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Future Strategies for Energy Development—A Question of Scale

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BOOK REVIEWS

FUTURE STRATEGIES FOR ENERGY DEVELOPMENT—A QUESTION OF SCALE

Proceedings of a Conference at
Oak Ridge, Tennessee, October 20 and 21, 1976
Oak Ridge Associated Universities
1977. Pp. 297. \$9.00, s.c.

This volume contains nine papers which discuss various aspects of energy strategy. They may be regarded as addressing some aspects of the "soft vs. hard energy paths" debate. Indeed, the essay by Amory Lovins which launched this debate, "Energy Strategy: The Road not Taken," is reprinted in this volume. This remarkable article which first appeared in the October 1976 issue of *Foreign Affairs* single-handedly reoriented the discussion of national energy strategy and policy.

Soft energy alternatives are those that rely on dispersed small scale energy sources, rather than large, centralized sources such as nuclear electric stations. Persons conversant with energy policy will be familiar with Lovins' views, which are now also held by many others. I will not try to summarize them because they depend on a fairly complex argument; a brief summary would necessarily turn out to be a parody.

To me the other most interesting papers in the volume are one by Alvin Weinberg, "Can We Do Without Uranium" and one by Sam Schurr and Joel Darmstadter, "Some Observations on Energy and Economic Growth."

Weinberg approaches future energy strategies from an "asymptotic" perspective, looking very far into the future to a time when fossil fuels are gone and humankind must rely on the various forms of solar power or nuclear reactions for energy. He finds that an "all solar future is almost surely a low energy future unless man is prepared to pay a much higher share of his total income for energy than he now pays." If this remote future is to be nuclear, then it must be in a type of world in which effective and socially acceptable systems exist to deal with some ten tons of plutonium each day. Weinberg says of nuclear ". . . if it is indeed to become the dominant energy system (its price), may be an attention to detail, and a dedication of the nuclear cadre that goes much beyond what other technologies

have demanded." Such exercises are very fascinating, but it is somewhat difficult to see what, if anything, they mean for our behavior and thinking today except to warn us that if there is a panacea for ultimate energy problems, we have not found it yet.

It is sometimes asserted, especially by advocates of rapid development of hard technologies, that economic growth as measured by rising GNP marches in lock step with energy use. Schurr and Darmstadter examine this relationship and find reason to believe that it is not, or at least does not have to be, as rigid as all that. The structure of the economy affects it, changing prices affect it, and conservation efforts can affect it. Their conclusion is supported by the fact that the energy content of GNP in the United States has dropped substantially in the last few years.

That the soft vs. hard energy strategy debate is a genuine thing was brought home strongly to me recently when I participated in a conference "California's Energy Future" sponsored by the California Energy Resources Commission. Quite serious proposals were put forward to make California a demonstration state to show that an economy can be prosperous while undergoing a transition to soft technologies. Among participants were a number of representatives from the energy industries and utilities who appeared to be taking the whole thing quite seriously. The seed which Amory Lovins planted has grown into a flourishing tree.

I will close on a note of mild criticism of the volume under review. While I cannot claim to be an energy expert, I have had far more opportunity to read about, hear about, and consider the energy issues than many potential readers of this book. Nevertheless, I have had great difficulty in forming a satisfying and coherent view of appropriate energy strategy. A rich complex of technological, geological, economic, social, and ethical issues must be considered. In my opinion the volume would have been greatly improved if the papers were accompanied by probing comments. We have not seen the chief participants in the energy strategy debate challenge each other enough in print. Adopting this format would help draw out the controversial and debatable points and assist the reader in understanding where he stands.

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