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Mining's cold—so hit the beach

The demand for frac sand is rapidly increasing

A casual review of commodity prices has nearly every element that comes out of the ground declining in value since sometime prior to 2011. This has led to margins getting slammed and, as we have written previously, departures and write-downs have followed.

Amongst commodities, energy minerals have oscillated with the most stability spanning the past five years. However, this is not going to be another article written about LNG and the flow of capital into establishing Canadian export markets to feed a growing Asian appetite. Merely worth noting is that once the $35 billion gas giant Petronas has pledged for infrastructure and exploration has been invested, the LNG landscape here in BC will be forever changed.

There is, in fact, a far better story here. One that links new extraction techniques, that have brought down the price thresholds required for profitable margins and the bump in demand that will follow from opening the valve for natural gas to flow to Eastern markets. The link I am referring to is the process of hydraulic fracturing and recent innovations, such as what is called plug-and-perf (segmented fracturing using bridge plugs), that can actually boost initial production rates by over 100 times from a single drill site. What fracking has been to oil and gas wells, plug-and-perf has been to fracking.

This is one of the reasons why the percentage of US gas produced from fracking rose from 1% in 2010 up to where it is currently at an estimated 30% - 40%. As we have already indicated that this article is not about natural gas, even though, there is an immense surge taking place in this sector. Instead, we think it would be better to focus on what is, quite literally, "propping up" this activity.

Everyone is aware of fracking; however, when someone says the word the first thing that comes to mind is probably not sand. Yet, it should be! It's the sand, known as proppant in the industry, deposited under pressure into fissures that keep pathways open for the oil and gas to flow. It is a very special sand that has seen its demand rise by a factor of 10 over the past dozen years and it`s price double. Brand new plug-and-perf techniques pioneered less than a year ago by Whiting Petroleum (WLL) and EOG Resources (EOG) are using up to a million tons of sand per 1,000 feet of horizontal section in a higher number of shallow stages and are more than doubling initial production rates. The demand for frac sand in Canada has already risen to an estimated 3.5 Mt. Unfortunately, the domestic supply is currently only able to meet about a third. The need for frac sand is so great that Canadian operators were left no better option but to import the balance from the United States with producers in Wisconsin setting up operations on CN lines to meet growing demand. Forecasts are for the demand to jump by over 16% per year over the next four years in Canada where growth is expected to outpace the US. This represents one of the most positive areas, currently, in the whole mining sector.

While there are not shortages of sand, exactly, the key to a successful mine that will supply to fracking operations is in the sand itself. The American Petroleum Institute (API) has several criteria for frac sand in order for it be a viable input that make it a much rarer commodity; these are not including the necessity for easy access to transportation infrastructure such as trains. The API requires sand be round and spherical to a minimum of .6, impermeable and insoluble, have a minimum 4,000 psi crush resistance, be 99% quartz and come in a variety of consistent mesh sizes from 16/30 to 40/70. Overall, this means that there are very few formations that contain sand that is acceptable. Geologically, the deposits that contain suitable sand tend to be very old in order to have worn the sands consistently and away from tectonic zones, which weaken them. In 2011, 59% of the frac sand produced in the US came from the Midwest; its sands possess high quality features due to its unique geological setting.

So with natural gas being the cleanest fossil fuel and forecasted to account for 1/3 of the world`s total energy consumption by 2035, it is fracking techniques like Plug and Perf that will pave the way. These techniques are also the reason why frac sand consumption has tripled between 2009 and 2012. The largest frac sand suppliers are private but public companies have seen their values rise by almost double in the past year alone. The two largest US companies that focus primarily on supplying frac sand are valued well over a billion dollars each and they boast EV/EBITDA or enterprise multiples around 15X. These companies are investing vast amounts in infrastructure in order to gain a supply chain advantage over their competition. This is due to transportation costs representing a significant portion of the total incurred cost of buying frac sand, making the location of the mine very important.

In summary, domestic natural gas production is up; employment of fracking is way up and the amount of sand that is used in new more productive fracking techniques is way, way up. So, you might not get a tan, but if you are looking for a sunny outlook on the mining sector right now, a beach may be just the thing. We recommend finding one with easy access and high-quality sand, where you should take a comfortable position and enjoy the bright horizon. As always, if you would like help locating the ideal spot we would be happy to advise.

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