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Posted on Feb. 19, 2010

[By David Jacoby, ET guest columnist](#)

Oil Price Volatility and How to Avoid It

From 1949 until 1973, the average annual price of oil fluctuated within a 7% band, but from 1981 through 2009 the variation leapt to almost 10 times that amount. A range of factors has contributed to the most recent volatility, including political crises, financial speculation, and a sharp increase in demand from developing economies.

Regardless of the reason behind the initial shocks, the variation from a steady state historical demand induced the "bullwhip effect" in which small changes in demand cause oscillating and increasing reverberations in production, capacity, and inventory throughout the supply chain in markets for oil and gas field machinery and equipment such as turbines, generator sets, motors, and electrical equipment, among other equipment and supplies.

This bullwhip effect has caused four types of economic inefficiency at oil companies and their equipment suppliers:

- Oil companies paid higher prices that were set when markets are overheated and not rolled back when recession hits.
- Equipment manufacturers held excess inventory during the boom and took a long time to draw it down when the recession hit.
- Equipment manufacturers made excessive capacity investments near the peak and suffered a low or negative return on investment on it.
- Component and parts suppliers lost orders that they were not able to fulfill at the peak due to inadequate capacity and long lead times caused by large backlogs.

Over the long term, this volatility costs the equivalent of 10% of the cost of producing a barrel of oil, according to Boston Strategies International's 43-year simulation of two scenarios involving a flat oil price compared to a volatile oil price.

Smoothing volatility in demand and prices would result in steadier and more profitable capital expansion, which means a higher return on assets. Steadier prices would translate to higher operating profits and lower operating costs as companies would go through fewer waves of layoffs and subsequent re-hiring. Perhaps most importantly, more stable R&D investments would result in greater oilfield productivity.

What can oil companies and their equipment suppliers do? Passing all risk to suppliers is a "win-lose" strategy that only works well for buyers and then only when demand is decreasing because buyers can drive prices lower. In contrast, "going long" minimizes the cost throughout the supply chain, especially if combined with collaborative supply chain management activities such as sharing production, marketing, and engineering information among exploration and production companies, refiners, and manufacturers; sharing of capital investment; and sharing of supply risk through price indexing and the use of options and futures contracts.

If you "go long," be sure to sign long enough agreements to bridge the up-and-down cycle. Many buyers think a long-term agreement is 3-5 years in duration. Because this is shorter than it takes for an initial demand shock to reverberate through the supply chain, the contract has a significant risk of painful and premature failure. Boston Strategies International's recent work indicates that if you are going to go long, you may need a much longer agreement in order to fully mitigate the impact of production-inventory-capacity cycles. And the optimal length varies according to the category of purchased equipment or services.

David Jacoby is president of Boston Strategies International Inc, a consulting firm that provides consulting services to the oil and gas industry.

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