

## Tipping point: energy

Contributed by Jan Lundberg  
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What we can do about passing the energy tipping point

The energy tipping point has been reached, just as a system such as the climate has been found to have a critical threshold that some scientists believe has probably been reached. Obviously, climate disaster is much more ominous than the enormous consequences of passing the energy tipping point. As if it's a matter of choice, there are those who don't want to see any concerns about energy supply distract us from the climate challenge. Yet, the two crises are related and inseparable. There happens to be a common approach to mitigate each of them.

Meanwhile, the mainstream corporate press is finally hinting at limitations on the economy from the "constraints" of both climate and energy. This is heresy for free marketeers who believe in endless growth. The New York Times ran a guest editorial column on Nov. 29 that said,

The world's supply of cheap energy is tightening, and humankind's enormous output of greenhouse gases is disrupting the earth's climate. Together, these two constraints could eventually hobble global economic growth and cap the size of the global economy. The most important resource to consider in this situation is energy, because it is our economy's "master resource" -- the one ingredient essential for every economic activity. (Thomas Homer-Dixon's op-ed, "The End of Ingenuity")

When such an observation is combined with available evidence, such as overpopulation, we know that the die has been cast, years before: economic growth will end soon, forever, on the scale the world has known. But there are those who imagine energy decline with little change in today's trajectory of technological growth and anything connected to it. They know about peak oil, but they understand it superficially.

There is almost always, like in the Times piece, the suggestion that coal will come along in a big way to provide energy. The feasibility of this, apart from climate-damage concerns, is questionable because of our petroleum infrastructure and the nature of petrocollapse. Yet, the same Times piece helpfully introduced the concept of net energy from energy extraction, and even though the issue was presented simplistically, the reality of energy decline becomes a little more apparent to the public.

The science/art of oil being supplied to the market ought to be a major consideration applied to the focus on the tightening, geological limit of crude oil. There are many other factors, such as the depletion of desirable, retrievable crude versus all categories of hydrocarbon deposits that are more and more the heavy and solid varieties. And when we look at energy alternatives, there is no evidence of their major readiness for a globally charged market -- unless we could snap our fingers and see this economy back to maybe its size of 1930, when petroleum started taking over many aspects of modern life for a much smaller population of humans and cars.

Today the U.S. gets its transportation-energy from oil -- mostly imported -- to the tune of 90%. Two-thirds of oil goes to transportation. In the agricultural sector, oil and natural gas provide almost every energy input as well as feedstocks for fertilizer and pesticides, for example. Even with organic farming and all but home gardens, "if you bought it, a truck brought it"

-- the truckers' cautionary slogan.

Unlike the climate, global energy use is more finite, at least for massive, relentless draw-down. In addition, world energy use can be expressed as a level of dependence. Dependence means vulnerability. These two attributes -- limitation and dependence -- for energy (and associated materials from petroleum feedstocks) present an historic challenge and dilemma.

When we include their effect on the environment, these attributes have combined to place humanity and countless forms of life at risk of die-off or extinction. Unfortunately, the resistance to changing personal and societal habits is almost hopelessly hardened, fossilized. Now the question is what people will do when they know about the energy tipping point as well as the climate-distortion tipping point. With two tipping points reached, aren't we as good as upside down and denying it?

Most of us have been feeling the world in changes. Drawing upon a discipline with a heavy price, I'm an oil-industry and

energy analyst long concerned about petroleum's effects on the environment. I am convinced we have passed the tipping point: we cannot, as a huge population dependent on a sophisticated petroleum infrastructure, stop using these technological resources abruptly without inducing mass starvation and general violent disruption. However, very little is under anyone's control when we've past critical tipping points of climate and energy.

This has spurred people on to trying to secure more energy supplies, instead of reverting to our past traditions of living simply and in harmony with nature. A parallel tendency has been at work with the problem of population growth and hunger: even though securing more food is a humane approach and theoretically could solve a problem of hunger for a time, the world simply feeds more and more people, thus allowing for the breeding of more and more people. A bigger die-off therefore remains ahead. Author Daniel Quinn explored this in his novel *The Story of B*, where he distinguished between reformism ("programs") and fundamental change or rejecting a broken system.

The tipping point regarding overshooting a sustainable global population of humans was reached sometime before massive topsoil erosion and aquifer depletion set in several decades ago. About the same time, petroleum's overwhelming dominance had set in to allow exponential growth (to a point past the tipping point) for a population fed by petroleum.

Climate science comes up short in saying whether the Earth will spiral into a Venus-like hothouse scenario due to the tipping point being reached. Uncertainty will remain until it is far too late to do anything about it, if we do not abandon our wrongful ways immediately. Same for energy: uncertainty will remain until collapse is complete, in some minds.

There are many statistics and interrelated factors that can suggest when a tipping point in climate may have come. It was over two years ago that scientists noted that more CO<sub>2</sub> was going into the atmosphere than they could calculate from known sources, prompting some to point to a likely cause: positive feedback loops kicking in; meaning, out of control climate change.

In the world of energy and collapse, a similar point is made by Matt Simmons. In his many presentations on peak oil, he says the energy crisis is here, and panic always results from such a crisis. This crisis, however, is unprecedented and I believe it could wipe history as we know it off the map.

The point of no return for our once stable climate (i.e., not human-induced chaos) is possibly already behind us. Dr. Rajendra Pachauri, the chairman of the official Intergovernmental Panel on Climate Change (IPCC), addressing an international conference attended by 114 governments in January of 2005 (from *The Independent* - UK):

"...widespread dying of coral reefs, and rapid melting of ice in the Arctic, had driven him to the conclusion that the danger point the IPCC had been set up to avoid had already been reached... levels of carbon dioxide (the main cause of global warming) have leapt abruptly over the past two years, suggesting that climate change may be accelerating out of control. He added that, because of inertia built into the Earth's natural systems, the world was now only experiencing the result of pollution emitted in the 1960s, and much greater effects would occur as the increased pollution of later decades worked its way through. He concluded: 'We are risking the ability of the human race to survive.'"

There certainly is a host of numbers and measurements for energy production (or extraction), but not for dependence. Peak oil activists have looked at production and the measurements of consumption, but levels of dependence and vulnerability have been only guessed at. Transportation-reform advocates have determined how much money is spent on supporting a car, and food analysts have decried the 3,000 mile Caesar salad. Before even transporting or packaging or preparing food, there are ten units of fossil-fuel energy going into our food for every one unit of calories we derive. Does this sound like we've gone over the edge with the convenience of (formerly) cheap energy and petroleum feedstocks?

The oil peak may already be upon us, as we have heard from Kenneth Deffeyes and other analysts inside and outside the industry. With population rising, trending toward more consumption and less local self-sufficiency, reasonable assumptions are being made -- starting with M. King Hubbert -- about the imminent failure to provide endless oil and energy. At issue is the degree of severity from shortage caused by depletion, and how fast or slow will be oil's possible disappearance from the marketplace at affordable prices.

So, without a clear equation that tells us when the tipping point occurred, we must go beyond numbers and the urge to have a date shown on a chart. It helps to step back to see the big picture and our history's squandered opportunities.

We can draw upon two analyses of vulnerability to oil as it peaks. The first is "the Hirsch Report," which said the U.S. needed at least two decades to prepare for peak. If less time is available -- or, that we wait until peak is certain to have hit -- severe economic hardship results, according to the report's authors who didn't want to alarm or alienate the sponsor, the U.S. Dept. of Energy.

If we are at peak oil now, we can guess that the tipping point was possibly those two decades ago, in 1986. Realistically, however, it was probably ten years before, when President Jimmy Carter tried to take the bull by the horns. His attempt

to deal with oil price volatility and over-reliance on imported oil was mostly in vain, although now many of us are wondering what the U.S. would have been like -- and for that matter, Iraq and Afghanistan -- if the U.S. had tamed its oil addiction by 1990 perhaps.

The other analysis of vulnerability to petroleum dependence is that of this writer in these Culture Change columns. Drawing upon my experience in tracking and predicting oil price and supply, my finding is that the term petrocollapse best captures what has started to unfold. There is no way to avoid or cure the U.S.'s massive petroleum addiction, so we point to mitigations, lifestyle change, and other cultures' lower energy use. With a long-range analysis that takes in the growth of Western Civilization, and the social system driving it (featuring greed and focus on material wealth), we look beyond petrocollapse and die-off. Culture change is inevitable and may save, enhance and liberate humanity.

The energy crisis is really a culture crisis, as King said. Do we have the wisdom to at least acknowledge what kind of a ride we've been on? Now that the world passed the energy tipping point, we need to take a non-energy approach to the problem and emancipate ourselves from the domination of technology wielded by profiteers, thrill seekers and numbed consumers.

### Implications for the future

There must be major corporate players who "get it" and know we will have a very different world to deal with rather soon. It is often assumed that the corporados' drive for their mega-riches and more mega-riches may cover their own backsides, so as to be able to ride out future disruption to business-as-usual. But could it be that some corporations are planning to go way beyond the environmental sensitivity of Walmart (led by their acquisition of an ex-Sierra Club head), and restructure according to ecological economics ahead? Wow! No doubt such plans for, say, Mitsubishi turning away from clear-cutting tropical forests -- toward, instead, local, sustainable pencil-making collectives -- are under lock and key.

What is the alternative to the corporate state (which is the definition of fascism) trashing the planet? Could it be something really crazy and abstract-sounding such as "love garden"? Such was the answer from a seasoned activist and environmentally oriented athlete, Bill Le Bon, who worked for the Auto-Free Times magazine and the Alliance for a Paving Moratorium with me in Arcata. He had no elaboration on his concept, as we walked through Golden Gate Park the day after Thanksgiving. His vision is a large, beautiful idea that needs no quibbling about, for who cannot accept or embrace "love garden"? Notably, it does not sound like fossil fuels belong there.

Funny enough, what we need to do to deal with climate change is almost identical to what needs to be done in recognition of petrocollapse. The Pledge for Climate Protection's ten steps were listed on a tree-free postcard our office produced in 2000, and the art supplied by Erika "Juniper" Kraft depicted the beginnings of a love garden via depaving Highway 101 that was partially engulfed by the rising sea. The Pledge:

- "1. Cut down on driving my vehicle, or carpool. I will walk or bike, and not buy a car if I do not have one (best of all). I will support and use mass transit. I may work closer to my home.
2. Cut down on working just for money: I can thereby barter more, and cut down on commuting.
3. Depave my driveway, or help others' depave their driveways, or depave parking lots, and grow food in depaved land.
4. Unplug or retire my television, and perhaps go off the electricity grid. I will reduce energy for heating, and share appliances such as my oven with neighbors, and not buy or use power tools or jet skis, etc.
5. Publicly oppose new road construction and road widening in my community, to start undoing sprawl, prevent growth in traffic, and halt the spread of forest roads allowing clearcuts.
6. Take vacations without jet air travel, and avoid career activity dependent on jet travel.
7. Plant trees, collect rainwater, and avoid overusing municipal water as it is energy-consumptive (and thus may emit CO2, the main heat-trapping gas that fossil fuels release).
8. Buy local products, buy as little plastic as possible, carry a travel mug. Minimize consumption. Support alternative plant materials to cut down on petrochemicals and trees for paper. Avoid eating animal products especially shipped-in beef.
9. Not bring more children into the world, or limit my offspring to one, and possibly adopt. I recognize the threat of overpopulation.
10. Inform my community and the greater national and global community on the need to take action such as the above for climate stability."

For more information, see our webpage  
[culturechange.org/global\\_warming\\_pledge.html](http://culturechange.org/global_warming_pledge.html).

Tip back our energy monster onto its behind and thwart further damage done to our climate. As Matt Simmons says,  
"Maybe the enemy is us."

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