



## Is the Oil Bottom In?

April 21, 2016

By Carl Scholtz

After oil prices sustained above \$100 per barrel for several years, the United States energy sector had somewhat of a revolution in which jobs, capital spending and financial backing flowed like water. But like most big moves in commodities, “price cured price.” United States oil production skyrocketed from roughly 5M barrels/day to more than 9M barrels/day seeding the cause of its own demise. Before long, the world was awash in oil and Saudi Arabia (among others) was determined to punish this supposed inferior, high cost production by supplying even more oil to the world market. Naturally, the price of oil collapsed by nearly 80%. Ever since this collapse over 18 months ago, oil has been a critical piece of the investing puzzle. Not only was the price of oil linked to an enormous U.S. economic growth driver of jobs and capital spending, but now there were concerns about defaulting loans and bank insolvencies. It was a mess. During the recent leg down to \$26 per barrel in February, oil and the market were thus trading in lock step and the market appeared set to plummet much further. Yet, something funny happened on the brink of disaster for the markets, oil stopped going down. Two months later, oil has risen over 60% and the market has taken an equally unrelenting path upwards. This huge bounce has caused many pundits and investors alike to question whether the oil bottom is in or whether things can unwind just as quickly as they recovered. I am quite comfortable claiming that the outlook for oil is unequivocally improving and there would be no fundamental justification to retest the \$26 per barrel low.

Classically, the supply and demand for any good, service, or commodity will drive its price. In the long run, oil is no different. So, when the United States added over 4M additional barrels/day, the world went to a massive state of oversupply and the price of oil subsequently reacted. Contrary to claims in the media, the oil collapse was not demand driven. While at times perhaps a little slower than expected, demand has continued its march higher year after year up 1-2M barrels/day annually. The only negative growth years since 1984 were 2008/09 and even the Great Recession did not cause a big fall in demand. Barring a large global recession, I think it is thus far more useful to focus on the supply-side of the equation as there is much more ebb and flow. And for this, I think it is easiest to segregate the world into three different groups: the Organization of the Petroleum Exporting Countries (“OPEC”), the United States and the rest of the world (i.e., non-OPEC / non-U.S.).

**OPEC:** In the late summer of 2014, the world was beginning to realize that there was simply too much oil and the price fell from more than \$105 per barrel to \$90 per barrel during a four- to

five- month period ahead of an OPEC meeting scheduled around Thanksgiving. As opposed to propping up the market with its typical supply cuts to support the market, OPEC did something inexplicable at the meeting. They decided to increase production instead. This was a game theory decision. While this move assuredly would bring oil down much further and hurt their financials near term, their goal was simple: destroy the U.S. oil shale industry. From late 2014, OPEC raised production from 30.5M barrels/day to 32.5M barrels/day. After more than 18 months of pain, they have for the most part accomplished their goal. Take a look at many companies that were at once multi-billion dollar enterprises such as SDOC, PVA, and EXXI. More than 60 bankruptcies have occurred in the U.S. energy patch since the downturn began.

The scorched earth tactics appear to be coming to an end. For one, OPEC is simply out of easy spare capacity – despite the Saudi Arabian Crown Prince’s recent boastful claims. Except for the final 250,000 barrels/day Iran is targeting for exports post sanction removal, OPEC production is at record levels with little room to go up. The failed Doha “freeze” meeting was sort of silly to begin with given the record production levels in place at the time. While Saudi Arabia abandoned an agreement at the last minute, they are simply waiting for Iran to come to the negotiating table – something Iran will likely do once they reach their desired production levels in the next several months. When Iran is finally back, I think a deal can be struck – maybe even a cut.

**U.S. Production:** The key to understanding U.S. production is to understand the oil shale decline curve. Shale is almost 60% of U.S. production, and it naturally declines quite quickly. In the first year of production, a U.S. shale well’s production declines about 65% and then follows that with declines of 35% and 20% in years two and three. At that point, the well declines 10%-20% per year over its remaining life depending on the formation. Thus, the U.S. shale industry is on a very rapidly moving treadmill. It has to spend billions and billions to keep production simply flat. However, with oil prices so depressed and corporate balance sheets over-levered, there are only a few key areas where incremental drilling makes a ton of sense. As such, the U.S. rig count has plummeted (see Appendix figure #1). While rig efficiencies and the finishing of partially completed wells in backlog can cause a dislocation between rig counts and production, the inevitable outcome is that falling rig counts equal falling production. After a little stabilization during the fall, U.S. production has resumed its decline (see Appendix figure #2). Barring a significant increase in the price of oil, I think it will be a while before U.S. production meaningfully goes the other direction. For 2016, U.S. production should be down more than 500,000 barrels/day from 2015 and more than 750,000 barrels/day from December 2015 to December 2016. This supply decline is the single most important driver for the price of oil.

**Non-OPEC, Non-U.S.:** Before oil’s collapse, this group’s oil production was already in a modest, steady decline for several years. Much of this production is from offshore wells - a very difficult, high-cost way to obtain oil. Following an epic collapse in oil, it’s safe to assume there won’t be much growth here at all and many major, multi-year offshore projects are being delayed

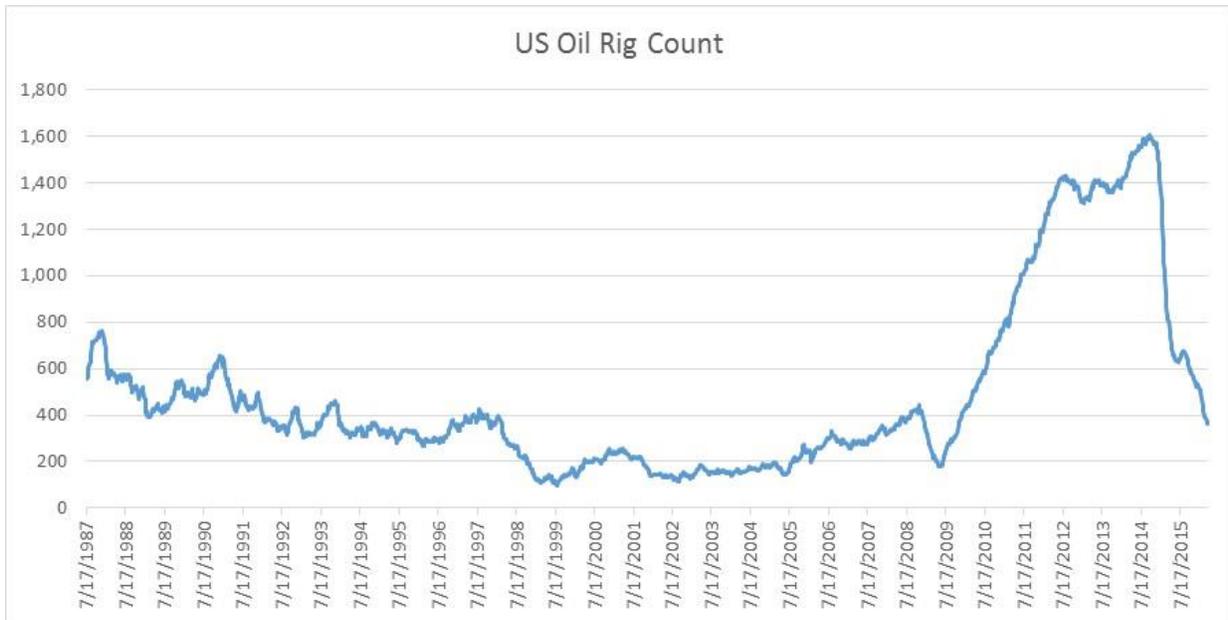
or scuttled. The International Energy Agency (“IEA”) is currently forecasting non-OPEC, non-U.S. supply down ~200,000 barrels/day, which seems about right.

Altogether, we started the year with an oil oversupply of 1-2M barrels/day (depending on who you listen to). Oil demand should rise by more than 1.5-2M barrels/day. Currently, the IEA, OPEC and the Energy Information Administration (“EIA”) all have demand growth for 2016 of around 1.2M barrels/day, but they are perpetual underestimators. In the last four years, they have collectively underestimated demand growth by close to 1M barrels/day on average each year only to revise it higher later. On the supply side, the drop in non-OPEC production from December 2015 should be a touch under 1M barrels/day, which will offset a similar increase in OPEC production driven by Iran. By my calculation, we should thus reach equilibrium by year-end at the latest. But I’m far more focused on the “flows” piece of the equation. Is it getting better or worse? Investors tend to jump ahead to the conclusion rather than waiting for the final bit of “good news” when we hit oil balance. After two solid years of massive oversupply, the pendulum has swung. So where does oil go? The short answer for me between now and year-end is higher. There will be fits and starts, but \$40 oil is unsustainable, and the supply/demand imbalance will only continue to improve until oil climbs meaningfully higher. If I had to guess, I would think somewhere above \$60 per barrel by year-end 2016. While long-run “equilibrium” is higher, I think many ravaged oil companies will aggressively throw out hedges as we approach the \$60s. In the long run, I believe oil needs to stay above \$70 per barrel. This is based on the general industry cost curve and the ever increasing demand from population growth and as the world continues to “emerge.” Eventually, electric cars and other efficiencies will change this tune, but I think this remains years away as a real headwind.

In my time following commodities, there is one thing I have learned, they can (and often do) go anywhere, plagued by momentum and speculation. However, I would conclude that the bottom is in for oil. The bears have run out of time.

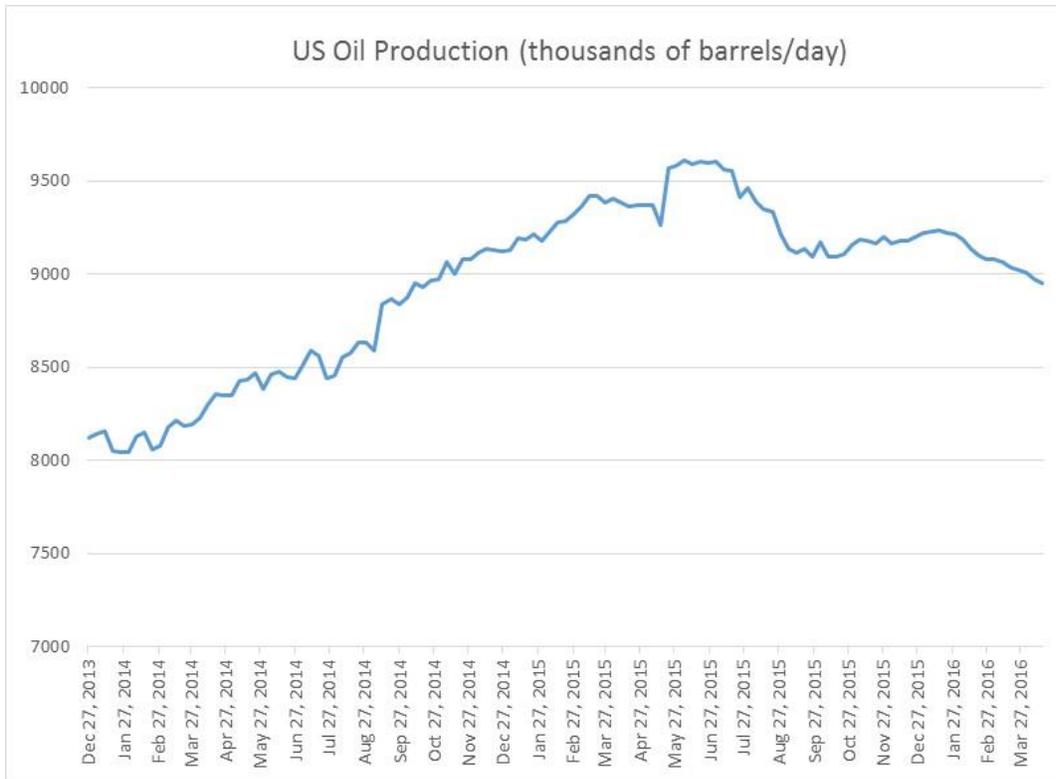
**Appendix:**

**Figure 1:**



Source: Baker Hughes Incorporated.

**Figure 2:**



Source: Energy Information Administration.