

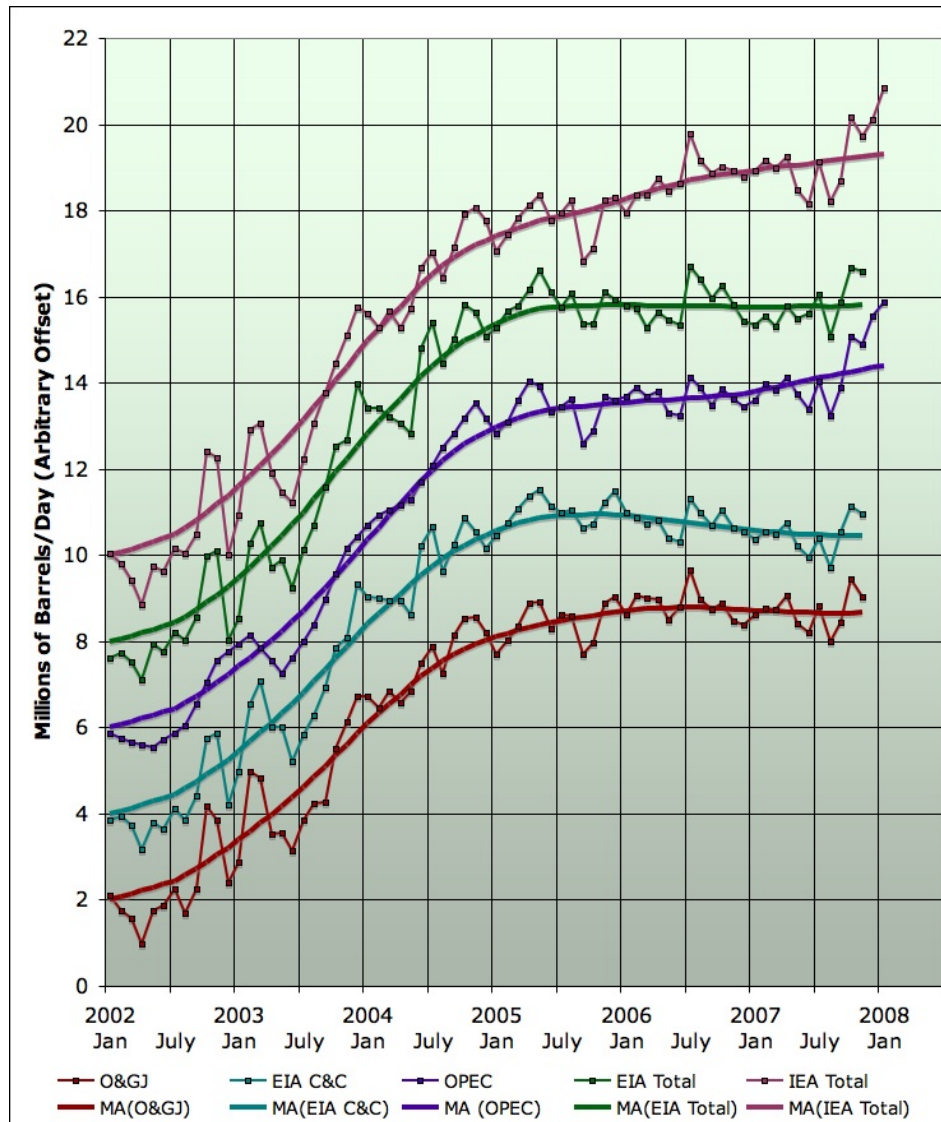


Whither The Bumpy Plateau?

Posted by [Stuart Staniford](#) on February 25, 2008 - 11:00am

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Tags: [eia](#), [iea](#), [oil & gas journal](#), [opec](#), [peak oil](#), [plateau](#) [[list all tags](#)]



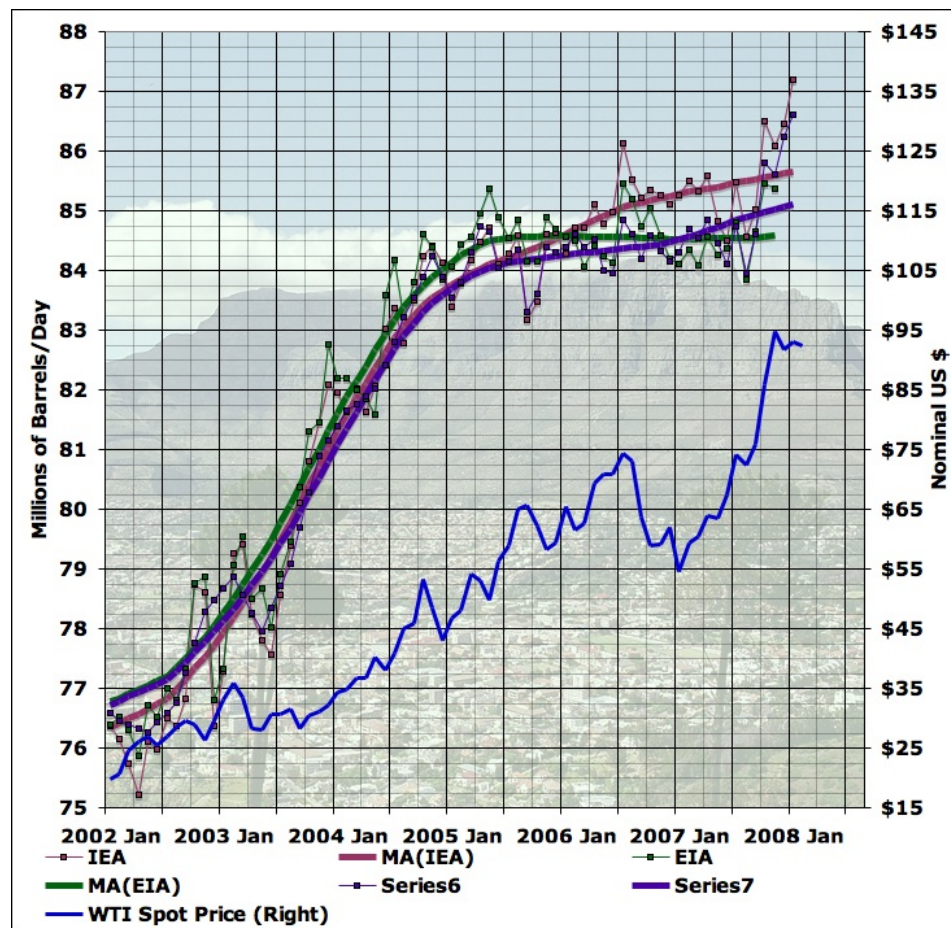
Average daily total liquid production, by month, from EIA (green), IEA (plum), and OPEC (indigo) plus daily crude+condensate production from EIA (teal), and Oil and Gas Journal crude oil production estimate (dark red). Each series has the 13 month centered moving averages of each line, recursed once. [Click to enlarge](#).
 Graphs are not zero-scaled. See [below](#) for sources.

Back when the October IEA total liquids number came in, Jim Hamilton at Econbrowser [cited it](#) (and other things) as evidence that there were "signs of gains in global oil production". JD at [Peak Oil Debunked](#) had a similar reaction. I [felt that was premature](#) since that one high datapoint was

not a statistically significant departure from the overall flat plateau that oil supply then appeared to have been on for the last 1-3 years (depending on your choice of data).

However, a few months have passed, and the evidence for a change in trend in oil supply now seems somewhat stronger, albeit there is still a lot of uncertainty and conflicting data. I won't draw firm conclusions in this piece, but I'm starting to lean towards a bump up in 2008, rather than a bump down.

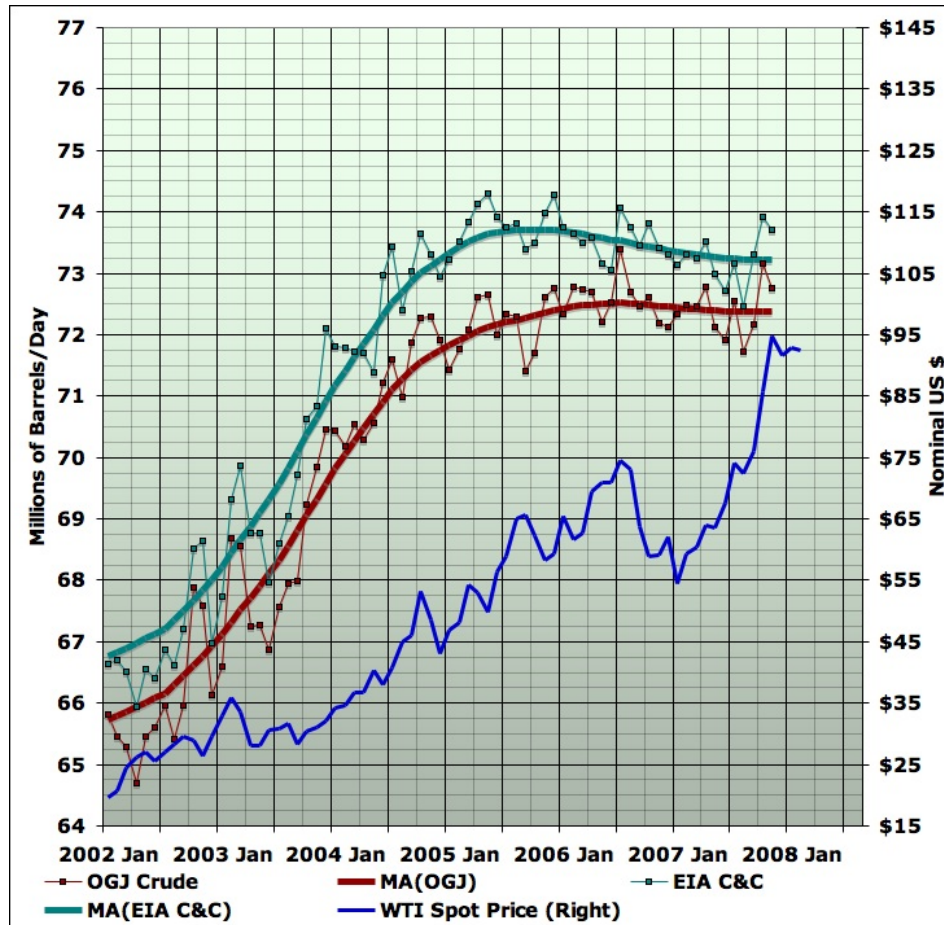
Let's start with the numbers for total liquids from the EIA, the IEA, and (for the first time) the OPEC [monthly oil market report](#) (MOMR). I should say a few words about the last: I was able to extract monthly figures from graph 19 in the OPEC MOMR from January 2005 on. Before that, I could not find global monthly figures, and instead I constructed quarterly figures by adding together the numbers for OPEC crude, OPEC NGLs, and Non-OPEC oil production. I placed the quarterly number in the middle month of the quarter (Feb for Q1, May for Q2, etc) and then linearly interpolated to get the other months. So that's the situation in this graph from Jan 2002 - Dec 2005:



Average daily total liquid production, by month, from EIA (green), IEA (plum), and OPEC (indigo) together with 13 month centered moving averages of each line, recurred once (LHS). WTI spot price (blue - RHS). Click to enlarge. Graphs are not zero-scaled. See [below](#) for sources.

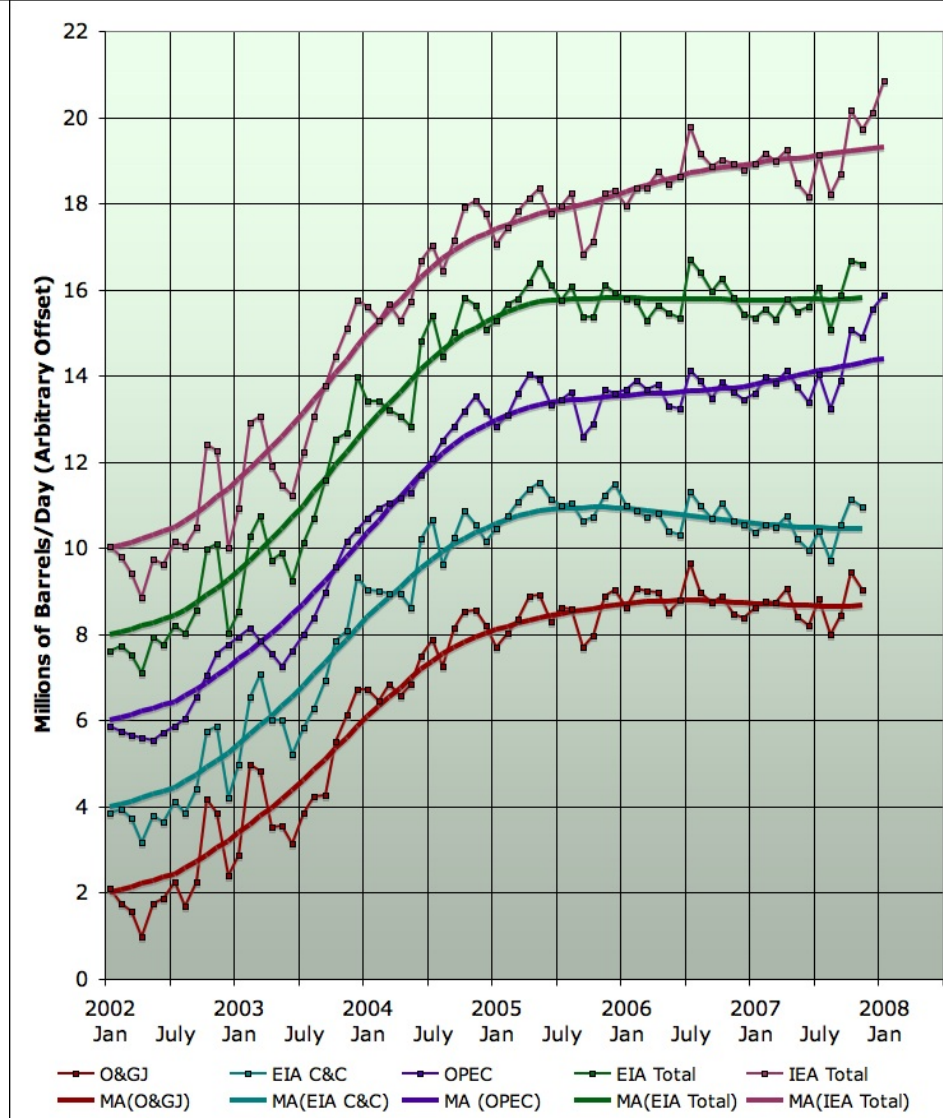
Both OPEC and the IEA have initial estimates through January, but the EIA only goes through November. As you can see, both OPEC and the IEA show Dec and Jan stronger even than Oct/Nov. Since there's a lot of correlation between the fluctuations in these series, it's a decent bet that the EIA will also show a strong Dec/Jan, which will likely be enough to start to pull the EIA moving average line upwards again, after a couple of years of being consistently very flat.

For many people of course, the total liquids number is not really *oil* since it includes coal-to-liquids and biofuels in addition to things that are somewhat more colorably oil, such as natural gas liquids and refinery gains. I track two series that are more just "oil" as it comes out of the ground: the EIA's Crude + Condensate series (in Table 1.1 of the International Petroleum Monthly), and the Oil and Gas Journal's estimates of global crude oil production. Those two series (which only go through November at present) are as follows:



Average daily crude+condensate production, by month, from EIA (teal), and Oil and Gas Journal crude oil production estimate (dark red), together with 13 month centered moving averages of each line, recurred once (LHS). WTI spot price (blue - RHS). Click to enlarge. Graphs are not zero-scaled. See [below](#) for sources.

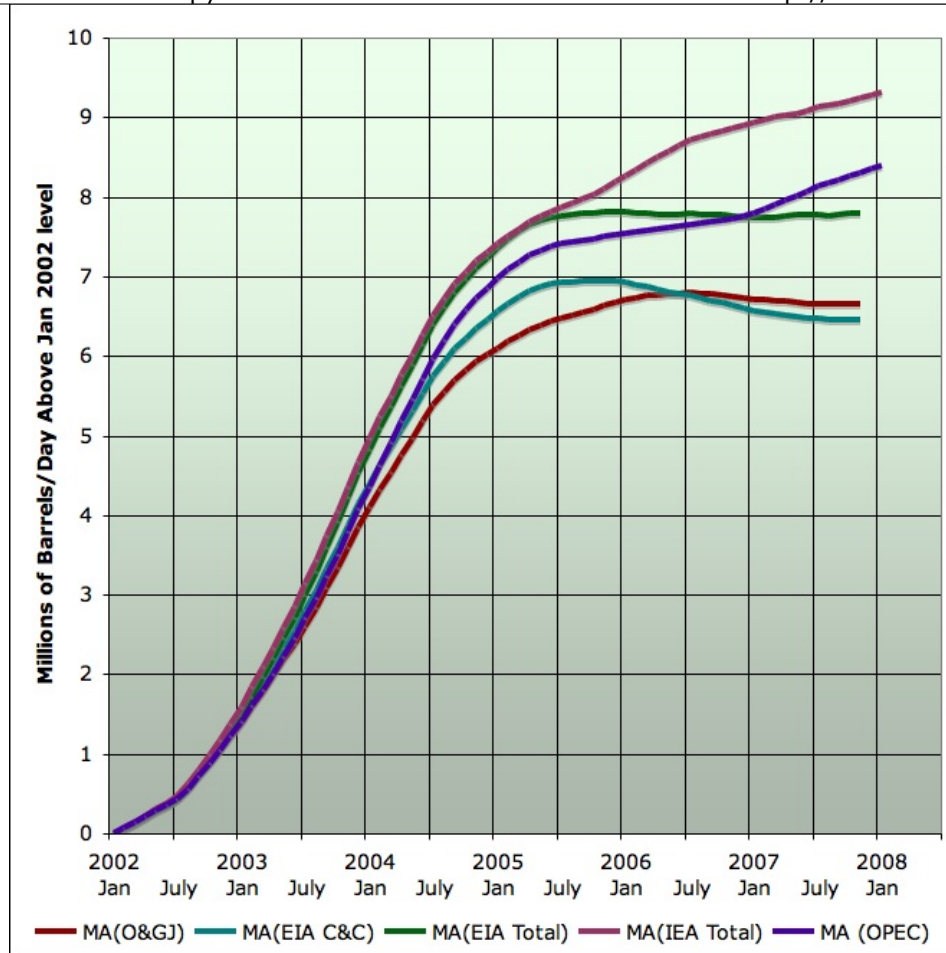
To get a better sense of the trends of all these series I have replotted them on the same graph. I have started each moving average at an arbitrary offset (2mbd, 4mbd, 6mbd, etc), but there is no rescaling of the data - just a fixed vertical offset. This allows us to compare the shape of the various series:



Average daily total liquid production, by month, from EIA (green), IEA (plum), and OPEC (indigo) plus daily crude+condensate production from EIA (teal), and Oil and Gas Journal crude oil production estimate (dark red). Each series has the 13 month centered moving averages of each line, recurred once. Click to enlarge. Graphs are not zero-scaled. See [below](#) for sources.

As you can see, the last four strong months have caused the IEA line to rise significantly, but also started the OPEC line (which was flat) to begin heading up. The others are not heading upwards, but it seems likely the next two months will be strong, and then they likely will begin to head up. No certainties, of course, till we actually see the data. But historically, the correlation in these month to month fluctuations is quite good.

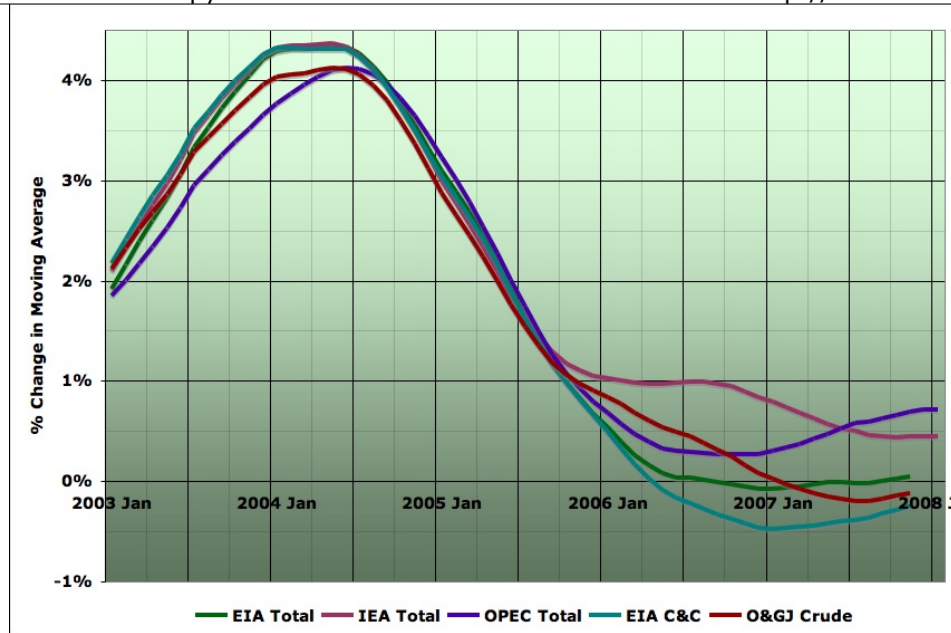
What is not so good is the agreement on the underlying trend. If I replot just the moving averages as anomalies from their Jan 2002 level, you can see how large the divergence is getting:



Moving averages of daily total liquid production, by month, from EIA (green), IEA (plum), and OPEC (indigo) plus daily crude+condensate production from EIA (teal), and Oil and Gas Journal crude oil production estimate (dark red),. All curves are expressed as the anomaly from the Jan 2002 value. Click to enlarge. See [below](#) for sources.

I am still mystified by the large and growing discrepancy between the EIA and IEA total liquids numbers. It does not seem to come from one or a small number of countries, and it does not seem to arise out of any particular component of oil supply (at least in so far as it's possible to tell).

However, all of the curves share a common feature when looking at the year on year growth rates (here in the moving averages):



Caption

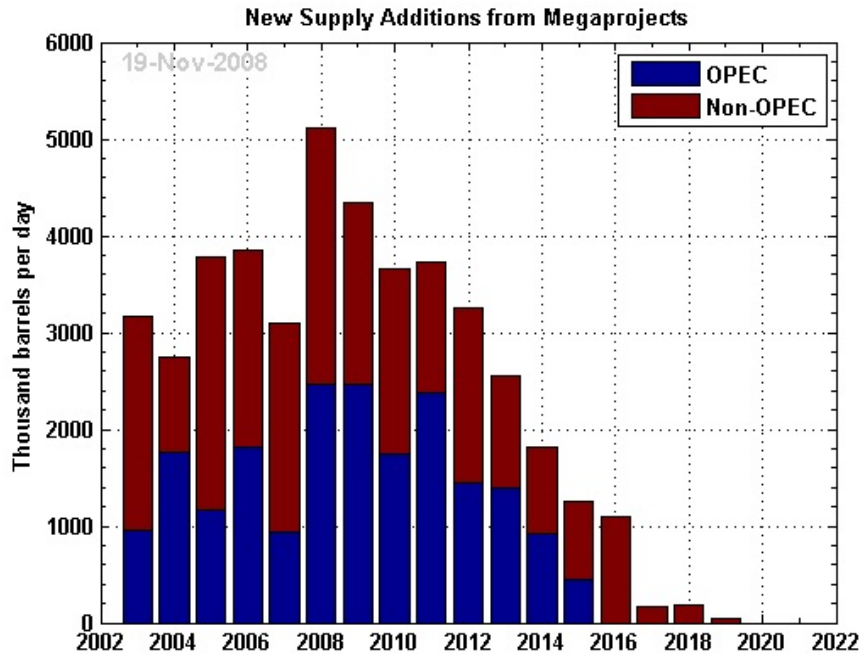
As the growth decelerated in 2004/2005, it was possible to think that it would continue through zero and the world would go into decline. That hasn't happened, and instead the growth rates have been fluctuating at or near zero - we have been on the bumpy plateau, with the forces trying to increase production and those trying to decrease production in approximate balance. And so the endless debate on whether the plateau would eventually break upwards, or downwards, or continue more-or-less flat for a long time.

The reason I had a bias towards the bump down before was based on a [country by country analysis](#). The growth in global oil supply from 2001 to 2004 came primarily from two sources Saudi Arabia and Russia. In both cases, I believe this growth was primarily a result of putting in service spare capacity - explicitly spare in the Saudi case, and in the Russian case disabled following the Soviet collapse.

The Saudi's stopped increasing production in 2005, and then declined in 2006, before making up a small fraction of that decline in 2007. My interpretation of this sequence of events was that they didn't have any deployable spare capacity left (they may well have a final reserve that will be used only in the event of a real geopolitical emergency interrupting the oil markets, but not just to moderate prices). And it seems unlikely that they would produce large increases in production soon, since the new projects coming on line have to balance considerable depletion of key old fields (North Ghawar being the [case we understand best](#)).

Meantime, the Russian's have been [working harder and harder](#) for smaller and smaller increases in production, suggesting that declines (albeit likely very slow ones) cannot be too far off.

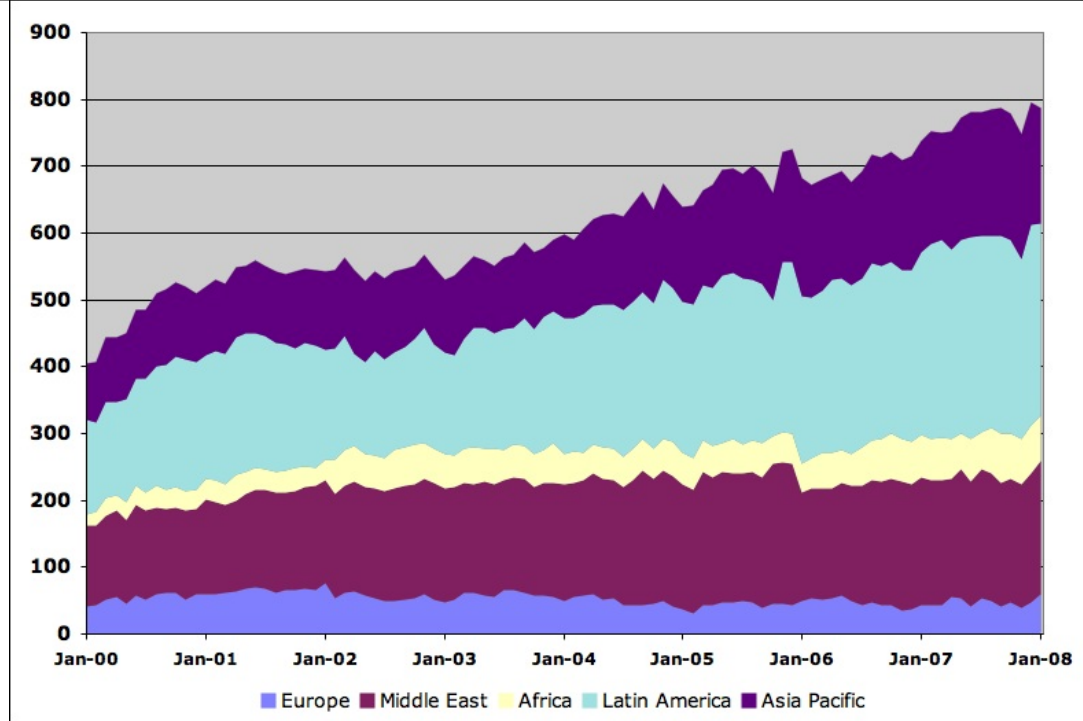
In the meantime, the world has had flat production with new capacity just offsetting declines (as well as the depredations of various terrorists). However, there is some preliminary evidence that 2008 new capacity is much larger than recent new capacity:



Gross new capacity from Megaprojects by year. Source: [Wikipedia](#).

Of course, the Wikipedia oil megaprojects tabulation is still not finished and the totals may change. Still, my sense is it's not likely that the large step up in 2008 will entirely disappear. What is certainly the case however is that not all the gross additions will actually come on in 2008. Ace has [estimated](#) that only about 2/3 of the new capacity will actually arrive in 2008. If that was typical of prior years, then we'd have a hangover of new capacity coming from them too, but about 2/3 of the step up (from about 3-4mbd of new capacity in recent years to 7mbd in 2008) would lead to rise of about 2/3 x 3-4, or a couple of mbd rise.

I'm a bit sceptical that we can really expect to see a doubling of the industry's ability to bring on new capacity from one year to the next, particularly given that global rig counts are not increasing nearly that rapidly:



Global monthly rig counts from [Baker Hughes](#). Excludes US and FSU.

Furthermore, a couple of mbd is small enough that a revolution, war, or hurricane in any one of a large number of locations on the planet could easily offset it. Still and all, the balance of the incoming information seems to be shifting towards a modest increase in 2008 oil supply, rather than a small decrease.

Sources for Oil Series

Monthly data are from:

- The [IEA Oil Market Reports](#), with each month taken from Table 3 of the tables section at the back of the OMR in the last issue for which the number for that month is given.
- [EIA International Petroleum Monthly Table 1.4](#) for total liquids
- [EIA International Petroleum Monthly Table 1.1](#) for crude+condensate
- [OPEC MOMR](#). Monthly data are from Graph 19 on world oil supply from January 2005 forward. Prior months are constructed from quarterly sums of OPEC crude, non-OPEC crude, and OPEC NGL, with linear interpolation used between center months of each quarter.
- WTI spot price is from the [EIA](#) with February estimated from average of daily figures available through the 20th of the month.



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