

Studying Peak Oil - ASPO International Workshops on Oil Depletion

Annual International Workshops on Oil Depletion are held in Europe by the Association for the Study of Peak Oil and Gas, ASPO. The most recent, and by far the largest and most prominent, was hosted in Berlin by the German Geological Survey, BGR in May 2004. Papers and presentations are available at www.PeakOil.net. Oil depletion experts from the US, Europe, Russia and the Middle East gather to discuss the growing body of evidence that world oil production will reach a peak then decline relatively sharply within a decade or at most two.

At the first workshop APSO also released the first edition of its "Statistical Review of World Oil and Gas", a nation-by-nation evaluation of reserves and production rates, based on the most reliable technical data available. The ASPO data differ substantially from those published in oil trade journals and by the IEA which have very serious commercial and political biases and inconsistencies. Evaluation of non-conventional oil is now included in the current predictions shown in figure 3a. Non-conventional oil includes heavy oil (which needs to be heated to flow adequately), oil from deep water (>500 metres) and from polar regions and condensates from natural gas. These sources will in part offset the rate of decline of conventional oil after the "Big Rollover"

Presenters at the International Oil Depletion Workshops included Matthew Simmons, a prominent energy-sector investment banker from Houston who advises President Bush. Simmons said, "I have studied the depletion issue intensely for too long now to have any remaining doubts as to the severity of the issue. But I am still amazed at the limited knowledge that exists, even in the U.S. or within our major oil and gas company's senior management about this topic and its dire consequences", (Simmons (2002))

"Most serious scientists worry that the world oil supplies will peak [and then decline]. Peaking of oil can not be predicted accurately, but the event will occur. Peaking turns out to only be clear through a 'rear-view mirror'. By then, an alternative or solution is too late. My analysis leads me to worry that peaking is at hand, not years away. If I am right, the unforeseen consequences are devastating. The facts are too serious to ignore." (Simmons (2003))

Dr Samsam Bakhtiari, of the National Iranian Oil Company, provided a pessimistic view of future oil supply decline and of its effects: -

perspective, the present global oil situation can be summarised within five major and inescapable trends:

- * The world's super giant and giant oil fields are dying off;
- * There are no more major frontier regions left to explore besides the earth's poles;
- * Production of non-conventional crude oil has been initiated at great costs --- in Venezuela's Orinoco belt, Canada's Athabasca tar sands and ultra-deep waters;
- * Even OPEC's oil production has its limits;
- * No major primary energy rival can possibly take over from oil and gas in the medium term.

Adding up these five trends, one can envision a global oil crunch at the horizon --- most probably within the present decade..... " ...It would take a number of miracles to thwart such a rational scenario. Now, a single miracle is always a possibility, but a series of simultaneous miracles is not --- for there are limits even to God Almighty's mercifulness". (Samsam Bakhtiari, 2002)

Samsam Bakhtiari has also since published simulations of the World Oil Production Capacity (Wocap) model which suggest that global oil production will peak at a point near 81 million barrels per day well before the end of the decade, likely by 2006-07 (Samsam Bakhtiari (2004)). Dr Samsam Bakhtiari visited Australia recently, presenting seminars in four cities. He also briefed the WA Cabinet about oil depletion risks on August 9th 2004.

A paper in December 2002 by Exxon Mobil Vice President, Harry J. Longwell (Longwell (2002)) contains the world oil discovery decline curve (Fig 4) which agrees well with those published in Aleklett and Campbell (2002). Declining past oil and gas discovery success rates foreshadow future production decline rates, and acknowledgment of this by a major oil company is very significant. There is an often-overlooked truism that oil production can only follow oil discoveries. Longwell also showed a peak of global gas discovery in about 1970 with a sharp decline in natural gas discovery rates since then.

Figure 4: World oil discovery rates have been declining since the early

1960s as now acknowledged by Exxon Mobil. (Longwell (2002))

More recently, there has been an increasing level of coverage of oil depletion issues in the scientific and general media. Some examples follow.

New Scientist ran a cover story (2nd August 2003).

"Crisis looms – When demand for oil outstrips supply"

"... we could be in for a big shock: we are going to run out of cheap oil. That's not oil per se, but we're approaching the point when global demand for oil will outstrip supply. It is not clear when we will reach this tipping point. The economists say we have about 35 years before oil production peaks, while geologists think we have only a decade. At present the geologists' argument is in the ascendant, having won the backing of some investment banks and oil consultants."

Oil & Gas Journal editorial (18th August 2003)

"...can a peak in production be anything other than imminent? That question breeds others. How rapidly will production decline after the peak?"

The Guardian (2nd December 2003) "Bottom of the barrel – The world is running out of oil - so why do politicians refuse to talk about it?"

"Every generation has its taboo, and ours is this: that the resource upon which our lives have been built is running out. We don't talk about it because we cannot imagine it. This is a civilisation in denial."

Richard Miller, BP Exploration UK, wrote in a letter to the Oil & Gas Journal (12th January 2004) sharply refuting a statement from an extreme economic optimist (Maugeri, O&GJ, Dec 15th 2003) who had claimed "… just as the Stone Age did not end because of the scarcity of stones, the Oil Age will not end because of the scarcity of oil. Rather oil will inevitably be surpassed in convenience by a new source of energy in the future";.

Miller stated:

"This is the classical economist's view: something will turn up, when the price of oil is high enough, because something always does. But there isn't anything conceivable that could replace conventional oil, in the same quantities or energy densities, at any meaningful price. We can't mine the oil sands in sufficient quantity because there isn't enough water to process them. We can't grow bio-fuels because there would be no land left to grow food. Solar, hydro, wind, and geothermal don't yield enough energy, hydrogen (from water) takes more energy to make than it can yield, and nuclear fission and fusion are presently off most political agenda. The oil consumed directly and indirectly by the average American is equivalent to the work output of 135 slaves, unfed, unclothed, unhoused, and paid \$2 a day between them. When oil gets too expensive, surviving Americans will still obtain energy from alternative sources, but in much smaller amounts and at much higher prices. Westerners will have to live with only a handful of slaves."

Christian Science Monitor, 29th January 2004

"Has Global Oil Production Peaked?…
The question now making the rounds in energy circles: Has production already peaked?"

West Australian, March 10th 2004 "End looms for the days of cheap oil"

"Oil companies are now raising their doubts. They voice it softly, but clearly they are starting to feel if

they don't raise any doubts, the public will be hostile to them".

This well-researched long article was taken from an international newswire service. The fact that the West Australian was probably the only newspaper in Australia which ran the story may illustrate the reality of the community taboo against discussing oil depletion.

As production outside the Persian Gulf declines, the balance of oil power will shift more and more towards OPEC and the Middle East. Substantial short-term disruptions, for instance from a revolution in Saudi Arabia (Bauquis (2004)) and large market-force pressures in the medium-term are quite possible. The permanent decline phase will start once the Middle East production starts falling as forecast, possibly in about 2010 or so. Physical constraints in addition to market forces and geopolitical factors will then limit oil availability. Rising world demand, for instance from China and India, will add enormous pressures to the oil market. The past oil shocks have been predicted to be mere ripples compared to the changes which will probably occur in the next decade or two.

These reliable forecasts of declining domestic production and uncertain world supplies indicate that Australia is very vulnerable to "Oil Shocks" in the short term (2 months), medium term (2 years) and long term (within 1-2 decades).

The declines in Australian and world oil availability are likely to be much faster than any alternatives can be brought on stream in significant volume and much faster than the necessary structural and efficiency improvements can be made, unless extraordinary measures are taken very soon.