
"The Lessons of the Shale Gas Revolution," The Wall Street Journal, Lucian Pugliaresi, September 30, 2011

"In response to a 2009 request from Secretary of Energy Steven Chu, the National Petroleum Council (NPC) reported earlier this month that oil production in North America could double by 2035 - to 20 million barrels per day. Where did all this oil come from? For one, the hydraulic fracturing (fracking) technique used in shale gas production is now being used to extract oil... Those proponents of 'peak oil' who claim the NPC report is unrealistic need only revisit our recent history with shale gas. Natural gas production has surged by more than 25% in the last four years. Yet just a few years ago, government reports and long hours of expert testimony on Capitol Hill outlined the need for the U.S. to take action to address a growing shortage of natural gas.

A crash program was called for to build receiving facilities to import foreign liquefied natural gas (LNG). Many receiving facilities were built at a cost of billions of dollars... Today these facilities are operating at less than 10% capacity... The good news is that unlike the bankrupt Solyndra solar plant that received over $500 million in federal loans, losses at the LNG receiving facilities will not be picked up by the taxpayers."

"Exxon Unveils Big Finds in Gulf", Angel Gonzalez, The Wall Street Journal, June 9, 2011

"With a trio of big oil and gas finds, Exxon Mobil Corp. is making its first major splash in the U.S. Gulf of Mexico in decades... the company on Wednesday unveiled three discoveries that are likely to turn it into one of the biggest producers of oil and gas in the region... Two of the finds, of natural gas at the Hadrian South prospect and oil at the Hadrian North prospect, had been made in 2009 and 2010 respectively, but the company waited until a nearby third discovery was made this month to announce that the finds contain a combined 700 million barrels of oil equivalent."

"Shrinking Oil Supplies Put Trans Alaska Pipeline at Risk", The Wall Street Journal, June 11, 2011

"[D]windling oil production along Alaska's northern edge means the [Trans Alaska Pipeline] carries less than one-third the volume it once did - and the crude takes five times as long to get to its destination...

Oil was first discovered at the northern edge of Alaska in 1968, when the Prudhoe Bay State No. 1 well drilled through a section of oil-bearing sands the depth of a 50-story building. The well's owners, Atlantic Richfield and Humble Oil, now parts of BP PLC and

Exxon Mobil Corp., respectively, had found a giant. It turned out to be the largest oil field ever discovered in the U.S. and one of the largest in the world. But all that crude was underneath frozen tundra, 250 miles north of the Arctic Circle.

The oil was worthless unless it could be taken to global market. That required an engineering marvel: the first pipeline to operate in Arctic conditions, an 800-mile long tube from the oil fields to the port of Valdez. [But] declining pressure and falling oil production are the norm for oil fields, and the North Slope is no exception. Today, the amount of oil being pumped [through the pipeline] is dropping by about 6% a year. The lower the volume of oil flowing through the pipe, the slower it moves... the slow flow means the crude spends more time above ground in the cold Alaskan winters; the average January temperature is -10 Fahrenheit at one point in the route...[I]f the current trend continues, the winter temperature of crude in the pipeline could drop to 32 degrees by 2013 and ice crystals will begin to form inside it, putting it at higher risk of a rupture.

The problems facing the pipeline were made very clear in January, when a leak on the North Slope forced two back-to-back winter shutdowns for a total of 148 hours. Temperatures inside the pipeline dropped by almost two degrees a day. Much longer, says E.G. 'Betsy' Haines, Alyeska's oil movement director, and was in the crude would have begun congealing, potentially turning TAPS [the Trans Alaska Pipeline] into the world's largest tube of ChapStick...

John Miller, a former chairman of Alyeska, who is now a consultant in Anchorage, says unless more oil is added, 'costs are going to go up incredibly.'"

"Pause for Thought", Antonio Guerrero, Global Finance, May 2011

"Recent popular uprisings in North Africa and beyond may be causing China to slow its headlong rush into the continent. Over the past decade, China has become a key source of investment, aid and trade for Africa... Bilateral trade between Africa and China has been growing by an annual average of more than 30% of late, hitting a record $127 billion in 2010 as China seeks access to Africa's raw materials and Africa delves deep into China's deep pockets, particularly to fill the continent's infrastructure void. But recent uprisings throughout North Africa could be giving Beijing pause...

"China is the largest destination for African oil exports, and its share has been steadily growing," [says Bhaskar Chakravoti, senior associate dean for international business and finance, and executive director of the Center for Emerging Market Enterprises at The Fletcher School of Tufts university]. "The recent turmoil only deepens China's interest and strategic position on the continent. As oil prices rise in the short term and there is uncertainty about the future, China's strategy of investing in infrastructure in exchange for oil is [proving] a sound one. Politically, the U.S. and its European allies have much to lose, while China is on the sidelines and can continue to play, however the dust settles in North Africa."

"A New Opening in Russia's Oil Fields", Stanley Reed and Stephen Bierman, Bloomberg Business Week, March 28 - April 3, 2011

"After the fall of the Soviet Union, Russia rebuilt oil production from about 6.2 million barrels per day in 1999 to over 10 million barrels per day in 2011. Many industry players and analysts say it now risks hitting a wall. Russia has mostly relied on oil fields discovered or developed in Soviet times. Production at once-rich fields, mostly in West Siberia and the Urals, account for close to 90% of Russian output, according to Russian investment bank Troika Dialog.

In those regions, production fell about 1.1% last year. The 2.2% overall boost chalked up by Russia was largely a result of Rosneft's new Vankor field in the Siberian Arctic - a growth spurt unlikely to be repeated in 2011... Russia must move into far riskier zones such as the Arctic and the deepwater in the Black Sea and the Far East. That will require alliances with oil majors to obtain technology and spread the risk. Yet in the last few years Russia threw a scare into outside investors by forcing Royal Dutch Shell to cede control of its Sakhalin II project to Gazprom and by selling much of Mikhail Khodorovsky's Yukos to Rosneft."

Bloomberg BusinessWeek, March 7 - 13, 2011, "Why Saudi Hope Still Floats", Peter Coy

"The Saudi kingdom, as big as the U.S. east of the Mississippi River, is ringed by revolts in Bahrain, Yemen, and Oman. It is undemocratic, in-egalitarian, and economically sluggish. It has high youth unemployment (30% in 2009) and a disgruntled Shiite population in its oil-rich Eastern Province. Investors are getting nervous. On Mar. 2, the benchmark Tadawul All Share Index went down for the 13th day, falling nearly 4%, to its lowest close since April 2009...

Entrepreneurship isn't exactly blooming on the peninsula, so the king is placating the populace the old-fashioned way, with money. On his Feb. 23 return to the kingdom, he ladled out some $35 billion in Saudi-style stimulus, including pay raises for government workers and freedom for some imprisoned debtors. Indirectly the funding will come from the government's single biggest revenue source: royalties and dividends from Saudi Aramco... Owned by a venture of four American oil companies until its nationalization in 1973-80, Saudi Aramco is now 88% Saudi by head count...

The demands on Saudi Aramco keep growing. Maintaining production, let alone increasing it, is getting more expensive as its big fields age. It must sell energy at below-market rates to encourage industrial development... This is hardly an imminent crisis. The regional upheaval is boosting the kingdom's revenue by raising oil prices. In a pinch the kingdom can draw on its gold and foreign-currency reserves - $450 billion worth, fourth in the world

behind China, Japan, and Russia, according to the CIA World Factbook.

In the long run though, there's a risk that Saudi Aramco's payout of royalties and dividends to the kingdom could fall short of what's required to buy the loyalty of the king's subjects... Whether Saudi Aramco can keep the oil flowing matters not only to King Abdullah but to the world, because the company is the only one with substantial spare production capacity that can be put to use in an emergency.

Aramco claims it can produce 12.5 billion barrels of oil per day, vs. current output of 9 million... Saudi Arabia's ability to calm global markets in periods of high stress gives the kingdom important political influence. If Saudi Aramco's spare capacity shrinks, oil prices will become even more volatile."

The Wall Street Journal, January 4, 2011, "China's Big Oil Goes Shopping"

"Energy consultancy Wood Mackenzie says diesel, gasoline and gasoil demand in China is rising about 8% annually. China's appetite for oil won't peak until 2025, according to UBS. To meet that demand, China's biggest energy companies have gone on a buying spree. Last year was a record year for China's oil and gas acquisitions, with $24.3 billion of deals, up from $17.1 billion in 2009, according to data provider Dealogic.

The largest Chinese deal, state-owned China Petrochemical's acquisition of a 40% stake in Repsol's Brazilian oil assets for $7.1 billion, signaled China's expanding profile in Latin America, where it bought more assets than any other nation last year. It also showed the Chinese were willing to pay more than the market expected."

The Wall Street Journal, January 3, 2011, "OPEC's Passive Aggressive Oil-Price Problem"

"OPEC, which produces about 40% of the world's oil and natural-gas liquids, hasn't changed its effective production quotas since January 2009. This passiveness has helped persuade several Wall Street banks to raise their estimates for oil prices in 2011. Goldman Sachs, for example, predicts $100 a barrel on average, on a par with 2008 and 25% above 2010. Yet if OPEC has learned anything from the experience of 2007 and 2008, it will act to moderate such exuberance, rather than stoke it...

[In response to the 2007-08 spikes] the U.S. is making efforts to structurally reduce demand, such as pushing more strongly for electric vehicles. Despite a recovery in demand this year, Americans are set to burn about 400,000 barrels a day less than they did in 2008 and 1.7 million barrels less than in 2005, when their appetite peaked. Hence OPEC's interest in not capping spies, but repeating 2010's trick of keeping prices stable. It won't be easy...

Still, OPEC at least has more power to smooth supply and demand. Its spare capacity has almost tripled since 2008 to about six million barrels a day."

The Wall Street Journal, Op-Ed, July 26, 2010, "Survival of the Fattest"

"The best refutation of the theory of the survival of the fittest is probably the corn ethanol lobby, whose annual $6 billion in federal subsidies have managed to outlive both its record of failure and all evidence and argument. So while we doubt another devastating study will result in any natural selection, recent findings from the Congressional Budget Office deserve more attention all the same...

[CBO] estimates that cutting carbon emissions by one metric ton via ethanol runs to $754. To put that number in perspective, the budget gnomes estimate that the price for a ton of carbon under the cap-and-tax program that the House passed last summer would be about $26 in 2019...

CBO is also honest enough to mention that in reality $754 may be purchasing a net carbon emissions increase. "Because the production of ethanol draws so much energy from coal and natural gas," the authors write, "it can be thought of as a method for converting natural gas or coal to a liquid fuel that can be used for transportation." Meanwhile, the assumptions of their model also exclude indirect land-use changes toward energy-intensive crops that also tend to boost overall CO2."

The Wall Street Journal, June 1, 2010, "China's Thirst for Oil Could Come Up Short"

"Oil bulls place enormous faith in the Chinese dragon. But don't forget the inkfish. 'Inkfish' are smoke-spewing, single-cylinder engine contraptions driven by many poorer Chinese. They symbolize why China's vehicle market - now the world's largest - mightn't necessarily be a source of rapidly growing oil consumption ad infinitum...

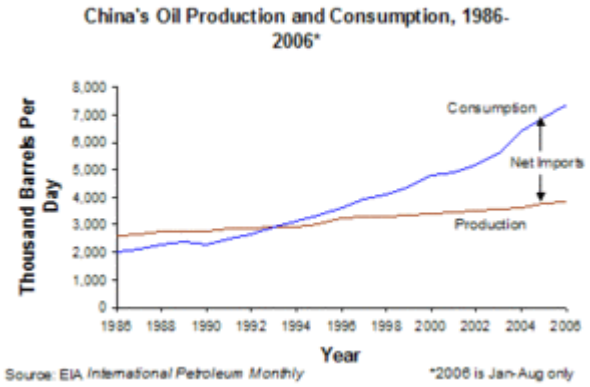
This year, China is expected to consumer 11% of global oil production, says the International Energy Agency. However, it has accounted for 45% of the growth in global oil demand over the past decade. As China's vast population grows richer, so the thinking goes, so will its appetite for more of everything... Yet, as Deutsche Bank's Paul Sankey points out, Chinese passenger-vehicle sales surged 77% year on year in the first quarter [but] apparent gasoline demand rose by just 3%. Why the disconnect? Jack Perkowski, founder of Chinese auto-parts maker Asimco Technologies and now head of advisory firm JFP Holdings, points to underlying changes in the Chinese vehicle market.

About 50 million engines are manufactured in China every year, Mr. Perkowski says. So while 13.6 million cars, trucks and buses were sold in China last year, another 36 million or

so other, low-technology vehicles were sold, including those inkfish. A big reason for the apparent surge in sales, therefore, is the switch from nonconventional vehicles to conventional vehicles... This helps explain the disconnect between Chinese vehicle and oil markets... [Also] even with rising incomes, price is the big factor in Chinese car-buying decisions. Smaller cars, perfectly suited for the urban environment in the richer coastal cities, are cheaper than big ones.

In addition, never forget the role of the government. Beijing has little strategic interest in emulating America's addiction to foreign oil. Accordingly, it has pushed consumers toward smaller engines via tax breaks... In June, the government is expected to unveil subsidies for alternative-fuel cars like plug-in hybrids, worth perhaps a third of the sticker price... Beijing knows its domestic car makers have a better chance of leapfrogging Western rivals in the development of new electric-car technology than in long-established combustion engines.

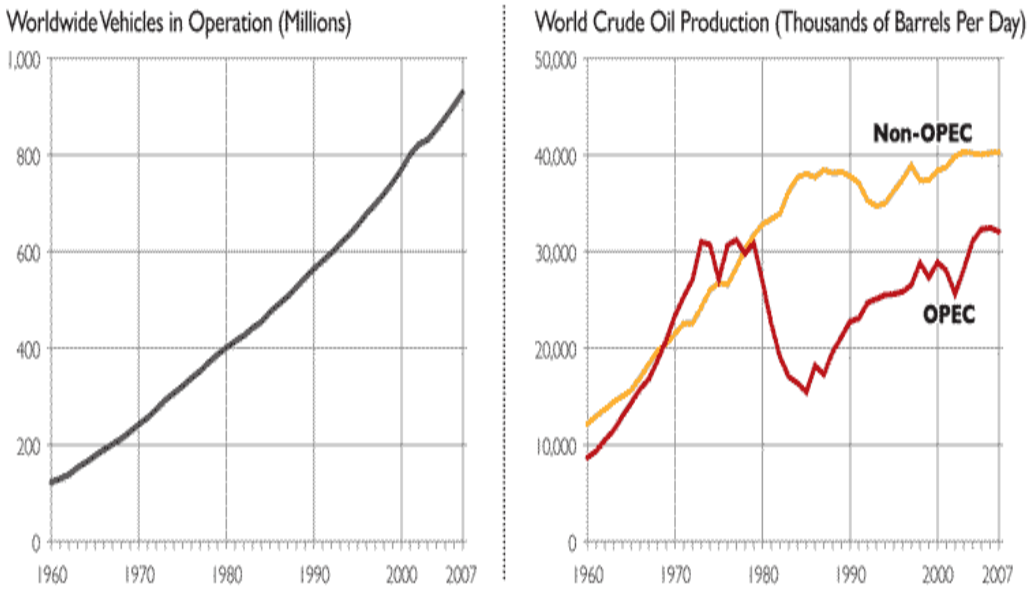
The upshot is that China's thirst for oil mightn't grow as rapidly as many expect. Mr. Sankey sees oil demand there starting to flatten out at between 13 million and 14 million barrels of oil per day by 2025. That is more than this year's 9.1 million bpd, but implies an annual growth rate over the next 15 years of just 2.6%."



The Wall Street Journal, April 29, 2010, "Cruising Into China's Booming Car Market"

"Foreign car makers have been piling into China for more than a decade, building billion-dollar plants and creating new models to feed demand from China's fast-growing consumer class. Those bets paid off lately, as sales of passenger cars and other light vehicles grew nearly 50% in China last year, vaulting it past the U.S. as the world's biggest market... Despite the exploding sales, China's 1.3 billion-person population still has a low rate of car ownership: there are currently about 35 cars per 1,000 people in China, compared to 100 in Brazil and 439 in the U.S., according to U.S. consulting firm Alix Partners. Most experts believe auto sales in China still have the potential to double over the next five years."

Vehicle Growth has Outpaced Crude Oil Production

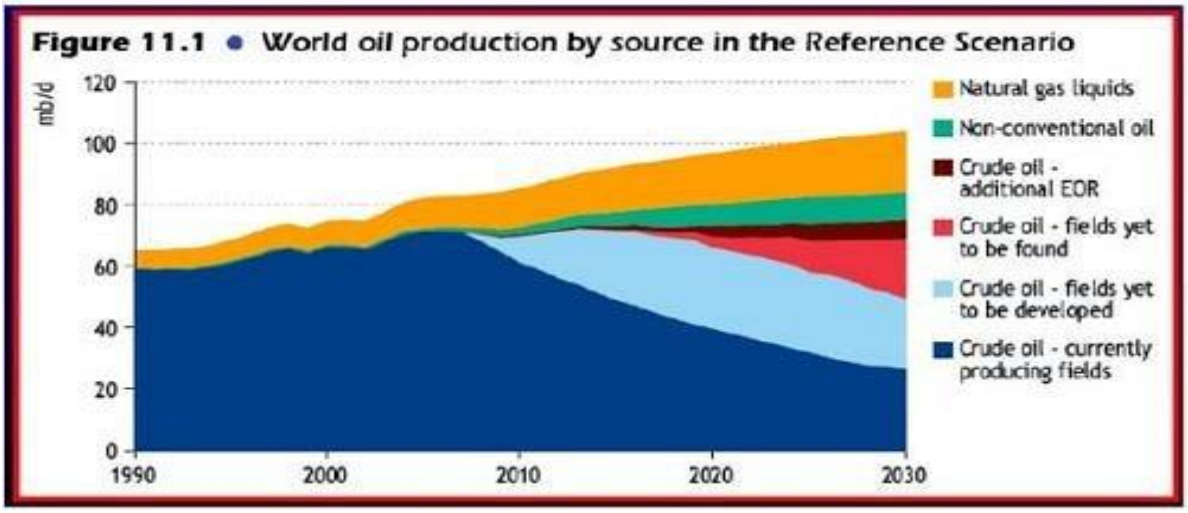


Sources: Crude oil production, Summary Tables and Basic Indicators, T14, "World Crude Oil Production by Region, 1960–2007," at *http://www.OPEC.org/library/Annual%20Statistical%20Bulletin/interactive/FileZ/Main.htm* (November 1, 2008); Joyce Dargay, Dermot Gately, and Martin Sommer, "Vehicle Ownership and Income Growth, Worldwide: 1960-2030," p. 5, at *http://www.econ.nyu.edu/dept/courses/gately/DGS_Vehicle%20Ownership_2007.pdf* (November 5, 2008).

Chart 3 • B 2216 heritage.org

Global Finance, April 2010, "Oil Wealth Keeps Economic Stimulus Flowing"

"The Middle East rode out the global recession better than the major industrialized economies, and the region is well positioned to benefit from the global recovery... After stagnating at less than 1% growth in 2009, real GDP growth in the six nations of the Gulf Cooperation Council is expected to rebound to 5% in 2010... The GCC's $1 trillion economy is on a par with that of India, and it will double to $2 trillion by 2020, says Kamal Ahmend, chief operating officer of Bahrain's Economic Development Board... The GCC's fast-growing population of 39 million, with half below the age of 20, means there is a need to create jobs, says Ahmed."



Business Week, January 21, 2010, "Red Star Over Iraq"

Rumaila oil field, reserves: 16 billion barrels. BP 38%, CNPC 37%, South Oil 25%. Target production: 2.85 mbd

Halfaya oil field, reserves: 4 billion barrels. CNPC 50%, Total 25%, Petronas 25%. Target production: 0.54 mbd

Ahdab oil field, reserves: 1 billion barrels. CNPC 100%. Target production: 0.10 mbd

"China has moved fast. In a little over a year, CNPC, China's mail oil producer with revenues of more than $188 billion and a 1.5 million-worker payroll, has won large stakes in three Iraqi oil fields... In two of the ventures, China is the controlling partner. Over two decades or so, CNPC may spend some $20 billion on the fields, the most of any oil company in Iraq since Saddam Hussein fell.

China's oil imports by region:

Total imports - 3.6 million barrels per day

Middle East imports - 1.8 million barrels per day

Africa imports - 1.1 million barrels per day

Asia-Pacific imports - 0.1 million barrels per day

Other sources - 0.6 million barrels per day"

Global Finance, December 2009, "Emerging Markets Roundup: Middle East"

"A joint venture of ExxonMobil and Royal Dutch Shell has clinched a $50 billion deal to develop one of Iraq's biggest oil fields, the West Qurna reservoir near Basra. ExxonMobil controls 80% of the venture and is the first US-based company to win a contract since Iraq's oil industry was nationalized almost 40 years ago."

The New York Times, Oct. 30, 2009, "Oil Giants Profits Reflect Decline in Energy Prices"

"Today, few petroleum executives imagine returning to a world where oil trades at $20 a barrel, the average throughout the 1990s. In fact, a level of $65 to $75 a barrel is increasingly viewed as a new minimum for the industry. If prices settle below that range, many oil executives say they will find it difficult to expand production or invest in new exploration projects… More than 3.5 million barrels a day of new capacity must be added each year to offset the normal decline of old fields around the world. Some of that can be done by stimulating existing fields to pump more oil; some by investing in new capacity in already-discovered reserves, such as in Saudi Arabia; and some through well-head exploration."

The Deal, "Privatization, no", Oct. 19 – Nov. 1, 2009

"Mexico's state-owned oil company is overtaxed, bloated with debt and facing massive production declines. It has a new chief and new regulations that will open it up to more opportunities with private oil companies. It's not likely to be enough...

For a striking example of what's ailing Mexico's government-owned oil company, Petroleos Mexicanos, look no
further than the Cantarell oil field in the Gulf of Mexico. At one time the second largest oil field in the world, contributing more than 60% of Mexico's crude oil production as recently as 2005, the field is dying, having produced less and less oil for several years, with a fall off of as much as 25% this past year from 2007 levels. This year, it's expected to produce 7% less [declining] to an average of 700,000 barrels per day, and sometime between now and 2017 the figure may sink to 400,000 barrels a day, despite efforts to optimize the field…

Cantarell is old, and Pemex has nothing with which to replace it. The national oil company has been taxed so heavily to support the Mexican government – it provides 40% of the federal budget – that it has had little capital to invest in new fields…

The government seems to recognize that. Pemex increased its capital spending to $19.4 billion in 2008; in 2009 it will probably spend a similar amount. By contrast, it spent $13.9 billion in 2007…

Last fall, the government approved laws giving cash incentives to companies helping Pemex pump out more oil. (The contracting guidelines are expected in November and the incentive formulas early next year.)

In addition, the changes provided greater scrutiny of Pemex through the nascent National Hydrocarbons Commission, but also gave it greater autonomy to negotiate its own contracts, set its budget and keep oil revenues for internal investment…

But the laws fell short of allowing companies to buy equity stakes in any of the fields or take any oil in return for compensation, which would be against Article 27of the Mexican Constitution that states that the oil belongs to the people of Mexico. It has also kept Pemex's other operations, such as refining, closed to foreign investment or ownership…

Analysts think allowing production-sharing contracts would have accelerated Pemex's investment in the deepwater Gulf of Mexico, which holds Mexico's best prospects for future reserves and production growth. 'The interface between Pemex and the international oil industry is somewhat improved by the reform package, but there is nothing specifically that will help Pemex or Mexico move into a serious program of deepwater exploration and development,' says George Baker, an expert on Mexican oil issues with Houston energy consulting firm Energia.

Moody's more or less agrees. 'While we see little chance for significant private investment in the Mexican oil sector anytime soon, the recent energy reform indicates reinvestment and production prospects for Pemex could start to improve,' it said…

[B]y 2004, [Mexican] production had peaked at [3.85] million barrels per day, according to U.S. Energy Information Administration figures. After that, it began its rapid decline [to 3.185 million barrels a day in 2008]."

The New York Times, "Dueling Demands in Iraq Hinder Bid for Oil Investors", Oct. 14,2009

"Having failed to attract the swarm of foreign investors it hoped for in a first round of oil field auctions in June, Iraq is heading into a second round in December that could fail for many of the same reasons, political and industry analysts said, potentially setting Iraq's oil industry back by years in its quest for new investment, expertise and technology.

In addition to the politically delicate issue of guarding the nation's oil wealth, Iraq's drive to attract foreign investment continues to be hampered, these analysts say, by the lack of a hydrocarbons law to regulate the oil sector, unchecked corruption in the Oil Ministry, crumbling infrastructure and concern among private oil companies that the contract terms for the fields offered by Iraq will lead to slim returns…

Oil revenues, which pay for more than 90% of Iraq's expenses, are down sharply from last year because of flat production and lower international prices…

The 10 undeveloped fields up for bid in December contain an estimated 41 billion barrels of oil, worth about $3 trillion at today's prices, according to the U.S. Department of Energy. But there are growing concerns that international oil companies may be losing interest in Iraq…

Oil companies have cooled in their excitement about Iraq, which was described as a last frontier after the American-led invasion in 2003. They have been diverted in part by the discovery of significant reserves, totaling around 10 billion barrels, in the rest of the world during the first six months of 2009.

The problems in Iraq's petroleum sector are illuminated perhaps most vividly in data related to the country's oil output, which has stalled at about 2.5 million barrels a day and has yet to match prewar levels. In 2002, the country produced about 2.8 million barrels a day… Though Iraq possesses the world's largest proven oil reserves, it is only the 13th largest producer, according to the Department of Energy… Only about 17 of the country's 80 known fields are in production, and there has been little new drilling outside the country's semiautonomous Kurdistan region for years."

The New York Times, "A Push for Payments if Oil Exports drop", Oct. 14, 2009

"Saudi Arabia is trying to enlist other oil-producing countries to support a provocative idea: if wealthy countries reduce their oil consumption to combat global warming, they should pay compensation to oil producers…
This Saudi position has emerged periodically as a source of dispute since the earliest global climate talks, in Rio de Janiero in 1992. It is surfacing again as Saudi Arabia tries to build a coalition of producers to extract concessions in Copenhagen…

Last year, when prices peaked, the [Saudi] kingdom's oil revenue swelled by 37%, to $281 billion, according to Jadwa Investment, a Saudi bank. That was more than four times the 2002 level…

Saudi exports are expected to drop to $115 billion this year, after oil prices fell…The one-year swing in the kingdom's revenues shows that oil prices are likely to be a bigger factor in Saudi Arabia's future than any restrictions on greenhouse gases, said David G. Victor, an energy expert at the University of California, San Diego…

A recent study by the International Energy Agency, which advises industrialized nations, found that the cumulative revenue of Organization of the Petroleum Exporting Countries would drop by 16% from 2008 to 2030 if the world agreed to slash emissions.

But with oil projected to average $100 a barrel, the energy agency estimated that OPEC

members would still earn $23 trillion over that period."

China Daily, "Putin in China to Secure Gas Pact", Oct. 12, 2009

"Russia, which this year sealed Chinese oil contracts valued at $100 billion, is now negotiating an agreement that would makes its neighbor Gazprom's biggest customer for natural gas. China currently buys no Russian gas.
The two countries are deepening ties based on mutual economic gain. Bilateral trade totaled a record $56 billion in 2008, a six-fold increase in six years, according to Russia's Federal Customs Service…

China and Russia, the world's third- and ninth-largest economies respectively, hold two of the five permanent seats on the United Nations Security Council as well as membership in the nascent BRIC group that includes India and Brazil…

Russia agreed in February to supply China with oil for 20 years in return for a $25 billion credit to state oil company Rosneft and the government's oil pipeline monopoly, Transneft. The total value of oil accords signed with Chinese companies this year amounts to about $100 billion, the Russian government said…

Transneft plans to finish the first segment of its East Siberia-Pacific Ocean pipeline this year, enabling Russia to begin sending the fuel directly to China… Russia [is] currently making fuel deliveries by rail and through a pipeline that passes through Kazakhstan.

Gazprom, which aims to become a global energy company… plans to build two gas pipelines to China that might one day deliver as much as 80 billion cubic meters annually, or more than half its current European exports."

Business Week, September 28, 2009, "The Oil Crisis Slamming Mexico", Geri Smith

"State-owned Petroleos Mexicanos, or Pemex, contributes some 40% of the national budget. Problem is, output at its main offshore field is plummeting. Last year, Mexico produced some 2.6 million barrels of oil daily, down 30% from its 2004 peak; now, it's 2.5 million a day, and without major new discoveries, Mexico's reserves will last for just nine more years."

Business Week, September 14, 2009, "Black Gold Bonanza"

"A gusher of news flowed from the Western Hemisphere's oil patch this week. On Sept. 2, BP trumpeted a 'giant' strike in the Gulf of Mexico. While the company said it's too early to

state how much oil the field holds, analysts estimated it could boost BP's reserves by 7% to 10%.

Two days earlier, Brazilian President Luiz Inacio Lula da Silva proposed new policies - to be voted on by the legislature - that would govern development of a deepwater field thought to hold 8 billion to 12 billion barrels."

Business Week, September 14, 2009, "BP Keeps Rolling the Dice"

"A vast new strike in the Gulf of Mexico is the latest sign in a high-risk, high-reward strategy... On Sept. 2, BP announced that it had made a 'giant oil discovery' in the Gulf. BP's chief of exploration, Michael Daly, terms the Tiber find 'very significant' and says it is even 'better' than the Kaskida field, another huge BP property in the Gulf of Mexico, with an estimated 4 billion to 6 billion barrels of oil in place.

Tiber and Kaskida will take years to develop, and BP runs the risk of cost overruns, another crash in the price of oil, and unforeseen, expensive challenges in extracting all that crude. But when a field produces, the payoff can last for years. BP's star gulf property, a massive oil and gas field about 140 miles southeast of New Orleans called Thunder Horse, is already raking in cash for the company and for its minority partner in the project, Exxon Mobil. The size of a sports stadium, the Thunder Horse platform is tethered to the ocean bottom by huge chains in 6,000 feet of water and is one of the biggest in the world... The company and its suppliers had to devise dozens of new components and materials for the platform, such as valves and coatings to withstand the searing temperatures and intense pressures on wells that must go through four miles of seabed...

Now, the property is finally ramping up to its 300,000 barrels per day target, making it the No. 2 producer in the U.S. after Alaska's Prudhoe Bay. The oil from this gulf field is among the most profitable in BP's portfolio...

[Oppenheimer] figures that at a price of $60 per barrel, BP will earn pretax profits in the mid-$20s per barrel from Thunder Horse, perhaps four times what it earns in high-tax Russia.

Deepwater exploration has added about 1.2 million barrels per day to total U.S. output, arrested a long decline in American production, and decreased U.S. dependence on imported energy. The gulf is 'one of the few bright spots in global oil production,' says Bob MacKnight, an analyst at consultants PFC Energy in Washington. BP now reckons an additional 22 billion to 40 billion barrels are to be found there.

Exploration wells in the deepwater Gulf of Mexico take months to drill and cost up to $200 million. With an overall exploration budget of $600 million to $1 billion per year, BP goes to great lengths to make sure it is taking the right risks. BP's success rate on the 15 to 25 exploration wells it drills per year: about 60%."

Business Week, September 7, 2009, "The Rise of Dirty Oil"

"On Aug. 20 the U.S. State Dept. approved a pipeline from the tar sands of Alberta to Superior, Wis. While the pipeline could deliver a relatively insignificant 800,000 barrels of oil a day to the U.S., its impact on the industry could be much larger. Oil's rally back to $70 a barrel makes the expensive extraction and refinement process for the kind of petroleum in tar sands, called bitumen, worth it.

But processing bitumen produces more greenhouse gases than other kinds of oil. The State Dept.'s approval signals that it will put energy security over concerns about greenhouse gas emissions, says T. Rowe Price analyst Tim Parker. That could benefit engineering and construction companies such as Amec and Fluor, which are working on ExxonMobil's Kearl oil sands project in Alberta. Suncor Energy, a Canadian producer whose business is 70% tar sands, also could profit. Even after a 60% rally, the stock, at 32.08, is "reasonably priced," Parker says."

EnergyBiz Insider, August 26, 2009, "Oil Alternatives"

"If folks thought this recession has been a doozy, they may want to consider the one that could hit in a decade as the demand for oil permanently exceeds production...

The International Energy Agency says in a report that the 800 biggest fields around the world, that comprise three-quarters of all reserves, have already hit peak. Moreover, the pace of the decline in production is about twice that of what it was in 2007. That means the so-called peak oil theory (whereby global oil demand meets declining production) is ten years away...

The IEA puts production declines at about 6.7% a year, compared to 3.7% in 2007. If production stabilizes at the current point (instead of continuing to decline) the world would need four more Saudi Arabias to meet global oil demand in 2020.

2020 oil prices are forecast at $220 a barrel, with $5 a gallon gas.

Others argue that at those high prices, Canada's tar sands, and very deep oil, become profitable and would offset some of the increase in prices.

The US Department of Energy puts peak oil at 2037, Cambridge Energy Research Associates [Daniel Yergin's firm] predicts no peak, but an "undulating plateau" where economics and regulation shift demand and supply over time."

Energy Central, Energy Pulse, August 17, 2009, "Oil: A Final Note on Speculation vs. Fundamentals"

"Oil price increases in 2008 were different from earlier oil shocks... In the past, political events changed oil supplies and that drove increases.

But, things were different in 2008. There was still a large amount of oil in easily exploitable deposits, but its owners had no intention of producing it given prices and price expectations.

This was the period when the billionaire investor T. Boone Pickens [and others] predicted that oil was on its way to $200/barrel, and [they] might have been correct if the macroeconomic financial market meltdown had not commenced.

This was the period in which speculation increased - but speculators obtain their clues from fundamentals (e.g. demand, reserves, OPEC policies), [thus] what weight speculators exert on the price is mostly due to fundamentals... the point is that the price rise originated on fundamentals in which demand threatened to outrun supply, and to which speculators reacted."

Business Week, August 10, 2009, "Will Iraq Be An Oil Power Again?"

Iraq's estimated oil reserves: 300 billion barrels
Saudi Arabia's estimated oil reserves: 264 billion barrels

"Iraq's long term [production] target is 6 million barrels per day, which would put it second only to Saudi Arabia in OPEC.

Iraq's proven reserves now stand at 115 billion barrels, compared with 264 billion for the Saudis. A more prolific Iraq, although years off, may rewrite the global oil equation... the oil-supply shortage, predicted by many analysts to arrive in the next 20 years, would shrink. Of course, massive obstacles stand in the way of Iraq realizing its oil potential. Its record since Saddam Hussein's ouster in 2003 is understandably less than stellar.
Oil Minister Hussein Al-Shahristani was determined to be hard-nosed and transparent. He [has] succeeded, but left unanswered the question of how Iraq is going to obtain investment and technology... [His] tough terms [on contracts with oil and gas producers] explain why seven fields failed to find takers at auction [on June 30, 2009].
The Iraqis set fee-per-barrel maximums that were so low; oil companies didn't think they could make acceptable returns... The Iraqis made clear they wouldn't pay more than $2 per barrel for any increase in production that BP [the winning bidder] achieved. BP had bid $3.99... BP's deal is a service contract, and the $2 it gets for every extra barrel it can extract above current levels can't be called generous.

In an indication of how stiff the terms are, Wood Mackenzie [an energy consulting firm]

estimates that the BP consortium's fees will amount to just 1% of the estimated $1.2 trillion in total revenues from the project. Wood Mackenzie figures the value of the deal to the consortium will be $3 billion: "This is quite modest for a field which should produce 16 billion barrels at least." But BP points out that what it agreed to in the Rumaila deal is not so different from what's on offer elsewhere in the Middle East. For instance, in Abu Dhabi, BP is paid $1 per barrel."

Energy Biz Insider, August 2, 5009, "The Color of Oil"

"Even though the Obama administration is aggressively pushing for greater fuel diversity, the oil industry is sticking closely to its core competencies and in some cases, reducing its investment in wind and solar power.

According to David O'Reilly, CEO of Chevron, "even if the use of renewable sources doubles or triples over the next 24 years, we will still depend on fossil fuels for more than 80% of global energy demand."

The US Department of Energy projects global oil demand will rise for today's 85 million barrels a day, to 118 million a day by 2030.

Big Oil spends about 5 percent of their capital budget on exploration (searching for new oil). Historically, they have allocated "a tiny fraction" of that to renewable energy - and today, they are cutting back even further:

- Shell Oil is selling off wind and solar projects,
- BP is cutting back on renewable investment,
- According to the American Council on Renewable Energy of the $50 billion invested in renewables since 1995, about $5 billion has been from oil companies...

Contrast this to their other investment decisions:

- ExxonMobil has invested about $30 billion developing new gas and oil resources, since 2003.
- ExxonMobil spent over $30 billion last year buying back shares,
- ExxonMobil is investing in a $600 million partnership to develop algae-based biofuels.

The renewable industry today provides over 116,000 jobs and has over $19 billion invested in the US. The US wind industry expanded by 45% in 2007, and contributed about 30% of new power generating capacity last year."

Business Week, June 22, 2009, "Behind Oil's Surprising Surge"

"[M]arkets are reverting to last year's worries about future supply shortages... Some $3.8 billion has flowed into oil and gas exchange traded funds this year, vs. $1.4billion in the first half of 2008...

OPEC leaders such as Saudi Oil Minister Ali Naimi have been effective at convincing the market that the Goldilocks oil price should be $75 to $85 per barrel. They argue that it's the right level to give the oil industry an incentive to invest in projects while not strangling a potential economic recovery. That price "is very attractive, like a magnet," says Roger Diwan, head of the hedge fund practice at consultant PFC Energy in Washington....

Worries about the falling dollar and rising inflation are also a driving force. Commodities, like oil... are seen as good hedges against a possible collapse of the greenback under the weight of mushrooming U.S. debt... rising oil prices and a falling dollar [feed] off each other, pushing both to extremes...

Amrita Sen, a Barclays Capital analyst, thinks the ceiling is about $100 per barrel. At that point, Saudi Arabia, Kuwait and the United Arab Emirates 'will quickly turn the taps back on,' she says.

"[S]ome OPEC officials believe a price closer to $50 is realistic in today's economic climate. The current price is 'all based on perception', said a senior delegate at the recent OPEC meeting in Vienna."

The New York Times, March 18, 2009,"Obama Tries to Draw Up an Inclusive Energy Plan"

"For the moment, the offshore [drilling] debate has been eclipsed by the economic crisis and the sharp falloff oil prices. Gasoline now sells for less than $2 a gallon on average, and oil has fallen about 70% from its summer peak. But the magnitude of the nation's energy challenge is not growing smaller. While the US is the world's top oil consumer, its output has been falling since 1971. Oil imports now make up more than 60% of the nation's daily consumption of 19 million barrels..

Yet for more than 30 years…about 85% of the nation's casts [have been] off limits [to drilling]…

American waters in parts of the Gulf of Mexico where drilling is allowed have been the biggest source of growth in domestic oil production….[a]s a result, estimated reserves in the Gulf of Mexico have grown sevenfold in the last 30 years. The Interior Department estimates that undiscovered oil reserves total 86 billion barrels, four times the nation's official proven reserves. The bulk of that potential oil, nearly 68 billion barrels, is in areas that are already accessible to drilling in the Gulf of Mexico and Alaska."

Business Week, October 27, 2008, "A Power Shift in the World of Oil"

"[T]his year's rankings in Platt's Top 250 Global Energy Companies…highlight the declining power of US and European heavyweights...

Russia, not represented among the top 10 companies on last year's list, now holds two slots. State-controlled Rosneft has moved up to No. 6, from No. 16 last year; while natural gas behemoth Gazprom is No. 10, up from No. 17, (Private Lukoil has advanced to No. 11).

Rankings & annual profits:

- ExxonMobil (US) $40,610,000,000
- RoyalDutch Shell (UK) $31,331,000,000
- Total (France) $19,158,000,000
- Chevron (US) $18,668,000,000
- BP (UK) $20,845,000,000
- Rosneft (Russia) $12,862,000,000
- ENI (Italy) $14,551,000,000
- Statoil Hydro (Norway) $8,082,000,000
- Petrochina (China) $19,864,000,000
- Gazprom (Russia) $24,815,000,000

Business Week, "Pipeline Wars", September 1, 2008

"The sudden war in the Caucasus brought Georgia to heel, reasserted Russia's claim as the dominant force in the region, and dealt a blow to US prestige. But in this part of the world, diplomacy and war are about oil and gas as much as they are about hegemony and the tragic loss of human life...

Victory in Georgia now gives Russia the edge in the struggle over access to the Caspian [Sea's] 35 billion barrels of oil and trillions of cubic feet of gas. The probable losers: the US and those Western oil companies that have bet heavily on the Caspian as one of the few regions where they could still operate with relative freedom....

'[A]fter the mauling Georgia got,' any chance of a new non-Russian pipeline out of Central Asia and into Europe is pretty much dead', says Chris Ruppel, an energy analyst at Execution, a brokerage in Greenwich, Conn...

Without pipelines of their own, the Caspian States [Azerbaijan, Iran] would never fully develop their energy industries, or be politically independent of Russia… Georgia was a key transit point for any line to the west [Georgia lies between Azerbaijan and Turkey]."

[PW NOTE: The result of the Georgian war is that there remains only one pipeline between the Caspian and the west, the Baku-Ceyhan line, which runs 1,000 miles from the Caspian coast, across Azerbaijan, through Georgia, and to the Turkish Mediterranean port at Ceyhan. Before the war a second line was planned, running on land all the way through Georgia, Turkey, Bulgaria, Romania, and Hungary, ending in Austria with full access to the EU states.]

The New York Times, August 21, 2008, "All the Oil We Need" OP-ED by Eugene Gholz and Daryl Press

"The US alone has just more than 700 million barrels of crude oil in its Strategic Petroleum Reserve... Government stockpiles in Europe add nearly another 200 million barrels of crude and more than 200 million barrels of refined products... In Asia, American allies hold another 400 million barrels.

And China is creating a reserve that should reach more than 100 million barrels by 2010.

Those figures count only government-controlled stocks. Private inventories fluctuate with market conditions, but American commercial inventories alone include well over a billion barrels. Adding up commercial and government stockpiles, the major consuming countries around the world control more than four billion barrels."

The New York Times, "As Oil Giants Lose Influence, Supply Drops", August 19, 2008

"Oil production has begun falling at all of the major Western oil companies, and they are finding it harder than ever to find new prospects even though they are awash in profits and eager to expand…

The reality, experts say, is that the oil giants that once dominated the global market have lost much of their influence – and with it, their ability to increase supplies.

'This is an industry in crisis,' said Amy Myers Jaffe, the associate director of Rice University's energy program in Houston. 'It's a crisis of leadership, a crisis of strategy and a crisis of what the future looks like for the supermajors… they are like a deer caught in the headlights. They know they have to move, but they can't decide where to go.'

The sharp retreat in all of the commodities' prices over the last month, about 20 percent, reflects slowing global growth and with it reduced demand for more oil in the short term. But over the next decade, the world will need more oil to satisfy developing Asian economies like China…

The scope of the supply problem became more clean in the latest quarter when the five

biggest publicly traded oil companies, including Exxon Mobil, said their oil output had declined by a total of 614,000 barrels a day, even as they posted $44 billion in profits. It was the steepest of five consecutive quarters of declines.

While that drop might not sound like much in a world that consumes 86 million barrels of oil each day, today's markets are so tight that the slightest shortfalls can push up prices…

Global demand for oil is expected to expand by 800,00 barrels a day, mostly because of rising demand in China and the Middle East, despite lower consumption in developing countries…

As late as the 1970s, Western corporations controlled well over half of the world's oil production. These companies – Exxon Mobil, BP, RoyalDutch Shell, Chevron, ConocoPhillips, Total of France and Eni of Italy – now produce just 13 percent. Today's 10 largest holders of petroleum reserves are state-owned companies, like Russia's Gazprom and Iran's national oil company…

'There is still a lot of oil to develop out there, which is why we don't call this geological peak oil, especially in places like Venezuela, Russia, Iran and Iraq,' said Arjun Murti, an energy analyst at Goldman Sachs. 'What we have now is geopolitical peak oil.'…

In 1994, the top five oil companies spent 3% of their free cash on share buybacks and 15% on exploration. By 2007, they were spending 34% of their free cash on buybacks – in effect, propping up their share prices – and a mere 6% on exploration, according to figures compiled by a team led by Ms. Jaffe and Ronald Soligo of Rice University…

'We are going to depend on the Venezuelan, the Nigerian or the Iranian oil companies for the future of our oil supplies,' said Bruce Bullock, the director of energy institute at Southern Methodist University. 'This is a troubling trend.'

Global Finance, July/August 2008, "Regional Report: Gulf Countries Wealth"

	2005	**2006**	**2007**	**2008 est.**	**2009 est.**	**2010 est.**
Real GDP Growth (%)	6.8	6.2	5.3	8.2	8.1	7.6
Crude Oil Production (MM bbls/day)	16.0	16.0	15.4	16.2	16.6	17.1
Dated Brent ($/bbl)	54.40	65.40	72.50	120.00	135.00	150.00

Domestic Debt, Gross (% of GDP)	26.6	19.7	14.5	10.0	8.5	7.7
Current Account Balance ($ billions)	166.7	196.7	188.3	463.4	554.3	647.5
Foreign Assets ($ billions)	1,410	1,607	1,795	2,258	2,813	3,460

Sources: Samba Financial Group estimates; International Monetary Fund; Institute of International Finance; national authorities

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Business Week, "The Real Question: Should Oil Be Cheap?", August 4, 2008

"Expensive energy, in many ways, is good. Why? When the price of oil goes up, people will use less, find substitutes, and develop new supplies. Those effects are just basic economics. Things are so painful now, many economists say, because of the past two decades of cheap oil. Prices stayed low in part because they didn't reflect the full cost of extras such as pollution, so there was little incentive to use energy more wisely. If those extras had been counted, the country would be better prepared for both today's soaring oil prices and the day that global oil production begins to decline.

That's why there is growing interest, from both the Left and right, in a policy that uses taxes to put floor under the price of oil. Above a certain level – say $90 – there would be no tax. But if the world market price dropped below that, taxes would kick in to make U.S. users pay the target amount.

Expensive energy is a powerful medicine. It may hurt when taken, but it brings long-term cures for a host of ills. It compels companies and people to put fewer miles on the car, ditch the SUV, or install more efficient heating…
Higher costs are beginning to nudge America away from its traditional traffic-congested suburban sprawl to denser, less car-dependent communities…

These changes are saving lives – fewer traffic deaths – and improving health as people get out of their cars. A study from Washington University in St. Louis suggest that 8% of the rise in obesity since the 1980s was due to low gas prices, which led to less walking and biking and more restaurant meals…

High energy prices also water the flowers of innovation, making investments in

alternatives pay off and juicing the search for more oil. Military-funded researchers have made jet fuel from plants. Toyota and General Motors are testing plug-in hybrid cars that can run 40 miles on electricity alone…

The U.S. uses just over 20 million barrels of oil per day heating homes, powering industry, and fueling cars, trucks, and planes. Energy saving initiatives 'could easily take 4 million to 5 million barrels a day of demand off the market in 10 years,' says Stanford professor Hillard G. Huffington, executive director of the Energy Modeling Forum, a group of energy experts. Such reductions, in turn, have potent virtues. They cut pollution and slash carbon dioxide emissions… they reduce the need for a military presence to ensure global commerce in oil… and they slow the flood of dollars to the Middle East, Russia, and Venezuela…You can see where this is going. Wall Street has.

With oil demand slowing and supplies heading up, prices are off more than $20 from their July 11 record of $147.27…

"What really drives behavior is not the actual price, but the perception of where costs will be over the long-term." John Carey in Business Week, August 4, 2008

BusinessWeek, "Betting on Oil's Return to Earth", July 28, 2008

"Lehman's lonely oil contrarian, Ed Morse, says the price bubble will burst before you hear Auld Lang Syne…
Not only that, he predicts a plunge to about $93 a barrel. Pretty audacious as prognostications go, at a time when Goldman Sachs foresees $200 a barrel…

Morse gives several reasons for being bearish:

- First, oil has long been cyclical.
- Second, Morse thinks China's go-for-broke industrial economy is slowing, leading to a 'radical' reduction in its oil demand after the summer.
- Third, he foresees a big buildup in oil inventories this fall and, longer term, a greater flow of crude as new deepwater drilling rigs reach equipment-starved producers in the Gulf of Mexico.
- Finally, 13 million barrels a day of new refinery capacity will be available by 2013, marking hard to process crudes more marketable…

Morse will not be dissuaded. He estimates that $90 billion of new cash has flowed into commodities through index funds since January 2006, distorting the markets. Morse figures active investors such as hedge funds will soon notice the buildup of surplus oil and suddenly go short, bursting the bubble.

And with mounting signs of recession in the U.S. and a surge in American oil supplies, the price of crude did pull back sharply in mid-July. The fall could be the start of Morse's predicted slide – or just a pause in the ascent. Either way, Morse, the provocateur, is holding his ground."

Business Week, July 7, 2008, "The Oracle of Oil Speaks"

"[T]o all of you armchair Oliver Stones, I bring the wisdom of Charles Maxwell, senior energy analyst at trading-and-research shop Weeden & Co. Having spent 11 years in the oil patch and 40 more on Wall Street, this reserved 76-year-old is the elder statesman of energy research.

Ranked nine times by Institutional Investor as the No.1 analyst in his field, the professorial Maxwell is sought out not just by fund managers but also by academics, carmakers, and Mideast sovereign wealth funds…

The good news is also the bad news: With the price of oil up 700% in seven years, Maxwell has been right… he now foresees unprecedented stress on the world economy as peak oil production arrives in or about 2015…

Maxwell presents a chart showing that in 1988, 23 billion barrels were both found and used. By 2007 those numbers had diverged to become a gap of 8 billion found to 31.5 billion used. 'We're not well-prepared at all', he says, taking off his glasses and wiping his brow. 'By God, we will have to bloody well change.'

Weaning ourselves off our dependence on cars must be a big part of cutting demand – but that too is easier said than done.

Surely though, motorists, refiners, and even Chinese bureaucrats would have to cry uncle at a certain price. 'You would think so, right?' says Maxwell. 'In the past, $40 was the breaking point, but this time we went right through it – then $80, then $120 – like a cannonball through paper.' And the economy, while weak, has not collapsed as a result.
That has set an ominous precedent: Despite all our protestations on the evening news, we are apparently able to pay even more. 'Among the poor,' says Maxwell, 'that will expose deep, raw wounds: to eat or not to eat, to heat or not.'…

[Maxwell] wants to disabuse you of the notion that $200 oil… will have Exxon Mobil in clover… Maxwell condemns the company for 'irresponsibly' advertising plentiful supplies. 'It really does [Exxon CEO] Rex Tillerson no good to keep denying that oil production will be peaking,' he says. 'Exxon's business plan is from the past 150 years.'

Business Week, "On the Ground as the Saudis Ramp Up", July 7, 2008

"[A]fter King Abdullah's June 22 confab on high energy prices in Jeddah, state-owned Saudi Aramco invited conference participants to its Khurais field in the flat red desert about 100 miles east of Riyadh. The company says the field, which is undergoing a $10 billion expansion, has some 27 billion barrels of reserves and will be able to produce 1.2 million barrels per day…

Aramco is drilling about 310 new wells here and is refurbishing 110 more…

[P]roject [M]anager Khalid Abdulqader says the project will start producing on schedule, a year from now. And with half the wells now drilled, he says, it appears the field might have even greater output than expected.

Khurais is the centerpiece of a Saudi effort to lift production capacity from the current 11 million barrels per day to 12.5 million barrels daily by the end of 2009…

Aramco pumps only about 2% of its total reserves in any given year, well below the global average."

EnergyPulse, June 24, 2008 "Oil and the bad news principle", by Ferdinand Banks

"Neither the OPEC countries nor 'Big Oil' have the ability nor intentions of producing the EXTRA tens of millions of barrels of oil that will be necessary to make the half-baked dreams of the International Energy Agency (IEA) and the United States Department of Energy (DOE) come true, by which I mean the extra tens of millions of barrels that will be required to fill the global demand-supply 'gap' in their target year of 2030. And if the major producers do not gradually work their way up to that level, then it will never be produced, and the oil price will continue to ascend unless 'demand is destroyed' by an international macroeconomic meltdown."

"[M]acroeconomic downturns which featured real growth falling and inflation rising (i.e., stagflation) immediately followed the oil price increases of 1973, 1980, 1981, and 1990, although a cheerful note was that in the macroeconomic sense recovery took a comparatively short time."

"I suggest we change [Robert Basky and Lutz Kilian's 2004 paper which alleged minimal economic damage on the US and global economy from high oil prices] to read 'increased uncertainty can lead to a sharp fall in investment that – if sufficiently sharp – can lead to or deepen a recession, and possibly help to generate a depression'.
The economics here is really very simple… Uncertainty functions in such a way as to boost discount factors, which as we all know from Economics 102 has a negative effect on physical investment because it means a large reduction in the (expected) present value of distant revenues. It is no more than common sense that investors who could accept a certain (or nearly certain) return of 8%, desire e.g. 11% when confronted with uncertainty

because they feel that something might go drastically wrong."

"What this comes down to is firms postponing investment 'as they attempt to find out whether the increase in the price of oil is transitory or permanent'… In the light of both nominal and real oil price increases over the past two years, however, many or most [oil and energy] firms are going to be much more careful, which will tend to give extra weight to expected bad news about energy prices."

"Incidentally, [then-Professor Ben] Bernanke actually said that 'of possible future outcomes, only the unfavorable ones have a bearing on the current propensity to undertake a given project.' This kind of thinking ties in with a key postulate of *real options theory*: when waiting is possible, downside risk is always the major factor."

"If governments do not believe in this (peak oil) theory, then they may fail to do what has to be done to keep an energy catastrophe at bay, where such a catastrophe can be generated merely by demand outrunning supply, without supply actually turning down. Incidentally, this is an application of (Albert) Einstein's equivalence theory."