BOOK REVIEWS

Technology in the Policy Process: Controlling Nuclear Power *by David Collingridge*
(Frances Pinter, London, 1983) pp. xvii + 254, £16.00 (hb), ISBN: 0-86187-319-X

The technology and politics of nuclear power provide a valuable test case for many areas of inquiry, including the role of the state in technological development, the influence of technical experts and the methods and effectiveness of citizen movements. The reasons why nuclear power is such a useful test case include its close connection with nuclear weapons and its link with centralised power and economic power via large size, high capital costs, dependence on expertise and potential for environmental catastrophe through accident or terrorist attack.

David Collingridge in this book has used nuclear power to test theories of policy making. As such, the book has two linked themes: the adequacy of theories of policy making for dealing with the case of nuclear power, and the characteristics of nuclear power itself as a subject for political control.

Collingridge deals with two theories of policy making. One, synoptic rationality, is ruled out because it requires comprehensive information about future options which in practice cannot be obtained. The other theory of policy making analysed is Lindblom's partisan mutual adjustment, an incremental change approach based on different groups of partisan decision-makers each studying and pursuing their special briefs or interests. This incremental theory does not work with nuclear power either. However, Collingridge thinks partisan mutual adjustment can be salvaged by excluding technologies from consideration which are inflexible. Nuclear power is a prime example of inflexible technology.

The features of nuclear power which make it inflexible are its high capital cost and capital intensiveness, its long lead time, large unit size and dependence on complex infrastructure such as uranium enrichment. These features mean that any policy errors made in introducing nuclear power will be very costly and difficult to rectify. Collingridge examines the history of nuclear power in Britain, the United States and France and finds strong empirical support for this conclusion. He then analyses the breeder reactor and finds that it is even more inflexible than thermal nuclear power.

The reason that partisan mutual adjustment cannot deal with nuclear power is that the nuclear fuel cycle is a non-incremental change, due to the inflexible nature of the technology. Collingridge concludes that such inflexible technologies do not deserve development and, in particular, that further research and development on the breeder should be terminated.

Collingridge presents a closely argued case. Much of this is quite valuable, for example his systematic demolition of the argument that nuclear power should be developed as a hedge against future energy shortages. But the close argumentation is also to some extent a shortcoming of the book. The repetition of the arguments about inflexibility makes for a tedious and uninspiring presentation. It would seem that a much shorter treatment would

have sufficed to discredit synoptic rationality and to show that incremental decision making cannot deal with the special characteristics of nuclear power. While Collingridge makes passing references to other inflexible systems, such as ports, airports and freeway systems, no such areas are analysed.

A difficulty in writing about nuclear power is maintaining one's credibility to a particular audience. Collingridge has set out to make intellectual points concerning theories of decision-making, and he has also presented a damning picture of nuclear power within the parameters of analysis he has chosen. But he has cut his analysis off, both in style and content, from the more open opponents of nuclear power. The dry style is complemented by a lack of reference to similar points made about nuclear power, such as the critique of the inflexibility of nuclear power made by Amory Lovins. Another important concept used by Collingridge, entrenchment — the adjustment by social institutions to a technology, so that reversing a mistaken choice becomes virtually impossible — has been a standard argument in the anti-nuclear movement for many years, but Collingridge does not connect his analysis with this critique.

A more fundamental problem is Collingridge's basic reliance on rationality in policy-making. He seems to imply that once the problem of inflexible technology is recognised, then such technologies will be avoided and the process of mutual partisan adjustment can proceed satisfactorily dealing with incremental changes. The difficulty here is that the reason why decision-makers originally introduced and pursued nuclear power was not their lack of awareness of its tecnological inflexibilty. Indeed, quite the contrary: the characteristics which make nuclear power inflexible are among those which made it attractive to states in the first place. The large size and capital intensiveness of nuclear power suit it for centralised control by states. The dependence on expertise and extensive infrastructure of nuclear power make it attractive to nuclear experts and administrators, since it promises a continued demand for their services.

Thus the inflexibilty of nuclear power is central to policy making about it in more ways than Collingridge discusses. He gives a good argument, from the viewpoint of rational policy making within existing planning agencies, as to why nuclear power *should* be controlled. But this is far short of dealing with the problem of the actual political control of nuclear power.

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