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Fueling our future

By H. Sterling Burnett

High gasoline prices and concern about energy security are driving entrepreneurs to explore various ways to produce transportation fuels. For example, researchers are experimenting with technologies to turn turkey, chicken and pig litter, and used tires, into gasoline.

On the less exotic side, Congress is pushing ethanol, which is renewable and homegrown. Midwestern farmers, producers and farm state legislators argue increasing U.S. biofuel production and building new bio-refineries could reduce America's dependence on fossil fuel imports while diversifying our fuel supply. Accordingly, the 2005 energy bill mandated use of 8 billion gallons of ethanol in gasoline blends, and an energy bill recently passed by the U.S. Senate would increase the mandate to 36 billion gallons.

In addition to ethanol, though rarely discussed, the United States has abundant reserves of coal, shale oil and conventional oil.

There is a well-developed process to turn coal into oil. South Africa's Sasol Company. produces 150,000 barrels of oil from coal per day. China is also bringing coal-to-oil plants online, with plans to produce as much as a million barrels of oil a day from coal by 2020.

Commercial coal-to-oil plants have not been built in the United States because they require more long-term capital investment than conventional oil. Conventional oil has been relatively abundant and therefore, historically, prices have been far below what would be needed to make synthetic oil competitive. This has changed.

The Energy Department has estimated that coal-to-liquids can compete if the price of conventional oil is above $30 per barrel.
Based on predictions that the era of cheap oil is over, a consortium of companies including General Electric, Rentech and Arch Coal plans to produce low-sulfur diesel from coal mined in Wyoming, and a company in Illinois expects to bring a commercial plant on line by 2010. The potential is substantial. The federal government estimates that production of oil from coal could reach 1.7 million barrels per day by 2030, while the coal industry estimates future production of 2.6 million barrels per day.

Turning coal to oil also has ancillary benefits: It produces natural gas that can be used for heating or electric power generation and it removes more than 30 percent of the pollutants (mercury, sulfur dioxide and heavy metals) released when coal is burned to produce electricity.

Another potentially huge supply of oil and natural gas is trapped in oil shale, largely in the Western states. Geologist David Deming estimates that rocks in Colorado, Utah and Wyoming alone contain 1,500 billion barrels of oil, and worldwide oil-shale could equal more than 500 years of oil.

Previous government efforts

to extract oil from shale were very expensive, used a lot of energy and labor and produced relatively little oil. However, research at private companies has produced a technological revolution — a process to heat the rocks in the ground, trap the oil and profitably extract it as long as the price of conventional oil is above $30 per barrel. Based on successful tests, Shell Oil Company estimates it could produce more than 1 million barrels of oil per acre or a billion barrels per square mile. In the Green River Basin of Colorado alone, there are more than 1,000 square miles of oil shale.

There are also vast untapped conventional oil reserves under the crust of the Outer Continental Shelf (OCS) and the coastal plain of the Arctic National Wildlife Refuge (ANWR). There is 4 times as much oil under the OCS as all other current U.S. oil reserves. And the ANWR coast contains 6 billion to 16 billion barrels of economically recoverable oil at $20 a barrel — up to double that at $40 a barrel.

Each of these options has environmental benefits and drawbacks that should be analyzed and debated before ramping up production. However, compared to the net amount of ethanol that can be produced, coal, shale or conventional oil from ANWR and the OCS hold greater promise of reducing America's dependence on foreign oil.

Whether for nontraditional sources of oil or for ethanol, subsidies distort energy prices and investment decisions — reducing the efficiency of supply and production, and therefore the security of America's energy future. Thus, before Congress mandates any expensive program to replace a small portion of the nation's gasoline with ethanol, or lavishes subsidies on the coal and oil industries to produce oil from either coal or shale, it should first allow the market to work.

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