



Peak Oil, Peak Debt, and the Concentration of Power

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This is a guest post by Charles Eisenstein, an author and faculty member at Goddard College in Vermont.

When theorists approach the peak oil problem from the perspective of finding a substitute that will allow us to maintain our present energy infrastructure, their conclusion is one of despair. There may be many substitutes for oil as a concentrated form of storable energy, but none of them are nearly as good as oil itself. Those invested in the status quo would, quite understandably, like to maintain it, but it is becoming apparent even to the most highly invested that the status quo is doomed; that it can be maintained only temporarily, and at a rapidly accelerating environmental cost. The transition before us is not merely a transition in fuel types. It is also a transition in the whole energy infrastructure, both physical and psychological; a transition away from big power plants, distribution lines, and metered consumers; away from capital-intensive drilling, refining, distribution, and consumer fueling stations. More broadly, it is a transition away from centralization, concentration, and all the social institutions that go along with it.

Both the energy system and the money system are based on accumulation and the concentration of power. Not only our energy infrastructure, but our dominant yet invisible way of thinking about energy, presupposes a centralized system of distribution based on a highly concentrated energy source. Many alternative energy technologies have made little headway, not because they are technologically unfeasible, but because they don't fit into our present physical, financial, and psychological infrastructure.

There is a causal as well as a metaphorical parallel between the concentration of power in oil and in money. A concentrated power source that can be stored allows social and political power to concentrate in the hands of those who control it. It generates very different social dynamics from an energy source that is universally distributed and constantly renewed. For one thing, the profit potential of the latter is intrinsically less. Once you have sold the geothermal pump or the PV array, the buyer is self-sufficient, unlike the electrical power consumer who has to pay the metered rate in perpetuity. Energy dependency and economic dependency are closely linked.

A similar pattern holds in other fields as well. In medicine, for instance, the universal, endogenous medical knowledge of several centuries ago that employed common weeds as medicine has given way to a system in which both knowledge and pharmaceutical medicines have been purified, abstracted, and concentrated in an exclusive domain. There is little profit potential in dandelion or burdock, nor did the village herbalist or country doctor of yesteryear make much money. We might apply the same analysis to the migration of legal power from informal community-based mechanisms of dispute resolution to the centralized, codified, and therefore in a sense concentrated mechanisms of the law. So also for education, entertainment, and news.

In all these realms though, the trend toward increasing concentration is nearing its peak, or has peaked already. The peak manifests in many different ways. In some areas it reflects resource depletion; in others, demand saturation; in others, it is due to technology. For example, thanks in large part to the Internet, a tide of decentralization and disintermediation is erasing the producer/consumer divide in the areas of news and entertainment. That more and more of our time is spent watching "content" produced by amateurs suggests that we are approaching "peak Hollywood," in parallel with peak healthcare, peak pollution, peak advertising, peak fisheries, and peak oil.

It should not be surprising, since the profit motive has been the primary driver towards these peaks, that we should be approaching a peak in the realm of money as well, a peak that we might call "peak debt." The crisis in money is ineluctably related to the crisis in everything else, because the viability of our money system depends on growth: the conversion of nature into goods, and relationships into services. This conversion cannot proceed much farther, due to resource depletion and the inability of society and biosphere to sustain more damage. While one may dispute that economic growth depends on petroleum, it does depend on increasing consumption of something. For decades or centuries, we have maintained growth first by meeting needs, then by creating new needs, then by bringing non-monetized cultures and non-monetized domains of our lives into the money domain. Community, for example, can be stripmined just as coal can: turn the functions of story-telling, dispute resolution, child care, elderly care, recreation, entertainment, into paid services. But in either case, material or social, this process is reaching its limit. We are indeed entering a time of Peak Everything.

The crisis in money is related to the crisis in energy, the environment, and everything else. The difficulty in finding a substitute for oil, for example, is born of economics. Imagine what we could have accomplished if the millions of scientific careers and hundreds of billions of dollars that have been devoted to petroleum and nuclear power over the last fifty years had gone instead into developing "alternative" energy technologies. Imagine if, at the dawn of the environmental movement in the 1960s, we had launched a global scientific effort exceeding that devoted to the space race to create a pollution-free society. It did not happen, and with good reason: there was no money in it (given the kind of money system we have had). Compared to the technologies of Big Energy, there is little profit to be made in the alternatives. The alternatives are not conducive to economic growth, and will never flourish in a money system that compels and depends on growth.

Sunlight, wind, conservation, geothermal energy, and more controversial technologies like cold fusion, Bedini/Bearden devices, and so forth share an important characteristic in common. Their energy source is more or less ubiquitous, so that users needn't be dependent on an ongoing supply of scarce fuel. They are, in an important sense, abundant. This feature puts them at odds with our money system, which depends on the creation and maintenance of scarcity. To profit from something, say energy, it must be scarce: high-tech pharmaceuticals, for example, rather than ubiquitous weeds and folk medicine.

The same is true of information; hence the strenuous efforts of music, book, and film publishers to create artificial scarcity in digital content through copy protections and intellectual property law. They are fighting a losing battle: when the marginal cost of production for any product approaches zero, the natural price point tends toward zero as well. The first copy of Microsoft Word costs hundreds of millions of dollars to produce, but each subsequent copy costs virtually nothing.

Alternative energy sources are similar: the initial cost may (or may not) be high, but once the installation is complete, ongoing costs are extremely low or zero. By returning energy to a non-monetary realm, they actually contribute to economic de-growth. Think about that next time you read economic arguments about how to "stimulate demand" and "reignite economic growth." In

the present system, in the absence of growth, unemployment, poverty, and the polarization of wealth intensify. In the present system, economic well-being is incompatible with post-carbon energy technologies.

A cynical observer, looking at the history of the suppression of alternative energy technologies, might conclude the same attempt to create artificial scarcity is happening in energy as it has in digital content. However, there is no need to resort to conspiracy theories to explain it; mere economics will suffice. Let's consider an example.

It is not too difficult to build houses that require almost no external power source for heating and cooling. By using construction materials of large thermal mass, geothermal wells, and passive solar principles, a house could, with sufficient PV (photo voltaic) power, be comfortably independent of the energy grid. Why aren't they being built this way?

One reason is certainly the habits and culture of the building industry, but the main reasons are financial. (1) For starters, future energy savings are generally not fully capitalized in a real estate value appraisal. (2) But even if they were, our interest-based system, with discounting of future cash flows, only motivates the initial investment if it generates savings above the rate of interest. (3) Finally, the existing energy system enjoys a high level of hidden subsidy due to the externalization of its environmental and social costs.

The first point is easy to explain: assuming a 2.5% interest rate, the net present value (NPV) of \$1,000 in annual electricity savings is \$40,000. Rarely, however, does that modest level of energy efficiency contribute nearly that much to a house's value.

As for the second point, what is more economically rational: to buy a house for \$200,000 and pay \$2,000 a year for power, or to buy a house for \$300,000 and pay \$200 a year for power? Assuming your mortgage loan is at 5% interest, it is much more rational to pay \$2,000 a year for power, forever and ever. Even if you don't need to borrow, you can earn more than 2% interest on that extra \$100,000.

Thirdly, the price of gasoline, oil, electrical power is artificially cheap. The costs of pollution, war, oil spills, nuclear accidents, and so forth are not reflected in the price of a gallon of gasoline or a KWH of electricity. They are offloaded onto society and future generations. For example, because the government will have to pay the costs of any truly catastrophic oil spill or nuclear accident, the companies are operating with free insurance. It is no coincidence that massive risks accompany centralized energy installations. Big Energy comes with big risks, as well as the political power to socialize the costs of those risks. People complain that solar and wind power are only competitive because of subsidies, but conventional energy enjoys far greater subsidies.

These subsidies are not the result of mere political influence. They are built into our money system. Unless and until we have a money system that forces the internalization of costs and eliminates the discounting of future cash flows, Big Energy will always enjoy an advantage. That advantage can be mitigated through moral suasion and various kinds of subsidies, but wouldn't it be better to align the money system with the kind of energy system we would like to see, and indeed the kind of planet we would like to see, so that goodness and profit need not be opposed?

What would a money system like this look like? Perhaps it would model the common feature of alternative energy systems that I have described. Rather than originating at a monopoly source, perhaps it would be universally distributed in its genesis. Rather than being storable in concentrated form, maybe it would require constant regeneration. Rather than requiring payment for its continuing supply (i.e. via interest), maybe it would be generated at no cost.

In fact, money systems bearing some or all of these features have been proposed, and if implemented, they would create conditions far more salubrious than at present for the

development of a new energy infrastructure. These systems internalize social and environmental costs, restore the commons, build community, reverse the discounting of future cash flows, are compatible with a steady-state or de-growth economy, eliminate economic rents, and systemically discourage the concentration of wealth.

My book, *Sacred Economics*, lays out one such system, or rather a synthesis of several of them. The key ideas are not new, however, and are even slowly making inroads into the mainstream dialog as the inescapability of Peak Debt becomes undeniable. A central idea is negative interest (also known as demurrage), which discourages accumulation, allows money to circulate in the absence of growth, and encourages long-term thinking.

Other important pieces of the puzzle include commons-backed currency, local and bioregional currency, mutual credit and P2P banking, gift economics, shifting taxation away from income and onto resource and pollution, and a social dividend. Today, most of these proposals seem very radical, although they are entering the public discourse in covert forms. Interest rates, for example, are nearing zero and look to stay there for the foreseeable future, making investments with very long payback periods more feasible. Some economists, among them Willem Buiter, Greg Mankiw, and Robert Hall, have even dared propose taking rates (namely the Fed Funds Rate) negative.

As old certainties break down, what was once radical becomes common sense. However dogged our denial, the present energy infrastructure is doomed to obsolescence. The same is true of our financial infrastructure; indeed, the two are inextricably linked. They will fail together, yet on the other hand, while they remain, each props up the other. The money system exerts an irresistible pressure to convert everything and anything into money – for example, the Alaskan National Wildlife Refuge, the Alberta tar sands, the capacity of the atmosphere to absorb waste – and with each successful conversion, the money system gets a brief reprieve. By the same token, any bit of nature that we can protect from exploitation hastens the demise of the money machine.

This is why efforts to reform the energy system must go hand in hand with efforts at financial reform. Neither is prior to the other; each, rather, is a different facet of the same thing. The collapse of each is part of the collapse of an entire mode of civilization, and an entire way of being that underlies it, clearing the way for the emergence of a new, in accordance with universal dynamics of birth, death, and transcendence.

We might call this way of being, this mode of civilization, the "Ascent of Humanity." It was an age of growth, of domination, of taming the wild and expanding the human realm; of becoming the lords and possessors of nature. That age is ending, and a new era of co-creative partnership with nature is beginning, in which we understand that we are interdependent, not separate. The energy system, and money system, of the future must embody this new relationship.



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