The Oil Drum: Europe
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

It's no longer 'oil', it's 'liquids'

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Tags: $100 oil, euros, oil prices [list all tags]

*This is crossposted from the European Tribune, as well as from DailyKos, where this series was started in June 2005 as oil prices were closing in on the $60 mark. All previous installments are listed at the end of this post; most have focused on the physical and political factors that have been pushing prices up and are meant to be read by non specialists (so my apologies if I spend too much time explaining things which may be obvious to regular readers of TOD). A useful companion to this opus is **DoDo**'s Oil price in euros which has various graphs showing oil prices in euros and inflation-corrected in both dollars and euros.*

We look back to a week where new record highs were set almost every day for both oil prices (above $93) and the euro (above $1.44) against the dollar. On this round number juncture, we can note that we're less than 10% away from the other symbolic line I chose in June 2005 as a target to be reached inexorably, and that it's pretty likely that this $100 figure will be reached before opus 100 is written (and I expect to continue to stick to writing just under 2 opuses per month as from the beginning).

But rather than focusing on the most recent prices, I'd like to flag a distinction that Michael Klare, in an excellent article over at the Nation (Beyond the Age of Petroleum) makes:

> This past May, in an unheralded and almost unnoticed move, the Energy Department signaled a fundamental, near epochal shift in US and indeed world history: we are nearing the end of the Petroleum Age and have entered the Age of Insufficiency. The department stopped talking about "oil" in its projections of future petroleum availability and began speaking of "liquids."

One of the arguments that the cornucopians (or peak oil deniers) have used to dismiss the "peak oil" theory is that oil has been increasingly supplanted by new sources with equivalent or quasi-equivalent use.

The first category of "unconventional" oil usually includes production form other processes of the oil industry: condensates (high quality oil produced from natural gas reservoirs), NGPL (natural gas plant liquids - other liquid byproducts from gas production) or "refinery gain" (the volumes remaining after oil has been processed into refined goods). It then adds oil sands (like those in Alberta, Canada), bitumens (extra-heavy oil, the biggest source being in the Orinoco belt in Venezuela) and oil shale (as found in large quantities in Colorado). Next come gas-to-liquids and coal-to-liquids - ie other hydrocarbons which require an additional processing step to be usable as an oil substitute in the existing infrastructure (GTL is a way to produce high quality diesel fuel from natural gas). Deep offshore oil is also often counted in that "unconventional" category, as are the potential volumes in the Artic and Antartcic areas.

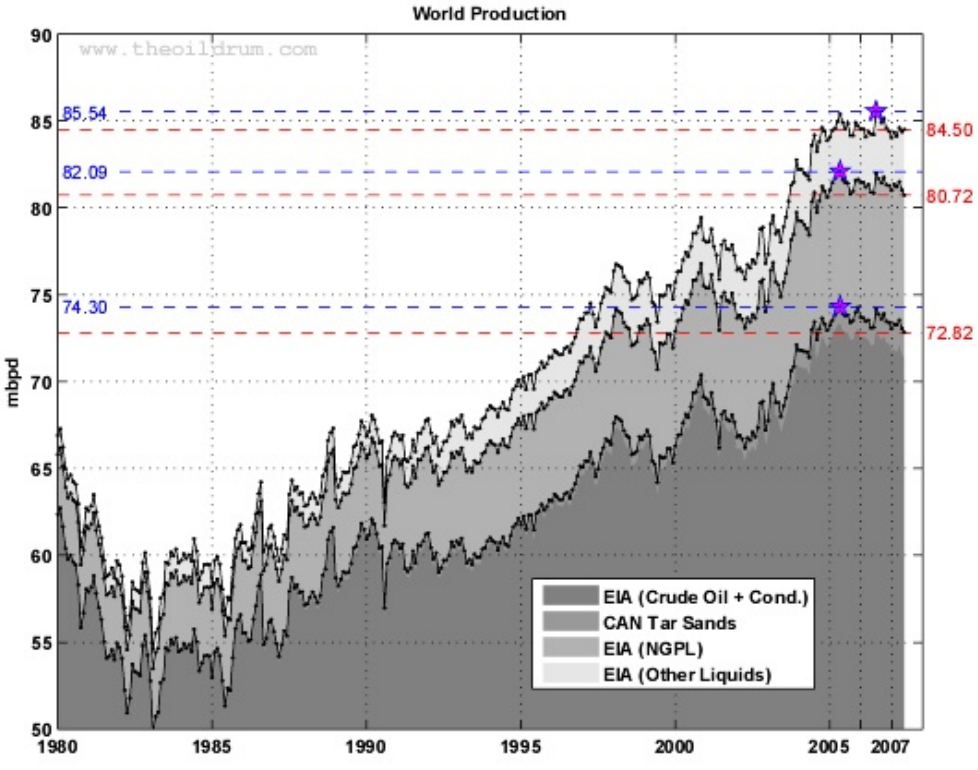
Regular summaries of the production of each category can be found here at the Oil Drum, such as, for instance, this post summarizing recent statistical data.

Then there are completely new sources like biofuels, produced from crops or agricultural leftovers - ethanols and biodiesel, notably.

> "Liquids," the [Energy] department explains in its International Energy Outlook for 2007, encompasses "conventional" petroleum as well as "unconventional" liquids--notably tar sands (bitumen), oil shale, biofuels, coal-to-liquids and gas-to-liquids. Once a relatively insignificant component of the energy business, these fuels have come to assume much greater importance as the output of conventional petroleum has faltered. Indeed, the Energy Department projects that unconventional liquids production will jump from a mere 2.4 mboe per day in 2005 to 10.5 in 2030, a fourfold increase.

One of the main arguments of peak oil skeptics is to say that peak oil is irrelevant, because we keep on finding new sources to complement old ones. Thus, peak "oil" is not relevant because other liquids are successfully taking up the slack and are boosting overall production numbers. Some of the early prognoses of peak oil did not take into account such new sources, and when they did update their work to incorporate them, they were dismissed as ddomsayers, always promising the peak a few years from now - whereas the reality is that production is increasing as needed.

In fact, the reality is that production IS stagnating, even taking into account all new kinds of liquids and, moreover, that the predictions of peak oil, using traditional definitions of oil, are correct. Oil production has peaked in the vast majority of countries it has been produced, it has peaked for the non-OPEC world, it seems to have peaked for light crudes - the high-quality kind - already.



It all hinges, then, on whether new substitutes can be found for oil (nobody yet amongst "deciders" seems to be considering seriously that we might want to significantly reduce our consumption, and overall demand is still growing briskly around the world, with the US and Europe more or less stagnant). And each of these new sources of liquids has massive drawbacks, and is extremely costly, as Klare nicely summarises:

> (The United States already produces large quantities of ethanol by cooking and fermenting corn kernels, a process that consumes vast amounts of energy and squanders a valuable food crop while supplanting only a small share of our petroleum usage; the proposed cellulosic plants would use nonfood biomass as a feedstock and consume far less energy.)
> (...)
> But while attractive from a geopolitical perspective, extracting Canadian tar sands is environmentally destructive. It takes vast quantities of energy to recover the bitumen and convert it into a usable liquid, releasing three times as much greenhouse gases as conventional oil production; the resulting process leaves toxic water supplies and empty moonscapes in its wake.
> (...)
> Government geologists claim that shale rock in the United States holds the equivalent of 2.1 trillion barrels of oil--the same as the original world supply of conventional petroleum. However, the only way to recover this alleged treasure is to strip-mine a vast wilderness area and heat the rock to 500 degrees Celsius, creating mountains of waste material in the process. Here too, opposition is growing to this massively destructive assault on the environment.

One thing that has struck me over the past few years is how the price level that people say will allow for a real boost in these technologies seems to always be $10 from current oil prices. It used to be $25/bl a few years back, it was then put at 40-50$/bl, and now people say that $75 will allow them to come online. What this suggests is that these new sources "embed" a lot of oil - i.e. they need a lot of oil or oil equivalent (convenient energy, in the form of gas or electricity) to be produced, and thus their cost of production goes up with the price of oil. in technical terms, their ERoEI (Energy Return on Energy Invested) is low - lower than that of oil anyway.
Klare gets this impression too:

> But the real story is not the impressive growth in unconventional fuels but the stagnation in conventional oil output. Looked at from this perspective, it is hard to escape the conclusion that the switch from "oil" to "liquids" in the department's terminology is a not so subtle attempt to disguise the fact that worldwide oil production is at or near its peak capacity and that we can soon expect a downturn in the global availability of conventional petroleum.

We are now stuck with costly alternatives, which promise to be massively damaging to the environment, as our best chance to keep production going. And oil prices simply reflect that reality, with an additional premium to reflect the urge by so many of our politicians to solve by force problems that they can no longer solve by bluster and intimidation (as noted in this WaPo article the premium for the "small" chance of a war with Iran is "$3 to $15", which means that if "small" is interpreted as a 10% chance, prices are expected to increase by $30 to $150 in the case of war, the current premium reflecting the expected increase in the event, multiplied by the probability expectation of it happening).
Or, to keep it simple: oil is getting scarcer, the other "liquids" are dirty and expensive, and the White House would rather go to war to solve that rather than focus on demand reduction.

Yep, $100 oil is just around the corner.

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Earlier Countdown diaries can be found over at The European Tribune at the bottom of the post.