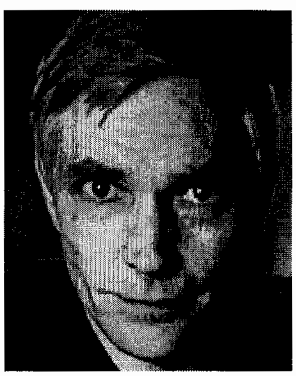
Insights

The Energy Spiral

Peter Huber, 04.01.02, 12:00 AM ET

The Bush Administration's energy policy: Drill more domestic oil and aim for a more fuel-efficient economy—i.e., get more GDP per gallon. The Democratic leadership's policy: Drill less and build more fuel-efficient cars—i.e., get more miles per gallon. Neither side dares to articulate the one all-but-certain fact: Our energy consumption will continue to rise, forever. "Forever" is a long time, of course, so maybe it won't be quite that long. But if you have to project when energy consumption will cease to rise, longer is always a safer bet than shorter.



And that's because the more energy we consume, the more we're able to produce. This is the unspeakable truth, so obvious and yet so unpopular, too, that no politician with an instinct for survival dares to utter it. Be that as it may, the entire history of life on Earth establishes that the better you get at extracting energy from your environment today, the better you get tomorrow—it's a chain-reaction process, and it spirals up, not down. It is, if you will, a perpetual motion machine.

No, it won't be found in some crank inventor's box that's filled with spinning magnets. It's called life. Humans are especially good at this game, but plankton and kudzu do pretty well at it, too.

Four billion years ago life on Earth captured no solar energy at all, because there was no life. Life then got a foothold, and the capture and consumption of energy in the biosphere has been rising ever since. The thicker life grew on the surface of the planet, the more energy life as a whole managed to capture. It used all that energy to create more life. Along the way it deposited huge amounts of biological debris underground. Which we now dig up and burn.

An organism called James Watt emerged from the biological cauldron two centuries ago with an idea about how to dig up the debris more efficiently. He would build a better coal-fired steam engine, which would be used to pump water out of coal mines to facilitate the mining of still more coal. Today we burn diesel to extract petroleum. When Enrico Fermi built the first fission reactor, the idea was to use one neutron emitted by a uranium atom to kick out two neutrons from other uranium atoms nearby. The atom bomb did the same, only faster.

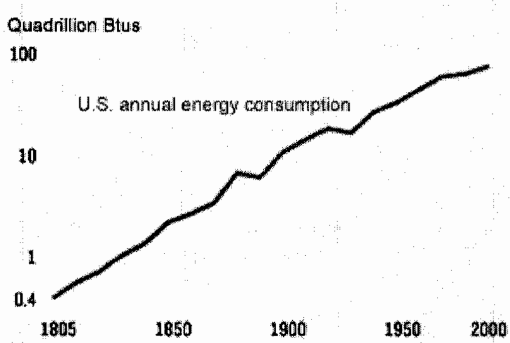
None of these processes produces "perpetual motion" in the strict thermodynamic sense, of course. They all just improve on the process of grabbing energy from somewhere else. The most important ones merely help us to look for high-grade energy in the right place. You can use a motor to whomp the ground really hard, for example, to project acoustic waves down through the Earth, and then carefully study the reflections to locate new oil and gas. Knowing where to look is most of the game. The Earth contains gargantuan amounts of both fossil and nuclear fuels; the problem has always been how to find and extract them efficiently enough to make the effort worthwhile.

Living green plants still capture solar energy about three times as fast as we humans are able to dig up dead green plants in the form of fossil fuels. We'll overtake the rest of nature in the not too distant future, however. And perhaps some day we'll get to the point where we, too, can take much of our energy directly from the sun. There's certainly plenty of solar energy to spare—green plants currently capture only about one-three-thousandth of the solar energy that cascades onto the surface of the Earth.

But whether we catch our solar energy live, or dig it up in fossilized form, or dig up uranium instead, is really just a detail. The one near-certainty is that energy consumption will rise, not fall. We have 200 years of industrial history, 20,000 years of human history and 4 billion years of biological history to go on in making that prediction. In the grand scheme of things everything we think we know about "running out of energy" is not just wrong—it's the exact opposite of the truth. The more we capture and burn, the better we get at capturing still more.

Insatiable

Nothing new about our thirst for energy—it has been growing for two centuries.



Source: Energy Information Administration of the U.S. Department of Energy.

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1 of 1