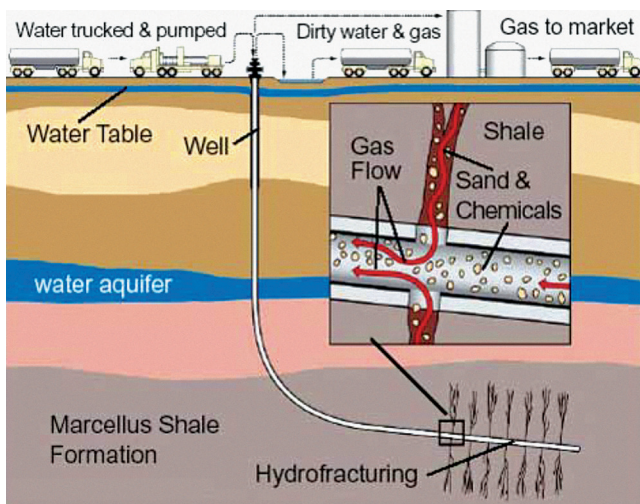
by 2028. OPEC then expects U.S. production to fall to an average of 12.1 million barrels a day by 2040. The IEA similarly expects shale production to plateau in the mid-2020s, ultimately falling by 1.5 million barrels a day in the 2030s due to resource constraints.

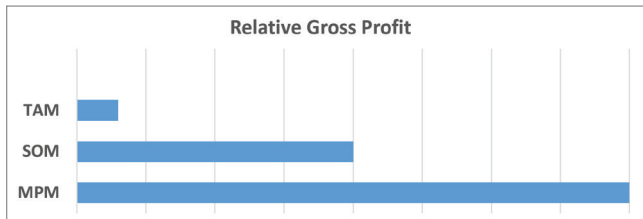
Exxon and Chevron, now two of the most significant players in the Permian, are much more optimistic; even under lower oil price scenarios. The two major companies are expected to produce close to 2 million barrels of oil equivalent a day, from the Permian, by the mid-2020s. This achievement would effectively triple their 2018 output. Chevron plans to increase production to 600,000 barrels a day by 2020, reaching 900,000 barrels a day by 2023. Exxon, meanwhile, expects its Permian production to hit 1 million barrels a day by 2024.

Shale investment is low and the returns are seen very quickly. Exxon reports that wells in the Permian are capable of delivering returns of more than 10 % with an oil price as low as USD\$35 a barrel. As Chevron owns most of its land outright, it is looking at even higher returns. Both companies see continuing growth past 2025 as the amount of oil recovered to date is less than 10% of the estimated potential.

Royal Dutch Shell and BP are also building prominent positions in the Permian. This group has the financing to create the necessary infrastructure, including pipelines for production of associated natural gas. They can also invest in the refineries and petrochemical facilities to process the surplus of light, sweet crude and associated gas that shale basins generate. It is therefore likely that U.S. liquids production could reach 25 million barrels/day by 2025 at a price of USD\$55/barrel and that it will not nosedive thereafter.

The international market is looking very promising. The major oil companies are pursuing opportunities in South





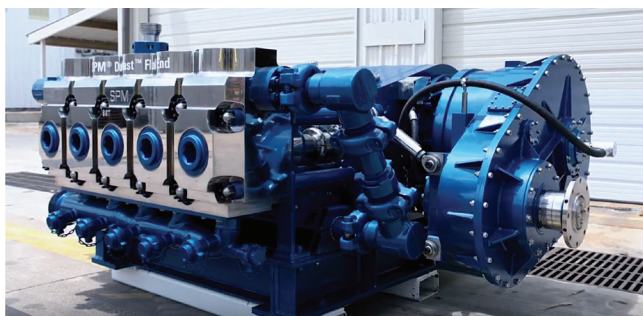
America and China. Saudi Arabia is pursuing hydraulic fracturing for gas extraction in order to generate power with gas turbines instead of oil fired boilers.

Pumps in Hydraulic Fracturing

Hydraulic fracturing processes utilize pumps for chemical blending and treatment of water which flows back as a result of the fracking operation. The big market is in the actual pumping of proppant into wells. This fluid, which consists of sand, water, and chemical additives is pumped at very high pressures. The purpose is to create fractures in the shale. Oil then flows through these fractures to the surface.

These large pumps are typically installed on trucks which can move to another site once the fracturing process has been accomplished. Many pumps are owned by service companies. The largest is Schlumberger. By purchasing Weatherford's pressure pumping assets, Schlumberger increased its total pressure pumping capacity to more than 3 million hp. The increase in pump down perforating capabilities means Schlumberger can now serve 100% of its fracturing fleet operations. This is very significant as, prior to making the deal with Weatherford, Schlumberger was only serving approximately 20%.

Due to the pressures and abrasive nature of the fluid, the wear rates on pump parts are measured in months and not years. When downtime, labor and part costs are considered, the total costs are high. There is a large potential for a company to design a superior pump. Even with a high unit margin, the company can generate large sale volumes if it can demonstrate the lowest total cost of ownership. Given the size of the market the company with a superior product can pursue a very large MPM.



Hydraulic fracturing pump courtesy of Weir.

Weir is one pump manufacturer that is pursuing this course.

The company has designed a pump that is meant to extend maintenance cycles by a factor of three, if compared to operators that are currently achieving

similar service conditions. The innovation includes expanding traditional frac pump life span to improve uptime and productivity, while reducing maintenance costs and total cost of ownership by at least 17%. Note that this 17% differential would be a conscious decision by Weir to price its pumps so that it maximized gross profit. A 17% differential is sufficient to create a large market share.

The goal of the pump company is to increase profits. Unless the company creates reliable MPM forecasts, it may place too much emphasis on SOM. This results in lower gross profit.

Every company should strive to maximize the sales of higher performance products and services. Their R&D should be oriented to increasing the number of products with high margins due to their lowest total cost of ownership (LTCO). They should also be striving to increase the amount of their LTCO over competitive products. This will result in higher gross profit. The opposite side of this coin is that the competition will be striving to do the same. So the LTCO is always a function of the differential to all of the competitors. Therefore LTCOV needs to be a continuous effort. Changes in the MPM need to be quickly addressed by all the involved disciplines.

Reference

1. Pumps: World Markets published by the Mcllvaine Company



About the Author

Robert Mcllvaine is the President and Founder of The Mcllvaine Company, which publishes reports across worldwide pump and valve markets. He was a pollution control company executive prior to 1974, when he founded The Mcllvaine Company. He oversees a staff of 30 people in the USA and China.

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