

[The Harsh Realities of Energy](#)

On My Mind / by Vaclav Smil / April 7, 2009

There is **no faster, easier fix** for America's energy crisis than to simply begin **living within rational limits**.



Credit: [santacrewsgirl](#)

From corn-based ethanol to clean-coal technology, from Al Gore's push for carbon-free electricity within a decade to T. Boone Pickens's vision of wind power from the Great Plains, everyone has a favorite plan. Enthusiasm springs eternal for a new nuclear era, or for turbines tapping the enormous power of ocean currents and the atmosphere's jet stream. But unfortunately these plans offer aspirations, not realistic goals: Converting all of America's farmland to corn for ethanol would produce just 12 percent of today's gasoline needs; the birth of clean coal or the rebirth of nuclear are fraught with fearful costs and apprehensions; turbines aloft or in the deep are beyond the threshold of realistic engineering applications.

Consider this: It took 45 years for the US to raise its crude oil use to 20 percent of the total energy supply; natural gas needed 65 years to do the same. As for electricity generation, coal produced 66 percent of the total in 1950 and still 49 percent in 2007 — wind-driven generation now produces 1.5 percent and solar photovoltaic a fraction of that. Whatever the eventual solution, whether it is converting the country's filling stations to natural gas or hydrogen, or building new long-distance high-voltage transmission lines to carry Arizona's solar electricity to New York and North Dakota's wind power to California, the new requisite infrastructures are unlikely to be completed in the next few years.

Ultimately, this is a problem of scale: A small country with modest per-capita energy use can accomplish any energy transition much easier than a large, populous nation with exceptionally high energy consumption. The US now claims about 21 percent of global energy and uses about three times as much per capita as the EU. We must ask ourselves the hard question of whether this profligate consumption is necessary, or sustainable. America's energy transition to nonfossil

energies promises to be a long, arduous process. To speed it up and ease the pain, we must, paradoxically, slow down, and begin consuming less of everything. — *Vaclav Smil is a professor in the study of energy, food, and the environment at the University of Manitoba.*