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INTERNATIONAL ENERGY MARKETS

PAUL TEMPEST, ED.

Cambridge: Oelgeschlager, Gunn & Hain, and London: Graham & Trotman. 1983
Pp. xxi and 353.

This volume contains the proceedings of the 1982 Cambridge Energy Conference, sponsored jointly by the International Association of Energy Economists and the British Institute of Energy Economics, and attended by 240 top-level representatives of government, industry, research institutions and the financial sector from 26 countries. Some 25 papers are reproduced, and an additional 43 represented in abstract form. (Full papers may be purchased for four pounds each.) In addition to the papers and abstracts, there is a statistical section, annexes giving the conference program, the delegate list and an identification of IAEE and BIEE, and an index.

Subjects covered by the papers include international energy markets, supply uncertainties, the changing parameters of demand, the future of oil, problems in oil refining, comparative energy licensing, leasing and taxation, the role of government, the response of the business sector, strategies for supply disruption, the growing impact of Soviet energy, self-sufficiency in North America, pricing problems in the Pacific Basin, West European supply uncertainty, new strategies in OPEC planning, breaking the international deadlock in the developing world, and energy prices and global growth. The volume is thus a comprehensive treatment of the energy problem in its regional and international dimensions.

The main papers are somewhat uneven, ranging from general surveys of problem areas to thoughtful analyses of narrow subjects. (This unevenness would have been even more apparent if the highly technical papers had not been confined to the abstracts section.) The sections related to the Soviet Union and OPEC might have been more interesting if they contained papers by delegates representing those entities rather than by scholars from the West. In general, however, the papers are well done and interesting.

This reviewer was particularly stimulated by the 1982 IAEE Prize Lecture given by Sam Schurr (Electric Power Research Institute) and entitled "Energy Efficiency and Productive Efficiency: Some Thoughts Based on American Experience." Schurr addresses himself to the question whether increased factor productivity is necessarily associated with greater energy intensity, and whether, by implication, reduced energy intensity induced by high real prices of energy must lower the growth of factor productivity. His tentative answer is no. Referring to the fifty years 1920–1969, he points out that with the exception of 1953–1960 increases in

total factor productivity and declines in the intensity of energy use occurred in tandem. He suggests that the special strength of energy as a productive factor "lay in its ability to support the growth of output relative to inputs of labor, capital, and energy through its synergistic relationship with technologies that led to improvements in overall production efficiency."¹ The key technologies relate to energy in the forms of electric power and fluid fuels. Schurr concludes that we have not exhausted the productive potential of electrically-based techniques and that, in his judgment, "the richness of the remaining energy resource base . . . is such that proper policies could yield favorable future supply outcomes even though comparative energy costs will be higher than in the past."²

Another stimulating paper is that by W. J. Mead, A. Moseidjord and P. E. Sorensen on "Efficiency in Leasing." Noting that the bonus bidding system of allocating leases is rejected by most of the governments of the world, Mead et al. provide a spirited explanation and defense of that system. They explain in detail the defects of realty bidding, profit share bidding, and work commitment bidding in contrast to bonus bidding. They argue that bonus bidding is superior in several respects: it is neutral with respect to production and abandonment decisions, it tends to award leases to the most cost-efficient firms, and it minimizes costs of administration and maximizes capture of rent. In the United States, they point out, it has not been anticompetitive in effect. They accordingly recommend that "governments should choose a market oriented leasing system, the pure cash bonus bidding system, which both maximizes economic efficiency and government rent collection."³

Finally, we note the paper by Wassily Leontief and Ira Sohn, "Population, Food, Energy and Growth." This is a tantalizing paper. Based upon an input-output model and yielding strong conclusions, it is an important contribution to the present volume. However, perhaps because it had to be shortened for publication (the full paper is available from BIEE), it says nothing about food and population but concentrates on growth of per capita income and future sources of energy. With regard to the former, the authors find that except for the oil-rich Middle Eastern countries the gap in per capita income between the developed and the less developed countries of the world will persist for the next fifty years. The oil-rich countries are seen to gain relatively up to the year 2000 and to hold their own thereafter. Regarding energy use, the authors note that with the gradual exhaustion of oil and gas resources the world must choose, increasingly after 2000, greater reliance on either coal or nuclear energy. Surprisingly, they find that the choice makes little difference in

1. Subject volume, at 58.

2. *Id.*

3. *Id.*, at 92.

the prospects for overall and relative growth of per capita income. It does make a difference, of course, in the structure of economies. The intensity of energy use will be less under a nuclear regime (saving the energy of coal extraction and transportation), but capital intensity will be about the same under nuclear and coal regimes when allowance is made for investment in mines and railroads under the latter. Throughout the world, the use of energy per unit of real GDP is seen to decline over the next fifty years, but especially to the year 2000.

It is impossible to do justice to a book of this sort in a short review. There are many more excellent papers than those singled out for comment. While there are some papers that did not impress this reviewer, the book as a whole is recommended to energy economists and students of the world-wide energy problem.

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