ODAC | The Oil Depletion Analysis Centre

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NEWS RELEASE
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The following is a statement by ODAC Board member Chris Skrebowski which aims to clarify some common misapprehensions about the meaning and significance of oil depletion. He will present his outlook for global oil supplies in detail at a one-day conference, 'Peak Oil UK: Entering the Age of Oil Depletion', at the Royal Museum of Scotland in Edinburgh on 25th April 2005.

Understanding Oil Depletion

Currently, world oil depletion is running at 4-6 percent, according to ExxonMobil. Taking 5 percent of 2004 production of 82.5 million barrels per day (mn b/d) gives a depletion rate of 4.1mn b/d per year. This sounds huge but is in fact correct.

It accords with a presentation given by Klaus Rehaag of the International Energy Agency (IEA) in Rio last year. Another way of looking at it is that 70 percent of global production is already in decline and is declining at 7 percent per year. Simple maths: 70% x 82.5 x 0.07 = 4.04mn b/d — close enough.

So overall depletion is running at a little over 4mn b/d each year at the present time.

However, there are three types of depletion.

Type 1 Depletion: This is the normal situation in a field where production from some wells is declining and this is being offset by production from other wells or new wells. This sort of depletion has been going on since the first oil field development.

The homely analogy would be that you go into your favourite pub or bar and find that the beer you order is being dispensed from a different tap or beer engine from the last time you were in. Perhaps they're using a different keg or barrel, perhaps they switched pipes in the cellar. You don't really care, you don't have any reason to care. It is the management's business and you're still getting the beer you wanted.

Type 2 Depletion: This occurs when a whole field, area or region is depleting but compensating supplies are available from within the same country. An example would be declining conventional oil supplies in western Canada being more than compensated for by rising supplies from offshore eastern Canada and from heavy oil production. This sort of depletion has also been going on since early in the oil industry's history.

The homely analogy here would be that you go into your favourite pub or bar and find that the beer you like is being dispensed from a different bar from the last time you were in. This may be a small inconvenience but you don't really care that much. It is the management's business and you're still getting the beer you wanted.

Type 3 Depletion: This occurs when a whole country is in decline, there are no compensating supplies within the country and customers can no longer get all the supplies they require. This means that customers now have to go to an alternative supplier for some or for all of their requirement.

This is radically different from Type 1 & 2 depletion because for the alternative supplier this is new and to some degree unexpected demand.

In the history of the oil industry it is also a fairly recent development. As late as 1990, only the US and Romania were in Type 3 depletion. Currently, about 18 major producers are in Type 3 depletion, and over 50 if all the small producers are added.

Over the last two years (2003/04) Type 3 depletion was running at around 1mn b/d. However, in the next 2-3 years several major producers are likely to enter Type 3 depletion. These include Denmark, Malaysia, Brunei, China, Mexico and India. This could raise Type 3 depletion rates to around 1.3-1.4mn b/d per year.

The homely analogy for Type 3 would be that you go into your favourite pub or bar and find that the beer you like is no longer available. If you want your beer you need to find a new pub or bar that has supplies.

The bar that hasn't got what you want will be reluctant to tell you they've run out, hoping you'll settle for something they have got. They won't be too keen to tell you who might have some either. They're losing a customer.

Your new supplier, when you find one, will be pleased to see you because you're a new customer (new business), but only providing they have adequate supplies for their existing customers and for you.

This leads us to a number of conclusions:

- Producers moving into Type 3 depletion will be reluctant to admit it.
- Countries moving into Type 3 depletion will be reluctant to admit it.
- Type 3 depletion acts like new demand and is probably the underlying reason for much of the recent underestimation of demand.
- Type 3 production decline must be offset each year before any incremental demand can be met.
- Once Type 3 depletion reaches a level that cannot be offset by new supplies, global production decline sets in.

It is not at all clear how well new demand estimates include the demand from Type 3 depletion.

Two immediate problems. You can always brew more beer but, as far as I know, no one is brewing oil. The other problem is that, according to industry consultants IHS Energy, 90 percent of all known reserves are now in production. This is another indication that there's little more to come.

So, at some not too distant point the ability to offset Type 1 and Type 2 depletion will be greatly restricted and Type 3 will spiral upwards. At this point supply will really be falling quite quickly, with Type 3 depletion possibly running at over 3mn b/d each year.

Now, a nearly 3 percent per year decline in supply would be pretty awesome as I can't conceive of any technology or alternative that could offset that for more than a few years.

Some further comments.

The major oil companies operate internationally but all data are collated on a national basis, which means the oil companies have been able to conceal, or more correctly, not draw

attention to the impact of depletion. All the publicity is given to new projects and new flows. Because little publicity is given to their declining fields — and even less to the volume of loss — commentators, investment analysts and governments are often surprised when areas move into outright decline (Type 3) because they feel they have had little or no warning.

International monitoring agencies (IEA, EIA, etc) are even worse off because they depend on the supply of data from governments who are, to greater or lesser degrees, unaware of the facts (or in denial). As a result, it is quite unclear how well their new demand estimates include the demand from Type 3 depletion.

My personal view is that the constant upward revision of demand estimates from official agencies such as the IEA (whose estimates in 2004 more than doubled over the course of the year) is probably the result of their failing to recognise depletion properly, rather than for any other reason.

So, for example, the actual 2.7mn b/d of 'demand growth' in 2004 was in fact made up of 1mn b/d just to offset Type 3 depletion plus a further 1.7mn b/d to meet genuine new demand — high but not exceptional. In other words, the IEA's early estimates of demand growth at 1.2mn and 1.4 mn b/d at the start of last year, though low, were in the right ballpark, but they must not have taken into account Type 3 depletion.

The first estimates of demand growth for 2005 were 1.4 mn b/d. Now, the latest EIA estimate has risen to 2.2mn b/d, and the latest IEA estimate is 1.8mn b/d. But do these figures include Type 3 depletion? If not, we could see real demand (new needs + depletion) outstripping available supplies this year.

[*Note: ODAC's soon-to-be-released analysis of all reported major oil development projects due to start up this year shows that they are likely to produce a total of just over 2.6mn b/d in new incremental supplies.*]

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Note to editors:

1. The Oil Depletion Analysis Centre (ODAC) is a UK-registered educational charity working to raise international public awareness and promote better understanding of the world's oil-depletion problem. Further information is available at: http://www.odac-info.org

2. Chris Skrebowski is one of seven members of ODAC's Board of Directors and editor of *Petroleum Review*, a monthly magazine published by the Energy Institute in London. He previously edited *Petroleum Economist* and was an oil market analyst for the Saudis in London for eight years. He started his career in the oil industry as a long-term planner for BP, then joined *Petroleum Times* as a journalist and edited *Offshore Services* magazine in the late 1970s.