

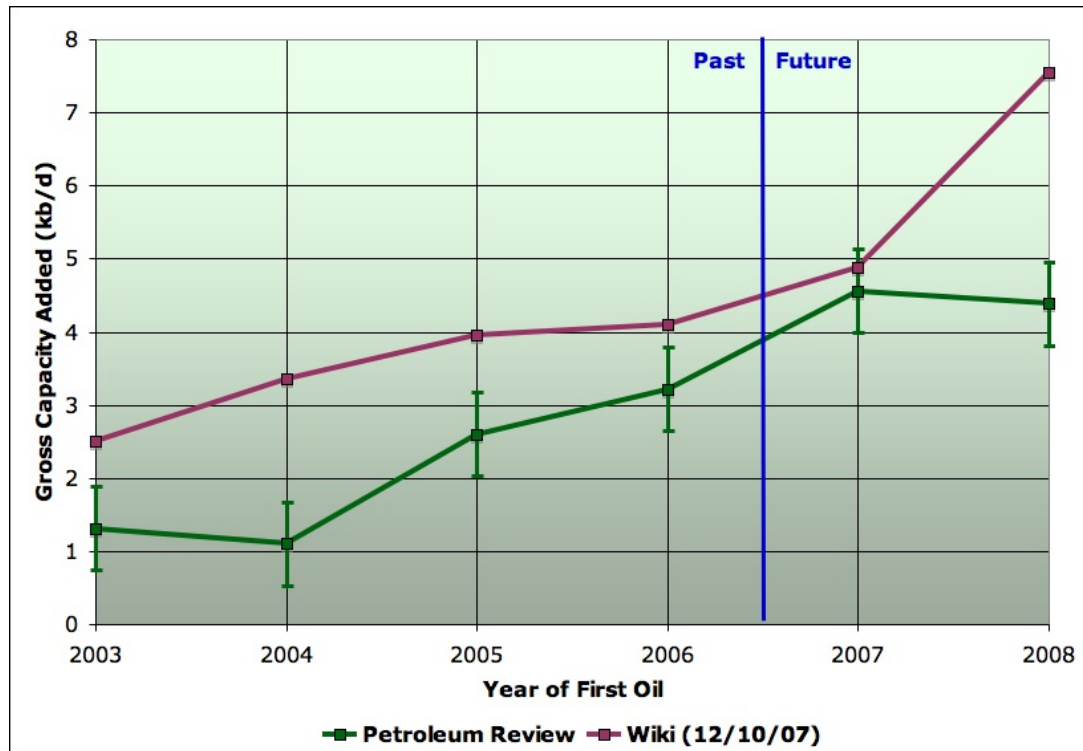


Update on Megaproject Megaproject

Posted by [Stuart Staniford](#) on December 10, 2007 - 11:00am

Topic: [Supply/Production](#)

Tags: [megaprojects](#), [peak oil](#), [plateau](#) [[list all tags](#)]



New liquids capacity with first oil in each year as estimated from Petroleum Review megaproject reports (last available estimate in each case), and interim estimates from Wikipedia table as of December 10th, 2007. Error bars on Petroleum Review figures are as documented in [Is the Decline of Base Production Accelerating](#).

The Wikipedia [Oil Megaprojects task force](#) (Khebab, Ace, and I) has been busy over the last few weeks. With some assistance from helpful strangers, we have been ploughing through press releases and annual reports, adding projects to the [Wikipedia page on Oil Megaprojects](#). I introduced this project [two weeks ago](#), and today I want to give an interim progress report.

As of now, we've reached about 350 citations used in collating the information. I have mainly been working on the past - the years 2003-2006 - while the years from 2007 onwards have mainly been handled by Ace and Khebab (though there is some crossover both ways). The 2003-2006 projects, of which there are currently 108, depend on about 140 citations. In attempting to assure completeness and quality of the list, I have reviewed the 2003-2006 annual reports, and/or all press releases, for the following companies:

- Anadarko
- Apache

- BHP Billiton
- BP
- Chevron
- ConocoPhillips
- Deer Creek
- Encana
- Eni
- ExxonMobil
- Hess
- Kerr-McGee
- Kuwait Oil Company
- OPEC upstream investment plans
- Petrobras
- Repsol
- Saudi Aramco
- Shell
- Talisman
- Total
- Unocal

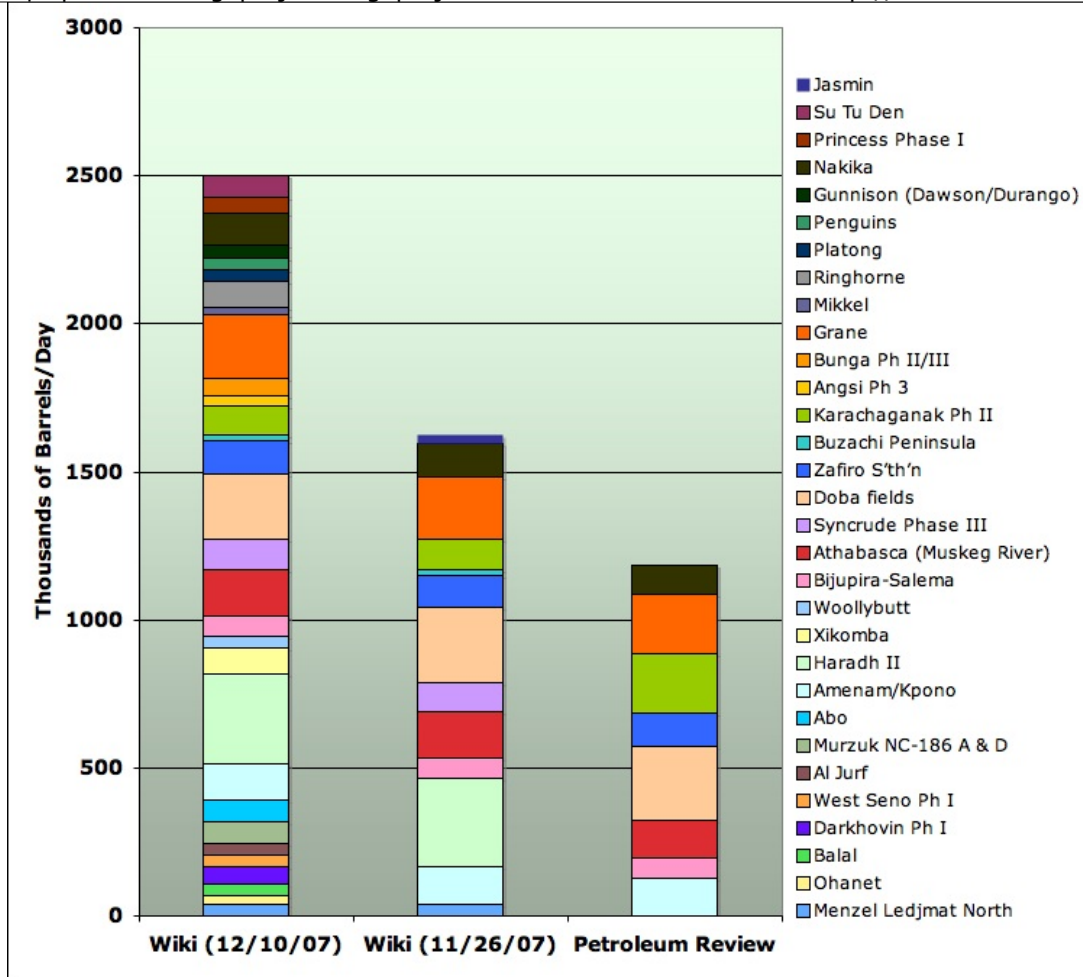
I still have on my list to work through these companies:

- Woodside
- Nelson
- Statoil
- Tanganyika
- Yukos
- Nexen
- Naftiran
- ADCO
- ADNOC
- Santos
- Husky
- CNR
- Pemex
- Gazprom
- QP
- Sasol
- Petronas
- Norsk Hydro
- Petrodar
- Lukoil
- AED
- Devon
- Murphy
- Marathon
- AWE
- Rosneft
- NMNG
- NIOC
- PDVSA

- Coogee
- El Paso
- CNOOC
- Reliance
- OMV
- PDO
- Surgutneftegaz
- First Calgary
- Maersk Oil
- Hoang Long Joint
- Sinopec
- Cairn
- Dominion
- Barrett
- Premier
- Burlington
- Sonatrech
- Petrofac
- Korean National Oil Company
- PetroCanada

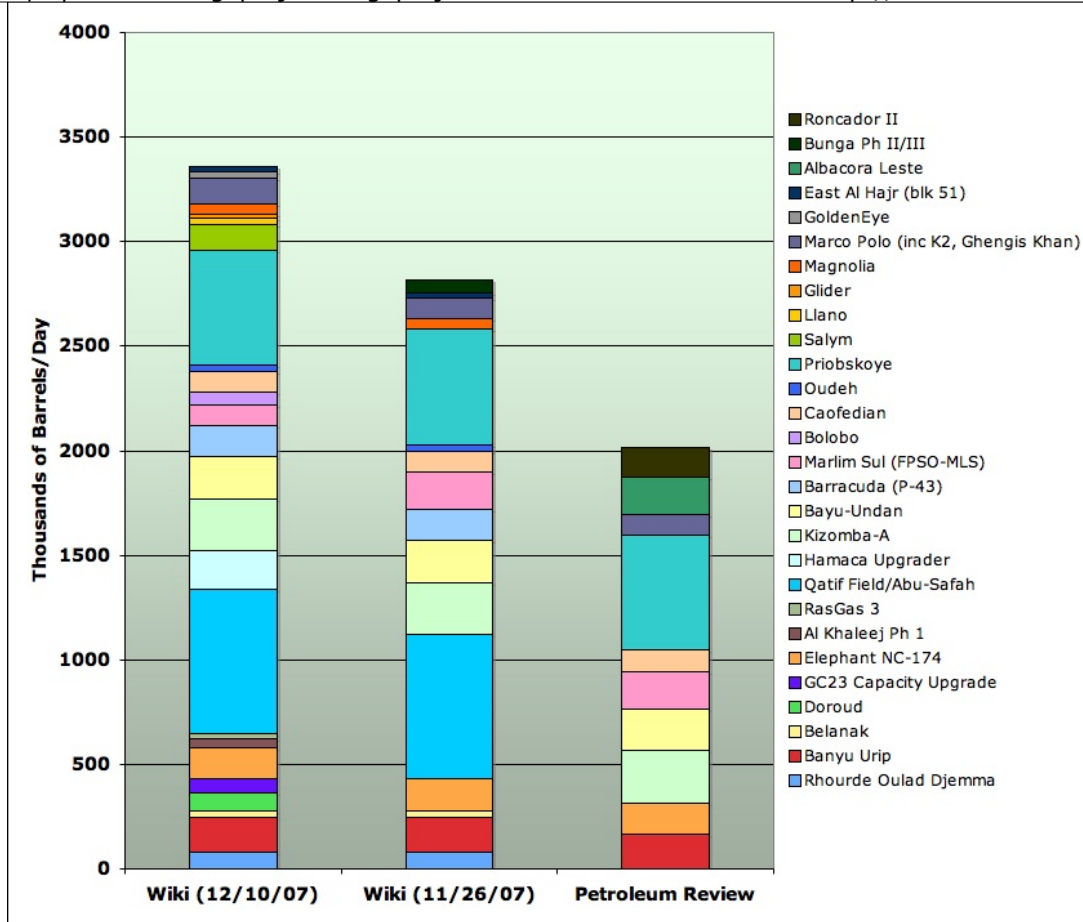
Although the second list may look much bigger than the first, it's not as bad as it seems. I've generally gone after the largest companies first (eg I've done all the majors and OPEC's project list). Also, most projects involve 2-6 companies, so a lot of projects turn up early in *some* company's portfolio. At this stage, each new company I look at only adds an average of one smallish project to the list. I doubt there are many very large (over 100kbd) projects left to find.

Nonetheless, it should be clear that all conclusions from this data are preliminary and may need to be revised as the exercise continues. So far, it is producing pretty big revisions to our idea of new capacity added in recent years. Here's the evolution of 2003, for example:



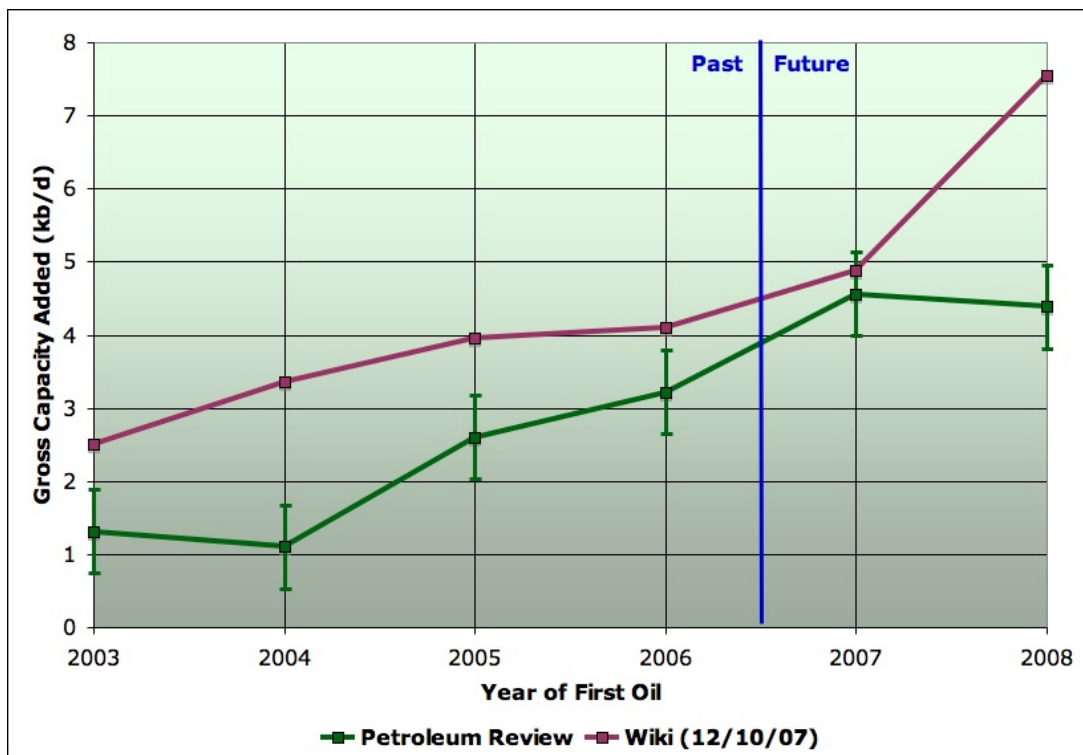
New oil liquids capacity with first oil in 2003 as estimated from Petroleum Review MegaProject report in [Jan 2004](#), and estimate from Wikipedia table as of November 24th, 2007, and as of December 10th, 2007.

The revisions for 2004 are not quite as dramatic, but still significant:



New oil liquids capacity with first oil in 2004 as estimated from Petroleum Review MegaProject report in [Jan 2004](#), and estimate from Wikipedia table as of November 25th, 2007, and as of December 10th, 2007.

Overall, the situation across 2003 to 2008 looks like this:



New liquids capacity with first oil in each year as estimated from Petroleum Review megaproject reports (last available estimate in each case), and interim estimates from Wikipedia table as of December 10th, 2007.

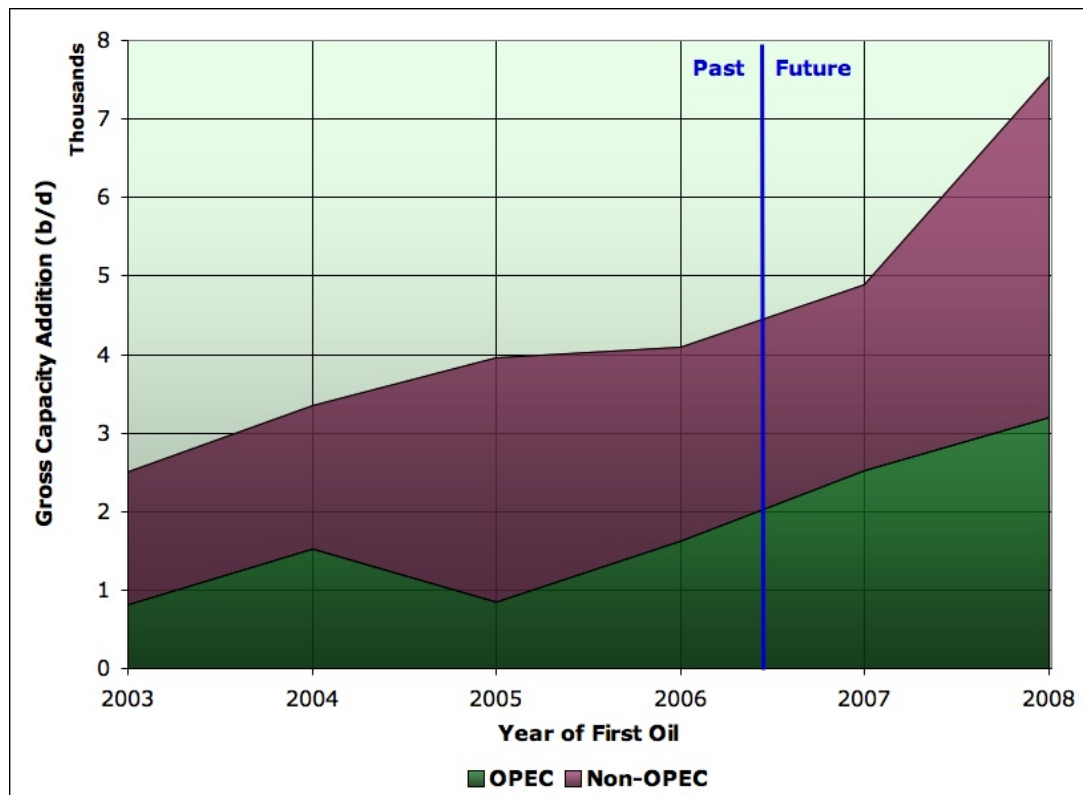
Error bars on Petroleum Review figures are as documented in [Is the Decline of Base Production Accelerating](#).

As you can see, all years have been revised up, but to varying degrees. The overall trend of rising new capacity is intact, but it's somewhat less pronounced. I put the error bars that I computed in [Is the Decline of Base Production Accelerating?](#) They were based on the variance of estimates within the different Megaproject reports. Clearly that understated the sampling issues with those reports; the Wikipedia table estimates are mostly outside those error bars, and will likely grow further.

It's worth stressing that the above graph is **peak** capacity of projects, but tabulated by the year they **first** deliver any oil (at least for the Wikipedia totals - it's not quite clear what procedure Petroleum Review used to get totals). We really would like to see what it looked like when convoluted with an estimate of the composite production ramp-up. We'll get to that, but I don't have a reasonable sample of projects on which to base such an exercise yet.

The wave of oil in 2008 is a prominent feature of the tables at present, and I'm sure will give great comfort to late-peakists. It's perhaps a bit premature to put too much store in it yet. The years 2007, and especially 2008 are different from 2003-2006 in several important ways. One is that they've been largely compiled by different people, and the process might be at different stages of completeness. The other is that 2008 project schedules could still incorporate a certain amount of hope likely to be dashed by the usual complications that enter into all project schedules as they make contact with the real world. So some fraction of 2008 projects, and a much smaller fraction of 2007 projects, will get delayed. The past is less subject to unexpected delays...

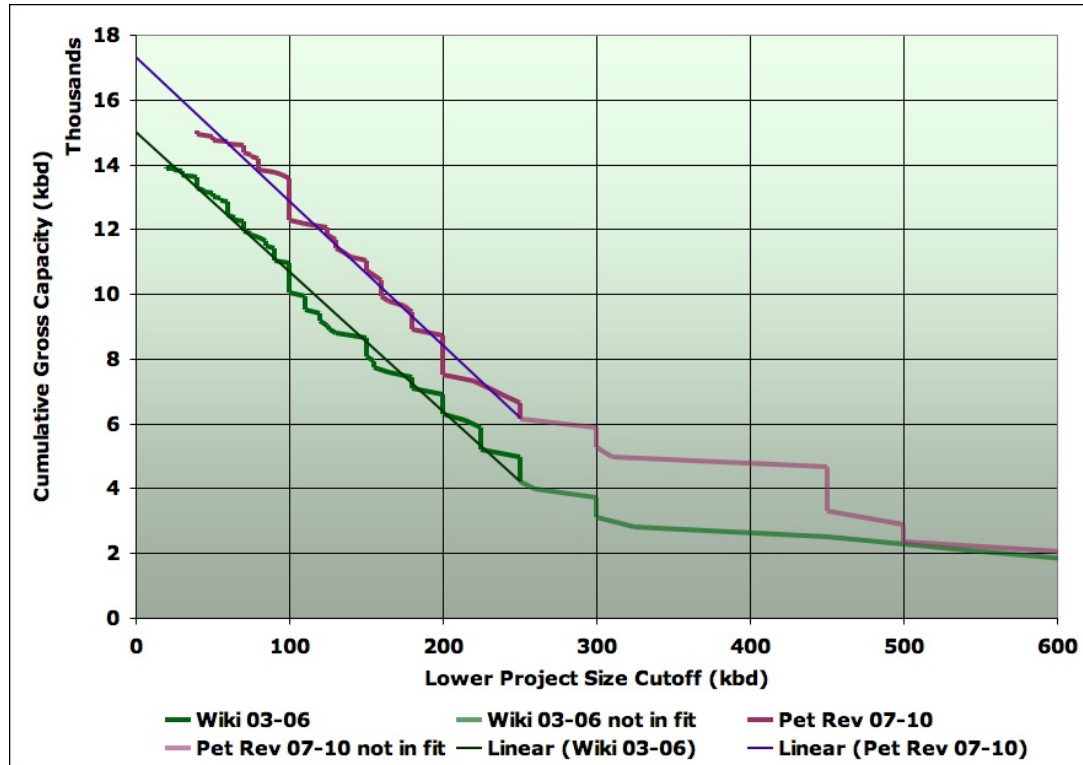
Here's the split of the current estimates of new capacity between OPEC and Non-OPEC:



New liquids capacity with first oil in each year: interim estimates from Wikipedia table as of December 10th, 2007 split between OPEC and the rest of the world. Note that Angola joined OPEC in January 2007, so Angola projects are accounted as non-OPEC in 2003-2006, but as OPEC after that.

One could tell a story about how OPEC was slower to respond to higher prices, but is now starting to engage in a lot more capacity expansion projects. Whether this impression will survive completion of the lists is unclear. Also, the fact that Angola joined OPEC in Jan 2007 exaggerates the apparent effect slightly.

Finally, for the 2003-2006 projects in the Wikipedia tables, I repeated an exercise I did for the 2006-2010 projects in the 2007 Petroleum Review Megaproject report. That is, I sorted all the projects by size, and then calculated the cumulative capacity from the largest down to each project. Essentially this gives the effect of cutting off project tabulation at each size. Here are the those two curves:



New liquids capacity with first oil in each year, cumulative capacity by size of lower project cutoff. Petroleum Review estimates are for 2007-2010 projects. Wikipedia interim estimates from Wikipedia table as of December 10th, 2007 for years 2003 to 2006. The two curves are not tabulating the same projects.

The fact that the two curves extrapolate to different points on the axis is not meaningful: they are not attempting to tabulate the same projects, so there is no reason to expect them to asymptote to the same point on the Y-axis. However, the fact that they approach it at the same slope is pretty intriguing and seems worthy of further exploration as the data becomes more complete. One caution: I started my compilation with the largest companies, which might well have produced a bias to tabulating larger projects over smaller ones.

Finally, this stuff is a lot of work, so I'd like to repeat my [appeal](#): the more folks in the TOD community head over to the Wikipedia and help, the faster we'll know what's really going on here.



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