

Why People Fear Nuclear Power

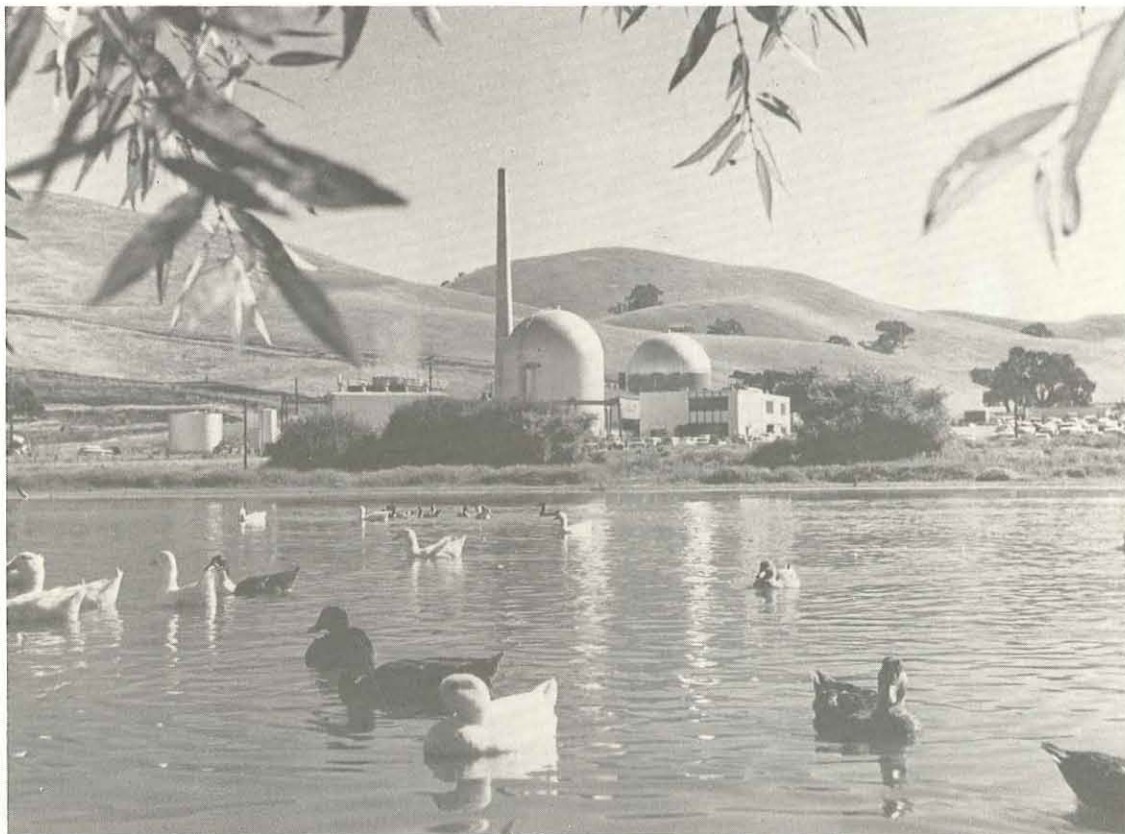
The debate over nuclear power, in the United States at least, is *the* technological debate of our times. Deep and acrimonious controversy surrounds the complicated set of risks and costs belonging to the production of nuclear energy. Is nuclear power a comparatively cheap or expensive way to produce electricity? Massive public subsidies for nuclear- and coal-generated energy make clear assessment of comparative economic value difficult; and while operating costs of nuclear plants may be lower than coal plants, construction costs are far higher, and "back end" costs of decontamination and waste disposal have not even been calculated. Do the risks of future Three Mile Islands and nuclear weapons proliferation make nuclear power too dangerous to pursue? The estimates of these risks are hotly disputed.

Questions about the risks and economics of nuclear power are putatively empirical questions. But even if these were definitively settled, the public fear

of nuclear power would be unlikely to go away. No new empirical facts or studies have much impact on public opinion in this area, nor do those involved in making or lobbying about nuclear policies think this impasse is likely to dissolve. Nuclear power is symbolic, and it has become a surrogate for a debate about some broadly social issues. In examining the possible reasons why people fear nuclear power, we raise a host of other concerns about the role of experts, the acceptance of risk, and the distribution of power in our society.

Leaving Nuclear Technology to the Experts

Defenders of nuclear power sometimes charge that people are afraid because they are hopelessly ignorant about the facts of nuclear technologies, and led astray by an almost equally ignorant and often irresponsible press. This account presupposes that the



public opposition is basically technical, but misinformed.

It may be, however, that the contending parties have different political agendas in the dispute that centers on this technology. The nuclear power controversy is a political war, and the participants on both sides may be pursuing other goals on the battleground over health risks and safety standards, if this is where they think they can most easily achieve them. The perception of health and safety risks, by both experts and non-experts, is strongly colored by these other factors. Someone who thinks that nuclear technologies have bad political implications will tend to see the health risks as worse than others see them. And someone who is acutely aware of the economic costs of safety equipment might tend to see the risks as lower than others see them. The experts are not without their own political axes to grind, and objective assessments are hard to identify.

Furthermore, any "expert" who wants to render some general judgment about nuclear power must address subjects beyond his or her area of special competence. The issues involved require a greater understanding of physics, engineering, medicine, epidemiology, geology, economics, systems analysis, psychology, management techniques, and so on, than any individual can muster. So, in a sense, there are no experts, no individuals who have special insight into all the technical areas, let alone the non-technical ones.

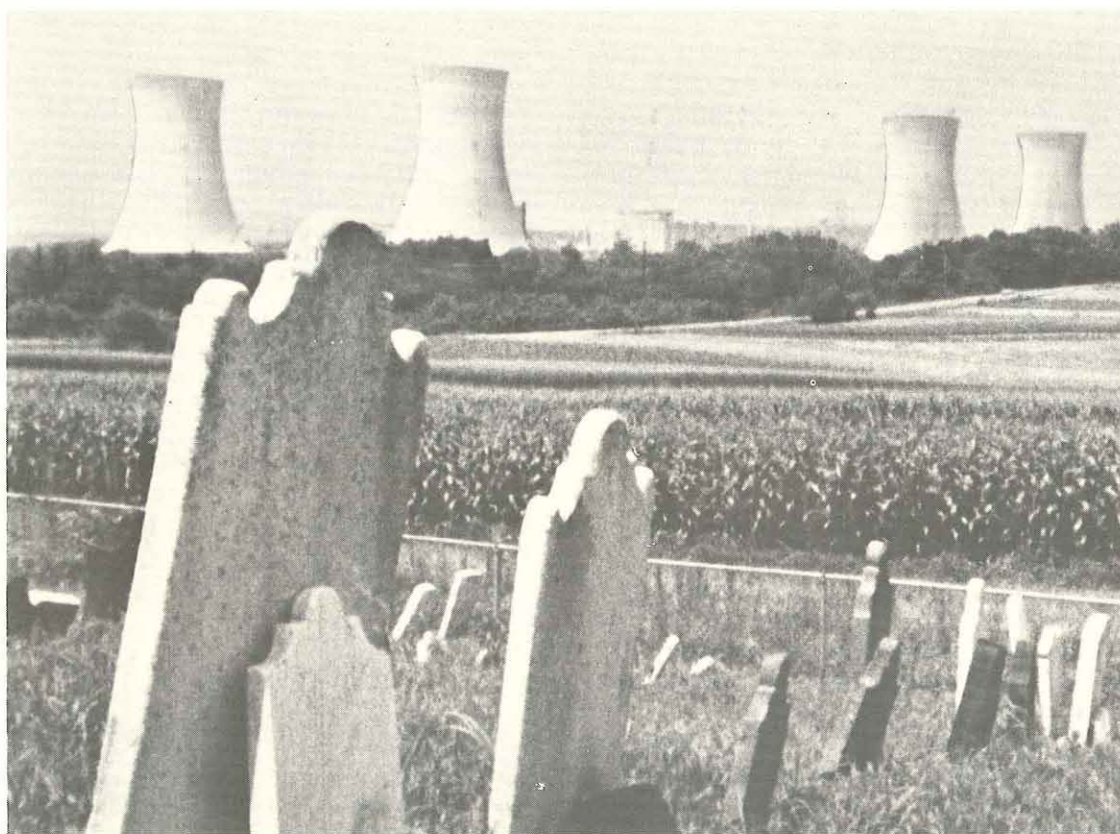
Finally, rather than relying on experts to assess nuclear technology, people increasingly want a technology for which such blind reliance is unnecessary. One technology may be preferred to another because it allows those served by it to make their own autonomous decisions about its risks and costs. If nuclear power requires a surrender to the authority of experts, this may itself constitute a reason to reject that technology.

Technological Pessimism and Aversion to Risk

A second view is that people fear nuclear power because they are extraordinarily risk averse about nuclear power and basically pessimistic about new and sophisticated technologies.

The claim about technological optimism and pessimism can be dismissed as a red herring. Opponents of nuclear power are often quite optimistic about, say, the commercial feasibility of photovoltaic cells or sophisticated systems for converting biomass to fuel. Some nuclear engineers are paradigms of techno-

Perceptions of nuclear risk vary with the political and economic perspective of the observer. Photo left courtesy General Electric Nuclear Energy Division and the Atomic Industrial Forum. Photo right courtesy Parallel Films, from We Are the Guinea Pigs.



logical pessimism when they talk about solar power. Optimism and pessimism are technology-specific.

The risk-aversion charge is more serious. The public expresses fear about nuclear power far out of proportion to fear about other threats to their well-being. The risks of acid rainfall, for example, seem to inspire less general concern than risks of toxic radioactivity, even though the probability and magnitude of the former may make them no less threatening.

There is nothing necessarily irrational, however, about refusing a risk that is measurably lower than other risks one accepts. This would be clearly irrational only if the *qualities* of different risks (as opposed to the measurable balance of expected harms and benefits) are irrelevant to a rational decision to accept or reject them. This is at least counterintuitive.

The risks posed by nuclear power have several very special and disturbing characteristics. First, the risks and benefits are distributed differently across generations. The toxicity of nuclear wastes spreads risks over millennia, while the foreseeable benefits of using nuclear power are near-term in comparison. Thus the question of moral obligations to future generations is raised in dramatic form.

Second, the risks of nuclear power are in many cases catastrophic risks. These risks have a very low probability of occurrences with nearly infinite costs. Apart from the very real problem of assigning meaningful probability estimates to such catastrophes, it is difficult to know how we should evaluate them morally. One accident killing 50,000 people may be worse than a series of 50,000 single-death accidents.

Third, the risks of nuclear power include risks of genetic mutations as well as the risk of cancer. Even if the dose-response relationships are similar for these two kinds of feared side-effects, we might think one risk is a more serious concern. Women, for example, are significantly more likely than men to oppose nuclear power, perhaps primarily because of their more acute concern for the genetic effects of radioactivity on the unborn children of future generations. Some ill effects—including some ways of dying—are more dreaded than others. It matters to us not only when and where we die, but how, and the suffering we bequeath our children may matter to us still more. The nature and quality of these nuclear risks determines—and should determine—our judgment of their acceptability.

Choosing a Way of Life

Finally, people may fear nuclear power because of the kind of economic and political system—the kind of life—that they feel inescapably accompanies it. Following Amory Lovins, many people see our energy policy in the United States as embodying an exclusive choice between a nuclear future (the “hard” path of technological development) and a solar one (the “soft” path). Nuclear technologies are thought by these critics to be necessarily highly capital-intensive and

highly centralized in their deployment, as a system for producing and distributing the socially basic good of electricity. Solar, or soft, technologies, on the other hand, are thought to be compatible with, or even to encourage, a decentralized superstructure of deployment and production. Nuclear technologies, then, are likely to concentrate capital and power in the utility and oil industries (who own most of the uranium) to an even greater extent than they are concentrated today.

Some people believe that this path of develop-

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ment, like some other trends toward concentration of wealth and power in fewer and fewer industries, threatens the ability of individuals or even nations to control their own destinies. If the technology for producing energy requires centralized control, and if political power depends largely on energy, then technological development in the area of energy production can determine the distribution of social and political power in our world.

Fortunately, however, the dangers posed by the concentration of wealth and power can be resisted, for people can govern themselves and block this concentration. They can define individual rights and principles of distributive justice that they will act to defend. This is one of the primary purposes of government in a democratic society. We can make political decisions about the governmental and economic structures that our children will inherit.

This sociodynamic reason for fearing nuclear power calls our attention to the kind of society we will create by the economic and technological decisions we make. Like the fear about risks, it forces us to confront our moral requirements to future generations. Both these fears serve as reminders that economic considerations, though crucial, are not the only considerations. It is not only a level of welfare that is at stake in the nuclear power controversy, but a kind of life as well.

This article is drawn from “Understanding the Nuclear Power Controversy,” by Douglas MacLean, Research Associate at the Center for Philosophy and Public Policy. He is co-editor with Peter G. Brown of Energy and the Future, in preparation, and is currently completing a book on the ethics of energy policy.