

Exchange

Nuclear Power: An Exchange

By Kevin Cahill, Reply by Bill McKibben

In response to Some Like It Hot[Ⓔ] (JULY 5, 2001)

To the Editors:

I was disappointed by Bill McKibben's dismissal of nuclear power—"Ask yourself how eager you are to have such a plant built near you, or to live near a site for storing nuclear waste"—in his article "Some Like It Hot" [NYR, July 5].

Energy policy should be based on science, engineering, economics, and ethics. A rough way of getting the ethics right is to estimate the number of deaths likely to result from different energy policies. Here are my numbers:

Each year in the United States, we burn about a billion tons of coal, producing atmospheric pollution and carbon dioxide. The pollution may kill 10,000 Americans per year.^[1] The effect of the carbon dioxide on global warming is hard to estimate, but the annual death rate from future global warming could exceed a million, mostly in the third world. Every year 35 or more American miners die in coal mine collapses, and another 1,500 die of black lung disease.^[2]

Per unit of useful energy, the pollution and carbon dioxide from oil and gas are less than half as harmful as those from coal. But for the sake of oil, we killed 20,000 Iraqis during the Gulf War^[3] and caused the deaths of hundreds of thousands afterward by our destruction of Iraqi infrastructure and by our sanctions.^[4]

How many die from nuclear power, which produces 19 percent of our electricity with no release of atmospheric pollution or carbon dioxide? There have been no deaths, ever, due to the use of nuclear power in the US or in Western Europe, and only two in Japan. (Thirty-one people were killed by the Chernobyl disaster,^[5] and there have been at least twelve fatal cases of thyroid cancer,^[6] but a reactor of that kind has never been built in an affluent country.) Modern techniques for building and running nuclear power plants and for permanently securing or reprocessing their waste are safe.^[7]

that have frustrated its realization.

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Bill McKibben *replies:*

Thanks to Professor Cahill for his response. It is a good sign that the scientific debate around global warming has shifted from whether or not it's real to what on earth we should do about it—his calculations of the potential human toll from global warming is not alarmist but realistic. Realistic is also what I was trying to be about nuclear power when I suggested in my article that those who pin their hopes on atomic energy may be disappointed. Because of the inherent potential dangers of atomic generation of electricity, citizens have long been wary. Whether or not they have been too wary is a difficult question, but in a way it hardly matters. Because of the huge capital costs, nuclear plants have long been economically unattractive, even with enormous government subsidy. With the new questions raised by the September 11 attacks, the costs of building such facilities in the future will only grow.

I believe Professor Cahill is perhaps over-optimistic in his estimate that nuclear plants have little to fear from terrorist attacks. It is nice to know that two of the 103 have been hardened to withstand the impact of a 727; still, it leaves room for some worry. The one study on this question, published in 1974, concluded, according to a recent article by Matt Bivens in *The Nation*, that "some reactor containment structures had zero chance of sustaining a hit by a 'large' plane, defined as more than 6.25 tons. The 767s that hit the World Trade Center weighed 150 tons." Other experts in recent days have pointed out that spent fuel pools maintained at reactors are likely targets. In the words of an official of the Nuclear Regulatory Commission, when the plants were designed "no one had conceived" of an attack like last month's.

As for Cahill's assertion that the plants have "elaborate defenses against ground attack," reporters in recent weeks have talked with David Orrick, a former US Navy Seal, who guided a team hired to test those defenses. It turns out that the plants, though warned in advance of the exercises, failed the tests half the time. The reaction of the nuclear industry was to demand that the independent tests be scrapped in favor of "self-assessments," a proposal currently before Congress.

Readers looking for a thorough account of nuclear power's past and future, though one perhaps already dated by the terror attacks, should consult *Megawatts and Megatons* by Richard Garwin and Georges Charpak, which was published this

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