Global Warming and Nuclear Power

A recent Massachusetts Institute of Technology (MIT) study on the future of nuclear power argues that nuclear power should be maintained as an energy option because it is an important carbon-free source of power that can potentially make a significant contribution to future electricity supply. Unfortunately, the study also observes, based on a survey of adults in the United States, that those who are very concerned about global warming are no more likely to support nuclear power than those who are not. Other evidence suggests that the responses in Europe would not be very different. As a result, the MIT authors conclude that public education may be needed to broaden understanding of the links among global warming, fossil fuel usage, and the need for low-carbon energy sources.

For those who are concerned about our future climate, the survey should be disturbing. A realistic response to global warming should involve harnessing a variety of energy options: increased use of renewable energy sources, sequestration of carbon at fossil-fuel plants, enhanced efficiency in energy generation and use, and increased reliance on nuclear power. Because public misunderstanding is likely to manifest itself in the political arena, greater appreciation of the relation between nuclear power and emissions reduction may be essential if use of the nuclear option is to be significantly expanded.

Unfortunately, two institutions that might be expected to explain the facts are largely silent on this issue. Environmental groups include a large and dedicated antinuclear constituency, so even environmentalists who might give nuclear a second look might hesitate to embrace that view publicly. The nuclear industry is reluctant to advance the case because generating companies also rely on fossil-fuel plants (primarily using carbon-intensive coal) for electricity production. This sector thus has a strong disincentive to use global warming as a justification for nuclear power because of the implication of that argument for other components of the companies’ supply portfolios.

As for the Bush administration, it has aggressively supported nuclear power but has carefully avoided emphasizing the link between nuclear power and the global climate’s response to increasing concentrations of greenhouse gases. This no doubt reflects the hesitancy that has characterized the administration’s approach to the global warming issue.

We thus confront a paradoxical situation. Those who should be the strongest advocates of nuclear power—environmentalists, governmental policy-makers concerned about global warming, and generating companies with an economic stake in nuclear’s future—are unable or unwilling to advance the most compelling argument in support of it. Without advocacy by those who see the benefits of nuclear power, it is only to be expected that full exploitation of the nuclear option will be limited or deferred indefinitely.

Of course, any support for nuclear power should recognize the challenges it presents. Nuclear power is unacceptable unless operators are committed to safe operations and the Nuclear Regulatory Commission exercises careful and detailed oversight. Continuing progress toward the safe final disposition of nuclear waste must be demanded. And tightening safeguards against the diversion of commercial technology to weapons use deserves to be given a high priority around the globe.

Fortunately, all of these challenges can be met. Nuclear power plants have better safety performance today than ever, and future generations of reactors will have design modifications that enhance safety even further. Although debate continues about whether Yucca Mountain is an appropriate disposal site for nuclear waste, the scientific community is in agreement that deep geological disposal somewhere will be a satisfactory means for the disposition of spent fuel. And strengthened international institutions and commitments hold the promise of preventing nuclear power from contributing to the proliferation of nuclear weapons.

For those who are serious about confronting global warming, nuclear power should be seen as part of the solution. Although it is unlikely that many environmental groups will become enthusiastic proponents of nuclear power, the harsh reality is that any serious program to address global warming cannot afford to jettison any technology prematurely. Careful weighing of the risks supports the conclusion that nuclear power at the least must be a bridging technology until other carbon-free energy options become more readily available. The stakes are large, and the scientific and educational community should seek to ensure that the public understands the critical link between nuclear power and climate change.

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*S. Ansolabehere et al., The Future of Nuclear Power: An Interdisciplinary MIT Study (Massachusetts Institute of Technology, Cambridge, MA, 2003).