



The EIA - JODI divergence Part 2

Posted by [Euan Mearns](#) on June 16, 2011 - 8:00am

This is a follow up to the post by [Sam Foucher of 23rd May](#) noting that global crude oil plus condensate (C+C) production reported by the Energy Information Agency of Washington (EIA) had begun to diverge from same data reported by the Joint Oil Data Initiative (JODI) to the point that EIA data was now about 3.8 million barrels per day (mmbpd) higher than JODI. EIA data show strongly growing global oil production reaching new peaks in excess of those reached in 2005 and 2008, whilst JODI data do not and are more consistent with a continuation of the bumpy plateau reached in 2006. Why is this important? There are a number of issues at stake. First, the EIA data give the impression that high price has fed into an increase in global production capacity whilst the JODI data do not. The EIA data give the impression of strong growth in the global economy feeding into higher demand for and production of oil whilst the JODI data do not. Finally the cause of the divergence raises questions about reporting standards and why these should vary. It is this last point that is the focus of this post.

This post is joint with Sam Foucher and the [data mining](#) and analysis made by long term TOD commenters Darwinian (Ron Paterson) and Web Hubble Telescope (WHT) are also acknowledged.

Background

Reliable statistics are an important part of political economy, be it unemployment, GDP, borrowing, money supply, inflation or energy production and consumption. Accurate understanding about what is going on is essential for appropriate policy response. However, governments have also learned that gathering and reporting statistics can reveal certain inconvenient truths and so may suddenly stop reporting, as the US government did with money supply data when it began to run out of control, or to change the way statistics are compiled or reported as the UK government does with unemployment and inflation data.

As an aside to the main story, it is noted that at a time when scarcity of cheap energy is threatening to topple the global economy, the EIA of Washington has decided to discontinue compiling and reporting international oil production statistics, citing budget cuts as the reason.

The provenance of the international EIA statistics is not clear. Dr Foucher surmised that they purchased data from IHS Energy who also happen to own Cambridge Energy Research Associates (CERA) headed up by Daniel Yergin, long time critic of the concept and significance of peak oil. The JODI data are collected by direct reporting by national governments to JODI.

The divergence

In the last thread, Web Hubble Telescope identified the [countries showing the greatest divergence](#) between EIA and JODI in the period since 2008. Most, but not all of these countries show EIA data higher than JODI. Saudi Arabia, Iran, Qatar, Algeria, Angola and Canada showed the largest positive divergence (Figure 1). Russia and Venezuela showed a negative divergence (EIA lower than JODI). Other countries like the UAE, Kuwait, China, the USA, the UK and

Norway show relatively good, unbiased agreement between EIA and JODI throughout the period of analysis that starts in January 2002 and ends in January 2011 (Figure 2). This is the crux of the matter. How is it that this latter group, that includes two Middle East OPEC producers, are able to maintain a consistent reporting standard throughout the 10 year period whilst the former group that includes Saudi Arabia cannot? As discussed below, it turns out that divergence for Russia and Canada may be explained by bona fide differences in data selection. But the divergence in the OPEC countries are problematic to explain.

Figure 1 Countries showing the largest positive bias between EIA and Jodi. These countries have tended to always show a positive bias but since 2008 this has grown from +1 mmbpd to +3.5 mmbpd. In 2002 - 2004 a similar phenomenon existed. A detailed look at the data suggests there may be different explanations for different countries.

Figure 2 Norway, UK, USA, China, Kuwait and UAE (not chosen at random) show good agreement between EIA and JODI with small biases distributed both positive and negative.

Russia

In the period Jan 2002 to around Dec 2004, the EIA and JODI data for Russia are in perfect agreement (Figure 3). But then there is a step change divergence that appears to be linked to JODI stepping up. It is possible that JODI decided to incorporate a new category of production from Russian reports while the EIA did not. Or that the Russians for some unknown reason began reporting different figures to the EIA (or their agents) and to JODI. It would be preferable if this large 500,000 bpd discrepancy did not exist, but it has nothing to do with the post 2008 divergence that is the subject of this post.

Figure 3 Unlike most countries, JODI data for Russia is biased toward higher numbers since 2004.

Canada

Canada provides an interesting case study since the National Energy Board (NEB) publishes detailed oil production statistics providing a means of comparison with the EIA and JODI data. Canadian production is compounded by the tar sands and two categories of output from the tar sands are reported by NEB. The first is synthetic crude oil which is upgraded bitumen and a second category called non-upgraded bitumen which apparently is exported to USA for upgrading and refining. From about 2005 there is reasonable agreement between EIA and total Canadian production and between JODI and total production less non-upgraded bitumen, JODI electing to not count bitumen as crude oil seems a plausible explanation. Which approach is best is open to debate. This accounts for >700,000 bpd of the discrepancy between EIA and JODI data and part of the post 2008 divergence.

Figure 4 NEB data for Canada agrees best with the EIA data. NEB data minus non-upgraded bitumen matches the JODI data. Thus the significant bias between EIA and JODI in this case may be due to different categories being included. Canada is responsible for a significant part of the overall bias but is not implicated in the post 2008 divergence

Saudi Arabia

From 2004 to 2009, the EIA and JODI data show very good agreement for Saudi Arabia,

showing that for a prolonged period in the recent past the Saudis reported more or less same numbers to EIA and JODI and that these agencies managed to report these numbers accurately. But since Jan 2010, the two data sets began to diverge to a maximum over 1 million bpd in June - Sep 2010. A similar kind of discrepancy appears in the pre 2004 data. The divergence may not appear to be much, but added to similar from other OPEC countries shown in Figure 1 the cumulative effect is highly significant for global oil production statistics.

Which of the data sets are correct? Did Saudi production rise during 2010 as shown by the EIA or did it stay flat as shown by JODI? Did the Saudis (Iranians, Algerians and Angolans) for some reason start reporting different numbers to the EIA and JODI? Or did the EIA or JODI start to select data differently for some reason unknown to us?

Figure 5 From 2004 to 2009 the EIA and JODI data for Saudi Arabia were in good agreement (difference on right hand scale) but since then have diverged accounting for >1 mmbpd bias by 2010. A similar divergence existed during 2002 / 3.

Note added 16th June

Saudi Arabia 2010 average daily production for C+C:

EIA = 8.90 mmbpd

JODI = 8.17 mmbpd

BP = 8.47 mmbpd

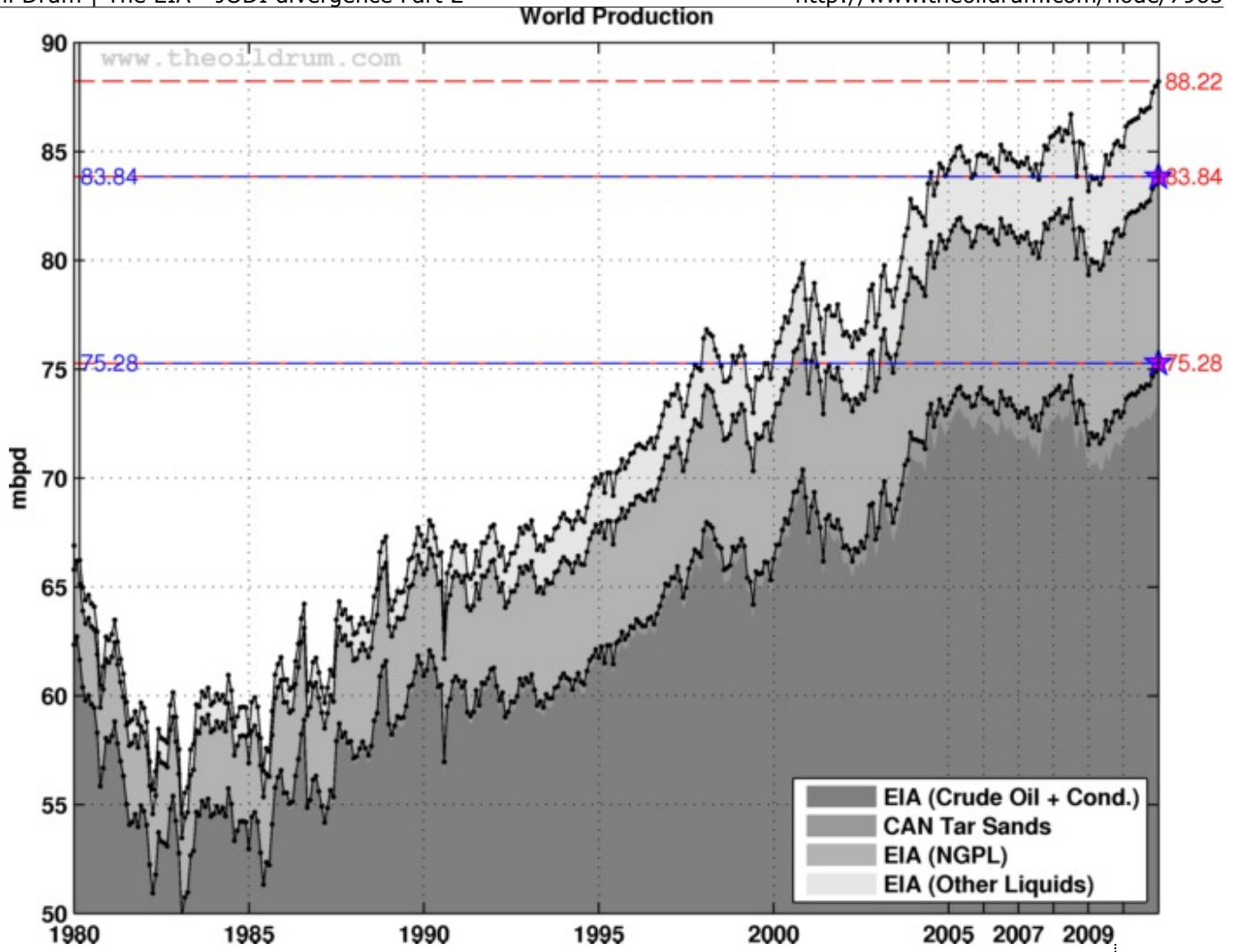
The EIA and JODI numbers are simple unweighted averages of the monthly figures. BP reports C+C+NGL (10.01 mmbpd) from which NGL data reported by the IEA (1.534 mmbpd) have been deducted. The BP number is near mid way between the EIA and JODI and doesn't really help clarify the situation. See also [this instructive comment by dcoyne78](#) from the comments thread.

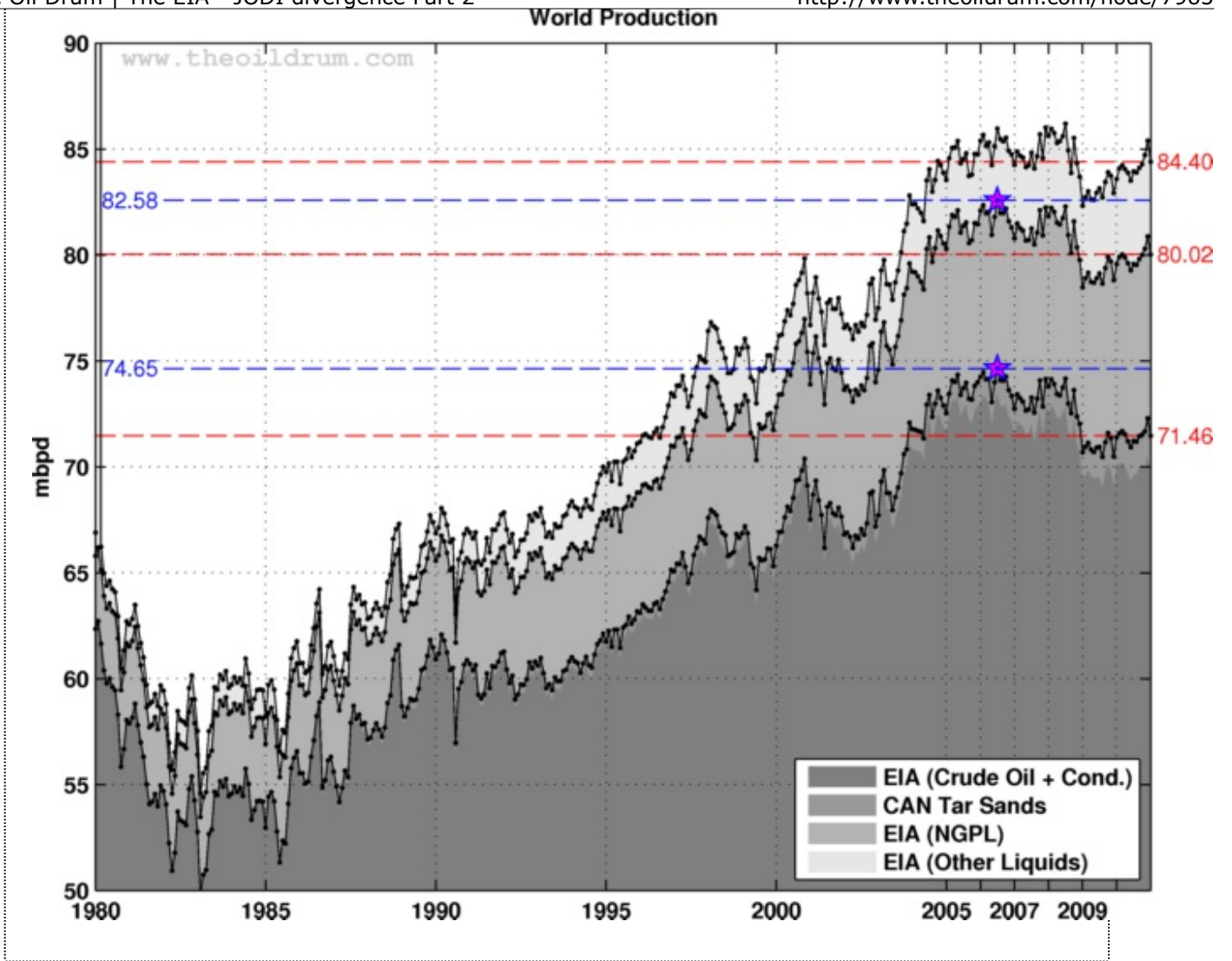
Concluding thoughts

This exercise has cast some light on what lies behind the EIA - JODI divergence, highlighting that different explanations, some innocent enough, may exist for Canada, Russia and the Middle East OPEC countries. It is the latter that are most enigmatic and will remain a mystery until some official source clarifies the situation. If EIA or JODI staff are reading, emails clarifying what might be going on would be welcome.

It is possible that we are becoming overly obsessed with statistics and data. But on the other hand, it should be a relatively straight forward task for countries to report the same numbers to the various agencies. Since national governments are supposedly reporting directly to JODI and the origin of the EIA numbers are still not clear, I will choose to give greater weight to the former. Doing so suggests that the 2006 crude oil plus condensate ± natural gas liquids peaks in global production still stand and that the recent production peaks from EIA data are a mirage. Printing electronic money doesn't use much energy.

At request of commenter Dohboi. EIA data in top chart. Bottom chart uses mainly JODI data post 2005. The EIA data are reaching new peaks while the JODI data are range bound in the bumpy plateau. data from Sam's original post.





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