
BACKGROUND BOOKS

NUCLEAR ENERGY

Because the choices are more difficult and energy technology is far more intricate than in the past, few writers have yet mastered the complexities of the energy problem in its broadest sense. The most interesting books have been the product of group efforts or have focused on special aspects of the energy debate.

One early attempt to take a comprehensive look at America's energy options following the Arab oil embargo of 1973 turned out to be the most controversial. **A Time to Choose: America's Energy Future** (Ballinger, 1974, cloth and paper) is the final report of the Ford Foundation's three-year, \$4 million Energy Policy Project designed "to explore the range of energy choices open to the United States and to identify policies that match the choices."

The study was supervised by S. David Freeman, now chairman of the Tennessee Valley Authority, and a distinguished, if disparate, panel of advisers. It presents three very different "scenarios" for U.S. energy growth up to the year 2000 and discusses the economic and social implications of each.

A "Zero Energy Growth" option, involving substantial conservation and strong federal curbs on demand, is the one favored by Freeman and the study staff. It is also the option described as ideologically motivated and shoddily contrived by critics of the Ford report, including Herman Kahn, of the Hudson Institute, and U.C.L.A. economist Armen A. Alchian, in **No Time to Confuse** (San Francisco: Institute for Contemporary Studies, 1975, cloth and paper).

The Ford Foundation report, says Alchian, is "inexcusably ignorant of economics."

The controversy persists. In 1977, two of the advisers to the Ford study were still arguing its validity. In **A Debate on a Time to Choose** (Ballinger, 1977), William Tavoulaareas, president of Mobil Oil Corporation, attacks the staff report as "a blatant effort" to substitute pervasive government controls for free market forces, while Dr. Carl Kaysen, an M.I.T. economist, defends the report: "Its technical analyses and its principal message [stressing conservation] . . . look better and better as history and comparable analyses accumulate."

Somewhat more readable is **Future Strategies for Energy Development: A Question of Scale** (Oak Ridge, Tenn.: Institute for Energy Analysis, 1977, paper only), the proceedings of a 1976 energy conference sponsored by the Oak Ridge Associated Universities. Ten essays address the question: Will energy continue to be supplied by large, centralized systems that consume massive quantities of primary fuels (coal, oil, uranium) and distribute energy by long-distance networks? Or will there be a shift to a decentralized energy economy in which energy sources are shaped to local needs, distribution distances are shorter, and the fuels (such as solar power) are renewable?

One of the essayists is an articulate member of the small-is-beautiful faction, physicist Amory B. Lovins. He lays out his "Hard Path/Soft Path" approach. Artificially cheap energy

has produced distribution systems that are out of kilter, Lovins argues. What we need, he says, are small scale, limited distribution, decentralized, labor-intensive energy technologies, such as solar heating.

Lovins is challenged by West German physicists Wolf Haefele and Wolfgang Sassin. They argue that worldwide population growth and urbanization must inevitably lead to higher per capita energy consumption that can only be satisfied by large centralized energy supply systems, relying on a combination of fossil fuels, breeder reactors, and solar power.

The Nuclear Power Controversy (Prentice-Hall, 1976, cloth and paper), a short book of essays, was produced by Columbia University's American Assembly. Included are a straightforward discussion by several specialists of various aspects of nuclear energy systems—safety, regulation, proliferation, etc.—and a final, somewhat emotional attack by chemist George B. Kistiakowsky, who argues, "I find that the technology is not ready for a massive expansion of nuclear power and that our society is not ready to live with it."

A gloomy examination of the nuclear proliferation issue by the congressional Office of Technology Assessment, entitled **Nuclear Proliferation and Safeguards** (Praeger, 1977), offers useful information on the close link between the spread of commercial nuclear reactors and the spread of the capacity to produce nuclear weapons.

This treatment includes nine appendixes, largely prepared by outside contractors, which cover, unevenly, such specific issues as the terrorist threat, the international nuclear industry, and safeguards administered by international insti-

tutions. The glossary and bibliography are excellent.

Nuclear weapons are relatively easy to make, and the requisite fissionable material is being produced in relatively large quantities in nuclear power plants. Law professor Mason Willrich and physicist Theodore B. Taylor in **Nuclear Theft: Risks and Safeguards** (Ballinger, 1974, cloth and paper) argue for more effective defenses than currently exist. They recommend a system of safeguards for each step of the nuclear fuel cycle and the creation of a federal security service to protect nuclear weapons materials.

Participants in a seminar on nuclear energy held in Gatlinberg, Tenn., in December 1976 ranged from ardent antinuclear spokesmen to passionate nuclear advocates, from college professors to utility executives. They were brought together by the Oak Ridge Associated Universities in hopes of producing some useful ideas that might help resolve, or at least moderate, the "great debate" on nuclear energy.

The results of that effort can be found in **An Acceptable Future Nuclear Energy System** (Information Service Division, Institute for Energy Analysis, P.O. Box 117, Oak Ridge, Tenn. 37830, 1977, paper only). The proceedings opened and closed without consensus, but the discussion ranges widely.

The question of using plutonium—as a more efficient successor to uranium—in the nuclear fuel cycle is at the center of current debate. A Nuclear Energy Policy Study Group, sponsored by the Ford Foundation and administered by the Mitre Corporation, concludes in **Nuclear Power Issues and Choices** (Ballinger, 1977) that "there is no compelling reason at this time to introduce

plutonium or to anticipate its introduction in this century." While nuclear power will continue to provide a significant portion of the world's electricity, the plutonium decision can be safely deferred while other safe, nonnuclear energy alternatives are explored.

Theological considerations are explored in **Facing Up to Nuclear Power** (Westminster, 1976, paper only), published under the auspices of the World Council of Churches. The volume includes the text of the 1975 "Ecumenical Hearing on Nuclear Energy" held at Sigtuna, Sweden, and a broad range of views on the "Faustian bargain" between nuclear scientists and society. Third World contributors argue, among other things, that the less developed countries can never meet their future energy needs without nuclear power.

One would not expect the Sierra Club and Sheldon Novick, editor of *Environment* magazine, to produce a pronuclear book. But **The Electric War: The Fight Over Nuclear Power** (Sierra Club/Scribner's, 1976) is not an unrelenting antinuclear diatribe.

Novick chronicles nuclear progress since Hiroshima and notes a wide spectrum of views and interests to illuminate the points of controversy. The utility industry occupies center stage as Novick's villain, but he concedes that nuclear power is now a

fact of life in the United States.

On the other hand, **Unacceptable Risk: The Nuclear Power Controversy** (Bantam, 1976, paper only) is a passionate antinuclear tract given to predictions of approaching ruin. McKinley C. Olsen, the author, relies heavily on the testimony of four disaffected nuclear engineers. One of them, Gregory E. Minor, from General Electric's nuclear energy division, says, "We cannot design to cover the human error, and I am convinced the safety of nuclear reactors hangs on the human error."

A mirror image of *Unacceptable Risk* in the popular mode is **Critical Mass: Nuclear Power, the Alternative to Energy Famine** (Nashville: Aurora, 1977). Author Jacque Srouji, an American journalist and onetime critic of nuclear power, executed an abrupt U-turn after spending a year investigating more closely the validity of information on which she based her earlier stories. She concludes that "the confusion in the public mind in interpreting *what might happen* in the *most unfavorable combination of circumstances* with what actually *will happen* has been one of the major sources of difficulty in discussing the issues of nuclear energy" (italics hers).

It is a difficulty that, unfortunately, none of these books, including hers, entirely overcomes.

EDITOR'S NOTE. *Help in selecting these titles came from former Wilson Center Fellow Chester L. Cooper, onetime White House official and now an energy specialist.*