

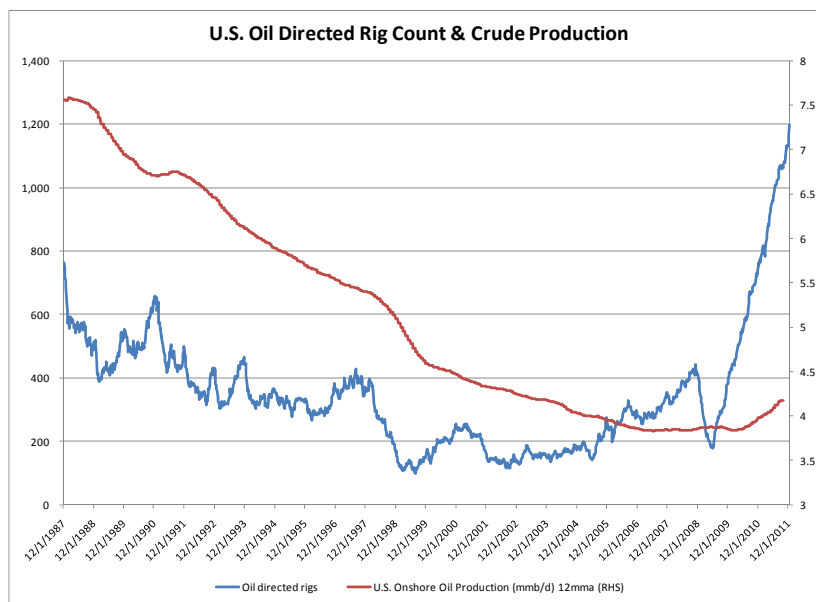
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Introduction: The business of forecasting oil prices has always been a tricky one. While it is not all that difficult to tally up the list of possible factors that may impact supply and demand, applying the proper weight to each factor is another thing entirely. Often it is oil demand that is the more difficult one to predict, as sudden shifts in the global economy tip the scales between a balanced market to an over/under supplied one. Supply (or the capacity to supply), on the other hand, has tended to be more predictable during the past decade, as long lead times are needed to bring significant new oil production to market. Seldom, in the past several years, have there been meaningful upside surprises from the supply side of the oil “balance sheet”. As we look out into 2012 and beyond, though, we are witnessing rapid growth in the application of new oil extraction techniques that are already surprising many in their scope and productivity.

The reemergence of onshore oil drilling and production in North America

While projections for global oil demand growth have been waxing and waning due to the recent financial panic as well as the general outlook for the global economy, oil supply sources in North America have been undergoing something of a revolution. Onshore U.S. oil production appears to be experiencing its first sustained period of growth following decades of declines. This boom is being driven by the ongoing technological revolution in “unconventional” oil production, predominately from shale rock. A key component of this technological breakthrough is the application of large scale hydraulic fracturing techniques. These techniques have become commonplace in the natural gas arena but only recently has the industry applied them in large scale to oil production, and the results have been dramatic.

As seen in the chart below, while oil drilling onshore U.S. (excluding the Gulf of Mexico offshore drilling activity) has responded quickly to the oil price boom beginning early last decade, the increased drilling did not drive an increase in aggregate production of crude oil until sometime in 2010. This period of crude oil supply growth has gradually picked up its pace and is clearly the most sustained one for any period presented (see chart below). Much of this growth is being driven by oil shale drilling and the horizontal drilling hydraulic fracturing techniques that it employs.

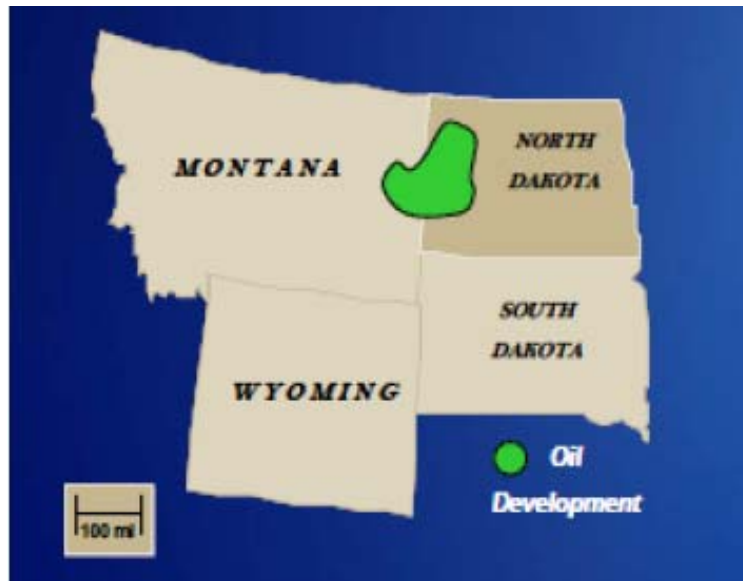


Source: Baker Hughes, U.S. DoE EIA, and LMIC

The new black gold rush: As the technology continues to evolve and the industry mobilizes to apply it to new regions, industry watchers have been forced to re-examine their views of the oil supply/demand outlook and the implications in the U.S. and around the world. Multiple market watchers such as the U.S. Department of Energy, academic researchers and Wall Street analysts are predicting that this oil shale boom continues to expand as these new technologies go on to unlock an oil source

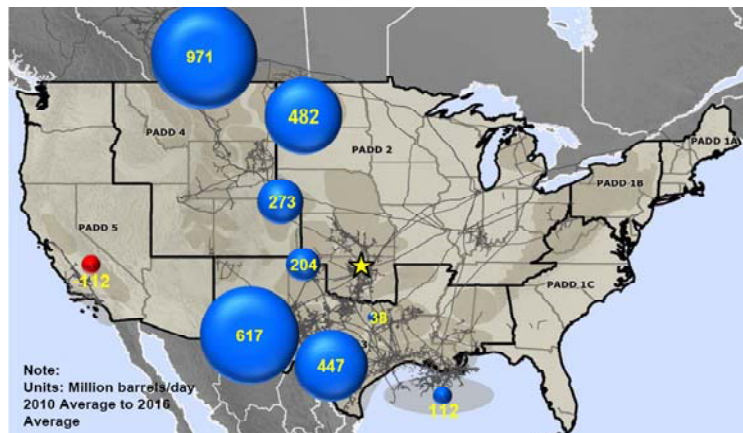
that only a few years ago would have been viewed as a science experiment at best or science fiction at worst. Early results from regions like the Baaken oil shale in North Dakota (and neighboring states and provinces) and the Eagle Ford shale in Texas are driving the industry to expand the search for the next prolific oil shale opportunity. According to the Energy Information Administration (EIA), the Baaken oil shale field itself may contain over 3.5 billion barrels of oil in place, making it the largest oil find in U.S. history.

The Baaken Shale “Play”



Source: <http://www.eia.gov/analysis/studies/usshalegas/pdf/usshaleplays.pdf>

By some projections, crude oil production in the U.S. from these new shale resources will grow by 2 million barrels per day (2mmb/d) to 2016, increasing total output by nearly one-third over current levels. When added to an expected 1mmb/d of incremental Canadian production, the result would equate to a return to previous peak levels of oil production not seen since the early 70s. If this scenario plays out as some expect, the next 5 years will completely reverse an oil production decline that has been 40 years in the making, all else being equal.



Source: Bentek Energy

As any watcher of the oil market knows, “all else being equal” is not likely to be the case; there is a lot that can and will change. Aside from the uncertainties involved in the application of this new technology to untested areas, there are some other issues that may have significant impact on the ultimate growth outlook for North American onshore crude oil as well as for the global oil balance and ultimately its price. Some of these issues include the brewing opposition to hydraulic fracturing, to oil sands, and the related pipeline infrastructure, on environmental grounds, scientifically justifiable or not. There is also the bottleneck on infrastructure both in the production (tools and materials) as well as the take away (pipeline, rail, etc.) capacity for this new oil. Add to that the impact that a slowing world economy and lower demand may have on oil prices and the economics of these emerging shale “plays”. Despite all these challenges, the sheer thirst for this new oil, and the dearth of other supply opportunities for the oil companies to pursue, is likely to propel the industry to find ways over, around, or under many of these hurdles.

The impact on oil prices and the U.S. economy: The ultimate impact on future oil prices from several million barrels a day of new, low-cost oil production in the U.S. and Canada will depend on multiple factors. On the supply side, the fact remains that supply from traditional sources of oil continues to decline, with accompanying higher costs to maintain production. Other sources of growth from bio-fuels and deepwater drilling are still evolving. Geo political factors continue to threaten the supply of oil from more volatile regions, and unfriendly economic regimes dampen the incentive to explore for more oil. On the demand side, uncertainty as to the depth of the looming recession in Europe and its impact on the rest of the world is added to slower growth from China and other emerging markets that have been a key source of oil demand growth in recent years. There is little doubt though that adding these new sources of supply does reduce the likelihood of future oil price spikes and, on the margin, should contribute to lower oil prices than would have otherwise been expected.

At the same time, the return to oil production growth in the U.S., should it play out as expected, will add to the economic boom already being experienced from the resurgence in domestic natural gas production. This return should be a significant long term positive for the U.S. economy as job growth related to oil and gas infrastructure is added to the “knock-on” effect to the industrial base from having a lower cost position, enabling the U.S. to be a better competitor. The reduction in the reliance on petroleum imports has its own economic and political benefits as well.

Conclusion: Recent successes in the development of new sources of crude oil production in the U.S. hold the promise of reversing a 40-year decline in the production of domestic crude and related activities and the return to peaks not seen since the 70s. While the impact on oil prices is uncertain, the impact on the U.S. economy and the trade balance is likely to be positive.



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Shaya joined Legg Mason Investment Counsel in 2006 as an Equity Research Analyst. His research coverage responsibilities include the following industries: Energy; Fertilizers & Agricultural Chemicals; Metals & Mining; Construction & Engineering; Machinery; Transportation; and Agricultural Products.

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