

# Will the Price of Oil Ever Come Down? - Don't Bet on It

David Rezachek<sup>1</sup>, Ph.D., P.E.

## Introduction

Since 2002, the price of oil has risen from less than \$20 per barrel (bbl), to more than \$70 per barrel. Even higher prices appear to be likely in the future.

A number of factors affect the price of oil. These include: (1) increasing demand; (2) demand is increasing faster than production; (3) excess production capacity is at record lows; (4) new discoveries not keeping up with demand growth; (5) supply disruptions due to geopolitical events; (6) fears of terrorism, (7) weather, and (8) speculation.

## Increasing Demand

World oil demand is expected to increase significantly over the next 25 years [1,2,3]. Global demand for oil is projected to increase by about 2% per year [4,5,6,7]. The U.S., China and other developing countries in Asia are expected to account for 60% of this growth [1], with nearly 80% of this growth in developing countries [7].

China's demand is projected to double in 10 years, to 10 million barrels per day (Mbb/d) (or, half of the United State's current demand). In 2003, China surpassed Japan as the world's second largest user of oil after the U.S. [8]. India's demand is projected to increase by 30% in 5 years [2]. India currently uses less oil than China (about 2 Mbb/d), but India's demand is expected to grow faster than China's [6].

The world currently uses about 84.3 Mbb/d (30.8 billion barrels per year [Bbbl/yr]) [9]. At a 2% per year annual growth rate, demand for oil in the year 2030 would be 138 Mbb/d (50.5 Bbbl/yr) - an increase of 64%.

## Demand is Increasing Faster than Production

At the same time, increases in production are not keeping up with increases in demand. At a certain point, an oil field reaches its peak production, and the rate of production then declines [10]. For a typical oil field, once peak production has been reached, the production decline reaches 3 – 5% per year [11]. Seper [6] estimates that this production decline is 4 – 6% per year.

Fifty four of the 65 largest oil-producing countries in the world have already passed their peak production and production is now in decline. Six years from now, five more of

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<sup>1</sup> Associate Development Director, Honolulu Seawater Air Conditioning LLC, 7 Waterfront Plaza, Suite 400, 500 Ala Moana Boulevard, Honolulu, HI 96813, Telephone: (808) 543-2024, Cell: (808) 282-5594, Email: rezachekd001@hawaii.rr.com

these producers will have reached their peak production [11]. U.S. production in the lower 48 states peaked around 1970 [4,10]. By 2002, oil production from Prudhoe Bay in Alaska was down 60% from its peak in the late 1980's [10].

Global oil production is expected to peak early in the 21<sup>st</sup> century. The projected peak production is somewhere between 2003 and 2020, with an average date around 2011 – only five years from now [2,4,12,13,14,15,16,17,18,19].

According to Naparstek [13], "... as increasing demand exceeds supplies, oil prices will rise substantially and international competition for reserves will grow ever more rancorous. The impact will be felt throughout the global economy and in every American's wallet."

### **Excess Production Capacity is at Record Lows**

The current approach towards meeting increasing demand seems to be to encourage oil producers to produce more. But how much excess capacity is really available?

World excess capacity is at a record low and is concentrated in a few OPEC countries [16,20]. By April of 2005, the world's excess production capacity was down to less than 1 Mbb/d (a little more than 1% of demand). Much of any available excess capacity is concentrated in Saudi Arabia [20]. But, according to an article by Crenson [15], "Saudi Arabia, Russia, Norway and other major producers are already pumping as fast as they can."

In an article by Englehardt [3], investment banker Matthew Simmons, states that Saudi Arabia "is far from being capable of increasing its output ...". Simmons further states that Saudi Arabia "is about to face the exhaustion of its biggest fields." In an article by Naparstek [13], Simmons states that "we could be on the verge of seeing a collapse of 30 or 40 percent of their production" by 2007 to 2009.

Therefore, there does not seem to be enough excess production capacity to significantly lower oil prices in the short term.

### **New Discoveries are Not Keeping Up With Demand Growth**

Demand for oil is steadily increasing, at a rate of about 2% per year, while production from existing oil fields has been declining by 3 – 6% per year [7,11]. According to Seper [6], "... just to stay even, in 15 years the world must find as much new oil as it is pumping now."

The net result is that oil reserves are being rapidly depleted. And, new discoveries have not kept pace with depletion of reserves.

U.S. oil discovery in the lower 48 states peaked in the 1930's and has been in decline ever since then [13,21]. Global oil discovery peaked in the 1960's [2,4,22].

Oil discoveries averaged 47 Bbbl/yr in the 1960's, 35 Bbbls/yr in the 1970's, 24 Bbbls/yr in the 1980's, and only 14 Bbbls/yr in the 1990's [22]. In recent years, the average discovery rate was significantly less than this [9]. The discovery rate is approaching only 4 Bbbl/yr [11]. And, 2003 was the first year with no new major oil finds [23]. Even in Saudi Arabia, no major fields (i.e., more than 500 Mbbl) have been discovered since 1970 [14].

Various estimates place the demand for oil at more than 120 Mbbl/y by the year 2025 [2,3,13]. This means that we must find the equivalent of 10 new North Sea oil fields within the next 10 years [13]. Trends in the discovery of new oil make this unlikely.

And, even with record profits and declining reserves, oil companies have elected not to invest in exploration [24,25]. Oil companies have, instead, chosen mergers or acquisitions to replace the reserves they are depleting and/or to buy back their own stock and to raise dividends [21,25,26,27].

Some contend that this lack of investment in exploration is because "companies are drilling even more from existing fields" or that it is too risky and costly to explore [24,26,27]. Others maintain that the oil companies' failure to invest in oil exploration "seems to indicate that there isn't much oil left to discover [14]."

Whatever the reason for not investing in oil exploration - the end result is the same. It will make it that much less likely that new discoveries will be made soon enough - if at all.

Some, such as the United States Geological Survey (USGS), believe that there is much more oil left than the pessimists believe [28]. Even if that is not the case, others (e.g., Exxon [7]), maintain that there are huge reserves of non-conventional resources (i.e., oil from coal and shale; bitumen and extra-heavy oil; heavy oil; deepwater oil; polar oil; and natural gas liquids).

However, even if this proves to be true, it will entail significant time, and substantial economic and environmental costs, to extract and process these resources in order to provide sufficient amounts of oil to make up for declining production of conventional oil - if that is even possible. Time is short and running out.

### **Supply Disruptions Due to Geopolitical Events**

There are a large number of trouble spots in the world, and many of these trouble spots are major oil producers. Trouble in any of these spots has the potential to disrupt supplies.

There has been political unrest in Venezuela that significantly reduced oil production from this major producer [29]. Russia's attempts to reign in oil developers has greatly reduced oil supplies from that area. The Caspian Region has been identified as a huge

source of oil. However, five countries - Kazakhstan, Russia, Iran, Azerbaijan and Turkmenistan – are still arguing over how to share its riches [14].

According to Renner [22], “in a number of developing countries, including Colombia, Sudan and, until recently, Angola, the revenues from oil production are fueling internal wars. In other countries, including Nigeria and Indonesia, oil and gas exploitation has led to disputes, protests, and repression, as domestic elites and foreign investors capture the bulk of the profits, while local communities are forced to shoulder the heavy social, economic, and environmental burdens associated with oil production.”

China has disputes with Japan over natural gas resources in the East China Sea and with Vietnam over oil in the South China Sea. China is competing with the U.S. for scarce supplies of oil, and is making deals for oil with both our friends and our adversaries [30].

Wars over oil resources have occurred in the past and are likely to occur again in the future, when this critical resource is even more scarce.

### **Fears of Terrorism**

Fears of terrorism have been fueled by recent attacks on oil personnel and facilities in Nigeria, Saudi Arabia, and Iraq [1,24]. Such attacks, even if not successful in disrupting supplies, have the potential increase the risk associated with oil production and, as a result, the cost of oil. There is a so-called “terror premium” on oil [11]. According to a report by ICF [1], “the possibility that Saudi Arabia’s oil installations might be attacked has raised concerns that translate into an estimated \$5 to \$7 dollars a barrel.”

### **Weather**

The Gulf of Mexico is the source of much of the U.S.’s oil supplies and the Gulf Coast the site of much of the U.S. refining industry. Supply disruptions followed Hurricanes Ivan and especially Katrina. The latter hurricane led to then record oil prices in September of 2005. There were a record number of hurricanes in the Atlantic/Gulf of Mexico last year and apparent global warming will likely create more and stronger hurricanes in the future.

### **Speculation**

Some say that much of today’s higher prices are due to speculation. This is undoubtedly true.

Average production costs, world wide, about \$5/Bbl [26], with OPEC producers averaging around \$1.50/Bbl. At the same time, the price of oil has risen to more than \$70/Bbl. Clearly, something other than production costs is driving prices.

Oil prices act like any other commodity – higher prices during shortage and lower prices during periods of oversupply. However, things appear to be different today. Even with nearly record inventories, oil prices have remained above \$60/Bbl for an extended period of time, and are now near the record high.

And, according to Lemieux [31], oil prices convey “the market’s evaluation of scarcity.” Oil is a valuable commodity that is in great demand. And, it is becoming scarcer, and more valuable.

## **Conclusions**

Demand for oil is rising fast, and production appears unable to keep up. At some point in the near future (most likely within 5 years), demand will exceed production capabilities, and prices will soar.

According to Appenzeller [28] “the peak will be a watershed moment, marking the change from an increasing supply of cheap oil to a dwindling supply of expensive oil.”

Terrorism, political unrest, and weather have the potential to disrupt supplies and to exacerbate the problem. Competition for this increasingly scarce and critical resource will also contribute to upward pressures on prices.

Some have speculated that enhanced oil recovery through technological advances, production of oil from vast resources of non-conventional sources, reduced demand due to higher prices, and energy efficiency and the use of renewable resources will address this problem.

This might be true if these resources could be developed fast enough. This doesn’t appear to be happening - yet.

All of these factors suggest that high oil prices are here to stay, and much higher oil prices are likely in the future.

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