

# Briefing: Rethinking nuclear power

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*Nuclear power, which fell out of favor in the U.S. three decades ago, is poised for a comeback. As the country searches for new energy sources, will the U.S.—and the world—have no choice but to embrace the nuclear option?*

## **Are there new nuclear plants under construction?**

Not yet. But after nearly 30 years without building a new plant, the U.S. nuclear industry is preparing to build as many as 29 plants over the next several years, representing an investment of up to \$90 billion. There are now more applications pending at the Nuclear Regulatory Commission than at any time since the 1960s. Outside the U.S., nuclear power's renaissance is already well under way. At least 50 plants are under construction in Europe, Africa, and Asia, including four in China alone. "People are starting to say, 'Let's have another look at this,'" said Ian Hore-Lacy of the World Nuclear Association, a trade group.

## **Why are nukes suddenly popular?**

Global warming has introduced a new nightmare that makes nuclear plants seem somewhat less frightening. Unlike plants that burn fossil fuels, nuclear plants produce enormous amounts of energy without emitting greenhouse gases, which cause global warming. Thanks to power already generated by nuclear energy, the U.S. each year releases about 190 million fewer tons of carbon dioxide into the atmosphere. The rising costs of oil and natural gas, and the environmental problems associated with coal, also have made utilities and public officials take a second look at nukes. Once nuke plants are built, they generate electricity at a lower per watt cost than oil, coal, and natural gas, yet that electricity is generally sold to consumers for the same price. Annual profit margins on nuclear power plants are said to be more than 200 percent.

## **So why aren't plants already being built?**

For one thing, the start-up costs—about \$4 billion per plant—can be prohibitive. Public opposition can add billions more to the price tag. One federal study found that the final cost of most of the 104 nuclear plants in the U.S. was at least double the original cost estimate, with some plants costing four times more than expected. These cost overruns can be largely traced to red tape: State and local officials can tie up utilities in legal and regulatory knots for years.

## **Why would they do that?**

Because many citizens dread living in the shadow of a nuke. The industry has never fully recovered from a triple whammy of bad publicity in the 1970s and

'80s. In March 1979, Columbia Pictures released *The China Syndrome*, a thriller about an out-of-control chain reaction at a U.S. nuclear plant. Twelve days later, an out-of-control chain reaction at the Three Mile Island plant in Pennsylvania cracked the reactor's containment vessel, leading to a release of radioactive ash. No one was injured, but in the public mind, those two stories—one fictional, the other real—merged. The final straw came in 1986, when an explosion ripped open the nuclear plant in Chernobyl, Ukraine, releasing radiation that killed 50 people, blighted the countryside for miles, and led to an epidemic of childhood thyroid cancer. "I think some people remember back to when our performance wasn't really that good," concedes Adrian Heymer of the Nuclear Energy Institute, a pro-industry group.

### **Is nuclear power now safe?**

That depends on your definition of safety. Since Chernobyl, nobody has been killed by a nuclear accident, though an unknown number of plant workers have been sickened from radiation exposure. Still, there have been dozens of mishaps. In 1999, operators of a Japanese nuclear plant lost control of a reactor for a quarter of an hour following an earthquake, then attempted to downplay the damage. Last year, a reactor in Bulgaria came close to overheating, after the failure of more than a third of the control rods used to moderate the reactor's temperature. Industry critics also point out that none of the 31 nations that produce nuclear power has found a safe, permanent way to store the toxic byproducts of spent fuel, including plutonium, the key ingredient of an atomic bomb. (See box).

### **What do environmentalists think of nuclear power?**

Because of global warming, they're now bitterly divided. Some of the environmental movement's senior statesmen—including Stewart Brand, founder of the Whole Earth Catalog, and Greenpeace International founder Patrick Moore—have become vocal supporters of nuclear power. Nuclear energy, says Moore, "may just be the energy source that can save our planet." But Greenpeace itself remains passionately opposed. Nuclear energy "is dangerous," says Greenpeace spokesman Nigel Campbell. "It's a drop in the ocean when you consider how much [power] it really produces."

### **So how does society decide?**

It comes down to a question of balancing risk and benefit. Today, American nuclear plants produce 20 percent of the country's energy. Just to maintain that share in the face of rising energy demand, the U.S. would have to build at least 30 new plants by 2025. Leon Reiter, a former member of the Nuclear Regulatory Commission, admits that opening dozens of new plants carries some risk, as well as creating tons of nuclear waste that will have to be safely stored for thousands of years. But as coal and oil grow scarcer and costlier and the planet heats up, he says, we may have little choice but to accept those risks. "It's hard to imagine any way for us to come up with the energy we need without nuclear power," Reiter says.