

World Oil Supply

A wake-up call to face the finitude of the resource

Book Review by Walter Youngquist

Oil is a finite substance, and the peak of world oil production is near, to be followed by an irreversible decline. This is the message brought by petroleum geologist and professor Kenneth Deffeyes. Today oil prices, adjusted for inflation, are nearly as low as they have ever been, so it is difficult to convince the public that change is directly ahead. But Deffeyes has marshaled important data to make the point in *Hubbert's Peak: The Impending World Oil Shortage*.

The title of this volume derives from the work of geologist M. King Hubbert who, in 1956, predicted that U. S. oil production would peak in the early 1970s. Hubbert was widely criticized at the time because the U.S. then enjoyed rapidly increasing oil production, and as late as 1950 still produced more than half the world's oil. But Hubbert was right; production peaked in 1970. The top of the bell-shaped curve Hubbert had created to project U.S. oil production became known as Hubbert's Peak.

The first portion of the book is a review of current world oil supply providing a concise background for the

Walter Youngquist, Ph.D., is a petroleum geologist who has written widely on energy resources. He is co-author with Dr. Richard Duncan of Encircling The Peak of World Oil Production (1999). That study of forty-two countries representing 98 percent of world oil production, projects the peak of world oil production in 2007, essentially the same as Deffeyes now predicts. Dr. Youngquist is the author of GeoDestinies: The inevitable control of Earth's resources over nations and individuals which is reviewed in this issue on page 147.

message to follow. The mid-portion of the book details the origin of oil, exploration methods, types of reservoirs and traps, drilling and well logging methods, a statistical approach to oil field discovery, and the history and facts of oil field production. This is good information, and readers will learn much about the basics of the geology and production of oil. The details given in this section validate the important conclusion of the book.

The end of this mid-section concludes that the data presented "give a peak production year of 2003 and a total eventual recovery of 2.12 trillion barrels." Deffeyes qualifies this by saying he does not have an opinion as to the exact date, suggesting it may be as late as 2009. Significantly, he says: "This much is certain: no initiative put in place starting today can have a substantial effect on the peak production year. No Caspian Sea exploration, no drilling in the South China Sea, no SUV replacements, no renewable energy projects can be brought on at a sufficient rate to avoid a bidding war for the remaining oil."

The last section discusses the future of fossil fuels as well as the prospects and limitations of alternative energy sources. The author believes neither solar nor wind power is an immediate large-scale solution to the energy problem. He makes the comparison that a normal-sized nuclear plant produces 1000 megawatts of electric power, whereas at typical efficiencies, a solar or wind project would have to occupy five square miles to deliver 1000 megawatts. He notes that "I can direct you to any of several Nevada basins where you can get the five square miles; your problem is the capital cost of paving five square miles with solar collectors." Other energy alternatives also have limitations which will preclude them from completely filling the gap left by the depletion of oil.

**Hubbert's Peak:
The Impending
World Oil
Shortage**

by Kenneth S. Deffeyes
Princeton, NJ: Princeton University
Press
208 pages, \$24.95



Hopefully this concise volume will serve as a heeded wakeup call to what is clearly going to be an oil supply crisis in the near future. Unlike previous oil crises (1973, 1978), it will not be a temporary politically-based interruption, but a permanent genuine decline in supply, which cannot effectively be mitigated by turning to other energy supplies in time to avoid an energy crisis.

Hubbert's Peak convincingly shows that oil is a limited resource and that most people living today will see the peak of world oil production. However, in nearly all discussions of energy and other natural resources (including this one), there is one vital element overlooked. That is the matter of population and population growth. Neither the energy problem nor other resource scarcity issues can ever be finally solved if we are aiming at a

moving target, population growth. When we have to depend entirely on renewable energy resources, then the matter of population will become critical.

Solar energy is commonly considered an infinite energy source (read also wind). It will last for eons, but only so much reaches the earth each day at a given place. It is not infinite, it is definitely limited. Any sustainable energy and other resource discussions must be framed in the context of some fixed population size. It must be faced. *Hubbert's Peak* would be strengthened by inclusion of the topic of population as it relates ultimately to a sustainable economy; but even absent that aspect, this book is important, timely, and convincing reading. •