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Energy

## Don't Bet On \$800-A-Barrel Oil

Mark Mills 07.24.09, 3:00 PM ET

It is a strange thing in this recession: For the first time since 1983, worldwide oil use has declined in two consecutive years. Maybe that's no surprise "in this economy," to use the now universal mantra. But despite the decline in demand, oil prices are still bouncing around \$60 a barrel, instead of collapsing back to the 1986 recession level of \$20 a barrel (2009 dollars). For energy cognoscenti and global commodity traders, the explanation for price resilience is simple. The world is having trouble finding and producing cheap, easy oil.

As economies recover--and despite the dreadful drumbeat of bad news, they will eventually recover--oil demand will quickly return to early 2008 levels. But the supply picture won't, and it can't change much in the short term. Buckle your seat belts for the roller coaster ride back up the price curve.

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It doesn't require any stretch of the imagination to believe we will again see the \$150-a-barrel peak reached last year. Many respectable forecasters think oil prices could go much higher because we have already found most of the planet's big fields of cheap oil. Some oil apocalyptists think this means there is no more oil at all and the world will have to adjust accordingly. If *Forbes* writer Christopher Steiner is right in the thought experiment premise for his book, *\$20 Per Gallon*, oil might hit and sustain a price north of \$800 per barrel. (The rough equivalent of \$20 per gallon.)

Steiner is the latest in a line of "the oil age is really and truly over" writers to envision how we would *consume* energy--how we would live--in a world of oil prices permanently in that stratosphere. But the salient question is: What would happen to energy *production* on the way to an \$800-a-barrel world? The answer: The world would quickly be awash in liquid hydrocarbons costing (merely) hundreds of dollars a barrel long before oil hit the \$800 mark. Life will remain good--because oil is such a remarkable fuel source that we'd have to invent it if it didn't already exist.

We know one thing for sure about the impact of a mere \$150-a-barrel oil, never mind \$800 a barrel. Engineers, entrepreneurs, hustlers and big staid energy companies have found myriad ways to produce more oil in forbidding places and forms, use oil more efficiently and make oil-like liquids out of everything from sands and rocks (shale oil) to algae and left-over French fry cooking oil.

Keep oil up the curve past \$150 a barrel and the world will be flooded with oil and synthetic oils made out of everything from the obvious to the bizarre. Just ask the hapless investors with billions of dollars tied up in capital-intensive projects in Canada's Athabasca tar sands. Many are on hold because oil made from tar sands only makes sense in a world comfortably and reliably north of \$70 a barrel, but it is wildly profitable in a \$100-a-barrel world and insanely attractive at numbers sustained beyond that.

At just \$200 a barrel, you'll see nearly anything from bat guano to bovine flatulence captured and converted to synthetic oil. Anything with a hint of carbon or hydrogen can be reasonably engineered into oil equivalent fuels. It's not magic. It's just basic chemical engineering--and money.

Natural gas can be readily converted in to synthetic oil (or gasoline) using the Fischer-Tropsch process invented in 1920. The process is rarely used because it is too expensive in a \$20- to \$60-a-barrel world. The United States in particular, and much of the world, is awash in natural gas. The remarkable technology for fracturing tight shale sources of natural gas has been so successful it has oversupplied the U.S. market.

Add to this the ability to ship natural gas on huge tankers around the world through simple chilling. If gas is cooled enough, it becomes liquefied natural gas, or LNG. Global LNG capacity has doubled since 2005 and is predicted to double again over the

next five years. If oil prices stay up, it will double again, and that gas will end up feeding Fischer-Tropsch machines.

If oil prices stay high enough, long enough, there would even be a gold rush for hydrates on the ocean floors. These hydrates, bizarre methane-trapping crystal structures of ice created under high pressure, represent nearly as large an energy resource as all other hydrocarbons known globally. That methane, at prices a fraction of \$800 a barrel, would find its way into gasoline production.

Ballistic prices will also free up oil supply anywhere a non-liquid alternative works--like industrial, water and space heating, which consume 20% of America's energy. That would be a huge boon to electrification from solar, wind, nukes and zero-emissions coal plants, which become hugely profitable at the prices we're talking about here. Battery-powered ground transportation really takes off, primarily for commuters, leaving more oil for uses where it just can't be beat like long-distance driving and especially flying.

It's a good bet that oil will never reach the stratospheric level of \$800 a barrel. At the same time, it is a fair bet that oil prices will rise again and surpass the previous peak of \$150. And next time, absent a global economic collapse (most recently triggered by the financial sector, not by oil prices), it is likely that prices will stay high for some time. The sustained impact of oil staying beyond \$100 a barrel will unleash a tsunami of innovation and production.

We'll see plenty of liquid fuels for a long time before people give up the convenience of getting to Tuscany by jet instead of ship, or from Chicago to San Francisco by air in three hours, instead of by rail in 50 hours. (In the latter case, having traveled that route on Amtrak's Zephyr I'll confess that it is very pleasant if you have the time.)

The future of Boeing Dreamliners and dastardly Chevy Suburbans are secure, along with everything they imply. The increasingly tech-centric world will become wealthier, and higher-priced gasoline will be accommodated because it permits so much of what people cherish both in the developed and in the developing world: comfort, convenience and quality of life.

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