**How Nuclear Power Can Stop Global Warming**

When the Atlantic Navigator docked in Baltimore harbor earlier this month, the freighter carried the last remnants of some of the nuclear weapons that the Soviet Union had brandished in the cold war. During the past 20 years more than 19,000 Russian warheads have been dismantled and processed to make [fuel for U.S. nuclear reactors](http://www.scientificamerican.com/article.cfm?id=finding-fissile-fuel). In fact, during that period more than half the uranium fuel that powered the more than 100 reactors in the U.S. came from such reprocessed nuclear weapons.

In addition to reducing the risk of nuclear war, U.S. reactors have also been staving off another global challenge: climate change. The [low-carbon electricity](http://www.scientificamerican.com/article.cfm?id=reactivating-nuclear-reactors-to-fight-climate-change) produced by such reactors provides 20 percent of the nation's power and, by the estimates of climate scientist James Hansen of Columbia University, avoided 64 billion metric tons of greenhouse gas pollution. They also avoided spewing soot and other air pollution like coal-fired power plants do and thus have [saved some 1.8 million lives](http://blogs.scientificamerican.com/the-curious-wavefunction/2013/04/02/nuclear-power-may-have-saved-1-8-million-lives-otherwise-lost-to-fossil-fuels-may-save-up-to-7-million-more/).

And that's why Hansen, among others, such as former Secretary of Energy Steven Chu, thinks that nuclear power is a key energy technology to fend off catastrophic climate change. "We can't burn all these fossil fuels," Hansen told a group of reporters on December 3, noting that as long as fossil fuels are the cheapest energy source they will continue to be burned. "Coal is almost half the [global] emissions. If you replace these power plants with [modern, safe nuclear](http://www.scientificamerican.com/article.cfm?id=nuclear-power-plant-safety) reactors you could do a lot of [pollution reduction] quickly."

Indeed, he has evidence: the speediest drop in greenhouse gas pollution on record occurred in France in the 1970s and ‘80s, when that country transitioned from burning fossil fuels to nuclear fission for electricity, lowering its greenhouse emissions by roughly 2 percent per year. The world needs to drop its global warming pollution by 6 percent annually to [avoid "dangerous" climate change](http://www.scientificamerican.com/article.cfm?id=dangerous-climate-change-imminent) in the estimation of Hansen and his co-authors in a [recent paper in PLoS One](http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0081648). "On a global scale, it's hard to see how we could conceivably accomplish this without nuclear," added economist and co-author Jeffrey Sachs, director of the Earth Institute at Columbia University, where Hansen works.

The only problem: the world is not building so many nuclear reactors.