

Peak Oil: Game Over, It's Here!

By

Glen Bradford 5/7/2010

Hi, I'm Glen Bradford. If you're new to my story, I've been paying my college tuition by trading stocks by mostly making what I consider to be "obvious buys" that combine a lack of investor sentiment and awareness in a situation of all positives, including momentum, uplistings, and access to larger pools of investors. I picked 2009 as a bull in spite of critics and called the Hang Seng stock market bottom, recommending mostly going long Russia and microcap china. As such, I'm used to being considered crazy, until people realize that I'm right. I begin by questioning everything and chasing the odds and ends of where that takes me with an emphasis on not losing money. I figure that's reasonable.

I realize that I may even sound like a crazy person as you read this. I wanted to include as much information as I figured it would be reasonable in order to get the gist of what's happening. Note that I did not use the phrasing 'about to happen.' Knowing things that others don't usually leads to big profits --- so what do you have to lose? Although I'm late for yearly predictions, I'm still early for decade predictions. Although some of the things I'm going to mention are scary, I'm not trying to use scare tactics. Wouldn't you rather know that someone is going to try to steal your car tomorrow so that you can take preventative actions?

At this point, I request that if you're going to start reading this paragraph, please finish it. Look, I'm no doom and gloomer. But there is something you have to know. The defining characteristic of the decade marked 2010-2020 is going to be the END of CHEAP OIL. I repeat, the END of CHEAP OIL. Sound the trumpets. We are experiencing PEAK OIL RIGHT NOW. But first, you must understand the concept of Peak Oil. Understanding peak oil doesn't require anything beyond the calculus I was able to teach myself in high school. The basic idea is that for every oil field, production eventually peaks until your daily rate or production only can decrease. Take this across the entire world and you hit peak oil when your additional drilling does not result in more daily oil flows. In other words, you can drill as hard as you want, but on a daily basis, you can't get anymore out of the ground. *"The term Peak Oil refers to the maximum rate of the production of oil in any area under consideration, recognising that it is a finite natural resource, subject to depletion"* says Colin J. Campbell. That's where we are. Prices are the only thing left to regulate demand, but oil isn't gone. We just have less of it to share amongst ourselves on a daily basis going forward. Mathematicians would call it exponential decay.

Why now? How have analysts missed it? Glad you asked. It's my opinion that a fact is that OPEC should have been stating their reserves at **520 bn rather than 820 bn barrels**. Why are they overstating? In the 1980's they went incognito and in order for them to make the most money under their cartel, it was to their advantage to boost their publicly stated reserves so that they could have a larger share in the production. Note that this large increase really didn't come with any new discoveries. Note that analysts who forecast that we are going to be fine for another 10 years all have the higher reserve quantity, which in reality is resources, not reserves. Those that

understand the difference here project continual price increases on a forward going basis, especially when the production that has leveled off begins to fall off the back end of the production curve.

Buffett set me on the right track. He just bought one of the lowest cost form of transporting goods, railways. His purchase of Burlington Northern looked foolish to some at the time of consummation, heck, I even thought he was the fool. A few years from now, however, the world will see his genius.

Note that the (IEA) persistently underestimates growing oil demand. The latest report from Aramco puts us at 4 million barrels of oil a day of spare capacity as demand cranks back up. It's my belief that that's the most we are going to see. The IEA forecasts that the Middle east, mainly Aramco, is somehow going to make up for the increasing global deficit in oil exports. Downhill from here. Granted, there are additional projects in the works to increase capacity through 2014, but my understanding is that it takes a ballpark of 7 years to go from scratch to production on a new project. Current projections from the IEA put us at a 7 million barrel of oil a day deficit by the year 2015, unless some projects magically start pumping from thin air. The secret here is that these DO NOT EXIST. Analysts just assume they exist to meet their requirement for creating projections that don't scare the world into stocking up at the pump, causing sporadic shortages. Start adding at least \$10 to your cost of a barrel of oil annually for the next 5 years. Like I said earlier, the forecast is that the middle east gets to make up for all of the deficit. The increasing cost for them to develop that same additional barrel of oil suggests that they are running short on cheap oil fields to drill into. Also, take a look at their skepticism on some of the global forecasts.

At this point I want to point out some key quotes that led me to this conclusion:

"In the past, the world has counted on Saudi Arabia," one senior Saudi oil executive said in 2004. "Now I don't see how long it can be maintained."

King Abdullah of Saudi Arabia announced in April 2008 that he wants new oil discoveries to be kept in the ground to preserve some of the Kingdom's oil wealth for future generations.

But some experts are skeptical. Edward O. Price Jr., a former top Saudi Aramco and Chevron executive and a leading United States government adviser, says he believes that Saudi Arabia can pump up to 12 million barrels a day "for a few years." But "the world should not expect more from the Saudis," he said. He expects global oil markets to be in short supply by 2015.

Sadad al Husseini, Saudi Aramco's former head of exploration and production, wrote "The information is there. The facts are there. Oil prices did not jump four-fold over a three- or four-year period for any reason other than a shortage of supply."

Basically, it all hinges on analysts believing that Aramco can continue to ramp up production indefinitely. I'm saying they cant. Here's what they say:

The company's proven reserves will be increased by future exploration, delineation and development efforts, says Aramco. Vast unexplored acreage exists in the Rub' al-Khali desert region, the northern basin (along the border with Iraq), and the offshore Red Sea basin, says Aramco.

But, you might want to consider the perspective of Matthew Simmons, an advisor to Dick Cheney's energy task force:

The second part of Simmons's argument concerns exploration for new sources of oil in Saudi Arabia. Contrary to conventional wisdom, which assumes that Saudi Arabia is a vast expanse of desert that has only been lightly explored, Simmons presents considerable evidence to indicate that, in fact, almost every square mile has been mapped with the most sophisticated available modern tools--but with little return.

Simmons suggests that the Saudis have tacitly acknowledged this reality in their decision to pour most new investment into seeking to revive old fields instead of drilling in new ones. After all, why would Saudi Aramco expend so much effort on expensive attempts to resuscitate aging fields were there any genuinely promising new fields to exploit instead?

My current perspective is the following. We hit peak oil in 2008 when oil prices soared to over \$140, actually we were at peak oil in 2004. These things take time. This crippled the average Joe, who was commuting fairly far on the daily drive to work, and sent enough of them into delinquency to trigger the effect similar to a toilet bowl flush. Once foreclosures hit a hurdle rate, they were going to spiral out of control until the flush was complete. As this happened, demand for oil plummeted and prices fell to around \$40. Since then, emerging nations like China have gobbled up a lot of the excess supply and we are back at \$80. Sure, there are things to remediate the effects in the near term, like cash for clunkers or new government mandated fuel efficiency standards, and new capacity additions by Aramco. With pipeline of supply coming online mostly meeting or missing demand around 2012 (point estimate), we have a few years to make some big changes. Oddly enough, these are unlikely as most people prefer to take the standpoint of blissful ignorance.

Instead of taking final exams with the rest of my peers, I've been knee deep in thousands of pages of publically available information building bottom up supply curves for the oil market. Unless all the information I've been consuming has been carefully crafted and cultivated by conspiracy theorists over the last 25 years, which is highly unlikely, I'm now convinced of a few readily apparent soon to be facts that still aren't widely accepted and believed. By definition, a fact is a widely accepted belief. The earth used to be flat. Subprime mortgages used to be 'sensible investments.' Ask my mom and she'll tell you that there is an unlimited supply of oil. What I'm saying is that 10 years from now, in retrospect, it will

be a fact that global oil supply has peaked, and is only headed lower. In retrospect, you always 'knew' that oil resources were going to peak that year, but decided to take no action.

Look, I've been examining all the puzzle pieces in this situation from as many perspectives as possible. I want to be proven wrong. If you have any additional information that you think would change my perspective, do tell. I reserve the right to be wrong, I just don't think I will be in this case. I'm 50% confident that oil prices will spike to \$150/barrel by 2012, 90% confident they'll spike that high by 2015 and 99% confident we'll spike by 2020. The global recession of 2008 and this whole greek bailout thing, among other things might delay the inevitable.

So, how do you protect yourself? I've been asking myself the same question. I've got an engineering degree from Purdue and I've done some calculations. Well, for starters I wouldn't want to be an airline pilot. Tacit knowledge suggests that the economies of scale that airlines need to operate won't be feasible at \$200/barrel. Flying around will again be for the rich and profits will fall as fewer people fly. That's at least for the short term (5-10 years minimum while we transition to other energies).

Looking at the automotive industry, compressed natural gas (CNG) and hydrogen powered vehicles are going to slowly take the load off of our current gas based driving habits as the price of oil picks up. Currently, it is my belief that the marginal value of oil to China is greater than here in the USA, so China is going to relatively prosper at higher oil prices. The pain won't be so bad. They also have coal powering them up and have taken the initiative to take nuclear power plants and wind power to higher levels of production than we have here. They are ahead of us as far as I can tell. Back to the USA.

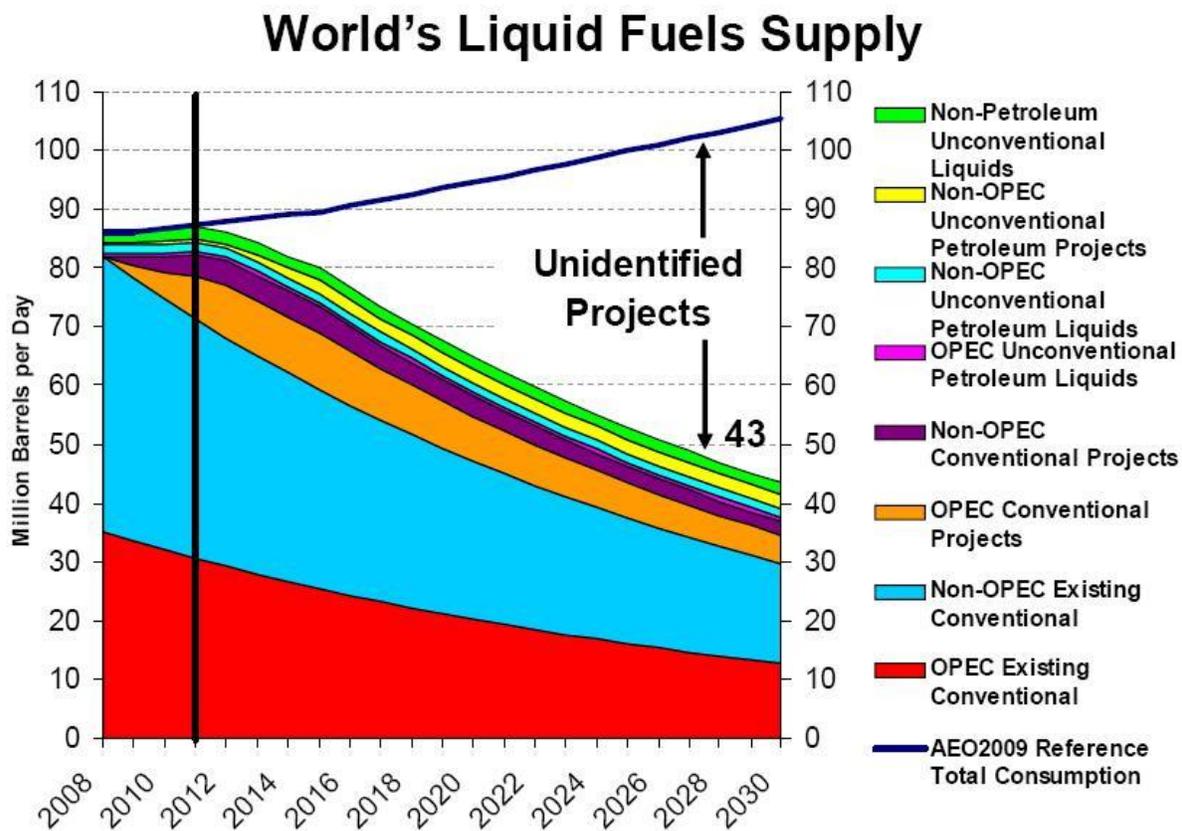
When I looked into converting an automobile from gas to CNG, the kits right now are fairly pricey, but this over time will become cheaper as the scalability picks up. The same goes for hydrogen powered vehicles. In fact, at current gas prices, these would be more economical if we built up the infrastructure to handle it based on my limited research. At current energy prices oil energy is 3.5x as expensive as natural gas. As such, higher oil prices will eventually cause a small market in natural gas driving to take off. The alternative here is that the cars could go electric and the electrical grid could be powered on natural gas and coal. Either way you look at it, I think that the demand for natural gas is going to pick up and prices will run with the price of oil like they used to. Put oil at \$200/barrel and you could have natural gas running to \$25 and it would still be competitive and in line with historical price ratios.

The bottom line is that there are a TON of directions that we could go in. That said, we won't be heading in any of these directions until it becomes financially reasonable to do so. Also note that the total cost at this point in time of this transition would be lower if we acted proactively, but this isn't likely to happen because capitalism would rather maximize profits. People will be reactive instead of proactive. The velocity of money with higher energy prices is likely to decrease as it eats out of the average consumer's operating margins, which take out consumer spending, which hurts businesses, which lowers their present value of discounted cash flows. Yes, I'm saying that with this scenario, the markets as a whole are overvalued and that most of the money out there is blissfully unaware of this harsh near-term reality when they make their financial projections.

25 March 2010

Washington considers a decline of world oil production as of 2011

The U.S. Department of Energy admits that “a chance exists that we may experience a decline” of world liquid fuels production between 2011 and 2015 “if the investment is not there”, according to an exclusive interview with Glen Sweetnam, main official expert on oil market in the Obama administration.



Source: EIA, AEO2009

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Current projects are expected to add more than enough capacity to meet demand growth and counter declines at existing fields through to 2010. But many more projects will need to be sanctioned (mostly within the next two years) to bridge the gap between the total gross capacity

addition of 30 mb/d needed by 2015 and the actual projected addition of 23 mb/d from current projects. If actual

capacity additions fall short, spare production capacity would diminish and oil prices would undoubtedly rise.

2004: An internal Saudi Aramco plan, the experts said, estimates total production capacity in 2011 at 10.15 million barrels a day, about the current capacity. But to meet expected world demand, the United States Department of Energy's research arm says Saudi Arabia will need to produce 13.6 million barrels a day by 2010 and 19.5 million barrels a day by 2020.

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But some experts are skeptical. Edward O. Price Jr., a former top Saudi Aramco and Chevron executive and a leading United States government adviser, says he believes that Saudi Arabia can pump up to 12 million barrels a day "for a few years." But "the world should not expect more from the Saudis," he said. He expects global oil markets to be in short supply by 2015.

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Edward O. Price Jr., a former top Saudi Aramco and Chevron executive and a leading United States government adviser, says he believes that Saudi Arabia can pump up to 12 million barrels a day 'for a few years.' But 'the world should not expect more from the Saudis,' he said. He expects global oil markets to be in short supply by 2015.' ... oil field development requires years of planning and work.... Sadad al-Husseini, Saudi Aramco's second-ranking executive and its leading geologist, warned at an oil conference in Jakarta in 2002 that global 'natural declines in existing capacity are real and must be replaced'....The average decline rate in Saudi Aramco's mature fields — Ghawar and a few others — 'is in the range of 8 percent per year,' without additional remediation, according to the company's statement..... The I.E.A. warned in November that huge investments would be needed to offset the decline rates in mature Middle Eastern oil fields — it put the average at 5 percent — and the increasing costs of oil and gas production. The agency, based in Paris, forecasts that Saudi production will need to reach 20 million barrels a day by 2020.

2005: Sadad al Husseini, Saudi Aramco's former head of exploration and production, wrote 2005 fall that world oil production would peak and plateau by 2015, at between 90 to 95 million barrels a day.

October 2009:Sadad: Saudi Arabia has a very credible and professional record in terms of declaring capacity and meeting its production targets. When the Kingdom announced a target of 12.5 million barrels of capacity, they actually committed funds to develop that capacity and we've seen them now commissioning those...So that's where the challenge is. I don't think the problem is Saudi Arabia. I think the problem is the rest of the world.

There is a push-back to the notion that there is a plateau in world oil supplies which is largely based on lack of information or lack of research. In fact, if you look at published information—for example, British Petroleum's annual statistical report—it very clearly shows that from 2003 forward, oil production has hardly increased. So the information is there. If you look at some of the advertising that Chevron has been putting out for years now, they clearly say we're half-way through the world's reserves. The information is there. The facts are there. Oil prices did not jump four-fold over a three- or four-year period for any reason other than a shortage of supply. Yes, there may have been some recent volatility in 2008, but the price trend started climbing way back in 2002-2003. So, these are realities and the push-back is a sense that somehow the market is not able to deal with these realities, that somehow people can't cope with these realities.

The second part of Simmons's argument concerns exploration for new sources of oil in Saudi Arabia. Contrary to conventional wisdom, which assumes that Saudi Arabia is a vast expanse of desert that has only been lightly explored, Simmons presents considerable evidence to indicate that, in fact, almost every square mile has been mapped with the most sophisticated available modern tools--but with little return. In recent years, only one major field has been discovered outside the Eastern Province (home to all other major Saudi oil fields), and its performance has been problematic. The possibility of finding major new fields outside the Eastern Province looks considerably less promising today than it did a couple of decades ago.

Professor Kjell Aleklett, the Swedish-based president of the Association for the Study of Peak Oil and Gas, is in agreement with his Australian counterpart.

"The fact is that we are producing less oil now than we did in 2008, so just now we have 2008 as the peak year for peak oil," he said.

Pragmatist:

"Peak oil did happen I believe in 2008 and it didn't happen because some oil exporting country had a revolution or something. It just happened because we couldn't produce enough to meet the demand," he said.

Professor Newman largely blames the global financial crisis on oil prices.

"Subprime mortgages were mostly out on the urban fringes miles away from work. People had to drive and when the price of fuel tripled in American cities they couldn't pay their mortgages," he said.

As the global economy has strengthened in recent months so has the oil price, and Professor Newman says it does not bode well for recovery.

"As the demand increases again the supply crunch will happen and the price will go up," he said.

Misleading debunked notions:

Take for example the issue of petroleum resources: all respected petroleum engineers, geologists and upstream professional organizations believe that the world has enough petroleum resources to easily meet demand for at least the next 30 years. (THE EIA

ADMITTABELY DOESN'T KNOW WHERE THE ADDITIONAL OIL IS COMING FROM, BP SAYS SHORTAGES START 2010, GLEN SAYS BY 2012)

"We don't see us as the ones making sure the oil is there for the rest of the world," one senior executive said in an interview. A Saudi Aramco official cautioned that even the attempt to get up to 12 million barrels a day would "wreak havoc within a decade," by causing damage to the oil fields.

In an unusual public statement, Sadad al-Husseini, Saudi Aramco's second-ranking executive and its leading geologist, warned at an oil conference in Jakarta in 2002 that global "natural declines in existing capacity are real and must be replaced."

Contending IEA PROJECTIONS: But current and former Saudi Aramco executives question those expectations, contending that the goal of 500,000 barrels a day for Qatif is unrealistic and that development costs are higher than anticipated.

2008: Saudi Arabia's King Abdullah said he had ordered some new oil discoveries left untapped to preserve oil wealth in the world's top exporter for future generations...

"When there were some new finds, I told them, 'no, leave it in the ground, with grace from god, our children need it'," King Abdullah said...

Saudi production capacity stands at around 11.3 million bpd, and is scheduled to rise to 12.5 million bpd next year.

28 January 2010 13:25 GMT "The concern about peak oil is behind us," Reuters quoted Falih telling a session on energy supplies at the World Economic Forum in Davos. Saudi Arabia has a long list of projects in its portfolio that would more than offset declines, he said.

"Analysts forecast that liquids demand in the Middle East will rise between 50% and 70% by 2030, and project that total energy demand in the Middle East will nearly double over the same period," Al Falih said.

Aramco in October last year said capital expenditure for the five years between 2007 and 2012 will reach \$90 billion. The higher figure for the 2009-14 period is likely to be due to the addition of new projects and escalating project cost.

2007 According to al-Huseini the technical floor – the basic cost of producing oil excluding factors such as geopolitical risk and hedge fund speculation – is currently about \$70 per barrel, meaning the minimum oil price could hit \$106 in 2010 and \$130 by 2012. Actual

crude prices, including financial market factors, could be as much as \$125 by as early as 2010.

Al-Huseini said that Saudi Arabia's plans to raise production capacity to 12 million barrels per day by 2012 represented "an achievable number", as the country had announced oil investments of \$55 billion between 2003 and 2011. But he cautioned that since some of the new production will come from entirely new fields "how the reservoirs will respond will be determined as they start producing".

However, al-Huseini disparaged Western expectations that the Kingdom would produce significantly more than 12 mb/d. It was unfair, he said, to expect Saudi to "pull everybody's chestnuts out of the fire".

Oil continues to underpin the modern economy, and underground resources of oil are plentiful, Mr. Al-Falih said. **There is a danger, however, that the industry isn't making the necessary investments to prevent supply bottlenecks in future years.** Fossil fuels will still satisfy 80 percent of global energy 20 years from now, and even though the percentage share of fossil fuels in the overall energy mix may decline, the absolute level of fossil fuel consumption will continue to grow as a result of population growth and rising living standards.

2010 Al Falih said that Aramco is "comfortable" maintaining a cushion of 4 million barrels a day of spare capacity for the foreseeable future even if global demand cranks up.

"This issue of peak oil has been pushed behind," he said. "There are plenty of resources out there."

The Closer APRIL 27 2010 Saudi Arabia global oil exports to wane post-2010

Saudi Arabia's long-standing status as a swing producer of crude oil could be drawing to a close according to the head of national oil company Saudi Aramco.

Global oil exports from Saudi Arabia, the world's largest oil producer alongside Russia, will start to wane in the coming years as domestic demand surges and spare capacity drops, warned Khalid al-Falih, chief executive officer of Saudi Aramco in a speech published on the company's website.

Domestic energy demand is expected to increase by almost 250%, from about 3.4 million barrels per day (b/d) in 2009 to about 8.3 million b/d by 2028, which will eventually affect the country's ability to export oil, he said. VTB Capital says that, although Saudi Arabia knows it is running out of oil, Saudi Aramco is already part of one of the most "remarkable" developments of 2009, after admitting it has started exploration in the Red Sea and not the Persian Gulf.

"Saudi Arabia is running out of oil and Ghawar field will exhaust itself in the end," says Kryuchenkov. "It has been producing oil since 1948, which is unprecedented for any field and still accounts for around 55–60% of exports. The decline will accelerate from here and I think these are more immediate concerns than its consumption growing. As a

rule of thumb in the oil industry, Saudi Arabia is seen as the following: a 5% decline in production and a 2% rise in consumption is approximately 15% decline in net oil exports. However, this is not the case just yet."

2010: Mr. Al-Falih made the analogy that the world's energy should be managed in the same way that nutritionists recommend that human energy be managed—with a balanced diet, drawing on a complete range of energy sources. In this regard he recommends a "progressive and pragmatic attitude toward energy issues," recognizing the hurdles to alternative energy development; wise and timely investments in both traditional and alternative energy sources, avoiding excessive taxation and cross-subsidies; and addressing environmental issues, making oil "cleaner and greener."

Constraints to rapid ramp up are as follows:

Availability of people and equipment

Shortages of skilled labour and equipment have already contributed to the surge in upstream costs and project delays in recent years, and may continue to place a physical constraint on the rate at which the upstream industry is able to invest in and develop reserves. Labour shortages could be the biggest obstacle, given the long lead-times in recruiting and training suitable staff. The upstream labour force has contracted since the 1990s as a result of reduced recruitment and lay-offs, partly due to a cost-cutting drive, and — more recently — to a surge in retirements as the average age of oil company employees has risen. In the United States, the average oil-company employee is approaching 50 years old and more than half of all employees are due to retire within the next decade (NPC, 2007a). At the same time, staffing needs for new projects will rise. For example, the 160 offshore rigs currently being built will need to be staffed by about 30 000 people, though some will come from rigs that will be retired.

Labour shortages are currently most acute among the most specialised workers, such as design engineers, who take longest to train. This has led to a widening of the gap between the demand and supply for mid-career technical staff (NPC, 2007b): in North America and Europe, the shortfall is expected to exceed 15% of demand by 2012 (Figure 13.19). Recent studies by Schlumberger Business Consulting predict a severe shortage of university graduates in petroleum-related disciplines in North America,

The question is whether that increase in capacity will be big enough to meet rising demand. The upstream industry is inherently cyclical, as each period of scarcity in oil-services capacity has been followed by a period of over-supply. It is likely that the industry will enter at least one period of over-capacity of labour and equipment, such as in the 1980s and 1990s, at some point over the projection period; but when that will occur and how long it will last are difficult to predict. Many in the industry believe that labour and equipment shortages will persist well into the next decade, even if the rate of cost inflation tempers in the near future. The credit crunch, which has reportedly led to the cancellation of some orders to build new rigs, may exacerbate such shortages.

2009 **Sadad:** I've been tracking the number of projects, globally, for a long time both in the Middle East and elsewhere—Russia, Brazil, west coast of Africa, and others. A lot of this information is in the public domain, so there is no mystery there. The International Energy Agency recently reported on the same numbers. The bottom line is that there are not enough projects. There is not enough

new capacity coming on line, within say the next five to six years, to make up for global declines. And that's assuming a very moderate level of declines—6% to 6.5% for non-OPEC, perhaps a 3.5% to 4% decline rate for OPEC.

2010

[5/5/2010 10:49:17 PM] Glen Bradford: 2015 <http://www.energybulletin.net/node/9498>

[5/5/2010 10:50:19 PM] Glen Bradford: same guy comes out 2 years later
<http://www.davidstrahan.com/blog/?p=67>

[5/5/2010 10:50:31 PM] Glen Bradford: and last year :
<http://www.aspousa.org/index.php/2009/09/interview-with-sadad-al-husseini/>

[5/5/2010 10:51:39 PM] Glen Bradford: the VERY recent heads up from aramco: dont expect much more of an increase in exports from us <http://www.risk.net/energy-risk/news/1602907/saudi-arabia-global-oil-exports-wane-post-2010>

[5/5/2010 10:53:33 PM] Glen Bradford: might be a repeat

[5/5/2010 10:53:33 PM] Glen Bradford: <http://www.energybulletin.net/node/50364>

[5/5/2010 10:54:27 PM] Glen Bradford: <http://www.davidstrahan.com/blog/?p=67> basically shows that aramco has hit peak; no way they're going to do 20, much past 12 is a stretch

[5/5/2010 10:55:53 PM] Glen Bradford: place where you can do the aramco math
<http://www.lebanonwire.com/0403/04030109DS.asp>

[5/5/2010 10:57:33 PM] Glen Bradford: anyway

[5/5/2010 10:57:54 PM] Glen Bradford: need to look into marcellus shale gas, make a powerpoint for aramco peak oil, because when that happens, it's global peak

[5/5/2010 11:00:41 PM] Glen Bradford: i think we are on the undulating plateau
<http://petrole.blog.lemonde.fr/2010/03/25/washington-considers-a-decline-of-world-oil-production-as-of-2011/>

[5/5/2010 11:02:00 PM] Glen Bradford:
<http://www.eia.doe.gov/conference/2009/session3/Sweetnam.pdf> check out slide 8 and note: DoE is expecting a decline of the total of all known sources of liquid fuels supplies after 2011. The DoE predicts that the decline of identified sources of supply will be steady and sharp : - 2 percent a year, from 87 million barrels per day (Mbpd) in 2011 to just 80 Mbpd in 2015. At that time, the world demand for oil and other liquid fuels should have climbed up to 90 Mbpd, according to the presentation document.

[5/5/2010 11:02:06 PM] Glen Bradford: book, price spike.

[5/5/2010 11:07:38 PM] Glen Bradford: still hunting for that 2008 quote that says "we are giving you all we've got" <http://blogs.wsj.com/environmentalcapital/2008/04/22/peak-oil-saudis-squeeze-the-stone-even-harder/tab/article/>

[5/5/2010 11:08:00 PM] Omar: thats a really good quote

[5/5/2010 11:08:03 PM] Omar: if you can find it

[5/5/2010 11:08:10 PM] Glen Bradford: that last one i sent you is really god.

[5/5/2010 11:16:09 PM] Glen Bradford: boom here you go, the sealer
<http://www.marketwatch.com/story/saudi-aramco-to-spend-129-billion-from-2009-to-2014>

[5/5/2010 11:16:36 PM] Glen Bradford: looks to me like costs are going up, which suggests that there aren't any more giant sweet crude wells that they know of

[5/5/2010 11:16:43 PM] Glen Bradford: combine that with attrition rates

[5/5/2010 11:17:06 PM] Glen Bradford: and the high capital expenditures to squeeze the additional capacity out of aramco

[5/5/2010 11:17:27 PM] Glen Bradford: and then note that they can't bring anything else significant online after that

[5/5/2010 11:17:29 PM] Glen Bradford: lol

[5/5/2010 11:24:34 PM] *** Call to Omar, duration 16:30. ***

[5/5/2010 11:27:36 PM] Omar: yo

[5/5/2010 11:27:40 PM] Glen Bradford:
[http://www.eia.doe.gov/oiaf/archive/aeo09/pdf/0383\(2009\).pdf](http://www.eia.doe.gov/oiaf/archive/aeo09/pdf/0383(2009).pdf)

[5/5/2010 11:28:44 PM] Glen Bradford:
http://investorshub.advfn.com/boards/read_msg.aspx?message_id=49676369

[5/5/2010 11:29:06 PM] Glen Bradford:
<http://www.worldenergyoutlook.org/docs/weo2008/WEO2008.pdf>

[5/5/2010 11:30:54 PM] Glen Bradford: <http://www.lebanonwire.com/0403/04030109DS.asp>

[5/5/2010 11:41:04 PM] *** Call ended ***

[12:08:41 AM] Glen Bradford: Edward O. Price Jr., a former top Saudi Aramco and Chevron executive and a leading United States government adviser, says he believes that Saudi Arabia can pump up to 12 million barrels a day 'for a few years.' But 'the world should not expect more from the Saudis,' he said. He expects global oil markets to be in short supply by 2015.'...

[12:08:42 AM] Glen Bradford: boom

[12:10:44 AM] Glen Bradford: "We don't see us as the ones making sure the oil is there for the rest of the world," one senior executive said in an interview. A Saudi Aramco official cautioned that even the attempt to get up to 12 million barrels a day would "wreak havoc within a decade," by causing damage to the oil fields.

[12:10:44 AM] Omar: i never realized how much money these countries make from oil

[12:10:50 AM] Glen Bradford: read that last one.

[12:11:18 AM] Glen Bradford: Dr. al-Husseini, one Western oil expert said, has been "the brains of Saudi Aramco's exploration and production."

[12:11:19 AM] Omar: 12 mil a day @ \$80 is almost a billion dollars a day

[12:11:23 AM] Glen Bradford: lol yeah

[12:11:37 AM] Omar: a billion dollars!!!!

[12:11:43 AM] Omar: in just one day

[12:11:44 AM] Glen Bradford: look, i'm just saying.

[12:11:47 AM] Glen Bradford: peak oil is NOW

[12:11:57 AM] Glen Bradford: it's in the cards.

[12:12:05 AM] Glen Bradford: unless there is a pyramid scheme

[12:12:11 AM] Glen Bradford: and i'm a lunatic

[12:12:25 AM] Glen Bradford: unless there is a conspiracy theory that has been digesting for over 40 years

[12:12:35 AM] Omar: how can you cause damage to an oil field?

[12:12:48 AM] Glen Bradford: you get oil out of ghawar, the biggest oil field out there

[12:13:00 AM] Glen Bradford: by pumping 7 million barrels a day of water into it

[12:13:06 AM] Glen Bradford: this rate of water into has been increasing

[12:13:19 AM] Glen Bradford: basically, it's peaked.

[12:13:33 AM] Glen Bradford: if you try to pump more than what is long term reasonable

[12:13:36 AM] Glen Bradford: you can exhaust it fast

[12:13:40 AM] Glen Bradford: it is like in starcraft

2000 trillion cubic feet of natural gas roughly 400 billion barrels of oil 8000 trillion cubic feet in north america, 2000 of which are recoverable

so 5 cubic feet of natural gas is roughly 1 barrel of oil in terms of energy

\$3.88 per million British thermal units (natural gas)

1 Barrel = 42 U.S. gallons = 5800000 Btu = 5.8M Btu

\$80/Barrel translates to \$13.79 per million British thermal units (oil)

natural gas is cheaper by a factor of 3.55 at current prices

supporting figures

OKLAHOMA CITY - As gasoline prices soar, vehicles powered by natural gas are capturing more attention, especially among those operating heavy vehicles.

Compressed natural gas, or CNG, has an average-per-gallon equivalent price that's one third that of gasoline, Richard Kolodziej, president of Natural Gas Vehicles for America, said at a tradeshow here on alternative energy vehicles. And CNG is much cheaper in some areas — like Oklahoma, where it's about 91 cents a gallon equivalent — he said.

91 cents in march 2008

NGI's Daily Gas price index <http://intelligencepress.com>; wti price reuters news service 5.9 MMbtu per barrel of oil

natural gas prices historically back 70 years <http://www.oilenergy.com/1gnymex.htm#year>

natural gas 5 years <http://gsfi.net/common/NYMEXSettlementHistory.pdf>

natural gas vs. oil <http://tonto.eia.doe.gov/oog/info/ngw/ngupdate.asp>

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January 17, 2006.

Alpha Oumar Konare,
African Union

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"The era of cheap oil is over."

Era of cheap oil is over.

Reuters. 02/04/2006

Viktor Khristenko,
Russian Energy

Minister

"... the era of cheap hydrocarbons is over".

Hope, C. RUSSIA: 'ERA

OF CHEAP FUEL IS

OVER'. The Telegraph.

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Guy Caruso,
Administrator.

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"The era of low cost oil is probably over."

Holmes, J. Four Corners

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Peak Oil Quotes

Statements by key individuals

2010

Chris Barton, Department of Energy and Climate Change (DECC), February 2010 - "We don't have a firm view on what the future holds for oil supply and demand but we do recognise the risks" [View reference](#)

Thierry Desmarest, Chairman of the Board at Total SA, January 28th, 2010 - "The problem of peak oil remains. We have always been relatively prudent in our assessment of a peak oil date in Total between, I would say, the International Energy Agency which was extremely optimistic a few years ago - a bit less today - and some so called experts who were announcing that the peak oil has already taken place. In our opinion it will be very difficult to raise the oil production above 95 million barrels/day, which is something like 10% above today's level - so its not enormous. Its not that we lack reserves, there are plenty of oil to produced but a lot of it is difficult to be produced. Huge

resources like the Athabasca oil sands for instance - when you look to the newsflow of the last 2 or 3 years you have just seen a lot of postponements of projects, not that much because of lack of profitability of projects but also with environmental concerns, as an example among others. So I think we must keep in mind that in a few years from now the market may be in a relatively difficult position in, the energy security concerning oil (because I think for gas we have certainly more time), will be a big problem."

2009

Andrew Sentance, member of the Bank of England's Monetary Policy Committee, September 2009 - "On the energy front, I can see substantial upside risks to prices over the coming recovery as demand picks up across the global economy and Asia plays a leading role in the growth of the world economy. Against the background of supply constraints, this creates the potential for continuing price volatility. I do not see supply developments and environmental policy moves changing the energy price environment which became established in the mid-2000s until much later in the next decade." [View reference](#)

Iain Reid, Head of European Oil and Gas research at Macquarie Bank, September 2009 - "This is our view – capacity has pretty much peaked in the sense that declines equal new resources," [View reference](#)

Christophe de Margerie, CEO of Total, September 2009 - "We are running the risk of another oil crisis when demand outstrips supply around 2014 or 2015. There won't be enough oil and gas by the middle of the next decade." [View reference](#)

Fatih Birol, Chief Economist of the International Energy Agency, August 2009 - "Many governments now are more and more aware that at least the day of cheap and easy oil is over... [however] I'm not very optimistic about governments being aware of the difficulties we may face in the oil supply," [View reference](#)

Vince Cable, Lib Dem Shadow Chancellor of the Exchequer, June 2009 - "Long-term thinking is difficult in the current political crisis, when most politicians are obsessed by tomorrow's headlines,...but our future as a country depends much more on our ability to plan ahead for the next oil shock and the post-oil world." [View reference](#)

Andris Piebalgs, EU Energy Commissioner, May 2009 "The current relatively low oil prices give a respite to prepare for the coming new oil crisis. We have to reduce our dependency in all those areas in which black gold is not indispensable... And in all sectors, we have to accelerate our efficiency being aware that every barrel of oil that we are using is one of the last." [View reference](#)

Christophe de Margerie , CEO Total, February 2009 The world will never be able to produce more than 89m barrels a day of oil, the head of Europe's third-largest energy group has warned, citing high costs in areas such as Canada and political restrictions in countries such as Iran and Iraq. Christophe de Margerie, chief executive of Total, the French oil and gas company, said he had revised his forecast for 2015 oil production downward by at least 4m barrels a day because of the current economic crisis and the collapse in oil prices. [View reference](#)

2008

Katsuaki Watanabe, President, Toyota– June 2008 "Our view is that oil production will peak in the near future. We need to develop power train(s) for alternative energy sources." [View reference](#)

T. Boone Pickens, Chair BP Capital Management hedge fund – 17th June 2008 "I do believe we have peaked out at 85 million barrels a day globally," [View reference](#)

Shokri Ghanem – head of Libya's National Oil Corporation, 8th June 2008 "The easy, cheap oil is over. Peak oil is looming" [View reference](#)

Jeroen van de Veer – CEO of Shell, 22nd January 2008 "Shell estimates that after 2015 supplies of easy-to-access oil and gas will no longer keep up with demand." [View reference](#)

Rick Wagoner - ex GM Chairman and Chief Exec, at the Detroit Motor Show, 13th January, 2008 "There is no doubt demand for oil is outpacing supply at a rapid pace, and has been for some time now,...As a business necessity and an obligation to society we need to develop alternative sources of propulsion." [View reference](#)

Dave O'Reilly - Chevron, 15th February 2008, "We're seeing the beginnings of a bidding war for Middle Eastern oil between east and west," [View reference](#)

Fatih Birol - IEA, writing in The Independent 2nd March 2008 – "We are on the brink of a new energy order. Over the next few decades, our reserves of oil will start to run out and it is imperative that governments in both producing and consuming nations prepare now for that time. We should not cling to crude down to the last drop – we should leave oil before it leaves us. That means new approaches must be found soon..... The really important thing is that even though we are not yet running out of oil, we are running out of time." [View reference](#)

George W. Bush, March 5th 2008 "We gotta get off oil, American has got to change its habits,".. "It should be obvious to all, demand has outstripped supply, which makes prices go up." [View reference](#)

James W. Buckee -Retired President and CEO of Talisman Energy Inc., 29th January 2008. "If you think that at the moment the world is consuming 30-plus billion barrels a year of oil and is finding seven or eight billion barrels a year, and this state of affairs has been going on now for 20 or more years. "It's obviously unsustainable and the world is increasingly drawing on the bigger, older fields. You couple that notion with the irreversibility of decline and you've got a very alarming picture." [View reference](#)

Jeremy Leggett and Shell - Advertisement appeared in Time Europe Edition, one of the CNN Principal Voices series, 31st March 2008 "A premature topping point in global oil production would wipe out economic plans currently on offer in boardrooms and finance ministries around the world. This is because such plans assume growing supplies of affordable oil for several decades to come." [View reference](#)

2007

Sadad al-Huseini - former head of exploration and production at Saudi Aramco, 31st October, 2007 "The evidence is that in spite of the increases - very large increases - in oil prices over the last four years, we haven't been able to match that with increasing capacity. So, essentially, we are on a plateau." [View reference](#)

Christophe de Margerie - CEO Total, 30/31st October 2007. "100m barrels per day is now in my view an optimistic case..." [View reference](#)

Fatih Birol - IEA, interviewed in Le Monde, June 2007 "From now to 2015, the market and the oil industry will be severely tested. In the next five to ten years, oil production from non-OPEC producers will reach a peak before starting to decline, for lack of sufficient reserves. As each day passes, new evidence of this fact appears. At the same time the peak of the economic expansion phase of China will take place. The two events will coincide: the explosion of the growth of the Chinese demand, and

the fall in production of non-OPEC oil. Will our oil system be it able to answer this challenge, that is the question." "If production does not increase in Iraq in an exponential way between now and 2015, we have a very big problem, even if Saudi Arabia meets its obligations. The figures are very simple, you do not need to be an expert. It is enough to know how to do a subtraction. China will grow very quickly, India also, and even Saudi Arabia projections of the 3 Mb/day will not be enough to meet the rise of Chinese demand." [View reference](#)

Lord Oxburgh- former CEO of Shell, September 2007 "...you've got three main variables: rising world demand, and it's a bit hard to predict exactly how fast that is going to rise; how much oil is going to be available; and how fast substitutes for oil come to market (synthetic fuels can be made in quite a number of ways). But all of that said I don't think this is going to happen in the next five years, and I would be surprised if the difficulties ahead had not really emerged within the next twenty."

"The message in short is that we are just about to enter hot water, quite serious hot water. And the danger is that we sit there blissfully like the frog in the pan of water gently heating on the stove until – as the Irish would say – it wakes up to find itself dead. In other words we may be sleepwalking into a problem which is actually going to be very serious and that it may be too late to do anything about it by the time we are fully aware." [View reference](#)

2005

Dr. James Schlesinger - former US Energy Secretary, 16th November 2005 "In the longer run, unless we take serious steps to prepare for the day that we can no longer increase production of conventional oil, we are faced with the possibility of a major economic shock—and the political unrest that would ensue." [View reference](#)

Dave O'Reilly - CEO, Chevron in their Real Issues Ad, 12th July 2005 "Energy will be one of the defining issues of this century. One thing is clear: the era of easy oil is over. What we all do next will determine How well we meet the energy needs of the entire world in this century and beyond." "It took us 125 years to use the first trillion barrels of oil. We'll use the next trillion in 30." [View reference](#)

References from the press

2008

The Independent Lead Article, 28th April 2008 "In the broader context, this crisis must be seen as part of the global energy squeeze. It has been clear for some time that global demand for oil has been outstripping supply. That is what is pushing up prices around the world. That a relatively minor industrial dispute such as this can have such a knock-on effect demonstrates how dependent Britain is on a relatively small number of supply outlets. The Grangemouth dispute will eventually, no doubt, be settled, but the chronic crisis of our economy's total reliance on environmentally damaging and dwindling oil supplies will continue." [View original article](#)

Financial Times Lead Article, 17th April 2008 "Preparing for the age of peak oil - Russia's vast oil and gas reserves were seen not so long ago as the best hope of meeting growing world energy demand. No more. This week a top Russian oil executive echoed earlier official warnings that oil production could fall for the first time in a decade." [View original article](#)

2007

Independent, 17th September 2007 "Oil Industry 'Sleepwalking into crisis' - Former Shell chairman says that diminishing resources could push price of crude to \$150 a barrel" [View original article](#)

CNNMoney.com – 7th August 2007 "Why oil won't hit \$100 - New production, new energy sources and some conservation could push down prices by 2010 - but don't expect \$20 a barrel anytime soon." [View original article](#)

William Rees Mogg, The Times, 16th July 2007 "Oil ruled the 20th century; the shortage of oil will rule the 21st. There is now no doubt about the rising trend of oil prices." [View original article](#)

Financial Times, 10th July 2007 "World will face oil crunch in five years – IEA says supply falling faster than expected." [View original article](#)

But in 1979, the Saudis kicked out the U.S. experts.

Overnight, they claimed to have another 50 billion barrels. Nearly a decade later, they were claiming to have over *260 billion* barrels of oil overall.

In 1986, OPEC made a new rule for its members: You could only sell as much oil as you held in total reserves. In other words, the bigger your reserves, the more money you were allowed to make.

Almost every OPEC country "upgraded" its reserves overnight.

Here's the thing: Those countries made the overnight "upgrades" in their reserves **WITHOUT** a single new oil well discovery being made... and **WITHOUT** a single new rig being built!

by [Claire Ferris-Lay](#) on Thursday, 28 February 2008

SKY HIGH: \$100 per barrel is cheap, according to an industry expert.

Oil prices could top \$300 per barrel within the next five years, according to one industry expert.

Matthew Simmons, chairman and founder of specialised energy investment banking firm, Simmons & Company International, said the current highs of \$100 per barrel are "cheap".

"I think the supply is showing some very troubling signs that we might well have already peaked and started [to slow] down. If we haven't, we are very close to it," he told *Arabian Business*

He noted that in the UK's capital, London, where typically the price per gallon can reach as much as \$9, it hasn't deterred motorists from continuing to use their cars.

"[That price] doesn't seem to have slowed anyone down. It works out as much as \$378 a barrel. Yes [I can see it reaching that high]," he said.

According to a series of oil depletion reports and articles published in the course of 2004, 300 billion + barrels of OPEC oil reserves seem to be missing out of a world total of 1147 bn barrels (BP's Statistical Review of World Energy 2004). There is mounting evidence that **some OPEC countries are reporting total oil reserves ever discovered, including past production, instead of remaining reserves.**

Therefore, BP's quoted future reserves contain oil already consumed. If this turns out to be the case, the world is facing an oil crisis the consequences of which we have not understood yet.