

Popular perception suggests that the day the world's oil supplies will run out lies far in the distant future, and that is absolutely correct. Nevertheless, the probability of an imminent global oil crisis is higher than world society perceives. Since the beginning of the petroleum age about a century and a half ago, global oil production has curved steadily upward. However, because oil is a finite resource, its ultimate rate of production will follow a standard bell curve, eventually leveling off before steadily declining. Once this occurs, it will create conflict between established energy-users like the G7 and the growing appetites of rising giants such as India and China. Unfortunately, government and industry are only beginning to awaken to the possibility that the crisis will come not when oil reserves are completely exhausted but when oil production hits its peak.

The concept of a production peak was first put forth in a paper by M. King Hubbert in a paper to the American Petroleum Institute in 1956. At the time, the rate of oil production in the United States was increasing exponentially, an unsustainable clime for any exhaustible resource. Hubbert compared the upward rate with estimates of the total quantity of oil in the United States to produce "a family of production curves, all of which would exhibit the common property of beginning and ending at zero."¹ The curve suggested that production rates would decrease once roughly half of the oil had been extracted. At that point, plenty of oil remains, but "declining pressure, exhaustion of the best oil pockets, and increasing contamination bring it to the surface ever more slowly" and production both slows down and becomes costlier.² While Hubbert's curve could not foresee any incidental decrease in oil demand or significant new discovery, it predicted that the production of oil in the United States would peak sometime in the mid-1970s. He was right: oil production actually peaked in 1970 and has been declining ever since.

¹ M. King Hubbert, *Nuclear Energy and the Fossil Fuels*, (1956) 10.

² Kevin Drum, "Crude Awakening," *Washington Monthly*, (June 2005)
<<http://www.washingtonmonthly.com/features/2005/0506.drum.html>>.

He warned then that the production peak presented as “a national problem of primary importance, the necessity, both with regard to requirements for domestic purposes and those for national defense, of gradually having to compensate for an increasing disparity between the nation’s demands for these fuels and its ability to produce them from naturally occurring accumulations.”³ What was more alarming—and underappreciated—about his report was the further prediction that global oil production would reach a peak around 2000. The U.S. had ample supplies of oil from which to import at its peak; this will not be the case when world oil production peaks. While this has yet to happen, the advent of a global Hubbert’s peak will likely spell disaster to the global economy and precipitate a dramatic decrease in the average American’s standard-of-living. Last February, the U.S. Department of Energy released a report that warned that “the peaking of world oil production presents the U.S. and the world with an unprecedented risk management problem. As peaking is approached, liquid fuel prices and price volatility will increase dramatically, and, without timely mitigation, the economic, social, and political costs will be unprecedented.”⁴

On the surface, this appears to be a dramatic claim. According to Hubbert, the arrival of the peak only indicates that approximately half the world’s oil reserves have been exhausted. However, unless substantial new technologies are developed for the extraction of oil, the production peak will signify that, in the words of oil-giant Chevron, “the era of easy oil is over.”⁵ Extracting the second half of world oil reserves will be harder, costlier, and more energy intensive, and, as a result, oil will yield a smaller and smaller EROEI—energy returned on energy invested. Where once a barrel of oil provided enough energy to produce another thirty barrels, today that has fallen to only eight barrels. Eventually, as Hubbert’s bell curve trends downward, the EROEI of oil will become 1:1 and the extraction of oil will cease to be feasible from an energy standpoint. As the energy margin of oil gets smaller even as the world population grows, oil will have a harder time feeding more people.

³ M. King Hubbert 39.

⁴ Robert L. Hirsch, SAIC, *Peaking of World Oil Production: Impacts, Mitigation, & Risk Management*, (Feb. 2005) 4.

⁵ Chevron – WillYouJoinUs.com, <<http://www.willyoujoinus.com>>.

What will happen once this new era begins is anyone's guess, but it could be cataclysmic. In the short term, costs will quickly accelerate for everything from cell phones to magazines, automobiles to groceries—anything produced with the aid of oil. While the consumer economy might not immediately collapse, worldwide economic growth could stagnate as oil-reliant industries—specifically transportation and agriculture—as costs continued to sky-rocket. Energy crunches like those in 1973 and 1979 could intermittently appear, but, while these earlier disturbances were the result of political posturing, future shortages will become a permanent and ever-increasing phenomenon. Technical and logistical limitations will prohibit any government, whether the OPEC nations or the United States and its Strategic Petroleum Reserve, from alleviating the crisis.

Once the peak is passed, supply will never again be able to match global demand. The situation will become a crisis when the global market begins to contract. “The open market is not designed to deal with depletion,” Colin Campbell observes, and the end of easy oil will starve the Third World and throw everyone else into a panic.⁶ A doomsday scenario follows wherein competition for remaining oil resources will bring the chief global powers into military conflict. The end result will be the increasing scarcity of oil for most of the world, resulting in a tremendous gap in global income-disparity.

The reality of Hubbert's peak is not in question. Thus, the biggest point of contention becomes determining precisely when Hubbert's peak will arrive. Considering that estimates vary wildly as to the total number of recoverably barrels of oil still in the ground,⁷ it is impossible to say with absolute certainty. Using numbers from the United States Geological Survey (USGS), the peak may not arrive for many decades, if not a century, from now. However, the reliability of the USGS

⁶ Colin Campbell, “The Imminent Peak of World Oil Production,” presentation to the U.K. House of Commons, (7 July 1999) <<http://www.hubbertpeak.com/campbell/commons.htm>>.

⁷ See Graham Jones, “World Oil and Gas ‘Running Out’,” *CNN.com*, (2 Oct. 2003) <<http://edition.cnn.com/2003/WORLD/europe/10/02/global.warming/>>.

has often been called into question, most notably after it failed to predict, as Hubbert had, that U.S. oil production would peak in the 1970s. Furthermore, the oil industry faces the fundamental problem of data transparency—oil exporters have every reason to disguise their total oil reserves in order to control the market. The BBC reports that last year alone the International Monetary Fund, the G7, and the International Energy Agency called for OPEC and Russia to open their oil fields to independent scrutiny.⁸ Absent hard data, the evidence appears to suggest that the peak is either here or near at hand. The dramatic decline in new oil discovery is an early indication that the peak is near. The Oil Depletion Analysis Centre notes the sharp decline in oil discovery: sixteen in 2000, eight in 2001, three in 2002, and none in 2003.⁹ At the current rate, the world is discovering only one barrel of oil for every four it uses. With global demand for oil rising approximately 3% each year, a French governmental report predicts the oil peak will arrive in 2013.¹⁰

Whatever the case, it is unlikely the world will realize the peak until after it has occurred. Once oil production plateaus, any immediate decline will be written off by oil producers as a temporary problem. Eventually, the market will force oil prices up—a phenomenon some would suggest is already happening. As Americans are quickly learning, the abundance of “easy oil” has priced oil well below its actual value—if the entire production curve is considered. While oil currently stands at around \$65 per barrel, oil remains far too cheap according to the Association for the Study of Peak Oil and Gas (ASPO). In order to prepare for the peak and encourage the transition away from oil, Matthew Simmons, a member of ASPO, recommends pricing “oil realistically to control its demand...and give us time to find bridge fuels, fuels to fill the gap between an oil economy and a renewable economy.”¹¹ He suggests oil should be priced at \$182 per barrel.

⁸ Adam Porter, “‘Peak Oil’ Enters Mainstream Debate,” *BBC News*, (10 June 2005) <<http://news.bbc.co.uk/1/hi/business/4077802.stm>>.

⁹ David R. Francis, “Has Global Oil Production Peaked?” *The Christian Science Monitor*, (Jan. 2004).

¹⁰ Adam Porter, “‘Peak Oil’ Enters Mainstream Debate.”

¹¹ Adam Porter, “Is the World’s Oil Running Out Fast?” *BBC News*, (7 June 2004) <<http://news.bbc.co.uk/2/hi/business/3777413.stm>>.

While such a number initially appears shocking, it is realistic. M. King Hubbert projected the end of the petroleum age fifty years ago, and the United States, the one country with the resources and will to act upon his warning, has remained blissfully ignorant of the looming reality of the situation. The American dream continues to conjure up bigger automobiles and bigger homes at a time when the rest of the developing world is also screaming out for more, more, more. Eventually, the reality of oil supply and demand will reach a breaking point; something will have to give. The precise date of Hubbert's peak is not as important as what its impending arrival means. Easy oil has been the key ingredient to the explosion of innovation in the past century and a half—everything from medicine to the internet has been its beneficiary. Thus far, most of our alternative energies are not oil alternatives but oil derivatives.

The only escape from the collapse of the oil economy is to recognize its death now before it's too late. Otherwise, the world may very well fall into another Dark Age from which there is no escape. Jimmy Carter warned thirty years ago: "We must even face the prospect of changing our basic ways of living. This change will either be made on our own initiative in a planned and rational way, or forced on us with chaos and suffering by the inexorable laws of nature."¹² Indeed, the race to Hubbert's peak has an historic significance for the human race that goes far beyond merely oil: "With coal gone, oil gone, high-grade metallic ores gone, no species however competent can make the long climb from primitive conditions to high-level technology. This is a one-shot affair. If we fail, this planetary system fails so far as intelligence is concerned."¹³ Of this reality, popular society remains horribly unaware.

¹² Jimmy Carter, "Address by Jimmy Carter Announcing His Candidacy for the 1976 Democratic Presidential Nomination," *The National Press Club*, (Dec. 1974)
<<http://www.4president.org/speeches/carter1976announcement.htm>>.

¹³ Fred Hoyle, *Of Men and Galaxies*, (University of Washington Press: Seattle, 1964) 73.