



CM Energy Industry Update

Over the past nine months, the decline in the price of oil, as well as the decline in the stock prices of many energy and energy-related service companies, has caused a great deal of uncertainty for investors. The big fear among many investors today is that the U.S. energy industry will experience a repeat of the 1986 oil crash, which lasted a decade in North America. **We believe it is the fear of this “repeat” that has brought many energy company valuations down to levels we have not seen since that time.**

On the surface, there are many similarities between the late 1980’s and today, with the most obvious being the significant decline in the price of oil. If nothing else, we believe it is this decline in price that has increased the level of fear and anxiety about owning energy-related companies. However, we also believe there are material differences that make a repeat of the prolonged 1980’s energy bust a low probability event. In this report, we hope to address many of these concerns by highlighting the differences between the current energy environment and other energy market declines over the past 35 years, specifically that which occurred in the 1980’s.

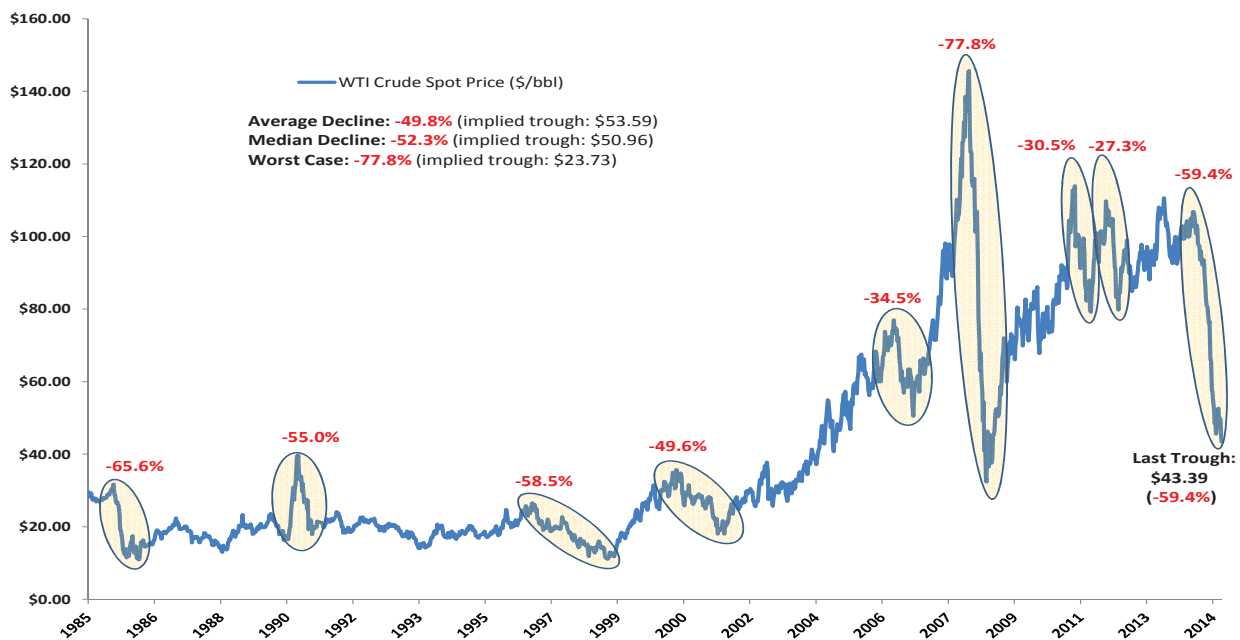
Our research and analysis will show:

- Spare capacity throughout today’s energy markets is significantly different than in past cycles.
- If you look out over the next few years, the energy market appears to be much tighter than the general investing public believes.
- In our opinion, the fear of a prolonged disaster scenario for the energy sector is overblown and largely discounted in current stock prices, presenting an opportunity for very attractive returns in many energy-related companies.

ENERGY INDUSTRY CYCLES

Chart 1 shows that over its history, the price of oil has been subject to very dramatic declines followed by very sharp recoveries. For example, since 1985, during the nine most volatile price swings, the median price decline of West Texas

Chart 1



Source: FactSet, Century Management



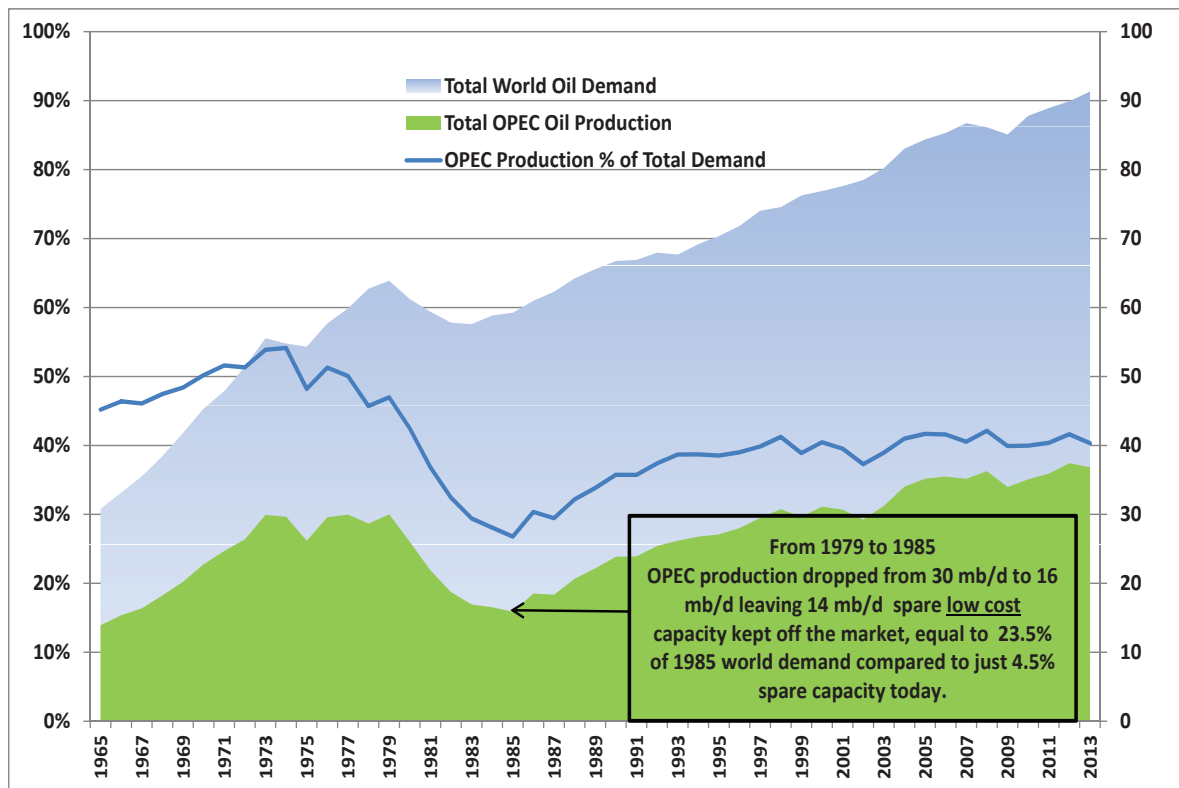
Intermediate Crude (“WTI”) was 52.3%. The largest peak-to-trough price decline was 77.8%. The recoveries were equally quick and dramatic. During this same time frame, the median one-year price increase from the bottom was 83.8%.

Most recently, from its closing peak price of \$106.90 on June 16, 2014, through its closing low price of \$43.39 on March 18, 2015 (9 months), the price of WTI dropped 59.4%. If WTI’s recovery in the current cycle were to match the median recovery rate after past oil price declines, history suggests WTI could be \$79 in the next 12 to 18 months. While this historic assumption is a simplistic comparison, it does highlight the fact that the energy industry has weathered many downturns. In our view, the key difference separating cycles is the magnitude of the supply-and-demand imbalance.

SPARE CAPACITY

By far the most significant difference between the 1980’s and today is the spare capacity of the Organization of Petroleum Exporting Countries (“OPEC”) to produce oil. According to the [British Petroleum Statistical Review of World Energy 2014](#), from 1979 to 1985, OPEC’s oil production dropped from 30 million barrels per day to 16 million barrels per day, leaving OPEC with 14 million barrels per day of spare capacity, which was equal to roughly 23.5% of the 1985 world demand. OPEC’s spare capacity was the result of an oil embargo, the 1980 (Jan ‘80–July ‘80) and 1981-1982 (July ‘81 –Nov ‘82) recessions, and most importantly, **OPEC’s self-imposed curtailment of production in an effort to keep oil prices high. OPEC’s actions kept 23.5% of the world’s lowest-cost energy off the market. In order to meet this 23.5% shortfall, non-OPEC nations rushed into production with higher-cost oil in order to fill the gap (see Chart 2).**

Chart 2



Source: BP Statistical Review of World Energy June 2014. MB/D equals million barrels per day.



Recognizing its policy failure, OPEC reversed course and in 1986, began releasing its 14 million barrels of low-cost crude (i.e. spare capacity) onto the market. This resulted in crashing oil prices, which in turn drove out the higher-cost competitors that had come in to fill the shortfall in supply. It took OPEC roughly a decade to recover its position.

In contrast, as of April 2015, OPEC has 4.29 million barrels per day of spare capacity, according to the International Energy Agency (“IEA”), which is equal to just 4.5% of world demand. This number represents a fraction of the percentage of world demand OPEC enjoyed in the 80’s. Note that OPEC includes Iran, which is still subject to sanctions, as well as Nigeria and Libya which suffer perpetual production issues. Furthermore, the IEA has cut spare capacity margins to virtually zero for Kuwait, UAE, Qatar, Algeria, Nigeria, Angola, Venezuela and Ecuador. We believe the difference in spare capacity materially outweighs any of the similarities between the 1980’s and today, and strongly suggests we are likely to have a materially different outcome than experienced in the 1980’s.

DECLINE RATE OF EXISTING PRODUCTION BASE

The next significant difference is the decline rate of the existing production base (e.g. the amount of oil production that declines year-over-year from existing fields). Many factors affect production decline rates, and because all wells are different, it’s difficult to measure the collective industry decline rate with exact precision. Fortunately, in 2008, several entities undertook the monumental task of tracking the intricacies of historical production declines by basin, well type, geology, country, etc. and published their findings with estimates of worldwide production decline rates tracked over time. Interestingly, many in the industry have argued decline rates are actually higher than these studies suggest (see **Chart 3**).

Chart 3
Weighted Production Decline Rate Estimates

International Energy Agency (IEA)	4.10%
Cambridge Energy Research Associates (CERA)	4.50%
Average	4.30%

Source: IEA, CERA, 2008

These studies also show the following:

- Giant onshore (i.e. land-based) OPEC fields have been experiencing the slowest decline rates in production.
- Deepwater fields have production decline rates that are up as high as twice the average.
- Smaller, onshore / land-based unconventional shale fields have the fastest production decline rates of all.

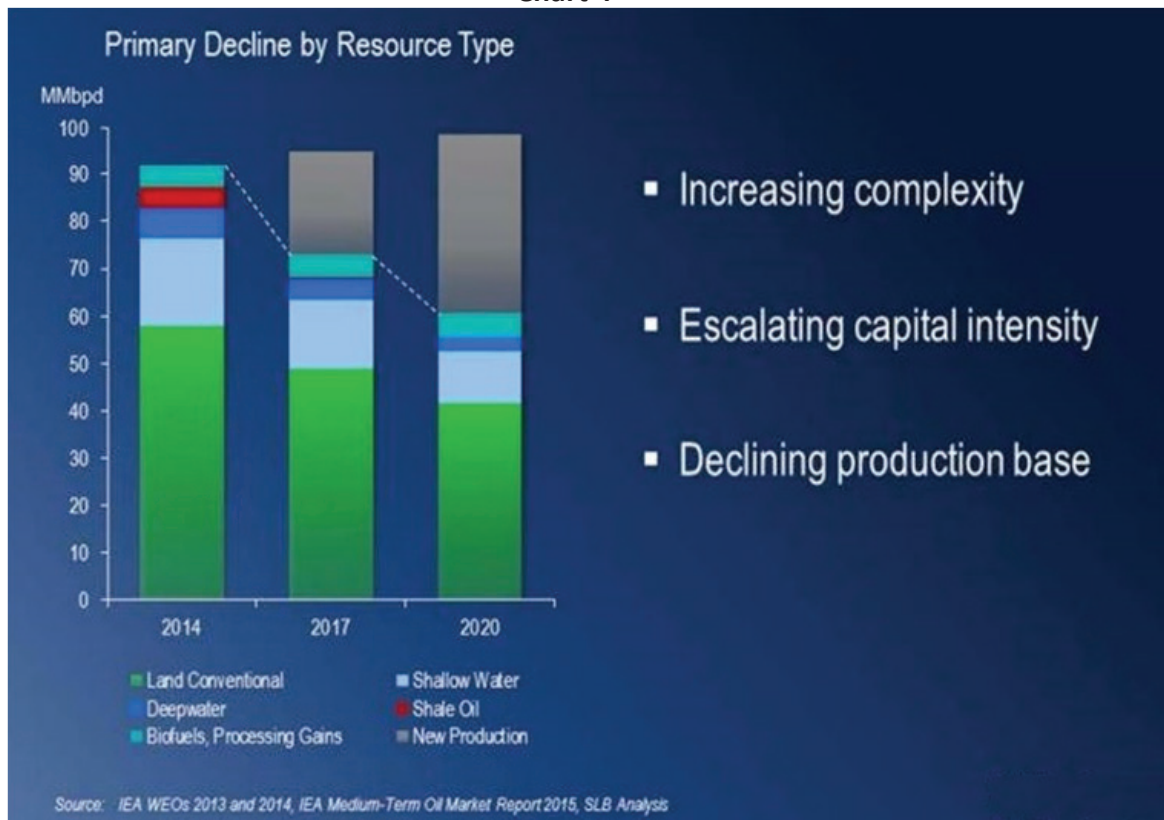
During the 1980’s, OPEC’s capacity to produce oil represented 50% of demand. Today, even though it produces oil from fields with the slowest decline rates, OPEC’s current capacity represents just 37% of demand. Let’s compare this to deep-water oil and unconventional shale field production, which have become a larger source of the global supply today. **When you take into account these two sources of oil have the highest decline rates in the industry, along with the added demand from these sources of oil, it means that future decline rates will likely accelerate.**

With the existing worldwide production base of 93.6 million barrels of oil per day, an annual 4% to 5% decline rate from existing production sources suggests the industry needs to replace between 3.7 and 4.7 million barrels of oil per day, 365 days per year, to maintain existing oil production levels. **With only 4.5% of spare capacity coming from OPEC, meeting the growth in demand requires development and expansion of new fields.** As illustrated in Chart 4, the International Energy Agency estimates that between now and 2020, the replacement of oil from declining oil fields, in addition to



meeting worldwide demand growth, will likely require a substantial amount of new production from oil fields not currently producing oil. These new oil fields tend to be more complex and require more capital.

Chart 4



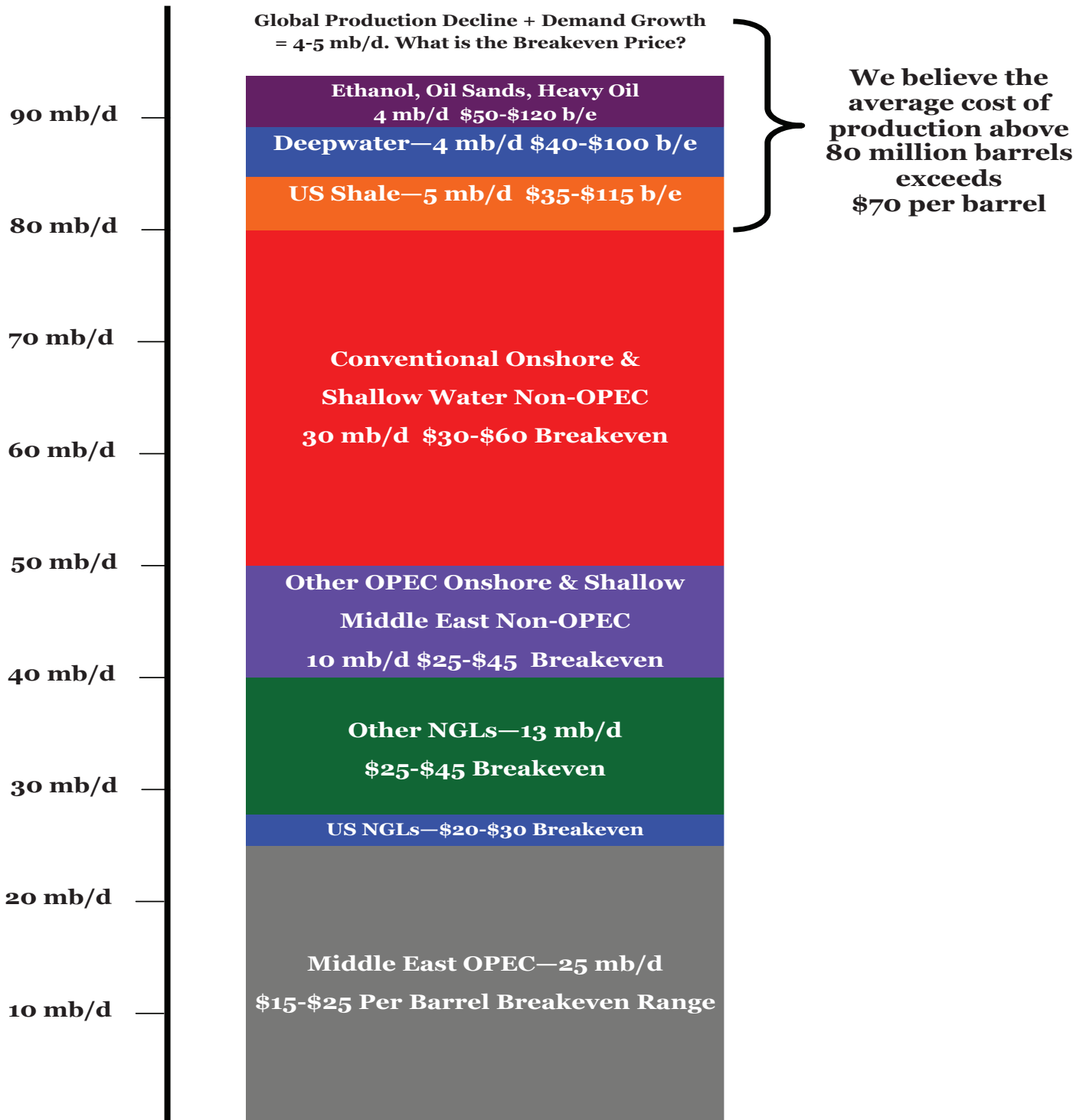
Thus far, the growth in production that is required to keep up with demand is largely being met by U.S. shale and international deepwater production. **However, the recent growth in these areas, and in particular U.S. shale oil, has led to the current oversupply of roughly 1.5 million barrels per day. This, coupled with the spare capacity of OPEC, covers a little over one year of estimated annual production declines.** After having been in relative balance over the past several years, industry supply caught up with demand because of the rapid growth in shale production and new offshore oil production.

Due to the lesson learned from its 1979 to 1985 experience, OPEC has refused to cut its oil production over the last nine months to support the price of oil. As a result, the market has reacted sharply with falling oil prices. Similar to the 1986 period, those with the highest cost of production are leaving the market first. **However, unlike 1986, we view the current cycle as a temporary supply-and-demand imbalance, rather than the long-term oversupply problem the industry faced when OPEC unleashed its 23.5% of idle capacity.**

Chart 5 shows the full cycle breakeven prices for various oil basins. This is the price that oil must reach just for investors to get their money back. A more detailed look at **Chart 5** shows that of the 93.6 million barrels of oil per day required to meet worldwide demand, approximately 80 million barrels of oil can be produced from sources with costs of \$60 per barrel or less. The remaining 13.6 million barrels must be met by the production of more expensive oil. This will likely come from U.S shale production, deepwater production, ethanol, oil sands, and heavy oil. A portion of this higher-cost oil has breakeven levels below \$60 per barrel, and in some cases even as low as \$35 to \$40 per barrel, as high grading (allocating capital to their highest return assets), technological efficiencies, cost reductions, and higher production per well, are being realized and pushing breakeven price levels lower. **Still, if we look out over the next few years, with the need to replace nearly 20**

million barrels of oil caused by the lost production from declining sources, we believe that the most expensive oil, on average, will exceed \$70 per barrel. This last incremental barrel of production will inevitably set the price of oil over the long term and is the basis of our expectation that oil prices will rise.

Chart 5
Global Supply Stack by Estimated Cost of Production

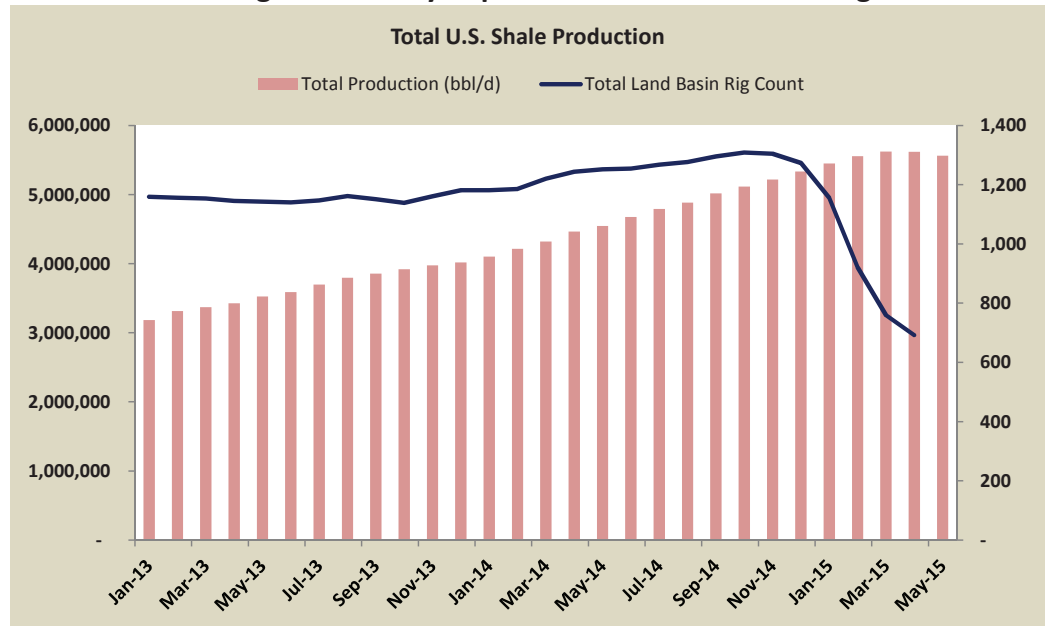


Source: IHS Energy and Century Management. MB/D = million barrels per day. B/E = breakeven

Chart 6

U.S. Drilling Productivity Report - Total Production vs. Rig Count

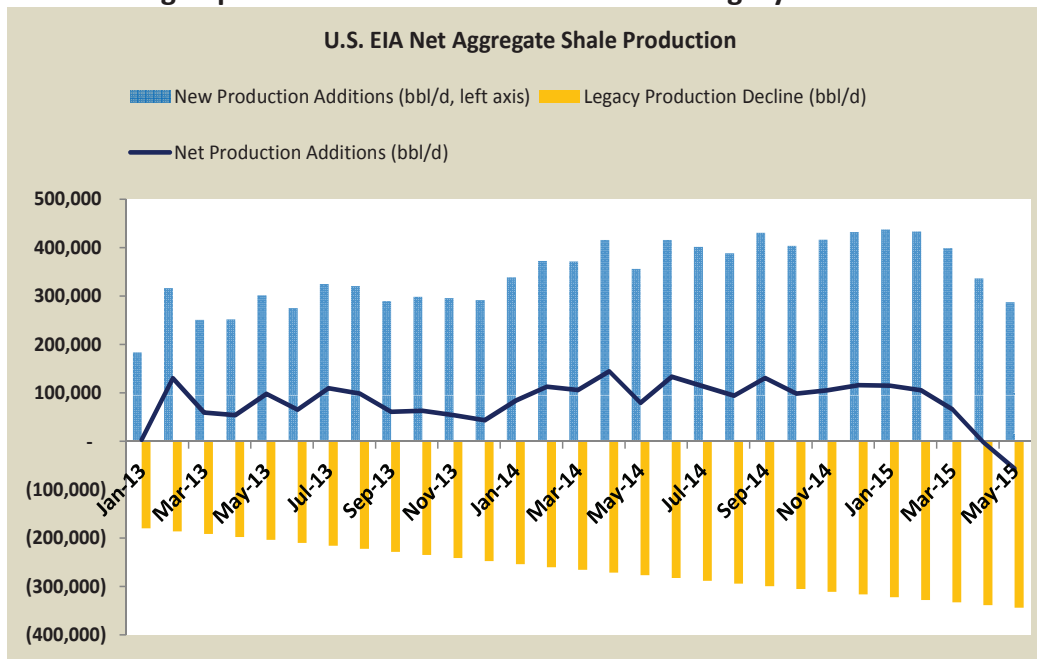
We believe U.S. shale oil will be most affected, as these shale basins will likely see the quickest and most severe / aggressive production cuts. The reason is not only due to their higher cost, but also due to the nature of the wells themselves, which allows the industry to easily turn their drilling programs “on and off” much quicker than other regions that draw oil from other sources. Much of the news coverage has argued this point because the shale oil rig count has declined significantly, while the oil produced has not (see **Chart 6**).



Sources: U.S. EIA Drilling Productivity Report (April, 2015), Century Management

Chart 7

U.S. Drilling Report - New Production Additions vs. Legacy Production Decline



Sources: U.S. EIA Drilling Productivity Report (April, 2015), Century Management

new well production added each month. At their 2014 peak, new wells were adding approximately 400,000 barrels per day, per month, in new production.

However, when we separate the production coming from existing wells (referred to as legacy wells) and compare that to the production coming from new wells, we see a different story. **Chart 7** shows the month-over-month change in legacy production (yellow bars) versus the month-over-month change in new well production (light blue bars). As you can see, monthly production from legacy wells is declining at the rate of 343,000 barrels per day. As we get closer to the end of the year, we estimate this decline will increase to roughly 375,000 barrels per day. The light blue bars on **Chart 7** represent the



By subtracting the monthly production decline of legacy wells from the production added by new wells, we can see the amount of net new oil that is produced monthly has recently been in decline (see the dark blue line on Chart 7). For most of 2014, net new production averaged approximately 100,000 barrels per day each month. The most recent figures from the U.S. Energy Information Administration (“EIA”) show net new production has begun to decline on a month-over-month basis at the rate of 56,673 barrels per day. This means the new production being added is no longer increasing more than the rate existing wells are declining. In other words, the drastic decline in the rig count means far fewer new wells will be drilled and the pace of new well production should continue to decline.

Compared with the conditions surrounding shale oil production, the conditions surrounding deepwater oil production are very different. Deepwater oil wells are much larger, take years of planning, and require hundreds of millions of dollars in up-front costs. But once they are up-and-running, they will produce oil for decades. Importantly, short-term fluctuations in the price of oil typically do not change the production schedule of deepwater wells. However, not all deepwater oil basins are the same. For example, the Gulf of Mexico is unique because it has substantial infrastructure already in place. Therefore, drilling new wells that tie into the existing infrastructure is very likely to be profitable, even at today’s low oil prices.

With this in mind, we invested in several offshore drilling and service companies that have operations in the Gulf of Mexico. Our research shows that the stock prices for many companies that operate in offshore markets have discounted the “oil bust” scenario quicker than their onshore counterparts, and in most cases are selling much cheaper relative to their respective intrinsic values. At the same time, the offshore energy industry is transitioning its fleets to newer, more capable equipment while scrapping the old, as it prepares for the increased deepwater investment spending that will be necessary to meet demand in the years ahead.

SUMMARY OF THE IMPACT OF LOW OIL PRICES ON THE SUPPLY AND DEMAND OF OIL

- The overall production for 2015 is still likely to show year-over-year growth from 2014, but as the declining trend in net new production as shown on Chart 7 continues, we expect to see increasing month-over-month declines for 2015.
- If the recent trend by shale oil producers to fund capital spending with internally generated cash flows continues, and if oil stays near its current prices, it is quite possible to see year-over-year shale oil production declines in 2016, as internally generated cash flows are likely to slow. This should result in getting supply and demand back in balance.
- In our opinion, the main effect lower oil prices have on production is that they temporarily delay new exploration drilling, since companies must adjust their overall capital budgets and tussle with service providers for cost reductions and savings.
- The increasing level of excess oil inventory that has been pushing storage capacity to near maximum levels should begin to decline in the coming months, as refineries ramp up their operations ahead of the summer driving season.
- Demand is likely to improve as cheaper energy prices spur spending.

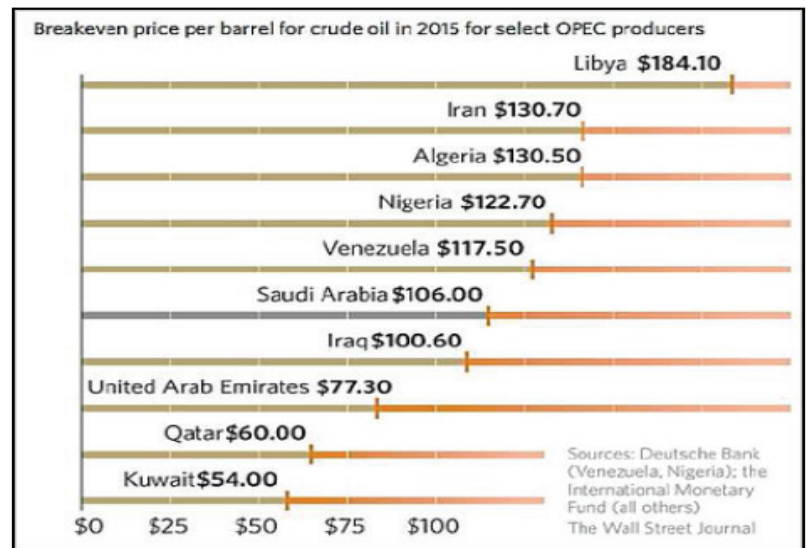


GEOPOLITICAL FACTORS THAT COULD IMPACT FUTURE OIL PRICES

On a global basis, we expect there will be production declines from poorly financed entities that are suffering in this lower oil price (i.e. lower oil revenue) environment. Many of these state sponsored companies will be hard pressed to invest enough capital to maintain their current production levels, let alone invest in future production. This cut back in spending may also slow down or prevent the future investments necessary to develop the resources that will be required to meet mid-term and longer-term demand, thereby setting up a potential supply shortage in years to come.

Finally, as time moves on, we believe there will be additional support for higher oil prices, because many countries like Saudi Arabia, Iran, Iraq, Russia, etc. need oil prices to be north of \$100 per barrel, some as high as \$120 per barrel, in order to balance their budgets and provide for their social programs (see **Chart 8**). We do not expect OPEC to cut back production; on the contrary, we expect OPEC to produce as much as it can to maximize cash flow. **However, if the price of oil stays low for an extended period of time, we believe we could begin to see regime changes, revolutions, or other political interventions as the citizens of these countries will be suffering. All of this will likely result in supply disruptions as various amounts of oil supply come offline for a period of time.**

Chart 8



CONCLUSION

Unlike 1986, OPEC, and for that matter all of the world's oil producers, do not have 23.5% of spare capacity of low-cost oil sitting idle, ready to feed the market for the next decade. Furthermore, our research shows that the U.S. energy industry, as a whole, is in far better shape today than it was in the 1980's. That's not to say there won't be any pain. On the contrary, the rapid decline in crude prices and the significant budget cuts throughout the industry are making near-term corporate earnings results downright ugly.

As a result, we expect to see several highly-leveraged, high-cost shale oil exploration and production companies go bankrupt in North America, but we do not expect to see the same industry-wide damage that was experienced during the 1980's. We also see downward pressure on drilling rates and service company revenues in the near-term as the industry absorbs 2015 budget cuts and resets costs. However, as these cost reductions take hold, we believe margins will bottom during the first half of 2015 and then are likely to recover through the end of the year. **Importantly, without a significant amount of low-cost energy available to be dumped on the market, we believe this shakeout will be relatively short-lived, with the marginal players exiting the business and well-positioned players using this downturn to improve their costs, buy assets on the cheap, and better their long-term prospects.**



CM HOLDINGS AND VALUATIONS

With regard to our energy holdings, our valuations and purchases of companies have been based on historical valuation metrics of the past 25 years. We have incorporated previous oil bear market lows and recession level valuations of 1990-91, 1998-1999, 2001-2002, and 2008-2009 in our analysis. While we certainly considered the 1980's oil bust era and associated valuation metrics in our risk analysis, they did not represent a large probability in our downside valuations for our worst-case pricing structures. The reason, as outlined in this report, is that we believe the current energy environment is far different than the one that existed during the "energy industry bust" of the 1980's.

The fact that some of our energy stocks are currently trading at valuation metrics below previous recession levels and are now pricing in a "full-scale industry bust" does not, in our view, invalidate our investment thesis and the long-term prospects for these companies. Rather, we believe it highlights the market's penchant towards short-term "trading" over long-term "investing".

What we did miss in our analysis is the magnitude of fear and negativity that has been applied to energy stocks and what we believe to be the market's misunderstanding of the relevant factors that drove OPEC's actions over the years. In our opinion, fear is such a powerful emotion that it not only leads to negativity and pessimism, but at the extremes, it can overwhelm logic and reason. Faced with fear in the stock market, many investors often envision the worst-case scenario taking hold. From our experience, collective fear by the investing public is a prime driver of bear markets, as the quickest way to alleviate their worst fears is to sell. Often times this leads to many investors deciding to sell their stocks at or around the same time, which can in turn drive down prices.

During these times of uncertainty, investors often sell stocks they know are cheap for fear that they may get cheaper. In our process, though not perfect, we try to capture these worst-case fears by assessing what we believe to be the worst-case scenario and comparing that to the facts at-hand. When the fear imbedded in the stock price sufficiently discounts what we believe is the most probable fact-based outcome, thereby creating an acceptable margin of safety, we buy. **If the stock price goes below our estimate of "worst case", it does not, in-and-of-itself, change the facts or the true intrinsic value of that company.** However, when this decline happens, we believe it indicates fear has grown and the pressure to alleviate the fear has mounted, presenting opportunities to buy companies selling at deep discounts to their intrinsic values.

Many of today's energy stock valuations broadly match those last seen in the 1980's. With the fear of a 1980's oil crash scenario discounted in so many of our company valuations today, especially compared to what we believe to be a far different reality, we see a great opportunity to profit over the next few years by continuing to own a basket of energy investments. While the last nine months have certainly been a painful period for owners of energy stocks, including the ones in our portfolios, we remain steadfast in our belief that as the market begins to sort out the facts (and we believe this is beginning to take place), a majority of the stocks in the energy sector should see significant upside from their current pricing.

Jim Brilliant, CFA
Co-Chief Investment Officer
Portfolio Manager



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