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Relief from High Gas Prices is on the Way

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High gasoline prices will fall once Americans start to conserve and they start to innovate. In the batter's box: gas-to-liquids, or GTL, which can be used to power everything from buses to trucks to planes.

Two key factors are at play. First oil prices are at $115 a barrel and second, natural gas is abundant and cheap at just more than $2 per million Btus. There's a huge incentive to increase the value of that fuel given that the producers don't want to get to stuck with undeveloped reserves.

At $2 per million Btus, the major drillers such as Chesapeake Energy and Encana Corp. want to hold off. It's better now to let the vast shale gas stay in the ground and to fetch it out later when prices to rise, although production is still growing as a result of earlier five-year plans. A second option, however, is to find other uses for that unconventional natural gas that is located a mile beneath the earth's surface and which must be extracted from rocks.

At the same time, the price of oil has skyrocketed. Natural gas and crude oil prices had moved in tandem with each other until 2006, says Paul Grimmer, chief executive of Eltron Research in Boulder. That's when natural gas developers started to perfect hydraulic fracturing that is used to retrieve the hard-to-get shale. Now those commodities have been "decoupled," meaning that oil is pegged to international markets while natural gas is tied to domestic development.

Grimmer says that the rule of thumb is to multiply the price of natural gas by roughly 5 to get the equivalent of what it would be if it were a barrel of oil. So, natural gas at $2 would be the same as $10 a barrel of oil. It therefore makes more economic sense than ever before to create much higher valued GTL, says Grimmer, while also relieving the nation's dependency on foreign oil suppliers.

GTL, which undergoes a conversion process, is different from compressed natural gas or liquefied natural gas that can be used to fuel vehicles. It is expensive to make GTL but the end-

product is a higher quality diesel or jet fuel that is more closely correlated to oil than to other natural gases that may be used for transportation.

"The ramifications of this on the fossil fuel industry and on the renewable fuel industry are profound," adds Grimmer. "The diesel from a GTL plant is slightly 'better' than what comes from a typical crude oil refinery."

South Africa's Sasol, for example, converted coal-to-liquids in the 1950s but has since used that same know-how to produce GTL in Qatar. It is now talking with officials in Louisiana near Lake Charles to build a similar plant there.

Meantime, Shell Oil got its start in the business in the 1990s in Malaysia by building a GTL facility there that produced roughly 12,000 barrels a day. Now it operates the globe's biggest one in Qatar — the 'Pearl' plant that makes 140,000 barrels a day. While it cost the oil giant roughly $18 billion, the venture is expected to earn about $6 billion yearly with oil pegged at $70 per barrel. It is also eyeing the U.S. Gulf Coast to construct a GTL plant.

Some unknowns, however, make those GTL investments risky. The first is whether there truly is a century's worth of shale gas in the ground. And beyond that, there are questions as to whether the drilling methods to dig out such shale are safe and whether they pollute drinking water supplies — all matters in which regulators and developers are keenly focused. Guessing the future price of natural gas is also an issue. As long as the price discrepancy between it and oil are huge, the risks are minimal.

"If you believe that we have this huge glut of shale gas, then it would make sense to build a conversion plant — anything to enhance the value of the resource," says Grimmer. "But the real question is: How long will this last? What happens in five years if the economies change and you have just spent all of your money?"

Of note, the same drilling techniques used to unlock the shale gas are now employed to retrieve "shale oil." That technological breakthrough in combination with extremely low natural gas prices will mean that the same oil and gas developers have the ability to shift their attention from natural gas to oil — a more lucrative venture that would likely give them higher rates of returns.

Indeed, oil production in 2011 reached 5.6 million barrels in the United States, which is their highest levels since 2004, says the U.S. Energy Information Administration. With the advent of hydraulic fracturing, shale oil now promises to make those numbers even bigger.

High gas prices are hurting American consumers. But the cost of driving will fall one way or the other. Finding innovative uses for natural gas is one way while exploring for shale oil is another, all of which promise to transform the market.