

## Gone with the Wind

*Renewables like solar power and others can't fuel America's future.  
Say experts: Just do the math. | by Jamie Dean*



About once a month, Robert Bryce climbs onto the roof of his Austin, Texas, home, lugging a long-handled mop. The science writer and Manhattan Institute fellow isn't cleaning gutters. He's cleaning solar panels.

The 3,200-watts of solar photovoltaic panels provide one-third of the electricity that Bryce's family consumes, slightly reducing his monthly power bill. But the panels aren't without problems: The start-up costs were high, the inverter has already broken once, and the panels require regular cleaning.

Bryce quickly wondered if the panels were worth the investment, and he soon realized that the limits of solar power for his Texas home extended to the rest of the country: Solar power won't run America anytime soon. Neither will wind power.

Yet that's precisely the direction many suggest taking: Congress was poised in late June to begin debating an energy bill that could require utility companies to generate more electricity from wind, solar, or other renewable energy sources. When President Barack Obama seized the Gulf Coast oil spill to push for a clean energy bill, he spoke of wind power, though wind has little immediate connection with oil: Wind produces electricity, not the kind of fuel that oil provides for cars. "You can build windmills from coast to coast, and

it doesn't do anything to help our oil situation," says Steven Hayward of the American Enterprise Institute (AEI).

But the president's push for government-funded wind and solar energy—and away from sources like coal and oil—isn't new. Obama's February budget proposal for 2011 included a 48 percent increase in government subsidies for wind power—from \$83 million this year to \$123 million in 2011. On solar energy, the president asked for a 22 percent hike—from \$247 million to \$302 million.

For Bryce, the problems with wind and solar power are simple: The math doesn't add up. The author of *Power Hungry: The Myths of "Green" Energy and the Real Fuels of the Future* (PublicAffairs, 2010), Bryce says wind and solar simply can't provide large amounts of power at a reasonable cost, a critical need for rich and poor countries alike.

Instead, Bryce and others point to already-proven energy sources they believe deserve more attention: natural gas and nuclear energy.

Natural gas, particularly, is abundant and available now. It's also easier to extract than oil and cleaner than coal. And—like nuclear power—natural gas trumps any wide-scale potential promised by wind or solar energy.

"I'm all for renewables," Bryce says. "I wish they worked better than they do. But our energy and power systems are not determined by carbon content or political correctness. They're determined by math and physics."

Math and physics offer stark realities about wind and solar energy. The most obvious problem: The sources are intermittent.

As Sen. Bob Bennett, R-Utah, ranking member of the Subcommittee on Energy and Water Development, told *Environment and Energy Daily*: "The wind doesn't always blow and the sun doesn't always shine."

To make the energy sources consistently reliable on a wide scale would require massive amounts of reliable storage—technology that doesn't exist on a cost-effective basis. Forcing utility companies to generate more of their power using wind and solar would likely raise energy costs for U.S. consumers.

Another problem: Wind and solar require massive amounts of land to produce and transport energy. The Nature Conservancy, a U.S. environmental group, published a report last year estimating that wind power requires about 30 times as much land as nuclear energy, and four times as much land required for natural gas.

The high costs, unreliability, and land usage aren't just a problem for prosperous nations like the United States. The dynamic is especially unrealistic for developing countries in desperate need of cheap energy for basic survival. Connecting the developing world to affordable sources of energy—including sources like coal and oil—and moving the poorest populations away from using sources like wood and dung, remains a critical way to raise the standard of living in some of the most miserable places in the world.

Cal Beisner of the evangelical Cornwall Alliance points out that energy policy in the United States isn't isolated: "The average American does not connect the person in Sudan cooking over dung with energy policy in the U.S."

But policies that would raise the cost of energy here also serve as a model to other nations and as a basis for international treaties on energy consumption, says Beisner: "Not only would those policies hurt Americans by raising the price of energy for all of us . . . they would also impose such policies on people who desperately need to be delivered from the dirtiest possible fuels."

How critical is cheap energy for developing countries? Bryce points out that Africa—a continent with 14 percent of the world's population—has developed only 3 percent of the world's electricity. Of the 15 countries in the world with the highest death rates, 14 of them are in Africa. Of the 22 countries with the highest infant mortality rates, 21 of them are in Africa. Many factors contribute to those high death rates, but a widespread availability of cheap energy would likely make life healthier for millions.

Back in the United States, if wind and solar remain unrealistic for large-scale, cost-effective energy, natural gas has already proven itself on both counts: Natural gas provided nearly a quarter of the nation's energy for electricity in 2009, second only to coal.

Advances in technology over the last five years have created a mini-revolution in extracting natural gas using new methods,

opening up new gas supplies all over the country. Hayward of AEI says fields are so vast, it's conceivable that the United States could become an exporter of natural gas over the next few decades. The new technology could also hold promise for developing countries still creating their power systems, if they embrace natural gas as a major source of energy that is far cleaner than coal.

Peter Huber, author of *The Bottomless Well* (Basic Books, 2005), sees another major use for natural gas: transportation. The United States consumes massive amounts of oil for vehicles each year, but Huber thinks natural gas could compete. He notes that some 10 million vehicles worldwide already run on natural gas. Vehicles would require more natural gas to travel the same distance, but Huber says modifications to vehicles over the coming years could accommodate the change. And since natural gas is cheaper than oil, the option could still be cost effective.

Major challenges remain: Natural gas pipelines—regulated by the federal government—would need to run to the gas stations that supply fuel, and the fuel still wouldn't work for every vehicle. And many critics cite safety concerns against using natural gas in vehicles.

Critics also worry that more drilling for natural gas could lead to groundwater contamination for nearby neighborhoods—a concern natural gas companies will need to acknowledge and monitor.

Natural gas advocates emphasize that gas isn't an energy silver bullet, and that any major energy transition will still take decades. But they insist the technology holds more long-term promise than wind or solar. In the meantime, they say we shouldn't abandon one of the best fuels we have: oil. Despite the devastating BP oil spill, oil advocates point out that major spills are rare, and that relying more heavily on imports could lead to tanker spills—already much more common than well leaks.

With any major energy transition still years away, Hayward says oil is here to stay for at least decades. "The 'problem with oil' is that it's such a terrific fuel, it's hard to match its performance and cost with anything else." Bryce agrees, and bristles when politicians complain about an abundance of fossil fuels.

"Without those fossil fuels, we would be returned to the incredible environmental destruction and nasty living conditions and incredibly hard labor of the 19th century," he says. "We would be living in dire poverty." ★

This article originally appeared in *World* magazine and is reprinted with permission. For more information on *World*, please visit [www.worldmag.com](http://www.worldmag.com).