

# Nuclear Energy

## The Enduring Challenge of Radioactive Waste

Excerpt from *Powering Our Future: An Energy Sourcebook for Sustainable Living*. The text was modified to fit the website.

The panacea of future energy promises cheap, clean, abundant electricity to every global citizen. Upon its inception, nuclear energy was hailed as the energy source "too cheap to meter," indicating that it would be produced so inexpensively that utility companies would cease meter installation on buildings. Nuclear energy made a striking debut in the 1950s as nuclear optimists claimed to have discovered the ultimate source of energy. For over two decades, a nuclear mania swept across continents, and then it stalled. Engineering difficulties and unexpected system failures soon dispelled the technological hubris that accompanied the dawn of the nuclear age. Nuclear power remains highly controversial in many parts of the world. Many nations are committed to downsizing or phasing out their nuclear programs. However, in the face of global warming, fossil fuel price volatility, and a growing demand for electricity, many nations may begin promoting nuclear power as a viable solution to current challenges.

The challenge of handling and disposing of radioactive wastes has plagued legislators and engineers around the world for decades, proving to be a much greater obstacle than originally estimated. Many countries are delaying deep burial of radioactive waste, in the hope that scientists will find a more acceptable solution. High-level radioactive waste storage must reliably isolate waste from the environment for tens of thousands of years. Worldwide, there are approximately 200,000 tons of radioactive nuclear waste from utility companies and military operations contained in temporary storage for the reason that no one has drafted an acceptable solution for safely transporting and storing the waste. Unfortunately, storage at many temporary sites is on the brink of reaching capacity. Meanwhile, public concern has been exacerbated by heightened global terrorist activity. In response to the global rise in terrorist incidents, beginning with Sept. 11, 2001, security at nuclear plants has been significantly tightened. Nevertheless, pressure on federal governments to find an adequate solution to waste disposal is intensifying.

While nuclear power will not disappear from the energy mix in the foreseeable future, it is unlikely that it will take a leading role in fulfilling the global population's growing energy demands. Splitting atoms offers the enticing advantages of being emission-free and derived from a fuel source that is stable both in price and supply. Unfortunately, these facts often overshadow the realities of this energy source - namely, that exorbitant capital costs, radioactive waste disposal, and other safety risks weigh upon the industry as inescapable shackles. The true cost of nuclear is distorted by the high costs absorbed by the government. The fact is undeniable that nuclear energy is not economically competitive, even when compared to most renewable energy sources. Furthermore, nuclear energy is ridden with safety hazards that could harm us not only today, but thousands of years from now. Unless a sound solution is developed to safely handle this toxic byproduct, we will all continue to be at risk of catastrophic damage.

**Source** [http://www.ucsusa.org/clean\\_energy/renewable\\_energy/page.cfm?pageID=74](http://www.ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=74), accessed November 12, 2004. The Union of Concerned Scientists provides a Web site entitled "A Short History of Energy." It was updated on February 18, 2003. UCS is a group of scientists committed to environmental change through citizen advocacy. This independent organization has more than 100,000 supporters and participating activists.