

BOOK REVIEW

Nuclear Power: Policy and Prospects. P. M. S. JONES, Ed.
Wiley, London (1987) £75.00. 405 pages.

This book is the third in a series of publications aimed at providing "up-to-date technical, economic and environmental information about one energy source". This volume treats nuclear energy, and a valiant effort is made to achieve the ambitious goals of the editor quoted above. In slightly more than 400 pages one finds a history of the development of peaceful applications of fission reactors, an introduction to the physics of the basic processes involved, a description of various reactor types, a discussion of the use of power reactors for purposes other than the generation of electricity, radiation effects, reactor safety, disposal of radioactive waste, economics and brief descriptions of the experience of many of the countries of the world that now have significant nuclear power programs for electric generation.

Most of the sections are well-written and can be understood by someone with a limited technical background. However, the nontechnical reader will find many of them unfathomable. The section on applications other than generation of electricity might as well be in a foreign language. There is also an obvious (although probably not intentional) bias in the sections that deal with safety. Here safety is considered to be synonymous with risk, and with risk as used in a quantitative sense. Even those in the nuclear power field should realize by now that quantitative risk arguments are not persuasive as far as most of the public (including many policy makers) is concerned. For whatever reason, nuclear power, to be considered safe, must be demonstrated to be virtually risk free.

The book does provide a ready reference for a variety of topics, and most of the sections have lists of publications which can provide additional information. Those who already have some background in nuclear power, or an

associated discipline, should find it a useful starting point for obtaining further information.

It is unfortunate that the experience of the Soviet Union is omitted. Perhaps the information available during manuscript preparation was not suitable for use, but Soviet experience can not be neglected by anyone with responsibility for a nuclear power program.

One would suppose from the title, and from comments in the text, that the authors hope to provide guidance to countries not yet having nuclear power plants. Such countries must, for example, choose between purchasing an existing plant design from a country with an established program, and developing the necessary technology internally. The experience of the Eastern Bloc countries that are operating plants developed and manufactured by the Soviet Union should be of considerable relevance here.

If, as the title implies, a principal target of the book is the policy maker, an important component is missing. This seems especially marked in the case of the sections on experience. Although the countries chosen are reasonable, (except, perhaps for omission of the Eastern Bloc countries) the discussions of the programs in the various countries are mostly descriptive. Missing is an incisive analysis of what has been learned from all this experience? Why, for example, has the French program been so much more successful, in many ways, than that in the U.S.A.? What should those who plan to continue or to begin to develop nuclear power programs conclude from the experience of these two countries, or from Japan? Policy makers should find such guidance indispensable.

The book is, perhaps, a good first effort. Careful revision, in the next edition, can make it much more valuable.

W. KERR

*Professor of Nuclear Engineering
The University of Michigan*