



## Peak Oil Salvation?

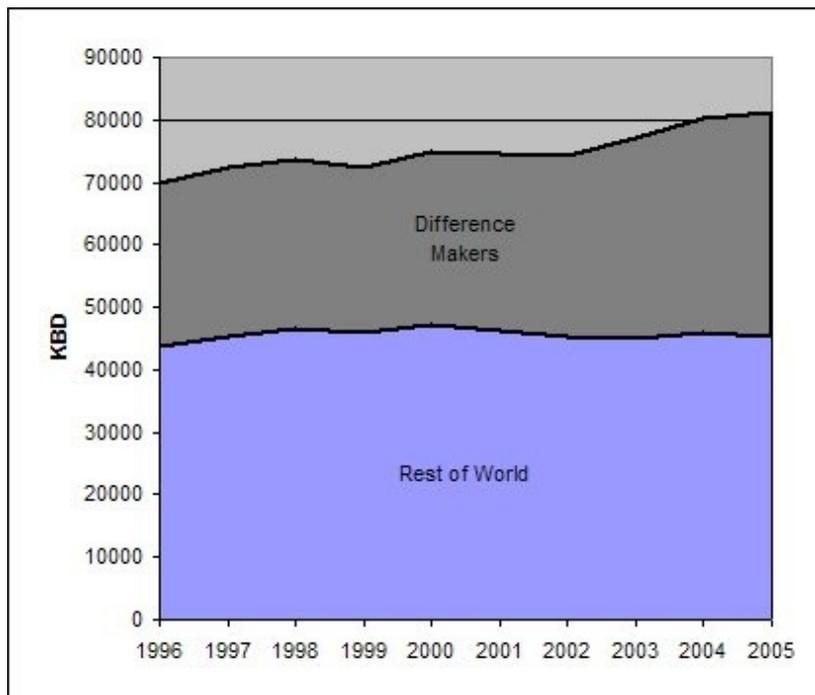
Posted by [Dave Cohen](#) on January 4, 2007 - 12:55pm

Topic: [Supply/Production](#)

Tags: [algeria](#), [angola](#), [brazil](#), [china](#), [kazakhstan](#), [kuwait](#), [nigeria](#), [oil production](#), [russia](#), [saudi arabia](#) [[list all tags](#)]

As we start off 2007, it seemed helpful to list the oil producing countries that Oil Drum readers might keep an eye on, both in this and future years. Often, the global production curve is presented in an undifferentiated way or is divided between OPEC and non-OPEC countries (as with the EIA). Other standard data sources such as the IEA, BP, Oil & Gas Journal, etc. usually break out production by region.

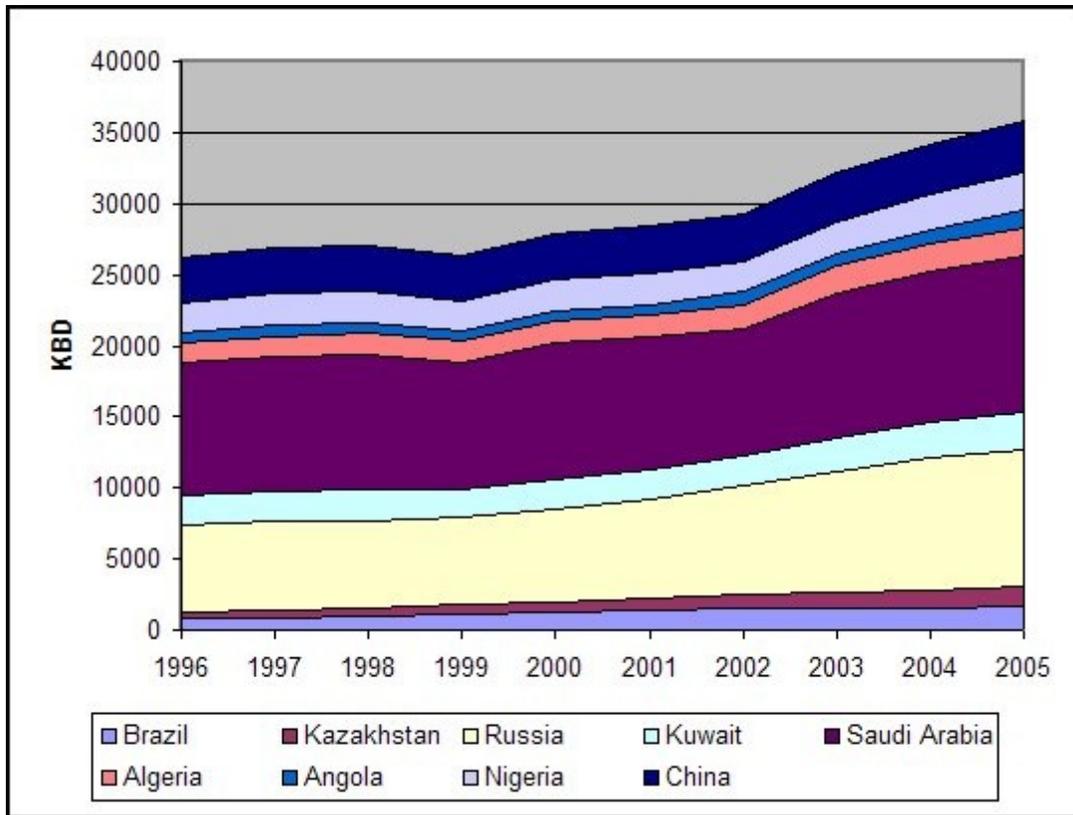
Taking a different approach, I decided to single out those countries that have made significant production increases in recent years — defined as any producer nation that has contributed an additional 0.5% to the current global liquids supply from fossil fuels (crude oil, condensates + natural gas liquids) since the year 2000. The result is shown in *Figure 1*.



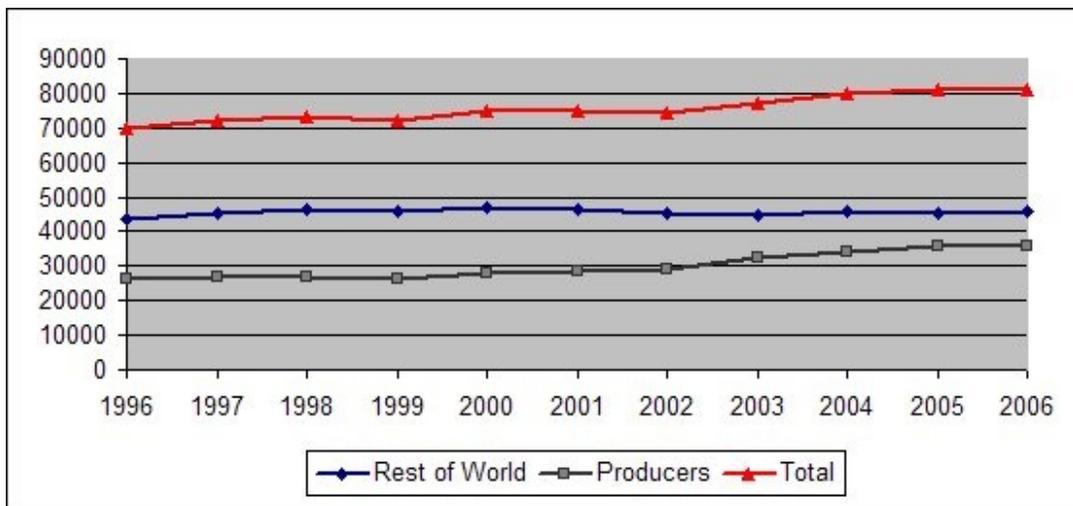
*Countries contributing at least a 0.5% increase since 2000 in world production of liquids from fossil fuels (grey) versus the rest of world (blue). Does not include CTL or GTL. Data from BP — Figure 1*

Will these *difference makers* deliver us from the turbulence & chaos of economic contraction and provide peak oil salvation?

year data trend plus an estimate for 2006.



The 9 significant producing countries.  
Figure 2 – Click to Enlarge



The 10-Year Data Trend – 2006 is an estimate based on EIA and Oil & Gas Journal data  
Figure 3 – Click to Enlarge

A cursory analysis reveals that there have been two plateaus in oil production (as defined here) during the last 10 years, aside from the current one that began in 2005, the last year for which officially compiled data is shown. The first plateau was from 1997 – 1999 (percent change = +0.0018) and the second one was from 2000 – 2002 (percent change = -0.0075). What is striking in Figure 3 is that the world total follows the tally for the "Big 9" producers, whereas the Rest of World is almost perfectly flat since 1997.

What is the significance of this? You got me! Eyeballing the BP data, the criterion used for differentiating the "Big 9" was the first one I tried — it is completely arbitrary. Other countries, such as Libya, the UAE and Azerbaijan, have raised production but did not make the cut. However, I do believe we're on to something. 😊

The metric used *does* confirm what we should already know at The Oil Drum. First, the largest contributions come from the deepwater producers (Brazil, Angola, Nigeria), the Middle East/North Africa countries (MENA — Algeria, Kuwait, Saudi Arabia), the Former Soviet Union (FSU — Russia, Kazakhstan) and — no surprise here! — China. Second, the list contains the two usual suspects, Russia & Saudi Arabia. *Figure 2* clearly demonstrates the role both countries played in increased global production over the last 10 years and, especially, the more recent rise in the 2002 — 2005 period.

Here are some brief notes on the "Big 9" producers to guide us as we go forward into 2007 & beyond — perhaps to [boldly go](#) where mankind has been before.



*Man #1: Who's that then?*

*Man #2: I dunno know. Must be a king.*

*Man #1: Why?*

*Man #2: He hasn't got shit all over him.*

- Brazil — Petrobras continues to pursue an aggressive [offshore E&P program](#) in the Campos and Santos Basins. However, older deepwater fields have peaked quickly and Brazil faces a decline rate of around 9% in existing production. According to [What Can We Learn From Petrobras?](#) (subscription required), Brazil must add 1.11 mbd by 2011 to simply maintain their August, 2006 production of 1.88 mbd.
- Kazakhstan — Jerome á Paris provides an excellent overview of Kazakhtan in [A primer on Caspian Oil](#). However, until Kashagan comes on-stream, which has been [repeatedly delayed](#) — now scheduled for 2010 — Kazakhstan's additional incremental production will have to come from its Tengiz, Kurmangazy and [Karachaganak](#) (gas condensate) fields. I expect new contributions to the world oil supply to remain small.
- Saudi Arabia — See HO's latest summary [And How is Saudi Arabia getting on?](#)
- Russia — Unfortunately, this is too large a subject to cover here. However, we are now witnessing the slowing of their expansion as this [EIA graph](#) makes clear. Recently, Russia [announced](#) a 2.1% production increase for January — November of 2006. This amounts to annualized production of 9.505 mbd for the year, a figure that excludes natural gas liquids. For background, see [Uncertainties About Russian Reserves and Future Production](#).
- Algeria — This country is thought to be on track to [continue its production expansion](#). Algeria's oil sector continues to be dominated by state-owned Sonatrach but their

liberalization program has attracted a large amount of foreign investment. Their largest fields by far are in the Hassi Messaoud basin (1956). However, discoveries continue there and elsewhere in the desert — for example, the [Berkine](#) basin. I expect production growth to slow there, nonetheless. Stay tuned.

- Angola — see my summary in [Angola Joins OPEC](#).
- Kuwait — One of the "bigger" news items of 2005 was that the greater Burgan Complex was [exhausted](#). What this meant was that under ideal conditions, Kuwait could not lift more than 1.7 mbd out of the ground there — the field had plateaued. Therefore, in order to substantially increase production, Kuwait will have to expand production from its older northern fields (Sabiriyah, Raubhatain, Abdali and Ratqa) near the Iraq border. This requires that Project Kuwait must go forward but [not everyone is keen on reopening national interests to outsiders](#) in Kuwait — the project has been continually [delayed](#). Kuwait's expansion appears to be at an end.
- Nigeria — continued expansion depends on [these](#) guys.



*Welcome to Our World*

They always let the hostages go except when some of them are inadvertently killed as a result of some bungled operation by the Nigerian military.

- China — For obvious reasons, these guys can't extract oil from the ground fast enough. Hence, [China pushes domestic upstream development](#) (OGJ, subscription) —

China's national and international oil companies are actively involved in exploration and development projects on and offshore China.

Commentaries attribute China's quest for overseas petroleum to its lack of domestic oil and gas resources. But according to production figures from the US Energy Information Administration, China in 1998-2005 produced more oil than any OPEC country, except Iran and Saudi Arabia, more oil than Canada, the UK, or any Latin American or European country....

Ismail Tiliwaldi, chairman of the Xinjiang Uygur region, said in mid-June that he expects it to become China's largest oil-producing area in the next few years. Currently third in oil production, behind Daqing and Shengli, Xinjiang produced 22 million tons last year. Tiliwaldi said there are plans to increase production to 50 million tons/year and there is potential for 100 million, since Xinjiang has 30% of the country's oil reserves and 34% of its natural gas....

China's offshore resources include the fields in the South China Sea (Tables 2 and 3); East China Sea (Xihu Trough and Chunxiao gas field); and Bohai Bay.

Exploration and development in the South China and East China Seas have been hampered by territorial disputes. Sovereignty over the Spratly Islands in the South China Sea is disputed by China, Malaysia, the Philippines, Taiwan, Brunei, and Viet Nam. Recently, China, the Philippines, and Viet Nam have reportedly agreed to limited joint exploration. CNOOC, Philippine National Oil Co., and Vietnam Oil and Gas Corp. signed an agreement in March 2005 to jointly explore the oil potential of the islands and atolls in a 3-year seismic survey.

Here's a nice overview of E&P from their primary onshore operator [China National Petroleum Corporation](#) (CNPC). At Daqing, where there has been very large water cut (80 to 90%), they are successfully using [polymer flooding](#) EOR (OGJ, subscription) to increase their recovery factors there. China's production will continue to expand for a while — the only question is how much.

Now, unlike some others around here, I do not like to predict the future. Unfortunately, being worried about peak oil, I am forced to be in the forecasting business. Therefore, consulting my chrystal ball, I will go out on a limb and make three bold predictions:

1. The Sun will rise tomorrow.
2. My beloved, but *doomed*, Denver Nuggets (with both Allen Iverson *and* Carmelo Anthony) will get to the NBA Western Conference finals in the Spring of 2007, where they will lose.
3. The net increase in Angola's oil production as measured in barrels per day from this month — January of 2007 — forward until January of 2010, will exceed the net increases of both Russia and Saudi Arabia — each taken separately — in that 3-year period over their 2006 averages as compiled in the BP data when all is said & done.

How's that?

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