



Book Review

A. L. Walton and E. H. Warren, Jr., *The Solar Alternative: An Economic Perspective* (Englewood Cliffs, N.J.: Prentice-Hall, 1982).

Occasionally, a reviewer is privileged to consider a book that presents a clear, intuitive treatment of complex material without sacrificing conceptual content. This is one of those occasions. *The Solar Alternative* develops the economic arguments required to evaluate energy alternatives, focusing on the choice between solar and the conventional (nuclear, fossil fuel) energy options. It includes a reasonable, nontechnical review of relevant information about existing solar technologies, and the supply and demand for energy generated by utilities. Overall, the book presents a nice, coherent mix of both the engineering and economic issues important to understanding and evaluating the solar energy option. Because it combines these diverse disciplines so successfully as they relate to the energy problem at a preliminary level, I consider the book to be a "must" for anyone interested in but unfamiliar with the energy problem and the solar energy option in particular. Indeed, *The Solar Alternative* is an ideal supplementary text for a first course in energy economics for which a principles course in microeconomics would be helpful but is not required.

The book is organized topically, and consists of nine chapters (divided into five parts) and two appendices. In Part I, fundamental energy concepts are introduced. Attention is given to how energy per unit of time is measured, the extent of the world's renewable and nonrenewable energy resources, and the immediacy of the energy problem. The authors have discerned that the energy crisis is less severe, less pressing than policymakers, energy academics, and

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events led us to believe during the decade of the 1970s. They effectively emphasize the importance of economic conditions for evaluating the energy problem when they note that rising fuel prices lead to increased reserves since more of the resource becomes economically recoverable and increased exploration and development activities become profitable. Part II is devoted to the formal development of the economic concepts and analytical tools that must be used to evaluate energy alternatives. It is a concise presentation of supply, demand, and costs as usually treated in courses in microeconomic principles with applications to energy questions.

The primary contributions of the book appear in Parts III and IV, which address the economic issues relevant for assessing the solar energy option and the sensitivity of the assessment to government policy. The range of economic issues discussed includes by the organization of the energy industry and externalities, market distortions caused by tax-subsidy schemes and price regulation, and equity issues inherent in the solar-nonsolar choice. The discussion of these problems and questions are clearly and concisely developed. In particular, uncertainty—a traditionally difficult subject—is dealt with simply yet completely and the analysis of equity is positive.

The discussions of government policy options are equally well done although occasionally sparse. Considered are what the government has done, what it can do, and what the policy impact has been or would be on solar energy generation, the economy, and the environment. The book reveals clearly the advantages and disadvantages of each policy option. The issues and problems associated with government intervention are well illustrated by a case study of the National Energy Act.

Part V considers the prospects for solar energy and is essentially a conclusion, drawing from the material of previous sections to support the assertions made. The appendices provide a review of solar technologies and a glossary of terms that should be helpful to readers unfamiliar with the subject matter.

In summary, *The Solar Alternative* is a well-done, timely book. However, it suffers three shortcomings. Stylistically, it is evident that there are two authors; the book does not flow smoothly and this can be disconcerting to the reader. Second, the analyses of the components of the National Energy Act are thin. For example, the Public Utilities Regulatory Policy Act (or PURPA) was interpreted by the California Public Utilities Commission as having a tremendous impact on utilities and cogenerators in California. Unfortunately, *The Solar Alternative* does not stress PURPA so that readers can acquire an appreciation of its

policy importance. Finally, the book gives no attention to efforts that have been made to evaluate the solar energy option. This lack is surprising in view of the book's focus and the numerous studies of the economic viability of solar energy, especially since many of the studies are of spurious quality.

Gerry L. Suchanek
University of Arizona