Reaves Asset Management

SHALE AWAY – AN ALTERNATIVE VIEW ON NATURAL GAS

In the June 26, 2011 New York Times an obvious mistake was made by the placement of a front-page article questioning the economics and even the morality of shale gas drilling in the U.S. The article, “Insiders Sound an Alarm Amid a Natural Gas Rush”, by Ian Urbina, suggests that much of the shale gas drilling in the U.S. is uneconomic, and, may never become economic; as well as prominently quoting one source who suggested that shale plays are just giant Ponzi schemes. In our opinion, the correct placement of this article should have been on the Editorial page. We believe that the writer’s conclusions or inferences drawn in the article ignored material facts and reflected an attempt at sensationalism. We further believe that the negative conclusions about shale are unsupported by a more accurate analysis. Indeed, our own internal research suggests that shale drilling is becoming more efficient and that shale reserves are growing.

Briefly, hydraulic fracturing of underground reservoirs is a hydrocarbon recovery technique that has been employed for decades in the U.S. Beginning with Devon Energy’s (DVN) accelerated exploitation of earlier work done by Mitchell Energy (later acquired by Devon in 2002), traditional fracturing technology was combined with horizontal drilling. By doing so, the hope was that more of a producing field’s reservoir could become exposed to the drill bit; thus expanding a producing field’s recoverable reserves. Additional hydrocarbon recovery within an existing field, absent the risk of discovery, not only enhances a field’s economic return, but can (and has) led to an acceleration in the rate of recovery.

We believe the New York Times article omits several pertinent facts which would lead to a dramatically more positive conclusion. We would emphasize five separate points:

1) As Devon’s experience in the Barnett shale illustrates, it would be unwise or foolish to assume static conditions in the economic analysis of shale. Over the last few years, Devon has doubled and then redoubled its Barnett production while at the same time lowering costs. Initial skeptics on the Barnett’s peak productive capacity have been proven wrong, and the field is still growing. The reason for this is simple, progress in adopting new technologies and perfecting existing technology for shale recovery has added more recoverable reserves and lowered costs. The exponential improvement in economics, over time, has also resulted in renewed activity even in more mature shale basins. Shale gas fields are not only economic, but are proving to become more economic as time goes on.

2) We at Reaves Asset Management have conducted an unbiased examination of several equity opportunities within the broad shale/unconventional resource investing universe. We are cognizant that there are material differences between hydrocarbon basins and the risk/reward potentials of many infrastructure projects. While not all areas are created equal, several positive return projects have been identified. Our internal research has also uncovered several equity opportunities with large upside potential, while concurrently generating positive returns under current economic conditions. We would not characterize those shale-related equities in which we have chosen to invest as Ponzi schemes, nor do we believe that those companies’ dividends, cash flow, share repurchase programs, and reserve growth somehow don’t exist.

3) An enormous amount of spending by the industry has gone toward exploitation of shale both in the form of capital expenditures and acquisitions. For example, in 2010, ExxonMobil Corp. (XOM) spent over $40 billion (enterprise value) to purchase XTO Resources, giving XOM shale exposure and an experienced operating team across the U.S. Subsequently XOM has made multi-billion dollar add-on

shale acquisitions. Companies such as Total (TOT), Royal Dutch Shell (RDSA), Chevron (CVX), Hess (HES), Marathon (MRO), British Petroleum (BP), Sasol (SSL), and others have also made billion dollar acquisitions of companies, producing properties, and/or acreage in multi-faceted oil and gas shale opportunities. Further, capital spending programs by several independent producers have focused on shale activities, even at the expense of more traditional exploration and production. While it is certainly possible that some of these efforts or company purchases may later prove overly optimistic or excessive (such as ConocoPhillips' 2005 purchase of Burlington Resources), it is hard to believe that all such participants are chasing uneconomic plays or Ponzi schemes. These companies have massive intellectual resources, in the form of personnel and operating history, and some were even responsible for the original oil and gas discoveries through vertical drilling that have now become unconventional shale plays.

4) Many infrastructure equities are in the second wave of a multi-billion dollar expansion to provide long-term access to market for shale deposits. These expenditures are focused on a diverse combination of oil, natural gas liquids (NGL), and natural gas pipelines, storage, treating, liquids fractionation, and water handling and water treatment facilities. Further, these opportunities are spread across multiple producing basins, and are in addition to massive facilities brought online in the past two years. The scope of such an infrastructure expansion would not be undertaken without long-term commitments to throughput by producers; who in turn, would not themselves commit to decades-long supply agreements of uneconomic hydrocarbons.

5) The issue of economic reserves is a highly technical and complicated one, reflecting the interplay of commodity prices, independent outside reservoir engineering, and the Securities and Exchange Commission (S.E.C.) regulations. Over the past four years, realized producer prices for both oil and gas have fluctuated dramatically. Reflecting the disparity in price movement (more recently oil above $100 per barrel and gas near $4.00 per MCF), shale development has dramatically shifted away from gas-prone activities and toward liquids or oil-prone shales. *In extremis*, shale reservoirs, which primarily contain oil but also associated natural gas, are so profitable for the oil component alone that natural gas was valued only as a cost item because of required handling expense rather than as a valuable by-product. We believe that nearly all oil and NGL-focused shale activity is highly economic at current prices. Many industry observers believe that current low natural gas prices are a direct reflection of the energy industry's success in producing natural gas from shale. Low gas prices bring into question the economics of some immature shale activities, where drilling and infrastructure is yet to be fully developed. The S.E.C. basis for reserve reporting has always been sensitive to directional changes in commodity prices; should natural gas prices advance during the next few years from their current low levels, S.E.C. reserve reporting requirements will certainly yield a meaningful expansion in U.S. proved gas reserves. Lastly, for technical reasons, reported reserves are heavily influenced by the percentage of a field's delineation drilling. Given the pace and growing efficiency of shale drilling, we are confident that U.S. gas and oil shale reserves will continue growing for the foreseeable future.

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