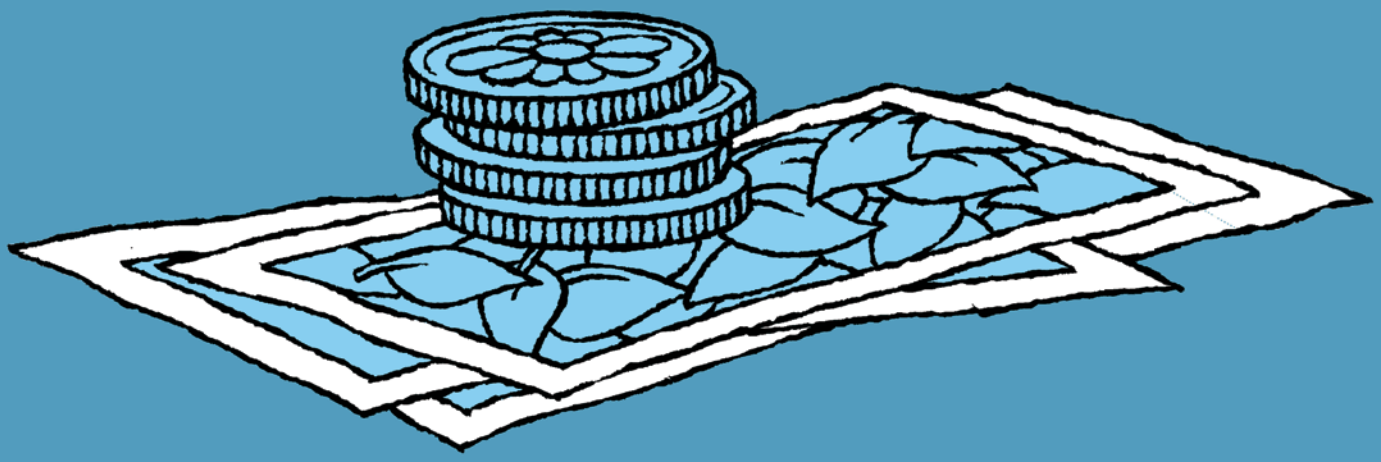
The Post Carbon Reader Series: Economy

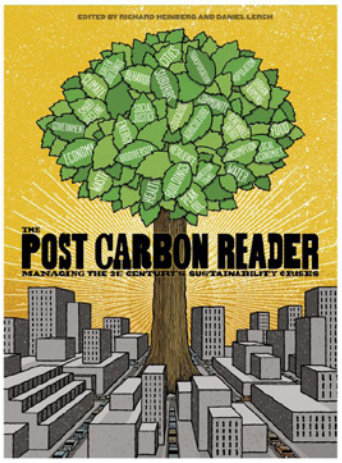
Money and Energy

By Richard Douthwaite



About the Author

Richard Douthwaite is co-founder of Feasta, an Irish economic think tank focused on the economics of sustainability. He was instrumental in the development of the "contraction and convergence" approach to dealing with greenhouse gas emissions, which has since been backed by many countries. He is author of two books, including *The Growth Illusion* (1999) and *Short Circuit* (1996). Douthwaite is a Fellow of Post Carbon Institute.



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Almost all the money we use is created as a debt.

Money and energy have always been linked. For example, a gold currency was essentially an energy currency because the amount of gold produced in a year was determined by the cost of the energy it took to extract it. If energy (perhaps in the form of slaves or horses rather than fossil fuel) was cheap and abundant, gold mining would prove profitable, and a lot of gold would go into circulation enabling more trading to be done. If the increased level of activity then drove the price of slaves or coal up, the flow of gold would decline, slowing the rate at which the economy grew. It was a neat, natural balancing mechanism which worked rather well. In fact, the only time it broke down seriously was when the Spanish conquistadors got gold for very little energy—by stealing it from the Aztecs and the Incas. That caused a massive inflation and damaged the Spanish economy for many years.

Gold rushes were all about the conversion of human energy into money, as the thousands of ordinary people mining in the Amazon basin show. Obviously if supplies of food, clothing and shelter were precarious, a society would never devote its energies to finding something that its members could neither eat nor live in, and which would not keep them warm. In other words, gold supplies swelled in the past whenever a culture had the energy to produce a surplus. Once there was more gold available, using the precious metal as money made more trading possible—enabling the conversion of whatever surpluses arose in future years into buildings, clothes and other needs.

Lots of other ways of converting human energy into money have been used as well. For example, the inhabitants of Yap, a cluster of ten small islands in the Pacific Ocean, converted theirs into carved stones to use as money. They quarried the stones on Palau, some 260 miles away, and ferried them back on rafts pulled by canoes. But once on Yap the heavy stones were rarely moved, just as lots of gold never leaves Fort Knox.[1]

The last fixed, formal link between money and gold was broken on August 15, 1971 when President Nixon ordered the US Treasury to abandon the gold exchange standard and stop delivering one ounce of gold for every $35 that other countries paid in return. Some people think that this link between the dollar and energy was replaced by an agreement that the US then made with OPEC that "backed" the dollar with oil. Supposedly, OPEC agreed to quote the global oil price in dollars and, in return, the US promised to protect the oil-rich kingdoms in the Persian Gulf against threat of invasion or domestic coups. If it exists, this arrangement is currently breaking down.

A more important current link between energy and "official" money is the consumer price index. The central banks of every country in the world keep a close eye on how much their currency is worth in terms of the

prices of the things the users of that currency purchase. Energy bills, interest payments and labor costs are the key components of those prices. If a currency shows signs of losing its purchasing power, the central bank responsible for managing it will reduce the amount in circulation by restricting the lending the commercial banks are able to do.

Almost all the money we use is created as a debt. If a bank gives someone a loan to buy a car, the moment the purchaser's check is deposited in the car dealer's account, more money—the price of the car—has come into existence, an amount balanced by the extra debt in the purchaser's bank account. In the current monetary system, the amount of money and the amount of debt are equal and opposite.

Until recently, if the banks gave out more loans and the amount of money in circulation increased, more energy could be produced from fossil fuel sources to give value to that money. Between 1949 and 1969—the heyday of the gold exchange standard—the price of oil was remarkably stable in dollar terms. But then the energy supply was suddenly restricted by OPEC in 1973 and 1979, and the price of energy went up—not just because users were competing for less oil, but also because there was too much money in circulation for the amount of oil available. And so money's exchange rate with energy fell.

Looked at another way, besides there being too much money in 1973 and 1979, there was also too much debt. A country's income is largely determined by its direct and indirect energy use—thus, whenever less energy becomes available, incomes fall and debt becomes harder to service. This is exactly what happened in the 1970s.

This simple analysis helps explain why the "credit crunch" of recent years came about. Because of resource constraints, world oil output was almost flat between September 2004 and July 2008 and its price went up and up. The rich world's central bankers were blasé about this price increase because the overall cost of living was stable thanks to lots of cheap imports from

China and elsewhere. They allowed the banks to go on lending and the money supply—and debt—to increase and increase. The only inflation to result was in the price of assets such as shares and real estate, and most people felt good about that. They were getting richer, on paper at least.

A lot of the money the banks created left the energy-importing economies and went to the producing ones, which took in more than they could spend. So the producing countries lent huge sums back to banks in the countries from which the money had come, and those banks in turn lent it out rather too easily, in ways which included sub-prime mortgages. The trouble was, as energy prices continued their climb, more and more of those who took out the easy loans were unable to service them and—weighed down by bad debts—the banking system collapsed.

The debt-based money system just described cannot work if there is less and less energy available. We only borrow if we think we're going to have more money in future with which to repay, and a society as a whole cannot expect to have more money unless there is economic growth, or inflation, or a combination of the two. Moreover, we can't expect to have growth without more energy. Historically, the link between growth and energy use has been very close.

So if we don't borrow (or the banks won't lend) the money supply will contract as previous years' debts are paid off, destroying the money they created when they were issued. This makes it progressively harder for businesses to trade and to pay employees. They also have more problems paying taxes and servicing their debts.

This is exactly the situation at present. Now that the effects of the federal stimulus package are running out, a terrifying downward spiral is developing. Profits and incomes are shrinking and making people very reluctant to borrow. Of course the question remains, what would they borrow *for*? Is there any part of the economy in which people can invest borrowed money and be sure of being able to pay it back? What economists call a liquidity trap has developed.

Endnotes

1 Glyn Davies, *A History of Money From Ancient Times to the Present Day* (Cardiff: University of Wales Press, 2002). According to Davies' mammoth study, the Yap used their stone money until the 1960s.

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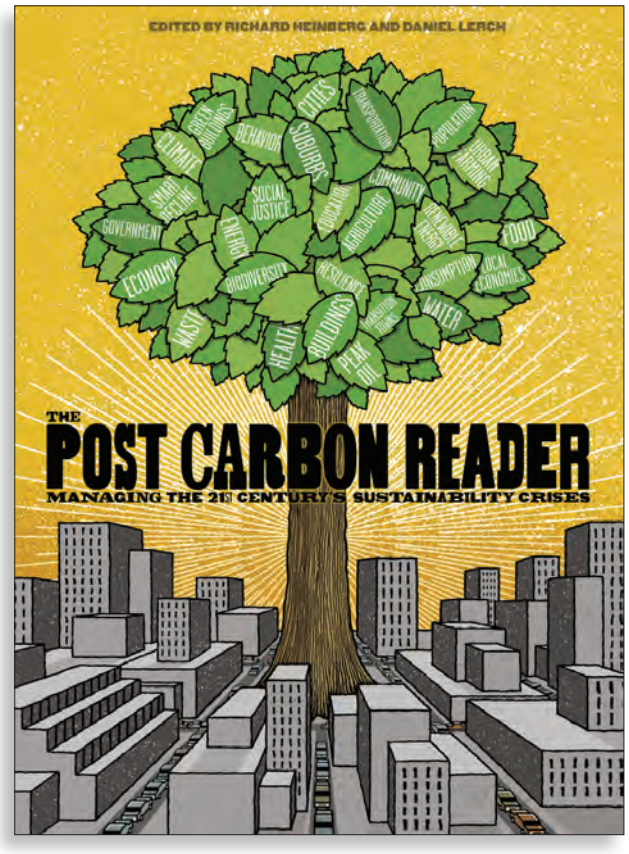

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The Post Carbon Reader

Managing the 21st Century's Sustainability Crises

Edited by RICHARD HEINBERG and DANIEL LERCH

In the 20th century, cheap and abundant energy brought previously unimaginable advances in health, wealth, and technology, and fed an explosion in population and consumption. But this growth came at an incredible cost. Climate change, peak oil, freshwater depletion, species extinction, and a host of economic and social problems now challenge us as never before. *The Post Carbon Reader* features articles by some of the world's most provocative thinkers on the key drivers shaping this new century, from renewable energy and urban agriculture to social justice and systems resilience. This unprecedented collection takes a hard-nosed look at the interconnected threats of our global sustainability quandary—as well as the most promising responses. *The Post Carbon Reader* is a valuable resource for policymakers, college classrooms, and concerned citizens.

Richard Heinberg is Senior Fellow in Residence at Post Carbon Institute and the author of nine books, including *The Party's Over* and *Peak Everything*. **Daniel Lerch** is the author of *Post Carbon Cities*.

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