

“Peak Oil” - is that all there is?

According to the Energy Information Administration (“EIA”) in April 2015, U.S. oil inventories rose by 1.3 million barrels last week to 483.7 million barrels -- far less than the 3.6 million-barrel increase expected by traders and analysts. At 483.7 million barrels, U.S. crude oil inventories are at the highest level for this time of year in at least the last 80 years. Meanwhile, also in April 2015, the International Energy Agency also increased their demand growth projections for crude oil this year to a gain of 1.1 million bpd over 2014 (which gained 700,000 bpd over 2013). Finally, Iranian Oil Minister Bijan Zanganeh came out this week with a call for OPEC to cut its production output by 5%, a move favored by most OPEC members (but a move that has been opposed by its strongest member, Saudi Arabia).

All of the foregoing brings us to the Peak Oil theory. The term “Peak oil” is the theory that oil production has maxed out and that decline is therefore inevitable. This theory has had a lot of advocates—even unlikely ones, such as Texas oil man T. Boone Pickens, who said in 2004 that “never again will we pump more than 82 million barrels” a day of liquid fuels (we’ve been at 90 million and up for several years). There was a peak and a decline, but in the past few years, thanks mostly to the exploitation of shale resources, there has also been a recovery. Under peak-oil theory, that cannot happen because oil supply can decrease with only a minor impact on the economy. The economy will continue along as before, except with higher prices. These higher prices encourage the production of alternatives, such as wind, solar, biomass, geothermal and biofuels, shale in the U.S. and oil sands in Canada.

As we all know, the run up of U.S. crude production and growing stockpiles have been a driving factor for the oil price death spiral in the past year and the recent inventory data from the EIA certainly added to that momentum. As of April 15, 2015, West Texas Intermediate crude prices have surged 5% to year-to-date highs following a bullish inventory report.

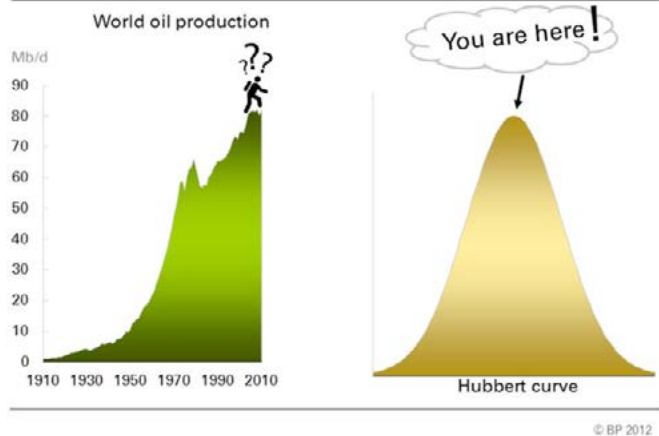


By Mona Dajani

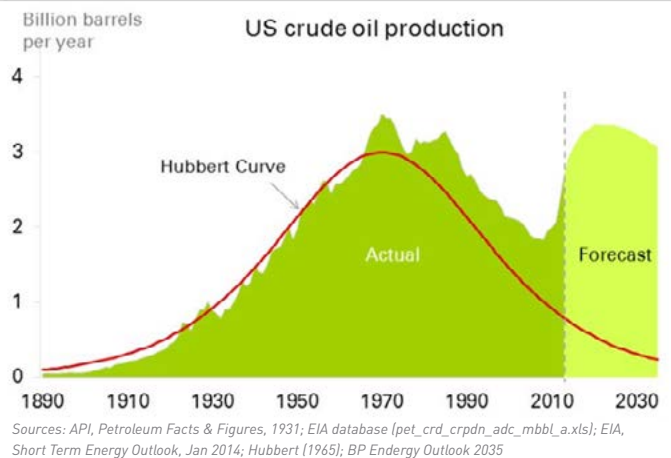
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Dajani contributes to Energy Law and Transactions, a treatise that discusses the energy industry - covering all traditional energy sources, such as oil, gas, electricity and coal, as well as non-traditional energy sources, such as hydroelectricity, solar, nuclear, biomass and cogeneration - from exploration and production through transmission, distribution and final consumption by the end-user.

Peak oil



The curve that once fit...



History of the Peak Oil Theory

The term “peak oil” was coined by M. King Hubbert, a geophysicist with Shell in the forties and fifties. At the time, the United States was the largest producer of oil in the world. But in 1956 Hubbert predicted that American oil dominance would peak fourteen years into the future. Though he was considered a serious crank by some contemporaries, just about everyone now knows that Hubbert was right. American crude production has been in decline since 1970, resulting in our current reliance on—some might say addiction to—foreign oil. His “Hubbert Curve” is used by many Peak Oil theorists as a predictive tool for global oil supply. Hubbert’s model proposed that production of resources with a finite supply could be expected. Hubbert contended, production ramps up quickly and hits a peak at about which time about half the recoverable oil has been extracted. As the oil becomes increasingly difficult and costly to pump out, the field goes into decline. But because population and the economy continue to grow, so do energy needs. Hubbert held that his theory about an individual field was applicable to the continental U.S. oil production and even the entire world, which he predicted would peak around 2000. Others put the date further into the future. The most optimistic peak oil supporters estimate that production will begin to decline after 2037.

So far, the Hubbert Curve has provided a pretty good fit to US oil production up until the 1970s. Then Alaska came along – opening up a whole new province that Hubbert did not anticipate - and shifted the path; but still the Hubbert Curve was able to track the US production profile reasonably well.

Then, in 2009, the trend of declining US crude oil production reversed, and since then US output has surged upwards until in 2013, production was higher than any year since 1989.

The Oil Market is in a state of confusion

The oil market is in a state of confusion, though several developments may serve to halt the momentum depending on their respective outcomes. First, if the preliminary deal between Iran and the U.S. over Tehran's nuclear program is completed and sanctions are removed, Iran might be allowed to begin exporting larger volumes of oil. Also, OPEC production surged by 890,000 barrels in March, 2015 compared with February, threatening to overwhelm the recent demand growth. Finally, the U.S. Department of Energy, is currently projecting that U.S. oil production will fall in the next six months, but will recover next winter and continue to grow to new highs. Implied in this projection is that oil prices will rise again. There is more to the peaking of oil production than simply U.S. shale oil however. Middle Eastern production is currently down about 2.5 million b/d due to geopolitical problems in Libya, Syria, Yemen, Sudan, and Iran. Only Iran seems to offer much hope of getting out of its sanction problems in the near term, thereby possibly adding up to another 1 million b/d to the world's oil supply. Currently, even this seems problematic .

Is "Peak Oil" Finally Wrong?

One strong reason why some believe that peak oil is wrong -- is about prices and technology. Tomorrow's technology will be different in ways we cannot predict. Technological change inevitably marches on. For the oil industry this means that:

1. The ability to recover more from any given field steadily increases. Recovery rates in known fields have probably doubled over the decades.
2. The ability to discover new fields also steadily increases. A few years ago, deep water production was called "unconventional" and a very minor contributor to global oil supplies. Now it amounts to 6% of the total; and
3. We learn how to extract oil from new sources. The shale revolution in the US is a perfect example. After all, one can turn almost anything containing carbon into "oil". The desk at which I am writing could be transformed this way – as long as someone is willing to pay the (financial and environmental) price for it.

So for economists, If supplies get scarce, prices rise, and this incentivizes new technologies, which in turn allow for better recovery rates, new discoveries, and access to other producible resources.

At the same time, higher prices dampen demand – leaving open the possibility that demand falls (i.e. demand "peaks", not supply, to return to that phrase) - a phenomenon which we are seeing in the OECD today, where oil demand has been falling since 2005. The world is not static, technology moves on and oil supply (or demand!) therefore should not be treated as fixed – this encapsulates the wisdom behind the old adage that, just as the stone age didn't end for lack of stones, so the oil age will not end for lack of oil.

Take Aways

When all the many factors bearing on the peaking of world oil production are weighed together, it still is impossible to reach a conclusion just yet. Depletion is a real issue. The race between new technologies and new resources is a major challenge; it is getting harder to access and extract oil and we are becoming more reliant on technological advances to meet this challenge. It should be noted, however, that if U.S. oil production declines significantly this year and prices remain relatively low, there is a chance that the world has seen the all time high of oil production. It still will be many years after the fact before the peak whenever it comes can be confirmed for real.

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