

## The Future of Oil

Oil prices have grown strongly since 2004, and recently spiked over US \$90 per barrel. Speculation, international politics, exchange rate changes, and the risk of terrorism and war have all played a part. But the basic reason is that world oil production has not grown since 2006, while demand continues to increase.

Each time the world oil price goes up, analysts quoted in the media mention the impact of such short-term issues as the threat of a Turkish incursion into northern Iraq, refinery shutdowns, or kidnappings in Nigeria. They rarely mention the underlying fundamentals of supply and demand.

We know that world oil demand is growing rapidly, spurred by economic growth in countries such as China and India. But what's happening to oil production?

According to the US Energy Information Administration (EIA), total world crude oil production reached its maximum to date in May 2005 at an average of 74.3 million barrels per day (bpd). When "unconventional" liquid fuel sources are added, the maximum production to date was 86.13 million bpd in June 2006. By September 2007, total liquids production had declined slightly to 85.1 million bpd.

So, after rising steeply up to 2005, world oil production has levelled off. Saudi Arabia, the biggest oil producer, and its fellow members of OPEC sometimes make pledges to raise production, but they are either unwilling or unable to carry them out.

It is not yet clear whether this levelling off represents the all-time peak in world oil production. If June 2006 was the all-time peak, or if the peak is close, then the implications are serious. Following the peak, production rates are expected to decline at rates somewhere between 2% and 8% per year.

Other possibilities are that production has entered an "undulating plateau", neither rising nor falling significantly for some years, or that the high oil prices will spur investment in exploration and production and bring major new oil fields online. This is the expectation of the New Zealand Government, and until recently of the International Energy Agency (IEA). But there's no sign yet of this increased production, and in its latest report, the IEA says that it expects the oil supply position to tighten during the period 2008-2012.

There are several reasons why it won't be easy to increase world oil production, even if there is sufficient oil left in the ground to do so. First, according to the IEA, production from existing oil fields is declining at an average of 4% per year. This means that 3.2 million bpd of new production must be found each year just to keep production levels stable. Second, there is a shortage of drilling rigs and other equipment to get at the remaining oil, which tends to be in smaller fields that are harder to access.

Third, production from "unconventional" oil sources such as the Alberta oil sands has not met projections. And fourth, oil exporting countries are using increasing proportions of their oil within their own borders, meaning that there is less available for export.

Oil prices have always fluctuated, but the underlying upward trend is clear. Geopolitical events, such as a possible US attack on Iran, may lead to additional sharp upward spikes and supply disruptions.

As demand outstrips production, New Zealand, at the end of a long oil supply chain, is vulnerable to supply disruptions as well as much higher prices. Even if a significant oil find was made within New Zealand waters, New Zealanders would still have to pay the world price for this oil.

Transport, agriculture, tourism, fishing, forestry and many other aspects of New Zealand life are heavily dependent on oil. Whether the peak of world oil production is already upon us, or still a few years off, the scale of the problem means that the Government should already be planning for its consequences, just as it is for climate change.

Unfortunately, the recently released New Zealand Energy Strategy relegates the issue of oil supplies to a single page, and reassures us that the world has plentiful supplies of fossil-based oil. With increasing evidence that the oil production peak is either upon us or very close, this confidence is misplaced.

The Queensland Government has just released a report on the effects of peak oil. It calls for a range of actions to lessen Queensland's dependence on imported oil supplies. The New Zealand Government should commission a similar report, and it should also look at how to marry efforts to reduce the impacts of peak oil with efforts to reduce greenhouse gas emissions. This is because some proposals, such as converting Southland lignite to liquid fuels, would greatly increase our carbon dioxide emissions.

There's no more time for delay. It's time to get serious about the future of oil.

Tim Jones  
Convenor, Sustainable Energy Forum