Ford-MITRE Study: Nuclear Power Yes, Plutonium No

Just weeks before President Carter is due to deliver his first major energy message, a prestigious panel of experienced science policy advisers has recommended that while nuclear power should be part of the national energy mix, many cherished nuclear programs should be reoriented, delayed, or canceled.

Citing proliferation as "the most serious risk associated with nuclear power," the panel of 21 scientists, economists, and political scientists recommended that the United States should shelve its plans for reprocessing nuclear fuel and should slow the program to build a breeder reactor by "10, 20 or more years." While the group favored a low-profile breeder program for "long-term insurance," it also cautioned that the option of bypassing the breeder altogether should not be prematurely foreclosed. The panel made strong recommendations on several other nuclear issues, but its strongest blows were landed—at what may be a crucial time—against the arguments for a plutonium economy.

On the day the report was released last week, the group was called to the White House for a briefing with President Carter, which one participant described as "compatible," saying that he seemed "generally pleased." White House energy adviser James Schlesinger and other top officials have also been briefed on the group's unconventional conclusions.

While not every 418-page report on a timely subject carries great weight in Washington, there are other reasons to think that the new study, sponsored by the Ford Foundation, will be read closely at the highest echelons. Two of the study members—Harold Brown from Caltech and Joseph Nye from Harvard—have key positions in the current Administration. Brown, whom Carter has jokingly referred to as "my physics adviser," is Secretary of Defense and Nye is now in the State Department heading up the group that is preparing the Administration's working paper on nonproliferation. The 1-year Ford Foundation study, entitled *Nuclear Power, Issues and Choices*, was planned as a logical follow-on to the earlier series of energy studies by the Foundation and was originally intended to oil the waters of the increasingly polarized nuclear debate. For that reason, it was determined that the participants should not have previously taken extreme positions on the nuclear controversy and no exceptions to the rule are obvious. The group includes economists Kenneth Arrow of Harvard and Hans Landsberg of Resources for the Future, physicists Wolfgang Panofsky of Stanford and Richard Garwin of IBM, political scientist George Rathjens of MIT and Carl Kaysen, now at MIT and formerly director of the Institute of Advanced Studies at Princeton. The study was chaired by Spurgeon Keeney of the MITRE Corporation.

With impeccable establishment credentials and years of experience as Washington insiders, the Ford Foundation study group should not have been expected to come to radical conclusions—and with respect to the issues raised in last year's nuclear initiatives, it did not. The group doubted that solar energy, fusion, and other prospective new energy sources would supply much power until well into the next century. Coal and uranium were judged the optimum energy choices for the future, probably sufficient for a century because uranium reserves are now "substantially underestimated." The rising cost of energy was not expected to stop economic growth or force changes in life-styles by itself. The amounts of oil and gas were predicted to diminish toward the end of the century, but the group found that "the world is not running out of energy."

Looking at the probable demand for electricity in the future, the Ford study group favored the low end of the range of estimates that have been made. This conclusion, together with the optimistic assessment of uranium supplies and great importance attached to the international risk of proliferation, led the group to some program-shaking conclusions.

- Reprocessing and plutonium recycle should be deferred indefinitely and the government should not subsidize or take over the half-finished Barnwell, South Carolina, reprocessing plant either as a demonstration plant or a multinational center. There is "little or no economic incentive" to use plutonium in the light water reactor fuel cycle (see page 43).
- The breeder program should be restructured to emphasize early commercialization and to stress a more flexible approach to basic technology. The $2 billion Clinch River prototype demonstration project "is unnecessary and could be canceled without harming the long-term prospects for breeders."
- The waste disposal program should be accelerated and "greatly improved." Reprocessing is not necessary for waste disposal, as many have been conditioned to think, but the large quantities of wastes from military reprocessing should be safely disposed of as part of a demonstration program.
- The uranium enrichment capacity of the three recently expanded government plants is sufficient for the 1980's, and there is "ample time" to add additional capacity. The report thus implied that the new private plant that was voted down in Congress last year was not needed and that the government backup plan for a fourth plant is also too ambitious.
- The uranium resource evaluation program should be revamped because it is "almost entirely" dependent on private efforts.
- The Rasmussen report on reactor safety "seriously underestimates" uncertainties and has methodological flaws that could make its estimate of accident hazards low by a factor of 500.

The Ford study group concluded that it may never be possible to get agreement on nuclear risk by making theoretical predictions, and recommended more effort to reduce the consequences of a nuclear accident. Although the health and accident hazards of nuclear power were found to be "less than or in the range of" the effects of generating electricity with coal, the dangers of reliance on coal were not discounted. The group found that coal utilization does cause a greenhouse effect, but that the consequences of it cannot be assessed yet because the earth's climate is in a cooling trend. Economically, nuclear power and coal were found to be roughly comparable, with nuclear holding a slight advantage that could change—a mix of the two was favored to hedge against future problems.

Much of the analysis in the report is done from an economic perspective. Although nuclear power was endorsed for industrialized nations, the study group concluded that nuclear power could be ruled out for many developing nations and that the prospect of a large export market for breeders in this century is "illusory."—WILLIAM D. METZ