



# Peak Oil Review

Tom Whipple, Editor

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## 1. Oil and the global economy

Oil settled at the Friday close at \$76.01, only a few cents below where it started on Monday. Prices briefly climbed above \$78 a barrel on Wednesday when it was learned that US crude inventories had fallen by a much-greater-than-expected 5 million barrels the week before. Prices were under pressure earlier in the week on a report that China seems to have reined in the pace of its economic growth a bit and bad news about US corporate earnings, manufacturing and consumer confidence later in the week. The latter news resulted in a substantial drop in US equities markets that have been closely tied to oil prices in recent months.

The US Federal Reserve issued a more pessimistic than usual report on the prospects for US economic growth. Oil market analysts also appear to be growing increasingly pessimistic about the demand for oil in the US.

Chinese oil imports, which have been increasing rapidly in recent months, may slow in the second half as the government's efforts to curb inflation take hold.

More suicide bombings in Iraq serve as reminder that the political/electoral/oil law impasse continues. Iraq's parliament has met once for 14 minutes since the elections last March. As the US withdraws further and further from managing Iraqi affairs, it appears that the prospects for major increases in Baghdad's oil production in the near future are dimming.

## 2. The Deepwater Horizon

**Containment:** So far the closing of valves on the new containment cap appears to be going well. Oil has completely stopped pouring into the Gulf and there are no indications that oil is bubbling to the surface from openings in the well pipe.

The government, however, has ordered BP to start letting the oil flow to the surface again where it will be flared or stored. By bringing all the leaking oil to the surface the government will for the first time have a better basis for assessing just how much oil has escaped from the run-away well. This number will be important to the size of the fine the government imposes on BP and in litigation over the incident.

By letting the oil flow to the surface, there will be less back pressure inside the well and it should be easier and less risky to seal the leaking well when a relief well penetrates the casing and starts to pump in mud.

**The fate of BP:** British Prime Minister Cameron will visit Washington this week in an attempt to convince the administration to go easy on BP when it comes time to levy fines and initiate criminal prosecutions. Cameron will say that the UK needs a strong and stable BP during these times of economic troubles and that Britain cannot afford to let the company be torn apart in the wake of the Deepwater Horizon disaster. The Prime Minister is also worried about the bill making its way through Congress that would ban BP from obtaining any further drilling permits in the US because of its bad safety record.

Negotiations are underway for BP to sell off \$20 billion worth of assets to help pay for liabilities stemming from the Gulf disaster. Apache Corp. is frequently mentioned as a possible purchaser of

BP's Alaska operations. BP is said to have sold its 7.8 million barrels of storage capacity at the Cushing, OK storage facility.

Mitsui, BP's other partner in the Macondo well, notified BP that it does not intend to pay its 10 percent share of the accident's liabilities as the whole affair was caused by BP's negligence.

**The moratorium:** As the leaking-oil phase of the Macondo disaster draws to a close, attention is turning to the drilling moratorium that the administration has imposed while the accident is being investigated. Gulf residents are adamant that the drilling moratorium is an unnecessary precaution that is devastating the regional economy. Last week frustrations were vented at a hearing of the President's commission on deepwater drilling.

The administration maintains that it is too risky to resume drilling while every available clean-up asset is fully committed to cleaning up the Macondo leak. Secretary Salazar says he hopes that prior to November 30<sup>th</sup> the situation will have improved and that knowledge of the causes for the Deepwater Horizon incident will be sufficient to allow a partial resumption of drilling

Last week the administration renewed its ban on deepwater drilling as a way of getting around the federal court decisions overturning the first ban. The new ban is similar to the first, but could allow some drilling to resume. The new policy reverses the first ban and for now renders the court decisions lifting the ban moot.

### **3. Demand projections**

Last week the IEA and OPEC issued their outlooks for oil demand during 2011 and the remainder of 2010. The IEA said global oil demand will increase 1.6 percent in 2011 to 87.8 million b/d, while OPEC forecast that demand will increase by 1.2 million b/d to an average of 86.4 million b/d next year. The IEA expects Chinese demand for oil will moderate next year as oil is used more efficiently and the economic stimulus programs that have moved the Chinese oil imports up sharply in recent months are removed.

These forecasts have been carefully crafted to foresee a benign immediate future. The world's GDP will continue to grow moderately, and there will be sufficient oil available to cover everyone's needs. Prices will remain in the vicinity of \$70 or so a barrel. With 5 or 6 million b/d of spare capacity available, OPEC can easily offset any supply disruptions.

For many observers, this view of the next 18 months is simply too quiescent. They note that while the economic prospects for the US and much of the EU are not good, it would take a major economic setback to reduce oil consumption much below what we have seen in recent years. While the Chinese are attempting to dampen inflation, they are still calling for GDP growth on the order of 10 percent.

Some observers believe the decline in global oil production that the IEA has been reporting since February may be more than a temporary phenomenon. Others believe the deep water producers are having serious trouble extracting oil from extreme depths below the seabed in the quantities predicted. The fallout from Deepwater Horizon is bound to have a significant impact on production. If all this turns out to be the case, and deep water wells can only produce a fraction of their hoped for production, then the future of the oil industry is going to be markedly different.

Finally, some are questioning the 5 or 6 million b/d of spare capacity numbers. This reserve is being counted on not only for emergencies, but also as a source of supply for increases in demand. As little new production capacity beyond what is need to maintain current production levels is anticipated in the next few years, either demand increases will come from this reserve or there will be a significant jump in oil prices.

### **Briefs** (clips from recent *Peak Oil News* dailies are indicated by date and item #)

- **Nigeria's** state-run oil company is "insolvent" and needs \$6.6 billion to cover its debts and fund future domestic oil exploration. (7/14, #9)

- **At Brazil's offshore Franco field**, the first test at a new well indicates that the well may have the potential to produce about 50,000 barrels of light oil a day. Brazil says the Franco field holds an estimated 4.5 billion barrels of recoverable oil, making it the second-largest oil find in Brazil after Tupi. (7/14, #12)
- **Angola** plans to export 1.42 million barrels a day during September, much lower than August's 1.83 million barrels a day. The sharp decline in exports is mainly due to lower output of Girassol and Plutonio; Girassol had maintenance problems. (7/18, #11)
- **Venezuela** hopes to catapult past Saudi Arabia as the world leader in certified crude oil reserves when it finishes registering oil deposits in its vast Orinoco Belt this year. Orinoco deposits are extra heavy tar-like sour crude that must be upgraded or mixed with a lighter grade to create an exportable blend. But there is a lot of it. (7/14, #11) *[Editor's note: all this while Venezuela continues a multi-year slide in oil production.]*
- **Kazakhstan's** financial police launched a criminal probe into an oil project led by Chevron, the latest of several moves to increase pressure on energy ventures that had until recently enjoyed a special status. The announcement came two days after government officials said the Chevron consortium and another project led by Italy's Eni SpA will have to pay a new oil export duty—a \$2.73/barrel tax. (7/16, #4, #5)
- US officials admit that **Iran** has worked its way around sanctions and shows no sign of abiding by international demands to stop its uranium enrichment program. Nonetheless, says one senior American official, the republic is now "constrained in its ability to conduct financial transactions, and relegated to narrow conduits in financial markets". (7/14, #27)
- **The engineering arm of Iran's** Revolutionary Guard Corps said Friday it was pulling out of projects in a giant Iranian natural-gas field in the Persian Gulf, blaming mounting sanctions from the West. (7/18, #8)
- **Indian Oil Corp.**, India's second-biggest refiner, plans to acquire oilfields in Africa as part of a \$1 billion overseas investment plan, its chairman said. The state-run company's renewed plans to expand overseas came after the government freed gasoline prices from its control last month and said it will eventually allow refiners to set diesel rates. (7/15, #9)
- Oil and gas explorer **Falkland Oil & Gas** said it didn't find oil at an exploration well off the coast of the Falkland Islands, sending its shares plunging by more than half. (7/13, #9)
- **OPEC tells us it has lots of spare capacity**, but how much should we believe them? Even when prices were much higher than they are now, back in 2008, they did not make use of all of the spare capacity that they supposedly had. (7/18, #22)
- **The Lloyd's insurance market and** the Institute of Strategic Studies (ISS, known as **Chatham House**) says Britain needs to be ready for "peak oil" and disrupted energy supplies at a time of soaring fuel demand in China and India, constraints on production caused by the BP oil spill, and political moves to cut CO2 to halt global warming. (7/12, #20)
- **In northeastern China, oil pipeline explosions** rocked the city of Dalian on Friday, sparking fires that blazed for 15 hours that were put out Saturday morning. China National Petroleum Corp pledged to do all it could to limit the impact on the important shipping port and picturesque tourist town, where the explosions reportedly impacted a 20-sq.-mile area of ocean. (7/18, #12)
- Alberta's Energy Resources Conservation Board, in its June 2010 update, forecasts bitumen **production from the oil sands** to reach 3.2 million b/d in 2019. Bitumen production from the oils sands in 2009 averaged 1.49 million b/d. (7/12, #21)
- Billboards targeting **Alberta's oil sands** and its environmental problems sprang up in Denver, Seattle, Portland and Minneapolis last week in the launch of a multi-million dollar,

multi-year campaign led by NGO Corporate Ethics International. The ads ask Americans to boycott Alberta as a travel destination because of its oil sands industry. (7/16, #15)

- **Canada** may be the third largest producer of gas but ranks only 21st in the amount of proved reserves. We are liquidating our gas reserves as fast as possible as dictated by the markets, not by any coherent energy policy. (7/14, #28)
- **Apache** is the oil world's yard sale specialist. Take the old Forties field. In 2002, the year before BP sold its 96% stake, Forties produced 52,000 barrels of oil a day, about a 10th of its 1970s peak; a seeming case of terminal decline. In 2009, Apache wrung more than 60,000 barrels a day from Forties. Apache uses techniques like sophisticated underground mapping and incremental drilling to find untapped reserves in fields like Forties, as well as regions ranging from the Gulf of Mexico to Egypt. Apache may buy BP Alaskan assets. (7/16, #2)
- A Diamond Offshore Drilling subsidiary agreed to suspend a Gulf of Mexico contract and signed a multiwell international commitment that will **move the Ocean Confidence semisubmersible drilling rig to Congo** (Brazzaville). The Ocean Confidence is expected to arrive off Africa within about 60 days (7/14, #25)
- The post-hurricane problems at **Thunder Horse** in 2005 were not an anomaly, but a warning that BP was taking too many risks and cutting corners in pursuit of growth and profits, according to analysts, competitors and former employees. Despite a catalog of crises and near misses in recent years, BP has been chronically unable or unwilling to learn from its mistakes, an examination of its record shows. (7/13, #20)
- **China now consumes and produces** close to 50% of the world's coal. Thus, changes in Chinese consumption and/or production may have a dramatic impact upon the global coal market. China's coal consumption grew 12% in 2009. Should China ever fail to match coal consumption with indigenous production then one of three things may happen: growth stalls, imports rise, or other sources of power generation (e.g., nuclear) must grow fast. (7/12, #17)
- Last month was the **hottest June ever recorded worldwide** and the fourth consecutive month that the combined global land and sea temperature records have been broken. 2010 is now on course to be the warmest year since records began in 1880. (7/18, #2)
- China's Ministry of Commerce recently announced it will reduce by 72% **China's exports of rare earth minerals**. This matters because China controls 97% of global production of these minerals. How did it get such a dominant market position? Beijing subsidized its own mines. As a result, producers in other nations--primarily the U.S.--could not compete with the prices the Chinese were offering. That's why China now has a lock on rare earths. (7/15, #12)
- According to the latest numbers from the United States Geological Survey, **current lithium producers** are providing enough lithium to fuel the projected number of electric vehicles for the next ten years. After that, the major factor that will drive competition between players in the energy industry might not be mining lithium, but recycling it. Because lithium doesn't chemically change while it provides energy, it can be recycled. (7/14, #29)
- The Obama administration's \$2.4 billion investment in the development of batteries and other **electric-car** technology in the United States is an enormous bet on a product that has yet to gain broad commercial success. Major manufacturers have yet to sell electric cars in the United States. Hybrids, though they have been around for a decade, represent less than 1 percent of the nation's roughly 250 million-vehicle fleet. (7/16, #20)

## Quote of the Week

- "Even before we reach peak oil, we could witness an oil supply crunch because of increased Asian demand. Major new investment in energy takes 10-15 years from the initial investment to first production, and to date we have not seen the amount of new projects that would supply the projected increase in demand."  
-- Report from Lloyds of London (insurance) and Chatham House (strategic studies)

## Commentary: Interview with Art Berman – Part 1

*(Note: Commentaries do not necessarily represent the ASPO-USA position.)*

Art Berman is a geological consultant whose specialties are subsurface petroleum geology, seismic interpretation, and database design and management. He is currently consulting with a wide range of industry clients such as PetroChina, Total, and Schlumberger. Mr. Berman has an MS in geology from the Colorado School of Mines and is active with the American Assoc. of Petroleum Geologists. Art spoke with us last Thursday after a presentation in Canada at the CIBC Technical Conference.

*POR: Can you give us your latest updated perspective on the shale gas story?*

**Art Berman:** You have to acknowledge that shale gas is a relatively new and significant contribution to North American supply. But I don't believe it's anywhere near the magnitude that is commonly discussed and cited in the press. There are a couple of key points here. First the reserves have been substantially overstated. In fact I think the resource number has been overstated.

If you investigate the origin of this supposed 100-year supply of natural gas...where does this come from? If you go back to the Potential Gas Committee's [PGC] report, which is where I believe it comes from, and if you look at the magnitude of the technically recoverable resource they describe and you divide it by annual US consumption, you come up with 90 years, not 100. Some would say that's splitting hairs, yet 10% is 10%. But if you go on and you actually read the report, they say that the probable number—I think they call it the P-2 number—is closer to 450 Tcf as opposed to roughly 1800 Tcf. What they're saying is that if you pin this thing down where there have actually been some wells drilled that have actually produced some gas, the technically recoverable resource is closer to 450. And if you divide that by three, which is the component that is shale gas, you get about 150 Tcf and that's about 7 year's worth of US supply from shale. I happen to think that that's a pretty darn realistic estimate. And remember that that's a resource number, not a reserve number; it has nothing to do with commercial extractability. So the gross resource from shale is probably about 7 years worth of supply.

For a project that a colleague and I did for a client, I actually went in and looked at all the shale plays and assigned some kind of a resource number to them. I also used some work that was done by Wendell Medlock at Rice University's Baker Institute. He did an absolutely brilliant job of independently determining what the size of the resource plays in Canada and the US might be.

The resource hasn't been misrepresented but the probable component has not been properly explained as a much smaller component of the total resource; I guess they just didn't read the PGC's report carefully enough. If you take the proved reserves plus the report's probable technically recoverable number, we have something like 25 years of natural gas supply in North America, which is quite a bit. It's a lot. I don't say any of this to give shale gas a bad name.

The other interesting thing about the PGC's report that nobody seems to pay attention is this: they said there is something like 650 Tcf of potential shale gas. Well, there's 1000 Tcf of something else. What's the something else? It's conventional reservoirs plus non-shale/non-coalbed-methane unconventional reservoirs. So there's 70 percent more resource in better quality rocks than shale. It just astonishes me that nobody has paid any attention to that.

So that's the simple view. And then the other thing that we see empirically is that if you look at any of these individual shale-gas plays—whether it's the Haynesville or the Barnett or the Fayetteville—they all contract to a core area that has the potential to be commercial that is on the order of 10 to 20 percent of the geographic area that was originally represented as all being the same. So if you take the resource size that's advertized—say for the Haynesville shale, something like 250 Tcf—and you look at the area that's emerging as the core area, it's less than 10 percent of the total. So is 25 Tcf a reasonable number for the Haynesville shale? Yeah, it probably is. And it's a huge number. But the number sure is not 250 Tcf, and that's the way all of these plays seem to be going. They remain significant. It hasn't been proved to me yet that any of it is commercial, but they're drilling it like mad, there's no doubt about it.

Those are sort of the basic conclusions. And when you look at it probabilistically, which I think is the only intelligent way to look at anything which you have any uncertainty about, what you realize is that the numbers that are being represented by all of these companies as “truth” are probably like the P-5 case, having a 5 percent probability of being true. So they say, “well, our average well in the Haynesville is going to be 7 Bcf,” and I say there will certainly will be wells that make 7 Bcf but there’s no way that the average is that high. My take is that there will probably be 5 percent of wells that will make 7 Bcf.

I just think everybody is caught up in this. I have a slide where I say, you guys need to get over the love affair and get on with the relationship. You keep talking about how big it is and how great it is, but at some point you have to live together and that’s hard work. You have to be honest with yourself and with each other and you have to do some work. I just don’t think we’ve moved past the love affair.

One other important thing is the Barnett shale. We keep coming back to it because it’s the only play that has much more than 24 months worth of history. I recently grouped all the Barnett wells by their year of first production. Then I asked, of all the wells that were drilled in each one of those years, how many of them are already at or below their economic limit? It was a stunning exercise because what it showed is that 25-35% of wells drilled during 2004-2006—wells drilled during the early rush and that are on average 5 years old—are already sub-commercial. So if you take the position that we’re going to get all these great reserves because these wells are going to last 40-plus years, then you need to explain why one-third of wells drilled 4 and 5 and 6 years ago are already dead.

*POR: When you say one-third of the wells are already sub-commercial, do you mean they have been shut in, or that they are part of a large pool where no one has sharpened the pencil?*

**Berman:** Some of them never produced to begin with. No one talks about dry holes in shale plays, but there are bona fide dry holes—maybe 5 or 6 or 7 percent that are operational failures for some reason. So that’s included. There are wells that, let’s just call them inactive; they produced, and now they’re inactive, which means they are no longer producing to sales. They are effectively either shut-in or plugged. Combined, that’s probably less than 10 percent of the total wells. But then there are all the wells that are producing a preposterously low amount of gas; my cut-off is 1 million cubic feet a month, which is only 30,000 cubic feet per day. Yet those volumes, at today’s gas prices, don’t even cover your lease/operating expenses. I say that from personal experience. I work in a little tiny company that has nowhere near the overhead of Chesapeake Energy or a Devon Energy. I do all the geology and all the geophysics and there’s four or five other people, and if we’ve got a well that’s making a million a month, we’re going to plug it because we’re losing money; it’s costing us more to run it than we’re getting in revenue.

So why do they keep producing these things? Well, that’s part of the whole syndrome. It’s all about production numbers. They call these things asset plays or resource plays; that reflects where many are coming from, because they’re not profit plays. The interest is more in how big are the reserves, how much are we growing production, and that’s what the market rewards. If you’re growing production, that’s good—the market likes that. The fact that you’re growing production and creating a monstrous surplus that’s causing the price of gas to go through the floor, which makes everybody effectively lose money....apparently the market doesn’t care about that. So that’s the goal: to show that they have this huge level of production, and that production is growing.

But are you making any money? The answer to that is...no. Most of these companies are operating at 200 to 300 to 400 percent of cash flow; capital expenditures are significantly higher than their cash flows. So they’re not making money. Why the market supports those kinds of activities...we can have all sorts of philosophical discussions about it but we know that’s the way it works sometimes. And if you look at the shareholder value in some of these companies, there is either very little, none, or negative. If you take the companies’ asset values and you subtract their huge debts, many companies have negative shareholder value. So that’s the bottom line on my story. I’m not wishing that shale plays go away, I’m not against them, I’m not disputing their importance. I’m just saying that they haven’t demonstrated any sustainable value yet.