



PEAK OIL REVIEW

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1. Oil and the Global Economy

After a quiet start to the week, crude futures climbed to a three-month high on Thursday after Beijing's export data showed an increased demand for Chinese goods. On Friday, however, Beijing released data showing inflation rising, largely due to the impact of record cold weather on food prices, sending crude prices down again. Analysts feared that China would turn to fighting inflation rather than stimulating the economy, thus reducing the demand for oil. At week's end NY futures were down to \$93.56 a barrel, and London was down to \$110.55.

There seems to be a growing consensus that there is plenty of oil around at the minute and that a price correction is coming. US production of tight oil is forecast to continue increasing while US motor fuel consumption continues flat. MasterCard reported last week that US gasoline consumption has slipped to the lowest level since tracking began in 2004. US oil imports have fallen to the lowest level in 25 years.

The Saudis announced last week that they had cut production by 5 percent to 9 million b/d in December and the Iranians admitted that their exports were down by 40 percent. Iraqi oil exports were down by 272,000 barrels in December.

In its *Short-Term Energy Outlook* issued last week, the EIA forecasts that for the next two years increases in global consumption of liquid fuels, about 900,000 b/d in 2013 and 1.3 million b/d in 2014, will be offset by increases in production, most of which will be from US tight oil fields and Canada's tar sands. The EIA projects OECD consumption will decline by about 300,000 b/d in 2013 with US consumption remaining largely unchanged. US crude production is forecast as increasing from 6.4 million b/d in 2012 to 7.3 million b/d in 2013, and 7.9 million b/d in 2014. The rapid increase in US tight oil production will lead to a decline in net US fuel imports which will fall from an average of 7.5 million b/d in 2012 to 6 million b/d by 2014. The Administration also sees US natural gas production remaining flat at around 60 bcf/d for the next two years.

The EIA paints a rather optimistic scenario for oil supply and demand during the next two years. US tight oil production is seen as increasing rapidly despite very high rates of depletion, high production costs, and a slowly declining number of drilling rigs active in the US. Although it is premature to talk about the US tight oil production peaking, the most recent numbers on Bakken tight oil production show a decline between October and November 2012 after years of steady growth interrupted only by the occasional harsh weather in January and February. Whether this decline is an aberration or the beginning of a trend will take another year or so to become apparent. Analysts who have looked closely at decline rates are skeptical that tight oil production can really be increased by another 1.5 million b/d in the next two years.

The other pillar of the EIA's optimistic forecast is that there will be no major disruption of oil supplies from the Middle East during the next two years.

2. Middle East

Iraq: Kurdistan began symbolic exports of oil by tanker truck directly to Turkey last week, by-passing the Baghdad- controlled northern pipeline. Analysts believe that this move will be followed by the construction of a new pipeline which would allow the Kurds to export their oil to Turkey. Baghdad responded to the move by threatening lawsuits to seize oil and natural gas shipments leaving the country without its permission. Both sides have moved military units to the ill-defined demarcation line between Kurdistan and the rest of Iraq, but considering the troubles Baghdad is having with the Sunnis at the minute, it seems unlikely to attempt force against the ever-formidable and cohesive Kurds.

Baghdad's dispute with its Sunnis continues to simmer with thousands of Sunni protestors blocking the roads from Baghdad to Syria and Jordan. The government retaliated last week by closing the border crossing station into Jordan, presumably to bring economic pressure on the Sunnis. By week's end, the government had organized pro-al-Maliki demonstrations in Baghdad. Many analysts are talking about the al-Maliki government being pushed closer to the Iranians as it tries to deal with the Kurds, the Sunnis, and the Western oil companies which are less than enthusiastic about doing business in Iraq. As Syria descends into anarchy, the likelihood that some of the turmoil will spill over into Iraq's Sunni-Shiite dispute continues to grow.

In December, Iraqi crude exports fell by 272,000 b/d to 2.0 million b/d. About 100,000 b/d of this decline was due to the Kurds refusing to export through the northern pipeline to Ceyhan, Turkey until Baghdad pays them for the oil. The rest of the reduction was attributed to bad weather; however, given the range of problems facing Baghdad, it would not be surprising to see some impact on oil exports in the near future. Whether the Iraqi's can increase exports to the 3, 5, or 10 million b/d they keep talking about in the midst of so much sectarian strife remains an open question.

Syria: Cold weather and snow enveloped the region last week, slowing the fighting and increasing the misery of the hundreds of thousands of refugees living in camps along the border. The fighting seems to be settling into a stalemate for a while. The rebels overran a major airbase near Aleppo, while government forces seemed to have pushed the rebels away from the center of Damascus.

As the Assad government's authority continues to shrink, Syria is beginning to look more like a failed state in which dozens of local warlords and Jihadist groups compete for power and a share of the spoils. The refugee crisis grows by the day and will only become worse as the struggle is prolonged. Moscow continues to call for compromise, a solution rejected by nearly all the rebel groups.

Iran: New US sanctions are now in place that are intended to increase the pressure on Tehran. The new measures are described as more akin to a trade embargo that would sanction any entity in the world doing business with Tehran and the US. Washington, however, is complaining that Tehran continues to find ways to bypass the sanctions by using various front organizations.

Although the sanctions are slow to take hold, they do seem to be having an effect. Tehran says its oil revenues are down 45 percent. Prices for everything imported into Iran are going up and a crisis is developing as medicines have become prohibitively expensive. There is no end to all this anywhere in sight. Tehran continues to take a hard line on negotiations as the noose of sanctions keeps closing.

Egypt: Qatar doubled its financial aid to Cairo last week with a new gift/loan of \$2.5 billion that should keep the country functioning for another few weeks. There is still no word on the IMF loan which comes with strings such as major reductions in food and fuel subsidies. The economy continues to crumble and social pressures are growing.

3. Climate Change

In recent months the number of extreme weather events around the world has been increasing steadily taking an ever increasing toll on the global economy. From \$60 billion to repair the New York region, to new high and low temperature records, to snow storms across the Middle East, to dwindling stocks of food, every week seems to bring another disaster. Some are starting to wonder if the Arctic melting has so destabilized the north Atlantic region that Europe and possibly much of the northern hemisphere are no longer shielded from extreme conditions as they have been for millennia. Some reports are beginning to note that serious problems having to do with food and water supplies may be only a few decades rather than hundreds of years away.

In the meantime, the argument over whether the burning of fossil fuels is the principal cause of climate change rolls on with little progress or give on either side. The environmentalists reiterate increasingly strident warnings that the earth will soon become uninhabitable while the skeptics maintain that the evidence is not strong enough to warrant the damage to the economy that would be wrought by major reductions in the use of fossil fuels.

Somewhere in the future, or perhaps it has happened already, there may or may not be a “tipping point,” after which it will be impossible to keep the global climate from going out of control. The point of all this is that while the frequency of abnormal weather is clearly increasing, events that will do abnormal damage are unpredictable and could occur in the coming year or years from now. The damage to food crops is cumulative. As food is grown all over the world, nearly every extreme weather event does some sort of damage to the global food inventory.

Last week the US Department of Agriculture issued a report saying that the US corn inventory will be at its lowest point in 17 years by the end of August and the current inventories are 17 percent lower than last year at this time. Obviously it is too early to say anything about the 2013 crops, but another year of bad weather could lead to much higher food prices.

For now there is not yet a critical mass of political leaders that is willing to link fossil fuels to climate change. Given the pace at which the situation is changing, however, this may not be the case much longer.

4. Exporting Natural Gas

Attitudes towards exporting US natural gas as LNG is clearly on a roller coaster. Five years ago the US was facing a natural gas shortage and people were building LNG import terminals. Then the fracking boom took place – inventories soared, prices plummeted, utilities switched out of coal, and new drilling for gas stopped as gas companies started going broke.

Many people started seeing the advantages of what many see as a nearly limitless supply of cheap gas and started planning accordingly. Industries that use natural gas for energy or as a feedstock began planning for major new plants in the US where gas was cheap. Others noting the huge differential between US domestic gas and what it could bring at foreign ports began applying for LNG export licenses – 16 such applications are currently pending. Recently the US Energy Department put out a report concluding that the exporting of LNG would be a real plus for the US economy as it would create jobs and help the balance of payments.

A few weeks later, however, there are second thoughts. Natural gas prices which have been hovering just above \$3 per million BTUs in recent days are still too low to make fracked natural gas profitable and drilling has fallen off considerably. Some analysts, of course, are saying the quantity of natural gas is far more limited than generally assumed, but the EIA is continuing to forecast growth in production.

Last week a group of major US manufacturers formed a coalition to lobby against what they call “unfettered” natural gas exports. Most of these companies are planning to build new facilities based on cheap domestic natural gas and fear that large exports would only drive prices so high that their new facilities would become uneconomical. The other side of the story is that as other countries race to exploit tight “shale” gas the differential between US and international prices will fall quickly. Some are saying the world prices may drop as much as 60 percent by the end of the decade, leaving multi-billion-dollar LNG export terminals unprofitable.

Quote of the week

- "... Peak Oil is going to be pretty obviously disproven, because it is now a question of when, not if, fracking starts to get deployed in a significant fashion..."

- [Seth Kleinman](#), Global Head of Energy Strategy at Citigroup

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

- The **Lebanese** and Cypriot governments have agreed to increase cooperation in the offshore natural gas sector, Lebanese President Michel Suleiman said. Suleiman met with Cypriot President Demetris Christofias in Beirut to discuss the natural resources that may lie offshore. (1/12, #7)
- **Ecuador's** average crude-oil output rose about 1 percent to 504,000 b/d in 2012 from 500,000 b/d the previous year. Last year's production, however, was below the official target of 510,000 b/d. Ecuador says that it expects to produce 525,000 to 530,000 b/d this year and about 550,000 b/d in 2014. (1/7, #9)
- Air pollution levels in **China's** notoriously dirty capital were at dangerous levels last week, with cloudy skies blocking out visibility and warnings issued for people to remain indoors. (1/12, #14)
- The 250,000-barrel-a-day expansion of the **Seaway oil pipeline** is complete, and the 500-mile pipeline's operations resumed. The expansion, which increased Seaway's capacity to 400,000 barrels of crude a day from 150,000 barrels, is aimed at bringing crude from the overstocked Cushing, Okla., hub to refineries along the Gulf Coast. (1/12, #15)
- **North Slope** crude oil production for the last six months has been trending below levels forecast by Alaska's revenue department. Production has averaged 513,629 b/d for the first half of fiscal 2013, the state fiscal year beginning last July. (1/12, #21)
- The US drilling **rig count** fell by 1 unit during the week ended Jan. 11, with the total number of rotary rigs reaching 1,761. This compares with 1,987 rigs working in the comparable week last year. (1/12, #24)
- Oil production in **Norway**, the world's eighth-biggest exporter, will fall to a 25-year low in 2013 and an anticipated slow recovery in subsequent years is threatened by rising costs and bottlenecks. (1/12, #25)
- The **Iranian and Iraqi** governments have taken steps for the construction of a natural gas pipeline that could eventually reach Syria. Iran said it plans to build the 56-inch natural gas pipeline from the South Pars natural gas field in the Persian Gulf. The Iranian government has dubbed the project the Friendship Pipeline. (1/11, #8)
- **China's economic growth** may have outstripped the government target to hit 7.7 percent in 2012, an official from the National Development and Reform Commission said. China's GDP growth slowed to a seven-quarter low of 7.4 percent in the third quarter. To shore up growth, the government has introduced fiscal measures, but remained cautious in easing its monetary policy in fear of re-triggering inflation. (1/11, #12)
- **China's crude-oil imports** in 2012 grew at 6.8%-higher than the 6.1% recorded in 2011 but well off 2010's 17.5%, before a slowdown in the domestic economy. (1/10, #11, #12)

- The **United Arab Emirates** plans to raise its oil production capacity to 3 million b/d, from the current 2.8 million. (1/10, #8)
- **U.S. oil production** exceeded 7 million barrels a day for the first time since March 1993 as improved drilling techniques boosted exploration across the country. (1/10, #16)
- **Phillips 66** signed a 5-year contract to deliver crude oil from the Bakken formation of North Dakota to its Bayway refinery in New Jersey. (1/10, #22)
- The year 2012 was the **warmest on record** for the contiguous United States, beating the previous record by a full degree. Scientists at the National Oceanic and Atmospheric Administration said the average temperature in 2012 was 55.3 degrees Fahrenheit (12.94 degrees Celsius), 3.2 degrees above the average recorded during the 20th century and 1.0 degree above 1998, until now the hottest on record. (1/9, #6)
- In what has been referred to a "dome of heat," **Australia** is grappling with intense temperatures and wildfires, particularly across the Southeast. (1/9, #19)
- President Dilma Rousseff cut short her vacation on Tuesday to deal with a budding energy crisis that could wreck her efforts to restore **Brazil's** economy this year. Rousseff denies there is any risk of electricity shortages or rationing stemming from a historic drought that has left hydroelectric dams short of water. But some independent analysts disagree, saying it depends on whether summer rains come. (1/9, #17)
- **Coal's** share of the US generation market will rise to 39% in 2013 from last year's 37.6% and reach 39.6% in 2014, the Energy Information Administration said in its January Short-Term Energy Outlook. EIA said coal's rising share was a product of a projected increase in natural gas prices. (1/9, #25)
- **U.S. dry natural gas output** rose 1.9% in October from a year earlier to a high of 2.058 trillion cubic feet, the Energy Information Administration said. The EIA released the figure in its December natural-gas report which includes extensive revisions to 2010 and 2011 data because of benchmarking to revised annual data for 2011. Production has increased consistently owing to enhanced hydraulic fracturing and horizontal drilling. (1/8, #16)
- **Unemployment** in the Eurozone increased to 11.8 percent in November, as the number of jobless people in the region rose to 18.8 million, the highest figure since the single currency was founded in 1999. (1/8, #21)
- The opening of the Flat Ridge 2 **wind farm** in Kansas represents the largest single-build facility of its kind in the US. The site features 294 wind turbines that can generate the annual energy demand of more than 140,000 households. (1/8, #23)
- **Iran** has dramatically scaled up its use of compressed natural gas to power vehicles, an effort which has helped ease the tightening pressure from international sanctions on petrol imports. (1/7, #6)
- Legislators in **Texas**, the biggest energy producer among U.S. states, will begin deliberating its next two-year budget with a surplus that may near the \$8.8 billion record set in 2007. The Texas economy has surpassed budget projections over the past 15 months, as booming energy output fueled job growth and an 11 percent fiscal first-quarter increase in sales-tax receipts, the state's biggest source of general-fund revenue. (1/7, #17)

Commentary: US DOE/EIA Forecast Estimates Face Reality

By Roger D. Blanchard

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

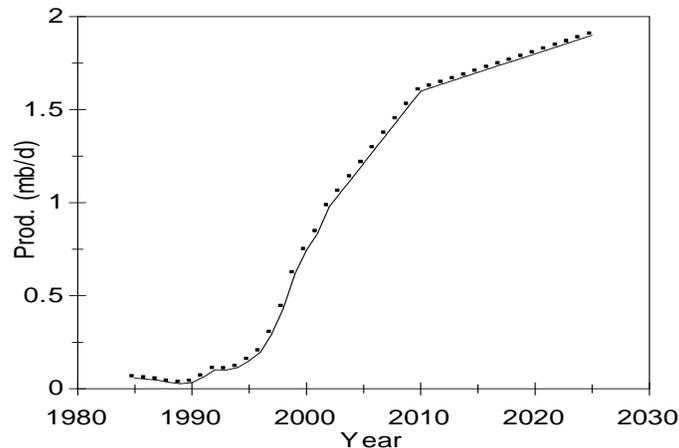
In mid-November of 2012, the International Energy Agency (IEA) released a statement claiming that the United States (U.S.) would surpass Saudi Arabia in oil production by 2017 (to be clear, they mean liquid hydrocarbons, not crude oil or crude + condensate). I assume the IEA obtained its U.S. oil production forecast from the U.S. Department of Energy/Energy Information Administration (US DOE/EIA). The statement was carried extensively by the U.S. media.

Also, in that same vein, in early December National Public Radio's Morning Edition News had a segment in which the same claim was made based upon the oil production forecast from the US DOE/EIA.

How valid are those claims? Is there any evidence to suggest that possibly the forecast could be flawed?

Among the many assumptions of the US DOE/EIA in their recent U.S. forecasts, there is the major assumption that U.S. 48 States offshore oil production will increase over time. The production increase would come mostly, if not totally, from the deep-water Gulf of Mexico (GOM).

The US DOE/EIA assumption that deep-water GOM oil production will increase over time has existed for quite a while. Figure 1 is a graph of the US DOE/EIA forecast for deep-water GOM oil production based upon their Annual Energy Outlook 2003.



**Figure 1-US DOE/EIA production forecast for the deep-water GOM
Historical [1985-2001] and forecast [2002-2025] oil production**

For a long time I have been stating that deep-water GOM oil production would reach a maximum around 2010. Here is a 2007 commentary in *Energy Bulletin* (<http://www.energybulletin.net/stories/2007-12-18/peak-oil-dec-18>) in which I specifically stated that I expected a peak around 2010. Here is the last sentence of that commentary:

“Deepwater GOM production should peak around 2010 in spite of future exploration and production developments.”

I had actually been making the claim about an approximate 2010 peak for years preceding 2007.

Prior to the rearrangement of the Minerals Management Service (MMS) to form the Bureau of Ocean Energy Management (BOEM) a few years ago due to problems at MMS, MMS provided oil production data for both the shallow-water and deep-water GOM. Unfortunately the BOEM doesn't provide separate data now but they and the US DOE/EIA do provide total GOM oil production. From that, the general trend in deep-water production can be deduced because production in the shallow-water GOM is mature and has been in general decline for years (see Figure 2).

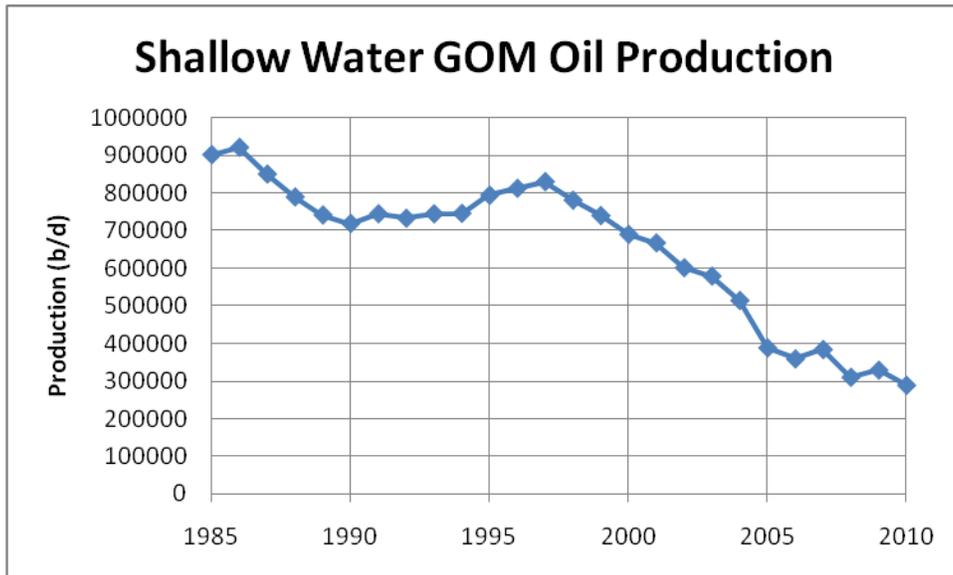


Figure 2-Shallow-water GOM oil production (Data from the Minerals Management Service)

Total GOM oil production achieved its highest level in 2009 and has declined every year since then (see Table I).

Year	GOM Production Rate (mb/d)	Production Change (b/d)
2009	1.562	
2010	1.551	-11,000
2011	1.317	-234,000
2012	1.245**	-72,000

Table I*

*Data is from the US DOE/EIA

**Data through October 2012

The production declines for 2011 and 2012, in Table I, would only be possible if there were major declines in deep-water production.

Most of the U.S 48 States offshore oil production comes from the Gulf of Mexico, specifically 96.5% in 2012 through October. The remainder comes from offshore California. What happens in the GOM is what's important for future U.S. 48 States offshore oil production. I personally don't expect significant production in any other U.S. 48 States offshore areas even if presently closed areas are opened to oil development.

In their Annual Energy Outlook 2010 (AEO2010), the US DOE/EIA made the estimates of future U.S. 48 States offshore oil production listed in Table II. Also in Table II are actual production values, through October 2012, and the difference between the AEO2010 values and actual production.

Year	AEO2010 Estimated Production (mb/d)	Actual Production (mb/d)	Difference Between AEO2010 Estimates and Actual Production (b/d)
2009		1.62	
2010	1.67	1.61	60,000
2011	1.77	1.37	400,000
2012	1.82	1.29**	530,000
2013	1.97		
2014	1.95		
2015	1.94		
2020	2.08		
2025	2.14		
2030	2.19		
2035	2.36		

Table II*

* Data from the US DOE/EIA

**Data through October 2012

The only significant new deep-water GOM project in 2012 was Caesar/Tonga, which started up in early 2012. There are no major offshore projects expected to come on-line in 2013 so I expect a continuing decline in U.S. 48 States offshore oil production through 2013.

In 2014, or beyond, several fields are expected to come on-line including Jack, Tubular Bells, Puma and St. Malo. These projects will not bring offshore oil production up to the level of 2009, not even close. In coming years I expect to see some increases in U.S. 48 States offshore production, due to the introduction of the fields mentioned above, but the general future trend in production will be down. I further expect that from 2020 on, U.S. 48 States offshore oil production will continuously be below 1 million barrels/day. That would be quite a departure from the AEO2010 estimates given in Table II.

Will the U.S. overtake Saudi Arabia in what I view as oil production, crude oil + condensate, in the future? I don't see that as in the realm of possibility. In 2011, Saudi Arabia's crude + condensate production was ~3.8 mb/d higher than that for the U.S (9.458 mb/d versus 5.647 mb/d). In assuming that U.S. oil production will continue to rise for many years to come, the US DOE/EIA assumes that production from tight oil production, mostly from Bakken and Eagle Ford, will continue increasing. Could it be that that assumption is incorrect, like the assumption for U.S. 48 States offshore production? I am firmly convinced that Bakken and Eagle Ford will have production peaks in 2014 +/- 1 year. I recently made the case for Bakken oil production peaking around 2014 here (<http://www.energybulletin.net/stories/2012-11-21/a-closer-look-at-bakken-and-us-oil-production>). If I'm correct, the U.S. will not be overtaking Saudi Arabia in crude + condensate production in 2017 or any time after that.

Roger Blanchard teaches chemistry at Lake Superior State University and authored the book "The Future of Global Oil Production: Facts, Figures, Trends and Projections by Region," McFarland & Company (2005).