C. E. Stevenson (PhD, organic chemistry, Pennsylvania State, 1941) has been associated with research and development efforts on nuclear fuel reprocessing, and on related waste disposal problems, for the past 25 years. As associate director of the Chemical Engineering Division at Argonne, he was concerned for 6 years with the Redox, Purex, and fluoride volatility processes, following which he was for 6 years technical director for the Idaho Chemical Processing Plant, operated by Phillips Petroleum Company. The fluid bed calcination process for ICPP high level wastes was developed under his supervision during this period. He returned to Argonne in Idaho in 1960 as manager of the Fuel Cycle Facility, in which pryometallurgical reprocessing and remote refabrication of EBR-II fuel was carried out, and in 1969 rejoined the ANL Chemical Engineering Division. He presently serves the American Nuclear Society as chairman of the Critical Reviews Committee and as an ICONS technical advisor, and is chairman of the American National Standards Institute committee N101, concerned with standards for atomic industry facilities other than power reactors.

New Energy Technology—Some Facts and Assessments

Authors	H. C. Hottel and J. B. Howard
Publisher	MIT Press (1971)
Pages	364
Price	$2.95
Reviewer	M. R. Bottaccini

The material found in *New Energy Technology* appears in no other single secondary source. Any person who wishes to become familiar with the thinking of the power industry can do no better than read this book. The collection of references at the end of each chapter is worth the price of admission.

Unfortunately one of the least satisfactory parts of the book concerns nuclear power. The authors are chemical engineers and it is obvious that their principal interest is the utilization of fossil fuels. Their estimate of the speed with which nuclear power plants can be built in this nation is overly conservative. It is the opinion of the reviewer that in the next 30 yr the demand for petrochemicals and coal by the plastic and chemical industry will become so large that it will force up the price of fossil materials. It is likely that atomic energy will rapidly become competitive with other forms of energy so that by the year 2000 the bulk of the power generated in the United States will come from nuclear power plants.

The obligatory discussion of the difficulty of cooling light-water reactor plants is found in a later chapter. Granted that nuclear plants are thermally inefficient, it is also true that no time is spent in the consideration of what to do with the excess heat in place of throwing it away. The possibility of greenhouses for the growth of plants in cold climates, or the piping of hot water into the buildings for heating and into sidewalk pipes for snow removal, is ignored.

It is difficult to write about power consumption in these ecological days without becoming somewhat emotional. The authors of this not exactly compendious volume have avoided the problem by tipping their hats lightly to ecology and social needs here and there, and then proceeding with the standard discussion of the technological and economic substrata of power generation. The result is a loosely organized collection of facts and assessments, tied together by the sort of economic considerations which are the stock in trade of the power companies.

The authors consider such things as cost of materials, labor, taxes, and amortization and then present, what is to them, the best comparative estimate per kWh. The authors are, however, unaware of their unspoken assumption that the power generation systems of the future will continue to be a collection of locally controlled organisms. Actually the trend is away from this. Localism is yielding to power regionalism, and regionalism will eventually be replaced by nationalism. The power system will become an integrated network in which power transmission, power tradeoff, and power costs will be considered on a national level. How long the capitalistically owned local public utilities can last under such conditions one would not hazard to guess.

The second thing which appears to be unnoticed (or at least unmentioned) is that the cost of pollution control equipment should be offset by benefit valuation. It is possible to assign a dollar value to reduced insurance costs, reduced hospital costs, reduced medical costs, and reduced destruction of agricultural products. It is quite possible that tax rebates or governmen subsidies will be used throughout the nation to generate the socially desirable ecological protection systems.

To speed up communication, the publishers decided to print by offset directly from the authors' manuscript. As a result, this is possibly the most current book on power production. Unfortunately, the haste to make the printed pages available to the public had also prevented editing, and although there are almost no misprints and the tables are well put together, it appears that little thought has been given to the quality of writing. If a second edition is ever to be printed, this reviewer suggests that some attention be paid to the realities of the English language.

M. R. Bottaccini is a professor at the University of Arizona where he teaches aerospace and mechanical engineering. He is a specialist in mathematical modeling of nonlinear systems. Currently he is working in applications of engineering science to biological systems and in the applications of nonlinear mechanics to modeling and prediction. He is a strong proponent of nuclear power generation and considers himself, in this respect, somewhat of a rarity among the fossil fuel enthusiasts who normally fill the mechanical engineering departments of the nation. He is the author of several books and many articles.

Dynamics of Nuclear Systems

Editor	David L. Hetrick
Publisher	University of Arizona Press (1972)
Pages	606
Price	$14.50
Reviewer	George H. Miley

This book is a collection of 33 papers on the dynamics of nuclear