

MuseLetter

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Greetings,

Here is MuseLetter 207 for July 2009.

Best wishes,

Richard

1. Peak Oil Day

On July 11, 2008, the price of a barrel of oil hit a record \$147.27 in daily trading. That same month, world crude oil production achieved a record 74.8 million barrels per day.

For years prior to this, a growing legion of analysts had been arguing that world oil production would max out around the year 2010 and begin to decline for reasons having to do with geology (we have found and picked the world's "low-hanging fruit" in terms of giant oilfields), as well as lack of drilling rigs and trained exploration geologists and engineers. "Peak Oil," they insisted, would mark the end of the growth phase of industrial civilization, because economic expansion requires increasing amounts of high-quality energy.

During the period from 2005 to 2008, as oil's price steadily rose, production remained stagnant. Though new sources of oil were coming on line, they barely made up for production declines in existing fields due to depletion. By mid-2008, as oil prices wafted to the stratosphere, every petroleum producer responded to the obvious incentive to pump every possible barrel. Production rates nudged upward for a couple of months, but then both prices and production fell as demand for oil collapsed.

Since then, with oil prices much lower, and with credit tight to unavailable, up to \$150 billion of investments in the development of future petroleum production capacity have evaporated. This means that if a new record production level is to be achieved, further declines in production from existing fields have to be overcome, meaning that all of those canceled production projects, and many more in addition, will have to be quickly

brought on-stream. It may not be physically possible to turn the tide at this point, given the fact that the new "plays" are technically demanding and therefore expensive to develop, and have limited productive potential.

On May 4 of this year, Raymond James Associates, a prominent brokerage specializing in energy investments, issued a report stating, "With OPEC oil production apparently having peaked in 1Q08, and non-OPEC even earlier in 2007, peak oil on a worldwide basis seems to have taken place in early 2008." This conclusion is being echoed by a cadre of other analysts.

Maybe it's a stretch to say that the production peak occurred at one identifiable moment, but attributing it to the day oil prices reached their high-water mark may be a useful way of fixing the event in our minds. So I suggest that we remember July 11, 2008 as Peak Oil Day.

We are now approaching the first-year anniversary of Peak Oil Day. Where are we now? The global economy is in tatters, yet oil prices have recovered somewhat (they're now about half what they were in July 2008). World energy consumption is down, world trade is down, the airline industry is shrinking, and most of the world's automakers are on life support.

It is too late to prepare for Peak Oil—a year too late, in fact. Now the name of the game is adaptation. We are in an entirely new economic environment, in which old assumptions about the inevitability of perpetual growth, and the usefulness of leveraging investments based on expectations of future growth, are crashing in flames. Even if economic activity picks up somewhat, this will occur in the context of an economy significantly smaller than the one that existed in July 2008, and energy scarcity will quickly cause most green shoots to wither.

It is impossible to say what will happen in the future with regard to oil prices. Clearly, very high prices kill demand by undercutting economic activity. Thus it is possible that the barrel price of petroleum may never break last year's record. On the other hand, if the value of the dollar were to collapse, then the sky's the limit for prices in dollars per barrel.

It is easier to forecast the oil supply trend: though we'll see level-to-rising production temporarily from time to time, in general it's down, down, downhill from now on.

Even though Peak Oil is now in the past, its annual commemoration on Peak Oil Day may serve an important purpose by reminding us why our economy is shrinking, and by focusing our thoughts on ways to facilitate the transition to a post-petroleum world.

What are some appropriate ways to commemorate Peak Oil Day? I'd suggest spending time in nature, engaging in a 24-hour oil fast, or organizing a neighborhood bicycle

parade and solar-cooker bakeoff.

Mark your calendar. What will *you* be doing on July 11?

Help us "celebrate" Peak Oil Day by signing [our petition](#).

2. Interview with Hervé Duval (www.voltairenet.org)

HD: We were told by most media that the origin of the financial crisis is to be found within the financial system. Is that satisfactory to you or, as you hinted with foresight in *The Party's Over*, could the lack of confidence in future growth due to cheap oil production peaking also be a major factor?

RH: In 2008 we saw the biggest energy price spike ever. Historically, energy price spikes have always led to recessions. Therefore it would have been reasonable to expect a serious recession beginning around the first quarter of 2008. In fact, the recession began somewhat earlier and has proven to be deeper and more persistent than any other in recent decades. This is because a financial collapse had also become more or less inevitable due to the existence of multiple bubbles in the housing and finance sectors.

The impacts on the airline, trucking, and automotive industries are largely from energy prices; the fall in real estate values and rise in foreclosures is not so directly related to oil.

However, at the deepest level, our societal expectation of perpetual economic growth is based on the assumption that we will always have increasing amounts of cheap energy with which to power the engines of production and distribution. This expectation of growth became institutionalized in ever-increasing levels of debt and in increased financial leveraging. Thus when the amount of energy available started to level off or decline, the entire financial house of cards came tumbling down.

Unfortunately, world leaders have largely misunderstood the crisis. They assume it to be entirely financial in origin, and they also assume it to be transient; they believe that if we can prop up the banks sufficiently, the economy will begin to grow again and all will be well. In fact, our current financial system cannot be made to function in an era of declining energy supplies. We need an economy that can supply basic human needs without increasing the rate at which we consume resources. That will require the creation of monetary systems and financial institutions that are not based on debt, interest, and leveraging.

HD: Do you think speculation on energy markets is going to gather pace again in spite of last year's episode? If so, according to you what is the best solution for the snake to stop eating its own tail?

RH: Speculation in energy futures is not helpful in our collective process of adjusting to

the winding down of the era of cheap fuel. Without some controls on the futures market, we are likely to see more big swings in fossil fuel prices, as we witnessed over the past 18 months. When fuel prices skyrocket, the economy takes an enormous hit—again, as we have just seen. When the price collapses, that discourages investment in future energy production.

OPEC has actually helped somewhat to moderate these price swings by increasing or decreasing production to keep the oil price steadier than it would otherwise be. But OPEC is losing its already limited ability to do this, because most member nations are seeing declining production and have little or no spare production capacity. Saudi Arabia is the only major swing producer left, and one nation really cannot balance production rates for the whole world much longer.

The only real solution is some sort of international agreement to ration production and consumption, as I suggest in my book *The Oil Depletion Protocol*.

HD: What do you think of the growing number of scientists casting doubt on the human origin of climate change? Within the peak oil movement, people like Jean Laherrère are also very skeptical...

RH: I'm not aware that the number of scientists casting doubt on the human origin of current climate change is growing; my perception is the opposite. Yes, I know that Jean Laherrère, whom I respect enormously, has raised questions on this score. As a geologist, he is accustomed to thinking in terms of millions of years, and the Earth's climate is indeed quite variable on such long time-scales. And so I can understand why he might wonder whether what we are seeing now is due to climate processes involving changes in solar radiation, eccentricities in the Earth's orbit—the well-known Milankovitch effect—and changes in ocean circulation patterns. However, climate scientists have thoroughly investigated the likely role of factors other than carbon emissions and found that they are insufficient to explain the warming that is currently occurring.

Essentially, I concur with the conclusion of most climate scientists: that we humans are taking an inherently unstable system—the atmosphere and climate—and forcing it to its breaking point by adding enormous quantities of greenhouse gases.

HD: What do you think about this hypothesis: the international carbon trade project is but a way for the financial elite to keep afloat and for the financially rich/resource poor countries to obtain the right to burn the last fossil fuel reserves in exchange for money and thus deprive financially poor/resource rich countries of the right to develop? To put it another way, the heart of the matter is not really "Are we going to burn the last fossil fuel reserves?" (we surely are, lest we give up on economical growth), but "Who is going to burn them?"

RH: I am skeptical of international carbon trading schemes for many reasons, including the fact that they will result in the creation of an enormous derivatives market that will require tight regulation if huge financial bubbles and crashes are to be avoided. Carbon caps are necessary, but there are probably better ways of enforcing those caps than the creation of a new class of derivatives; for example, a rationing system that engages the entire citizenry, such as Tradeable Energy Quotas (TEQs), could work.

In the end, fossil fuels will be used by those who can pay for them. Sometimes this occurs indirectly: China burns coal on behalf of North America and Europe so that it can produce cheap goods for export.

In any case, however, development based on consumption of fossil fuels is no longer a path to wealth and security, as it was in the early 20th century. Today it is a trap. It merely creates dependence upon energy sources that are becoming more scarce and expensive. Poor nations will now be much better off avoiding that trap altogether.

I realize that this is much easier for a mere a journalist to say than for a leader of some nation whose people have been denied the benefits of the modern era. However, this is one of the stark realities of this still-new century.

HD: What should be the priority in terms of public decision-making? Preparing for the energy crisis or climate change?

RH: In many respects, the solutions to both problems are similar: reduce fossil fuel dependency, and increase renewable energy production.

However some proposed solutions to the climate crisis make no sense in light of fossil fuel supply limits. An example is the capture and storage of carbon from coal-fired power plants. This is a project that will require enormous investment and decades for deployment; but meanwhile, coal prices will be escalating, and this fact is seldom included in the cost estimates for "clean coal." The peak of world coal production is probably less than two decades away, as I discuss in my new book *Blackout: Coal, Climate and the Last Energy Crisis*. It therefore makes more sense to use scarce investment capital to build renewable energy production capacity rather than to build a vast, costly infrastructure to support continued use of a depleting, increasingly expensive, carbon-intensive fuel.

HD: Do you see an increasing trend toward resource conflicts? If so, how do you explain it?

RH: This is to be expected. Humans have always fought over essential resources. Now that the energy resources that fuel modern society are poised to become more scarce and valuable, it is foreseeable that conflict over control of those resources will increase. Given this, it is incumbent upon policy makers at the national level to anticipate where

such conflicts are likely to erupt, and to seek to prevent them. Ultimately the only way to do so is to reduce competition for those resources by reducing dependence upon them where possible (some resources, such as water, we simply cannot do without), and by forging agreements to limit production and consumption of fossil fuels via depletion protocols.

But of course this will require an enormous shift in attitude on the part of world leaders. Currently their thinking revolves entirely around gaining competitive advantage—in essence, they are more interested in knowing how to win resource conflicts than in how to avoid them. And that is an increasingly dangerous way of thinking as the world becomes more populous and resource-constrained.

HD: According to you, how big is the part played by the increase in fuel/fertilizer/pesticides costs in the developing food crisis?

RH: There are some aspects of the food crisis that do not immediately seem to be related to fossil fuel dependency. For example, there are increasing shortages of fresh water for irrigation—but many times this is due to climate change, which is in turn due to carbon emissions from the burning of fossil fuels. Then there is soil erosion—but this is often caused by modern industrial production methods involving the use of tractors and other fuel-fed farm machinery. Another factor is the genetic uniformity of modern crops, which makes them more susceptible to evolving pests, and hence requires the use of more petroleum-based pesticides. As one follows out the causal chains leading to these disparate threats to our food system, nearly all of them tend to lead back to one source.

Altogether, our modern fuel-based food system is critically vulnerable on many levels, and most of that vulnerability is traceable to our reliance on fossil fuels. The inevitable reduction in the supply of tractor fuel will hurt farmers, and agricultural chemicals will become increasingly unaffordable. High petroleum prices will make the long-distance distribution of food more costly. Climate change and drought will shrink crop yields.

We face a global food crisis that is entirely foreseeable, and whose causes are obvious. The needed policies are also obvious: we must reform our entire food system so as to reduce its reliance on fuel.

HD: Can you tell us briefly about the goals and impact so far of the work you are doing with your colleagues at Post Carbon Institute?

RH: Currently we are assembling a stellar group of Fellows who share a similar understanding of the global crisis, and who are interested in collaborating with regard to public education. We see this as a critical historical moment for rethinking our culture's basic assumptions about economic growth, energy consumption, food systems, climate change, and population—issues that are closely intertwined, but rarely addressed

systemically by policy makers.

At the same time, Post Carbon Institute is working closely with the **Transition Initiatives**, which is a grass-roots network of communities seeking to promote a post-fossil fuel economy. Unless needed policy changes are being adopted, modeled, experimented with, and promoted by individuals and communities, national leaders will continue to drag their feet.

We see the current economic crisis as a fundamental and historic turning point. The global economy has reached non-negotiable limits to growth. Now everything depends upon our willingness to cooperatively adapt to those limits.

We believe that life can in fact be better without fossil fuels, and without continual growth in population and consumption. But the transition from our current fuel-fed growth paradigm to a steady-state, renewable-energy future will likely be very difficult. Humanity will get there one way or another: resource limits ensure that. We simply want to make the transition easier, fairer, and more survivable for all concerned.