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# YES! Magazine Fall 2004 Issue: Can We Live Without Oil?

## Making it Last

by Hunter Lovins

**Hunter Lovins helped found and manage the Rocky Mountain Institute, famous for turning conventional wisdom about energy on its head. She's still changing minds in the worlds of business, nonprofits, and government, showing a more sustainable path to prosperity**

Anyone remotely aware of world events realizes that it is time to quit nibbling at the bullet and get off our dependence on oil. The United States imports 11 million barrels of oil each day, more than half of our 20-million-barrel daily habit. At \$40 plus a barrel, we're spending more than \$800 million a day to import oil. The carbon emissions from burning all this fuel amount to about 600 million metric tons. The cost of the war in Iraq is more than \$1 billion per week.

But is it possible to get off oil?

Yes, it is possible. The key notion that makes getting off oil possible is counter-intuitive: the best and cheapest "source" of energy is not in fact supply, but efficiency. Any effort in these directions will save money, increase American national security, and help protect the environment.

Isn't author Paul Roberts right that we have reached "The End Of Oil?" as his book title suggests? It is a corollary of the round-earth theory that we will run out of the stuff, ultimately. But in the meantime, there simply is a huge scope for using less of it.

Prospecting for an energy future

For several decades, more efficient use has been the biggest source of new energy—not oil, gas, coal, or nuclear power.

More efficient use of energy enabled Americans after the 1979 oil shock to cut oil consumption 15 percent in six years while the economy grew 16 percent. These efficiencies were achieved by more productive use of energy (better-insulated houses, better-designed lights and electric motors, and cars that are safer, cleaner, more powerful, and get more miles per gallon). By 2000, the energy service provided by that increased efficiency was 73 percent greater than total U.S. oil consumption, five times domestic oil production, three times all oil imports, and 13 times Persian Gulf oil imports. Since 1996, saved energy has been the nation's fastest-growing major "source" of energy.

In nearly every case, energy efficiency costs far less than the fuel or electricity it saves. It costs only about 2 cents per kilowatt hour to save energy. (Once we've made the easy savings, those costs will go up. However, up to half the energy now used could be saved for that price.) Almost no form of new supply, and few historic ones, can compete with this.

The 40 percent drop in U.S. energy intensity (energy consumption per dollar of real GDP) since 1975 has barely dented the potential. The U.S. annual energy bill is about \$200 billion lower today than it would have been had we not improved energy efficiency. Yet we are still wasting at least \$300 billion a year, and the potential savings keep rising as smarter technologies promise more and better service from less energy. What's even better is that while the side effects of increasing supply are almost uniformly harmful, the side effects of efficiency are beneficial. For example, studies show labor productivity is 6 to 16 percent higher in energy-efficient buildings.

Efficiency just keeps on winning

Markets are motivated by price, information, and consumer values. After 1979 there was a perception of crisis. Energy prices spiked. People sought information. When the government, utilities, and various non-profits supplied it, the market mechanisms worked rapidly to "solve" the energy crisis. Efficiency brought demand down, and prices crashed.

Those advocating development of new sources of energy supply were back at square one, the falling price of oil having diminished the relative attractiveness of their pet technologies compared to energy efficiency, which can be implemented more quickly and at lower cost.

This persistent oscillation has repeated itself at least four times since the 1973 Arab Oil Embargo, and will do so again. This fuel bazaar will continue to result in bankrupt supply companies, energy vulnerability, a climate that grows less stable by the year, and continued war in the Middle East.

Avoiding this cycle of boom-and-bust requires understanding its three root causes:

- Efficiency costs far less than energy supply, so given the choice, most people “buy” it instead.
- Policies that promote both efficiency and supply risk getting both—customers will typically use only one (usually the cheaper one), idling the other.
- Efficiency measures are faster to implement than new supply. Ordinary people are able to implement efficiency long before big, slow, centralized energy generation can be built, let alone paid for.

How not to make energy policy

The best way to get off oil and implement an energy policy that will give us abundant affordable supplies of energy is to use what we already have dramatically more productively.

The last time this approach was tried, the imposition of CAFÉ (Corporate Average Fuel Efficiency) standards for vehicles enabled the country to reduce oil purchasing faster and on a larger scale than OPEC could adjust to. New U.S.-built cars increased efficiency seven miles per gallon in six years. Europe achieved similar savings through higher fuel taxes. Together these changes tipped the world oil market in buyers’ favor. Between 1977 and 1985, U.S. oil imports fell 42 percent, depriving OPEC of one-eighth of its market. The entire world oil market shrank by one-tenth; OPEC’s share was cut from 52 percent to 30 percent, driving down world oil prices. The U.S. alone accounted for one-fourth of that reduction.

Between 1979 and 1986, Americans cut total energy use 5 percent—an intensity drop that was five times greater than the expanded coal and nuclear output subsequently promoted by President Reagan’s policy.

Upon entering office in 1981, Reagan sought to stimulate fossil fuel and nuclear energy supplies without realizing that prior efficiency efforts were already enabling the U.S. to cut energy intensity at the record pace of 3.5 percent per year.

Five years later, energy efficiency—disdained as an intrusive sacrifice and a distraction from America’s supply prowess—had eliminated the demand that was supposed to pay for costly supply expansions. Many of the producers Reagan intended to help were ruined, as efficiency’s speed and availability made energy prices crash in the mid-1980s.

Despite Reagan’s concerted campaign to undo efficiency programs, by the mid-1980s, entrepreneurs were bringing on myriad technologies that led to a huge gush of efficiency. Advocates of renewable supply were similarly caught off guard, hampered, too, by inept government programs to subsidize renewables. But the real determinant was that efficiency was simply cheaper than any form of supply.

This history echoed eerily in 2001 as the Bush administration sought with similar ardor to stimulate energy supplies, even though in 1996 the United States had quietly resumed saving energy at the rate of 3.2 percent a year. They called again for opening the Arctic National Wildlife Refuge and proposed massive fossil and nuclear subsidies. Subsidies and other encouragement for gas-guzzling cars had reduced average fuel efficiency of U.S. cars and trucks to a 22-year low in 2002: 20.4 m.p.g. The average fuel efficiency of Ford cars and trucks is now worse than when the company started 100 years ago with the Model A.

In 2001, the U.S. National Academy of Sciences reported that cost-effective efficiency efforts could roughly double U.S. fleet efficiency without compromising safety or performance.

It is tempting to say that the recent run-up in prices will finally drive even fans of SUVs to rethink their addiction.

It won’t.

As the price gets higher—and somewhere over \$30 a barrel is enough to get people’s attention—substitution begins to occur. With the lessening of demand, price begins to drop. As prices fall, people are all too happy to resume apathy.

Moreover, advertising campaigns (and tax subsidies) that encourage Americans to buy a 10 m.p.g. Hummer2 so that they can paste an American flag on it and feel that they are patriotically supporting the troops, ensure that young men and women will yet again be placed in harm’s way, driving 0.5 m.p.g. tanks and 17 feet-per-gallon aircraft carriers.

While American car companies resist making their products more fuel-efficient, the Japanese and Europeans are designing the future. The Toyota Prius hybrid-electric 5-seater gets 48 m.p.g.; Honda’s Insight gets 64 m.p.g. If all Americans drove cars that efficient, we would save 32 times the amount of oil that proponents of drilling in the Arctic wilderness hope to find there. Daimler Chrysler and General Motors are testing family sedans at 72 to 80 m.p.g., and Volkswagen sells Europeans a 78-m.p.g. four-seat non-hybrid subcompact.

Almost every automaker at the recent Tokyo Auto Show displayed good hybrid-electric prototypes, some getting 100-plus m.p.g. VW has just premiered an ultra-light but super-safe diesel car that gets 237 miles per gallon.

### Catching hold

There is a lot of progress underway, much of it happening because of concern over climate change, not because of oil prices, but the two go hand-in-hand.

- In 2000 British Petroleum became one of the first major companies, and the first oil major, to announce a commitment to reduce its emissions of carbon dioxide by 10 percent below 1990 levels by 2010. In 2002, BP announced it had already achieved this goal—eight years ahead of schedule. Doing so is saving the company \$650 million, and senior officials now say that even if doing it cost them money, it would be worthwhile because it makes them the kind of company that the best talent wants to work for.
- DuPont has set itself the goals of reducing its greenhouse gas emissions by 65 percent and getting 10 percent of its energy and 25 percent of its feedstocks from renewables by 2010.
- STMicroelectronics went them even better, announcing a goal of zero net CO2 emissions by 2010 with a 40-fold increase in production. By the time they're done, they reckon they will have saved almost \$1 billion. This commitment has driven corporate innovation, taking them from the number 12 chipmaker in the world to the number six.
- Swiss Re, the major European re-insurer, is saying that if your company does not take its CO2 footprint seriously, our company may not want to insure you. Or your officers or directors.

Perhaps the most exciting news is the recent creation of the Chicago Climate Exchange. When it became clear that the U.S. Senate would refuse to ratify the Kyoto Protocol, many of us who favor market-based solutions to environmental problems felt gloomy. Richard Sandor, who describes himself as a humble economist, refused to give in to the despair. He said, "Governments don't make markets, traders do. I'm a trader, let's make a market."

And he's done it. On December 12, 2003, the Chicago Climate Exchange (CCX) started to trade the right to emit carbon; as of July 21, it was trading at 98 cents a ton. The original 14 companies who joined were not a bunch of woolly-minded environmentalists. They included American Electric Power, Ford Motor Company, STMicroelectronics, Dupont, Motorola, and the City of Chicago, significant economic players, all.

Although in the U.S. the right to emit carbon is still free, these companies were betting that inter-national regulations of carbon emissions were coming soon and they would be better off preparing for it. All felt, with Richard, that this was an opportunity to use the market to help solve what is now being called the most challenging problem facing the planet.

Hunter Lovins is the co-author, along with Amory Lovins and Paul Hawken, of *Natural Capitalism: Creating the Next Industrial Revolution*, and a consultant on these issues. She can be reached through Natural Capitalism Incorporated, [www.natcapinc.com](http://www.natcapinc.com)

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