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The Immediate Fuel Supply - Thoughts for a New Administration

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One of the considerable differences between the ongoing financial problems of the world, and the coming energy crisis lies in the nature of the commodity of concern. In the first case the problem focuses around money, though not really the physical and tangible cash that one uses less and less to pay for groceries, the rent, or the occasional book. The US has already transitioned to a point that more than half the time we use credit and debit cards to pay the bill. (The quote is from a year ago)

> As debit card and credit card purchases become increasingly popular, check and cash payments continue to lose out. These traditional payment methods now account for less than half of all transactions, and a recent rule change by the Federal Reserve Board should tilt the balance even further away from paper transactions and toward plastic payments.

As a result, for the vast majority of us who do not keep our money in the mattress, financial solvency and insolvency is defined by electronic statements about the nature of our accounts, without there being a pile of gold sitting in the bank to define it. And, when the banks and other companies holding such accounts get into trouble, loans can and have been arranged for them, that are similarly electronic transactions, without large trucks pulling up at either Fort Knox, where 147.3 million ounces currently sit, or to the Federal Reserve Bank in New York, that holds about 216 million ounces. Rather the transactions occur electronically, and there is relatively little need for the physical presence of the cash.

Contrast that with the realities of an energy crisis. We cannot heat our homes with the promises of oil, or the electronic transfer of ownership of fragments of a tanker load making its way from Ras Tanura to the Gulf ports. We need the physical presence of the oil, natural gas or wood that we will consume. When we run out, we need to get some more.

If we are in Western Europe that means that though we buy, for the sake of example, natural gas from Turkmenistan, we have to pay the Russians to transport it through their gas lines, and the Ukrainians to allow its passage, before we can enjoy the fruits of our purchase. It is the nature of this physical reality that makes the energy problem that much more difficult to resolve, and in some cases to prepare for.

There was a poignant reminder of this in a story that Leanan caught on Sunday from the Buffalo News. I had mentioned last week the increased popularity of pellet stoves in the North East. But pellets are an easily storable commodity, and demand cannot keep up with supply. And thus we have:

> At the same time that firewood supplies tighten, slowing lumber production for home building is reducing supplies of wood pellets, a sawdust-based fuel used in specialized furnaces.

Pellet seller Forest Products Firewood receives calls from people all over the state seeking a winter supply of the fuel, which has been sold out since Labor Day, Clay said.

"They say 'what do you mean you're out — I heat my house with them,' " she said.

If wood pellets are the only fuel that you can use to heat your house and there aren't any to be had, then life gets complicated.

I have previously cited the problems that New England has seen in the supply of natural gas. In the book Cape Wind by Williams and Whitcomb, the authors describe a situation that occurred when there was a cold snap in 2004. Natural gas supplies to New England are fairly limited, and the companies that supply natural gas to homeowners and to power plants use natural gas from the same pipelines. At the beginning of the cold snap, homeowners and businesses suddenly started drawing more natural gas for heat. This usage drained all the available natural gas away from the power stations that planned on using it to provide electric power for the region.

The loss of natural gas supply was a surprise to the utility relying on natural gas, not too different from the lack of pellets in the example above. If one is heating with wood, one can tell by the lack of a stack of wood in the yard that one has an upcoming problem in getting through the winter warmly. The sudden lack of electricity in the middle of a cold spell, when the power fails, is something else again.

The incoming Administration is likely to be faced with an Energy problem sooner, rather than later. These problems will likely divide into two partially distinct parts, the need for a reliable source of heat and electricity, and a source of liquid fuel for transportation.

Within four years, there will be a need for more electric power generation capacity. Given the short time-frame, it is likely to be too late to rely on the addition of nuclear or coal power plants to provide an immediate answer, since they take too long to be permitted and constructed. There are a large number of coal-fired plants that have been planned but are currently on hold because of uncertainty regarding the treatment of future carbon emissions if a cap and trade program or other carbon legislation is passed. Some form of a decision on the future of coal power should be made fairly soon, so that plans can move forward, one way or another. In that regard, it is worth noting that as Senator, President-elect Obama did support the FutureGen project in Illinois. FutureGen is a plan for a near-zero emissions coal fired power plant in Illionois, including carbon capture and storage.

With respect to liquid fuel, the last Administration bet heavily on ethanol. While there has been considerable growth in ethanol production, there are increasing signs of local concerns with the plants and, as Leanan noted, the financial climate is worse.

> VeraSun Energy Corp. (NYSE: VSE), a cash-strapped ethanol company that lost big in hedging corn prices, said late Friday it had filed for bankruptcy. . . . . .
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> VeraSun claims to be the largest ethanol producer in the world, citing data from the Renewable Fuel Association and its own estimates. As of Sept. 5, the company was running 14 ethanol plants that, combined, had the capacity to produce 1.4 billion gallons of ethanol per year, or about 14 percent of the U.S. ethanol production capacity. VeraSun was adding three more plants to bring its total capacity to 1.64 billion gallons per year by the end of 2008.

This has some relevance to future liquid sources of fuel, since corn-based ethanol is easier to produce than cellulosic-based fuel, and already in production. If current producers are having difficulty surviving in the marketplace, then plans for producing other biofuels (pdf) must be considered more difficult and longer term.

It has been suggested that the search for biofuels should take the form of an Apollo-type of program, and as you may have picked up from earlier posts, I am not sure that this single focus type of effort is necessarily a good thing. For example the Department of Energy is planning an Algal Fuels Workshop(pdf) to plan out the Agency program, in Washington in December. However it is "by invitation only," so I fear that among other things, you won't be able to read about what they are planning here. I have, in the past, commented that I favor a more comprehensive approach where there is initially a broader search for ideas, rather than the focus on single larger efforts such as that favored by DARPA. Again, however, this will continue, for around a decade, to be more of a research program, rather than a solution.

We are stuck with the uncomfortable reality that we need fuel within the next four years, for both vehicles and for our electric switches. In that short-term, the immediate shortage of an adequate supply of fuel and energy to warm houses, fuel power stations and power vehicles will become more evident. Debating points will have to be turned into reality, and the physical presence of an adequate fuel must be provided. It will be interesting to see where it comes from. Most likely a considerable portion will have to come from conservation, but that is not, in itself, going to be adequate.