

The Washington Post

On Energy, We're Finally Walking the Walk

Advertisement » Your Ad Here

By Lester R. Brown
Sunday, September 20, 2009

The United States has entered a new energy era, ending a century of rising carbon emissions. As the U.S. delegation prepares for the international climate negotiations in Copenhagen in December, it does so from a surprisingly strong position, one based on a dramatic 9 percent drop in U.S. carbon emissions over the past two years and the promise of further huge reductions.

Prominent among these carbon-cutting initiatives are stronger automobile fuel-economy standards, appliance efficiency standards, and the potential to heat, cool and light buildings with carbon-free sources of electricity. On the supply side are efforts supporting the development of U.S. wind, solar and geothermal energy resources.

Even though part of this decline in carbon emissions was caused by the recession and higher gasoline prices, part of it came from gains in energy efficiency and shifts to carbon-free sources of energy, including record amounts of new wind-generating capacity. This impressive drop in carbon emissions should enable the United States to push for a steep cut in Copenhagen.

For a country where oil and coal use have been growing for more than a century, the fall since 2007 is startling. Last year, oil use dropped 5 percent, coal 1 percent and overall carbon emissions 3 percent. Projections for this year, based on Energy Department data for the first eight months, show oil use down by an additional 5 percent. Coal is estimated to fall by 10 percent. Altogether, carbon emissions from burning fossil fuels, including natural gas, dropped 9 percent over the two years.

In the past, I've been considered a pessimist in my work on mounting population pressures and looming food crises. I'm still very concerned about these issues. But today the improving numbers on carbon emissions are not debatable.

Although Congress is considering legislation that would cut emissions only 15 or 20 percent by 2020, it's clear to me that with just a little effort, the United States could far surpass this. Given the potentially catastrophic climate change the world is facing, we should push in Copenhagen for an 80 percent reduction by 2020.

Efforts to reduce fossil fuel use and cut carbon emissions are underway at every level of government -- national, state and city -- and in corporations, utilities and universities. Beyond this, millions of climate-conscious, cost-cutting Americans are altering their lifestyles to reduce energy use and carbon emissions.

Despite the coal industry's \$45 million annual budget to promote "clean coal," utilities are giving up the coal ghost. On July 9, Bruce Nilles, coordinator of the Sierra Club's national grass-roots program to ban new coal-fired power plants, announced the 100th cancellation of a proposed plant since 2001.

The Tennessee Valley Authority, with a fleet of 11 aging coal plants (average age 47 years) and a court order to install more than \$1 billion worth of pollution controls, is considering closing its John Sevier Fossil Plant near Rogersville, Tenn., along with the six oldest units out of the eight at the Widows Creek Fossil Plant near Stevenson, Ala. Altogether, about 22 coal-fired power plants in 12 states are being replaced by wood-fired power, wind farms or natural gas plants.

Utilities are facing falling demand not only because of the economic slump, but also because of advances in efficiency. The potential is evident in the wide variation among states, with some embracing energy-efficient technologies and others mired in old ones. The Rocky Mountain Institute calculates that if the 40 least-efficient states were to achieve the electrical efficiency of the 10 most-efficient ones, national electricity use would be reduced by one third. This would allow the equivalent of 62 percent of the country's 617 coal-fired power plants to be closed.

While some U.S. coal plants are closing, wind farms are multiplying. Last year, 102 wind farms came online, providing 8,400 megawatts of electricity-generating capacity, the equivalent of eight coal-fired power plants. Forty-nine wind farms were completed in the first half of this year, and 57 more are under construction. More important, 300,000 megawatts of wind projects (think 300 coal plants) await access to the grid so that construction can begin.

U.S. solar cell installations are growing at 40 percent a year. With new government incentives, this rapid growth in rooftop installations on homes, shopping malls and factories should continue.

Beyond this, solar thermal power plants that use mirrors to concentrate sunlight and generate electricity are going up fast in California, Arizona and Nevada. The availability of a molten-salt heat-storage technology that enables the plants to continue generating power up to six hours past sundown is spurring broad investor interest. About 6,000 megawatts of solar thermal power plants are under construction or development.

Oil use is declining, too. It has dropped precipitously for several reasons including the economic downturn, but also the growing insecurity about oil supplies and consumer concern about future gasoline prices. And gasoline use will drop further as the fuel economy standards announced in May raise the fuel efficiency of new cars 42 percent and light trucks 25 percent by 2016. The trend is strikingly evident in the new vehicle sales figures for the first eight months of this year, which show a significantly higher average of miles per gallon than the vehicles sold over the same period of last year.

Impressive though these gains are, the really big gains in fuel efficiency will come with the shift to plug-in hybrids and all-electric cars. Not only are electric motors three times more efficient than gasoline engines, but they make it possible to run cars on domestic wind-generated electricity at a gasoline-equivalent cost of 75 cents a gallon. As the low fueling cost becomes more apparent, the shift to plug-ins and all-electric cars will come far faster than most policymakers anticipate.

With carbon cuts, it's time to stop talking about political feasibility and start talking about scientific necessity. The science is scary. We need not go beyond ice melting to see that civilization is in trouble. The Greenland ice sheet is melting. If it were to melt entirely, and that obviously would take a few centuries, sea level would rise by 23 feet. The latest reports suggest that we are looking at a rise in sea level of up to six feet this century. Such a rise would inundate part or all of many low-lying coastal cities, such as London, Miami, New Orleans, Alexandria and Shanghai, producing millions of refugees. Such a rise would also inundate the rice-growing deltas of Asia, devastating harvests in Bangladesh and Vietnam.

The melting of the glaciers in the Himalayas and on the Tibetan Plateau will deprive the Indus, Ganges, Yangtze and Yellow rivers of the ice melt that sustains their flow during the dry season and the irrigation systems that depend on them. Let us not forget that China is the world's leading producer of wheat and rice. India is number two in each. Anything that reduces their grain harvests will raise food prices everywhere.

To have a decent shot at saving the larger ice masses means cutting carbon emissions 80 percent by 2020. This would halt the rise in atmospheric carbon dioxide (CO₂) concentrations, now 387 parts per million (ppm), at 400 ppm in 2020. We would then be able to start reducing atmospheric CO₂ concentrations to the 350 ppm that the U.S. government's leading climate scientist, James Hansen, says is necessary to stem global warming's most egregious effects.

If the United States pushes for an 80 percent cut, will the rest of the world follow? In particular will China, now the world's leading carbon emitter, cooperate? And what about India?

In times past, if countries resisted international initiatives, the international community could resort to trade boycotts, export embargoes or tariffs on exports from the offending countries. Bilateral penalties are also an option. The United States is, after all, China's largest export market.

But this situation is different because some countries are affected more directly by climate change than others and because an aggressive carbon-cutting effort attracts investment in the new energy industries. The two countries building the most coal-fired power plants -- China and India -- are among the countries whose food security is most directly affected by global warming. Smaller countries such as Egypt, South Korea and Japan can import half or more of their grain supply, but these two population giants cannot because the exportable supplies do not exist.

The good news is that China's strategy is changing fast, shifting to wind, solar and geothermal energy. Although the world is worried about China building a coal plant each week, and

rightly so, the pace seems to be slowing and, like the United States, China is closing many of its older, dirtier coal plants.

On the renewable front, China's wind-generating potential is seven times its current electricity consumption. Although a late starter, China is building wind farm complexes on a scale the world has not seen before. In recent years, the United States has led the world in new wind generating capacity, but within the next year, China will overtake the United States, moving so fast we might not even see it go by.

On the solar front, two-thirds of the world's rooftop water heaters are in China, and it's now the world's leading producer of solar cells. Earlier this month, China announced plans to build a 2,000 megawatt solar cell complex, a facility four times larger than any in the United States.

For India, the answer to the carbon-cutting challenge and to its future energy needs lies not only in wind energy but in the solar riches of the Great Indian Desert. The harnessable solar energy there could power the entire Indian economy. The new solar thermal power plants, which can generate electricity several hours after sundown, could wean India from its coal addiction.

Underlying the carbon-cutting question are: Where will the new energy industries be located? Who will be building the wind turbines, solar panels and highly efficient light emitting diodes? The countries that cut carbon emissions fastest will have a competitive advantage.

Stabilizing the earth's climate is a complex undertaking and fraught with risk. If the United States leads -- and does so boldly -- I believe the world will follow.

Lester R. Brown is the president of the Earth Policy Institute and author of the forthcoming "Plan B 4.0: Mobilizing to Save Civilization."

Post a Comment

[View all comments](#) that have been posted about this article.

Add a comment (max 5000 characters)

Submit

Comments that include profanity or personal attacks or other inappropriate comments or material will be removed from the site. Additionally, entries that are unsigned or contain "signatures" by someone other than the actual author will be removed. Finally, we will take steps to block users who violate any of our posting standards, terms of use or privacy policies or any other policies governing this site. Please review the [full rules](#) governing commentaries and discussions. You are fully responsible for the content that you post.

Ads by Google

Maryland Solar Thermal

Discover Solar Water Heaters Free, Solar Water Heater Assessment
www.AtisSun.com

Solar Power

We Design, Install & Service Your Panels. Start w. A Free Solar Eval
www.StandardSolar.com/SolarPower

Energy Audit by BGE HOME

Learn how to increase the comfort & energy efficiency of your home
www.BGEHOME.com