



PEAK OIL REVIEW

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Contents

1. Oil and the Global Economy
2. The Middle East
3. Climate Change
4. Europe
5. Quote of the Week
6. The Briefs
7. Commentary

1. Oil and the Global Economy

After 9 weeks of advances which took oil prices from \$87 to \$99 a barrel in NY and \$104 to \$119 in London, prices broke on Wednesday and Thursday taking NY oil down \$4.58 a barrel and London down \$3.99. A modest bounce on Friday closed out the week with NY at \$93.13 and London at \$114.10. While much of the price drop was a reaction to previous gains, the EIA reported on Thursday that US crude inventories had gained 4.1 million barrels the week before last and were now at the highest level in more than 30 years for the time of year.

Much of the economic news affecting oil prices last week was not good. US industrial production unexpectedly fell in January and except for a small rise in German business confidence, the news from across Europe was not good for oil prices.

US gasoline prices continued to rise last week with regular now averaging \$3.78 a gallon and averaging \$4.22 in California. This is up 10 cents a gallon in the last week and 57 cents a gallon in the last month. High crude, prices, scheduled and unscheduled maintenance, and some speculation are still thought to be behind the price jump. As crude stocks are at a record high and don't seem to have much to do with high prices, some Congressmen are talking about curbs on speculation rather than the usual calls for releases from the strategic reserves.

Many analysts are saying that the \$4-5 a barrel price drop has brought prices down to about where they should be and expect oil to trade within a few dollars of the current level for a while. In the next week or two the outcome of the sequestration fight currently going on in Washington may have an impact on oil prices.

US natural gas futures climbed about 13 cents per million to close at \$3.27 on forecasts that there will be colder weather across the eastern part of the US for the first two weeks in March.

2. Middle East

Iran: Negotiators from the Big 5 + Germany are set to resume negotiations with Tehran this week over its nuclear program. The US is seeking to hold direct one-on-one talks with the Iranians at the time of the meeting but the idea has already been vetoed by Supreme Leader Khamenei. Western diplomats say significant new offers will be made to Iran at the meeting, but most observers believe that Tehran will be unable to make important decisions during the run-up to Iran's Presidential election in June.

The IAEA announced last week that Tehran is installing a new generation of centrifuges at its Natanz nuclear enrichment plant. When operational these centrifuges will allow Tehran to enrich uranium at a much faster rate. The US called the move "provocative" and Israeli Prime Minister Netanyahu said the report "proves that Tehran continues to advance towards the red line."

In the meantime, the new western sanctions seem to be slowly taking effect. The latest clampdown has stopped Tehran from receiving euro payments for its oil through Turkish banks so it is reduced to accepting payments in less than fully convertible currencies from countries like India. Reports from Tehran say the retail stores are being flooded with cheap Chinese consumer goods that have been received in payment for oil.

Tehran announced that it is planning to build 16 nuclear power stations and has found significant new deposits of uranium. While it is unlikely that the Iranians could come up with the resources to build such a large number of nuclear plants without significant outside aid, the announcement is intended to convince skeptical outsiders that the country has a legitimate need for large amounts of enriched uranium for peaceful purposes.

Iraq: It was a quieter week than usual. Somebody blew up the oil product pipeline running from Iraq's largest refinery at Baji to Nineveh in the north. Al Qaeda-Iraq took credit for the car bombings that killed 28 Shiites in Baghdad the week before last and was probably responsible for the execution of seven militiamen that had helped US forces suppress an Al Qaeda uprising several years ago.

It is becoming clear that Baghdad is not going to meet its goal of quadrupling oil output by 2017 to become the world's top producer. International oil companies are rapidly losing interest in doing business with Baghdad because of unfavorable contract terms and the corrupt Iraqi bureaucracy. Exxon, Chevron, Total, and Gazprom Neft are moving to the semi-autonomous province of Kurdistan which has plenty of oil and is willing to give more favorable terms.

Baghdad seems to be getting the message as it has already re-negotiated its contract with Lukoil of Russia for a better contract. A similar contract with BP is under negotiation. The BP deal however calls for the company to drill near Kirkuk on land which is claimed by the Kurds, who are threatening to use force to keep BP out. The Kurds say the Kirkuk area was part of the Kurdish provinces under the Ottoman Empire for 400 years until it was taken away after World War I.

With the Sunnis close to revolt; Al Qaeda blowing up Shiites and their security forces; the Kurds building the relationships and infrastructure to break away from Baghdad; and Syria, Lebanon, and possibly Jordan coming apart, the likelihood of a prosperous Iraq pumping out many millions of barrels of crude each day is becoming more remote with each passing week.

Syria: There was little change in the military situation last week. Rebel forces seem unable to make headway against heavily armed government troops who are literally fighting for their lives in the centers of Damascus and Aleppo. The government is slowly losing smaller military bases which are providing a source of arms and ammunition for the rebels. The rebels around Damascus seem to be receiving anti-tank weapons from outside sources which should be of great help fighting tanks in an urban environment. As its airpower and artillery bases dwindle, the government has turned to firing the occasional Scud-type, long-range rockets at Aleppo which are causing great damage and suffering to the civilians still living there.

Although the rebels are not yet strong enough to overrun well defended government positions, they are capable of striking heavy blows in the heart of the capital. Last week large car bombs went off in Damascus near the Baath Party headquarters, the Russian Embassy and an important intelligence facility.

The refugee situation is starting to overwhelm the region. At least a quarter of the country's 22 million people have already become refugees to escape the fighting and the growing shortages of food. Lebanon is already the host to 400,000 refugees and the fear is that as fighting in Damascus, a city of 2.5 million, intensifies, hundreds of thousands more will flood the country upsetting the precarious political balance which already exists. While the UN and numerous NGOs are attempting to provide assistance inside and outside the country, the conditions are difficult. As sanitation fails, diseases will become rampant.

Religious passions are being stoked to a level where they will threaten the stability of the region for decades.

Egypt: Unrest continues across the country. Protestors blocked the doors to Cairo's main government administration building on Sunday and have blocked the rail lines to Cairo by removing track. The general strike in Port Said entered its second week on Sunday with most shops and factories closed. The Suez Canal, which is under the control and protection of the Egyptian army, remained open to traffic although the strikes are coming close to causing disruptions. Last week workers at the canal container terminal walked out for a time, but later returned.

President Morsi has moved forward the date of the parliamentary election to 22 April amid calls by the opposition to boycott the voting. The government's opponents are concerned about what they consider an effort by the Muslim Brotherhood to obtain power indefinitely through constitutional reform. Although it may not represent the majority of voters, the Brotherhood has the best organization and is confident it can easily win the election and reform the country along conservative Islamic lines.

Relations with Hamas deteriorated as Egypt began flooding the tunnels between Egypt and Gaza which carry some 30 percent of the goods entering the Gaza strip. The flooding was in retaliation for the killing of 16 Egyptian soldiers a few weeks back which Egypt says was launched from inside Gaza via the tunnels.

Egypt's economy continues to spiral downwards. Tourism is all but gone; there is no investment; subsidized diesel fuel and fertilizer are in short supply; and now there are growing problems with the wheat imports needed to sustain the country's 88 million people. The \$4.8 billion IMF loan which could unlock \$12 billion in funding from other sources remains on hold until after the election.

The country's wheat consumption has grown by 39 percent in the last ten years and tens of millions are dependent on government-subsidized bread. Without this subsidy the country would soon collapse into chaos adding to the burden on international relief agencies already stretched thin by the Syrian civil war. The Egyptian government currently spends about \$2.5 billion to supply 80 billion loaves of bread a year – or a daily average of three per person – which are sold for one cent a piece. To support this program, the country must import 5 million tons of wheat each year – a growing problem.

3. Climate Change

The upcoming Obama administration's decision on the Keystone pipeline that would bring 700,000 barrels of oil from Canada's tar sands to US refineries could well mark a watershed in US in the global warming controversy. Although increased carbon emissions from further growth in oil extraction from Canada's tar sands pales in comparison to the annual increases in emissions caused by coal burning in China, the Obama administration is more susceptible to pressure from environmentalists. Moreover, President Obama has spoken out strongly in recent weeks that control of carbon emissions is a key important priority.

Proponents of the pipeline hold that its completion would allow the US to largely replace imports of heavy crude from Venezuela, further reducing US dependence on OPEC. Opponents, however, strongly believe that carbon emissions are a threat to life on earth and say that a line must be drawn somewhere.

Canada, which has invested heavily in tar sands development by largely ignoring environmental concerns, has much at stake in the decision. Alberta is already suffering from the lack of sufficient transportation to take its oil to refineries and is being forced to accept prices well below world market levels. While Canada could always build a pipeline to the Pacific coast and ship its heavy oil to Asian markets, this would be a long and expensive proposition for Canada as well as the buyers who would have to convert refineries to handle tar sands product.

The emergence of MIT professor, Ernest Moniz, as a possible choice for the next Secretary of Energy has already raised concerns among environmentalists. Moniz has been affiliated with the industry-backed MIT Energy Initiative which supports fracking of natural gas wells as a “transition” fuel to the future.

The Keystone decision is on track for a decision by summer; until then we likely will be hearing a lot of the growth vs. global warming debate.

4. Europe

The economic news out of Europe these days seems to be universally bad. On Friday a European official warned that its economy would shrink for a second year and that several countries would miss targets designed to ensure the stability of the euro. Britain’s bonds have been downgraded; France’s business activity is at a four-year low; anti-austerity protests have engulfed Spain; and Greece is going through its now-normal round of strikes, this time accompanied by floods. Only Germany says it is ready for an economic rebound – provided it can find anybody else who can afford to import its products.

From a peak oil perspective there are two major issues connected to the European economic situation: How fast will the EU’s consumption of petroleum products continue to drop; and will the current recession morph into a more serious economic downturn having worldwide implications?

OECD Europe’s demand is already down about 2 million b/d from the highs set six or seven years ago. The IEA is projecting it will fall another 1.7 percent this year to about 13.6 million b/d. Europe, however, is already a very efficient user of petroleum products with per capita consumption roughly half that of North America. Public transit is well developed and improving and given the high taxes imposed on motor fuel, the bulk of motor vehicles in the EU are very efficient. Given this situation, there is very little fat in EU oil consumption that can easily be trimmed. It seems likely that consumption will continue to decline slowly unless a real economic setback occurs.

The more serious and difficult to answer question is whether the troubles in Europe will develop in a major economic setback leading to the collapse of the Eurozone or worse. Currently, the troubles across Southern Europe – Spain, Italy, and Greece – appear most serious with the unpopular austerity measures leading to prolonged social disorders.

Quote of the week

- "Shale plays suffer from the law of diminishing returns. Wells experience severe rates of depletion, belying industry claims that wells will be in operation for 30-40 years. For example, the average depletion rate of wells in the Bakken Formation (the largest tight oil play in the US) is 69% in the first year and 94% over the first five years...This steep rate of depletion requires a frenetic pace of drilling, just to offset declines. Roughly 7,200 new shale gas wells need to be drilled each year at a cost of over \$42 billion simply to maintain current levels of production."

- Shalebubble.org

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

- The **IEA's chief economist**, Fatih Birol, said high Brent crude oil prices are posing big risks for the global economy. Mr. Birol said European oil and gas import bills for 2013 will reach about 500 billion euros (\$668 billion) if oil prices remain at these levels. This means a "major problem for the European and global economy." (2/19, #5)
- **Syrian crude production** fell to 153,000 b/d in October last year from around 400,000 b/d in March 2011 when the conflict in the country began, with some 220,000 b/d of production shut in as of November 2012. (2/23, #10, #11)
- The **Asia Pacific region** is projected to import 44 per cent of its primary oil needs by 2035, up from 36 per cent in 2010, said the by the Asia Pacific Economic Cooperation (APEC) based in Singapore. Oil production in the region has risen "only slightly" since 1990, outpaced by a significant increase in demand. (2/23, #12)
- A record was set for 2012 in terms of the amount of crude oil shipped on US railroads. The Association of American Railroads reported that crude oil last year made up 0.8 percent of all rail shipments, up 0.2 percent compared to the previous year. (2/23, #17)
- **Cheniere Energy Inc.** said it will be ready to begin producing liquefied natural gas at its terminal in Sabine Pass, La., in late 2015, a step that will lead to the first exports of natural gas extracted in the contiguous US The announcement underscores how Cheniere, the only company to possess the necessary government permits to export natural gas to countries not in free-trade agreements with the US, is on schedule with its first two processing units while government regulators pore over two dozen applications from competing projects. (2/23, #18)
- Brazilian energy company **Petrobras** announced it discovered oil in a deep-water play about 125 miles off the coast of Rio de Janeiro. Petrobras, said it discovered "good quality oil" at its deep-water Florim well below the salt layer of the Santos Basin. Once drilling is completed below the salt layer, the company would conduct tests to determine the reserve's productivity. (2/22, #9)
- **China** has indicated it plans to introduce a tax on carbon dioxide emissions. Jia Chen, who heads the tax policy division at the Ministry of Finance, said China would introduce a set of new taxation policies aimed at preserving the environment. (2/22, #11)
- **US January oil demand** fell to the lowest level for the month in 18 years as a weak economy reduced consumption, the American Petroleum Institute reported. Total petroleum deliveries, a measure of demand, dropped 1.7 percent from a year earlier to 18 million barrels a day. (2/22, #12)
- **Volkswagen** has confirmed that its XL1 Super-Efficient Vehicle, featuring fuel consumption of 261 mpg US, will go into limited production at the company's Osnabrück factory in Germany. The plug-in diesel-electric hybrid, which Volkswagen will showcase at the Geneva show, can cover a distance of up to 50 km (31 miles) in all-electric mode. (2/22, #24)
- **OPEC** may be extending the longest stretch of production cuts since the 2009 global recession as fewer oil tankers are booked to ship Middle East crude to Asia, according to Morgan Stanley. Hiring of supertankers departing from the Middle East slumped 33 percent from a year ago. (2/21, #6)
- An adviser to the **Pakistani government** said a delegation from Iran is expected to arrive in Islamabad to discuss a long-planned natural gas pipeline. (2/20, #5) (2/21, #11)
- **Iraq** has approved the construction of a natural gas pipeline across its territory that will connect Iran to Syria. The move is likely to strengthen Tehran's influence over its neighbors. The Iraqi Cabinet said in a

statement that it has instructed the country's oil minister to sign a framework agreement for the \$10 billion project, allowing the pipeline to move ahead. (2/20, #6)

- Oil discoveries in **Algeria** last year are "important" though they won't offset the decline in production, the country's energy minister said. Algeria's state-run energy company, Sonatrach, made 31 oil and gas discoveries in 2012, some alone and others in tandem with its foreign partners. (2/21, #17)
- **Pending cuts** to the US budget means some energy policies backed by Republicans may get eliminated, said U.S. Rep. Ed Markey, D-Mass. President Obama called on lawmakers to pass a short-term measure to avert the \$85 billion in automatic spending cuts known as sequester from going into effect March 1. (2/21, #23)
- **President Obama** is close to choosing two veteran Washington policymakers for top energy roles in his Cabinet. Physicist Ernest Moniz of the Massachusetts Institute of Technology is Obama's top candidate to run the Energy Department, and Gina McCarthy, an aide to former Massachusetts Governor Mitt Romney, is the leading contender to head the Environmental Protection Agency. (2/21, #25)
- **Ecuador's** crude-oil export revenue totaled \$12.7 billion last year, up 7.6% from \$11.8 billion registered in 2011. Oil is Ecuador's main export and one of the government's main revenue earners. (2/20, #10)
- The president of Russian state-owned oil company **Rosneft** returned from a visit to China with assurances Beijing wanted more oil. Rosneft and Russian oil pipeline company Transneft deliver around 15 million tons of crude oil to China each year through the East Siberia-Pacific Ocean pipeline. (2/20, #14)
- **Russia** produced 43 million tons of oil and gas condensate in January 2013, 1.7 percent less than in the same month of last year, the Federal State Statistics Service said. (2/19, #28)
- There's enough natural gas in **Ukrainian** shale plays to satisfy the country's needs without imports, said Ukrainian Prime Minister Azarov. Ukraine aims to diversify an energy sector that depends in large part on Russian natural gas. The government is contesting a \$7 billion bill from Russian company Gazprom for gas unused in 2012 under a "take-or-pay" contract. (2/19, #29)
- **Thailand** could face power supply crisis in April, the country's energy minister said. While the government is working on a plan to deal with an imminent power shortage because of an expected disruption of natural gas supplies from Myanmar, the ministry may still need to declare an "energy emergency situation." (2/20, #16)
- **Exxon Mobil** added slightly more oil and gas to its reserves than it produced in 2012, with most of the new reserves being in North America. The world's largest publicly traded oil company said it added proven reserves totaling 1.8 billion oil-equivalent barrels, of which 1.4 billion barrels consisted of petroleum and other liquids, a sign that Exxon has been emphasizing oil exploration at the expense of its less profitable natural-gas business. (2/20, #19)
- **Saudi Arabia** boosted its average crude oil exports last year to the highest level since 2005, while Iraq and Kuwait shipped the most in at least a decade, according to the Joint Organizations Data Initiative. Saudi Arabia, the largest producer in the OPEC countries, exported 7.41 million barrels a day on average in 2012, up 5.2 percent from 2011. (2/19, #10)
- Nebraska likely won't be able to get transmission lines in place to support the **Keystone XL pipeline** by the end of next year. TransCanada asked on the Nebraska Public Power District to have transmission lines in place for the planned oil pipeline from Canada by the end of 2014. (2/19, #23)
- Converting part of a natural gas pipeline to crude oil service will provide greater access to southern US Gulf Coast market, pipeline company **Enbridge** said. Enbridge announced it agreed to terms of a

project with Energy Transfer to convert about 700 miles of a pipeline from Patoka, Illinois to eastern Gulf Coast refineries. (2/19, #25)

- **Libya's** parliamentary chief and de- facto head of state said foreign companies' reluctance to move in was a sign of growing chaos, as he implored all to work to stabilize the nation two years after the start of the uprising against Muammar Qaddafi. (2/18, #11)

Commentary: The Shale Phenomenon: Fabulous Miracle with a Fatal Flaw

(Note: This commentary originally appeared in the [Christian Science Monitor](#).)

By Randy Udall

At a petroleum conference held some years ago, at the dawn of the shale rush, Richard Nehring, an industry veteran, was asked whether shale gas was “just a band-aid.”

“I hope not,” Mr. Nehring laughed. “Because we need a tourniquet!”

In 2000, the experts were unanimous: American oil and gas production was in terminal decline. By 2015, it was said, we’d need 10 supertankers a day, carrying 12 million barrels of crude, plus 10 billion cubic feet of liquefied natural gas.

Since 2005, however, this scarcity meme has been toppled. Domestic oil and gas production has grown 35 percent in seven years. Natural gas production is at record highs, and oil production has climbed almost 2 million barrels a day, faster here than anywhere on the planet.

The combination of horizontal drilling, hydraulic fracturing, 3D seismic surveys, and other gee-wizardry has produced a near-miracle, which has left experts confounded, politicians exuberant, and journalists suffering from hyperbole.

Last fall, a Reuter’s analyst went so far as to suggest that [North Dakota’s Bakken field might someday rival Ghawar](#), the largest oilfield on the planet.

That is not hype, it is a hallucination. Meanwhile, the oil and gas industry has launched its own euphoric ad campaign, assuring TV viewers that we have a “century’s worth of gas,” an unfounded contention, but one that President Obama seems eager to spread.

To make sense of the shale gale, we must celebrate what industry has accomplished. Then we must grasp how such a fabulous miracle may ultimately prove fleeting.

Historic Infusion

The unconventional shale gas and “tight oil” wells we’ve drilled since 2005 are providing the oil equivalent of 6 million barrels a day. The Bakken oilfield in North Dakota, the Eagle Ford and Barnett in Texas, the Haynesville gas find in Louisiana, the Marcellus play in Pennsylvania ... these and three dozen other shale plays represent the largest and most rapid infusion of new energy in America’s history. To read the Wall Street Journal, you’d think we’ve won the lottery, and in a very real way we have.

Although America continues to produce lots of conventional oil and gas, imagine for a moment that we were solely reliant on the shale gas and tight oil wells we’ve drilled in the last 10 years. How might we rank?

The tight oil fields we’ve developed since 2003 would make America the world’s 14th largest oil producer, ahead of Norway. The shale gas we’ve brought to market would make America the world’s *second* largest gas producer, after Russia. Together, the tight oil and shale gas would make the United States the third largest petroleum power on the planet, behind Saudi Arabia and Russia, but ahead of Iran and Canada.

This is a marvel, a stunning tour de force, and it's not surprising that the mainstream media has touted it so heavily. Consider, as just one of many examples, The New Yorker magazine's 2011 article, "[Kuwait on the Prairie](#)," extolling the Bakken boom.

But when you look more closely, comparing North Dakota with Kuwait is ludicrous. Kuwait claims about 100 billion barrels of reserves; North Dakota may have 10 billion, if that. An average Kuwaiti well produces 1,600 barrels a day, 10 times the output of a typical Dakota well. Kuwait has produced 2 million barrels a day for decades, and will do so for decades to come. North Dakota will be lucky to hit 1 million barrels a day by 2017, before its production tapers off.

Why would production fall in North Dakota? Is something rotten in Bismarck? For that matter, why would a new well in North Dakota produce so much less than an old one in Kuwait?

Herein lies what most talking heads have missed: Having exhausted most of our best petroleum reservoirs, we've moved to much worse ones. Thanks to Yankee ingenuity we'll drill more than 15,000 shale wells this year. That's the good news. The bad news is that shale formations are tighter than tombstones, and as a result all these wells have an abbreviated lifetime.

Shale: Geology's Saran Wrap?

Articles about shale gas tend to feature a roughneck in a hard hat. But brawn long ago surrendered to brains in the oil patch. This is the planet's foremost knowledge industry where RAM is prince, and geeky geologist and engineer, the shale frackers, are king.

The sexy rocks in petroleum geology have always been porous sandstones and limestones, easy formations eager to surrender their goods. In contrast, black shales, the original wellspring of all petroleum wealth, have been neglected, even though geologists knew them to be everywhere. Yes, you could drill them, and a few did, but generally you were pouring money down a rat hole.

Shales are stubborn, stingy, and impermeable. Their physics are torturous. The pore throats, or passageways, of some shales are barely bigger than a single methane molecule. Until very recently, trying to harvest gas from shale was like trying to breathe through Saran Wrap, an exhausting enterprise with no upside.

Today, for \$5-10 million, you can drill and "frac" an excellent well that will initially produce 1,000 barrels, or 6 million cubic feet, a day.

But typically that well will age rapidly. Many good wells, not to mention the dogs, will be exhausted within 15 years. The decline rate of a shale well is breathtaking, a Wile E. Coyote-like plunge from cliff top to oblivion. In the Bakken and Haynesville plays, production can fall 80 percent within 24 months. By the end of four years, your prize well is on its way to stripper-well status.

As [a landmark report released this week](#) by Post Carbon Institute shows, the math is brutal. But its full implications are hidden when a shale play is brand new, as essentially all of them were in 2003. Throw 200 rigs at a virgin shale, and steep growth curves are a given. But stop drilling new wells, even for a month, and the growth abruptly ends. Stop drilling for year, production will fall 30 to 40 percent.

The higher production rises in any given shale play, the more new wells are needed to "feed the tiger," as insiders put it. Boosters tend to ignore this grim reality, but a child might ask, what happens when you run out of places to drill?

What happens has happened. A shale play in eastern Montana, Elm Coulee, provides an augury of what we can someday expect in the Bakken field next door.

About 10 years ago a drilling boom in Elm Coulee enabled Montana to double its oil production. But the inventory of new drilling locations was quickly depleted, and as soon as it was, the state's production fell sharply. With shales, the flip side of exuberance is exhaustion.

Shale Gas vs. Tight Oil

So far, we've lumped shale gas and tight oil together, but there is a critical distinction between the two. Shale gas has created a glut, driving natural gas prices down, saving a typical family hundreds of dollars each year, enabling us to close archaic coal plants, and reinvigorate our fertilizer, petrochemical, and steel industries.

An additional 2 million barrels a day of American tight oil, on the other hand, hasn't budged the world oil price or brought drivers relief at the pump. It has reduced the trade deficit, but only by lubricating a bizarre dynamic: American motorists are paying nearly twice as much to use 10 percent less oil than we did five years ago so that Chinese motorists can use twice as much as they were. How do you like them apples? Well, get used to it, because we may have to wring another 3 million barrels a day out of US consumption by 2030, if the Chinese and Indians continue to outbid us for limited oil supplies.

How much shale can we spin into gold? Time will tell. Production in some shale gas plays has already peaked, in part because of a collapse in natural gas prices. On the other hand, there's room to grow production in the Marcellus, Permian Basin, Eagle Ford, and, for a while longer, the Bakken.

The Marcellus is forecast to become the largest natural gas field in our history. It may produce enough gas to meet 15 percent of American demand for decades to come. But despite the hype about "Saudi America," our tight oil boom is likely to be much more fleeting.

Scary Math

We've been told this is a new era. And that's true, it is. Since your cushy way of life is increasingly dependent on stingy rocks, you should be thankful that the industry geeks have unlocked the dregs.

So, yes, celebrate the shale miracle, but forswear the hype. If geology is destiny, decline rates are its script. The American future isn't a romance with abundance, it's a plea bargain with depletion.

Tonight, there will be more rigs rotating right in Texas than in all of Europe, Africa, and the Middle East combined. Texas is 40 times larger than Kuwait. But that tiny country needs just 35 rigs to produce 2 million barrels a day whereas Texas needs 800.

How high would oil prices be if Americans weren't using 2 million barrels less oil each day than we were in 2007? Lord only knows. The irony is that even as we've become less hooked on crude, we've become more addicted to drilling.

Given the frightful math of shale plays, "drill baby drill" is no longer an option, it's destiny. Indeed, you might say it's Manifest Destiny.

As we move from a reliance on conventional oil flowing freely from highly porous reservoirs to a dependence on shale plays, whose permeability is a million times less, the future course of America is no longer indicated by a compass needle pointing west, but by a drill bit pointing down.

Ten percent of the Lower 48 has been leased by oil companies. That's more acreage than we plant in corn and wheat. Oil and gas extraction is now the dominant land use on the continent.

In short, shale plays are a peculiar sort of blessing. For sure, they've given us a staggering amount of new energy. Simultaneously, they've hijacked our energy future, chained us to a drilling rig, and thrown away the key.

Randy Udall, a sustainable energy expert, is co-founder of the Association for the Study of Peak Oil – USA, Mr. Udall is brother to Sen. Mark Udall (D) of Colorado.