

BOOK REVIEWS

Unravelling the energy issues

P.D. Henderson

It is not often that economists and natural scientists succeed in working together. Even in a field of inquiry such as energy, where issues and problems clearly extend across conventional subject boundaries, it is hard to achieve a meeting of minds. Hence genuinely collaborative work, as distinct from separate essays or chapters that are placed side by side, is a rather rare event. This volume, written by a team from the Energy Research Group at the Cavendish Laboratory in Cambridge, provides welcome evidence that close and effective collaboration is possible.

The intention of the authors is — to quote from the preface — “to bring students, and an informed public outside the universities, towards the frontiers of knowledge in a complex of inter-related disciplines”. Thus the book tries to bring together different aspects of energy — in particular, economic and technical aspects — in a unified and self-contained treatment, designed for a wide and non-specialized readership.

How far have the Cambridge team succeeded in their aim? As to presentation, the results are impressive. Multiple authorship, especially when different disciplines are involved, is not easy to combine with a treatment which is both readable and consistent. All too often, either individual contributions fail to make up a coherent whole, or a heavy editorial hand imposes cohesion at the price of extreme dullness. Both of these dangers are avoided here. Collective responsibility is emphasized, so much so that the names of individual authors are not attached to chapters or sections, and the book forms a unity. At the same time, the argument and supporting evidence are set out in a lucid and generally interesting way, and in the concluding chapters especially, the style is brisk and effective. All this is a considerable achievement.

When it comes to content, there is more room for doubt. The argument is set out under five headings: energy demand (two chapters with an introduction); supply factors (six extended chapters, comprising some 40 per cent of the text); the market for energy; the world energy outlook; and issues of energy policy. At each stage there is in effect a blend of information and analysis, the proportions varying according to the precise topic. The main unifying theme is that of the present world predicament. Energy data and choices are presented against the background of a complex and uncertain process of

Energy Economics: Growth, Resources and Policies. By Richard Eden, Michael Posner, Richard Bending, Edmund Crouch and Joe Stanislaw. Pp. 442. ISBN 0-521-23685-1. (Cambridge University Press: 1981.) £19.50, \$34.95.

transition, from dependence on low cost oil and gas to a more varied and costly regime. The chief role of energy policy is seen as being to manage this process, in such a way that disruption is avoided and general economic performance is not seriously impaired.

This makes a reasonably coherent structure, and for the most part the treatment is both informative and judicious. At the same time, the book seems to me to suffer from a serious and pervasive weakness. Partly in what it does, but still more in what it fails to do, its handling of the economic aspects is unsatisfactory.

As to what is said, I found some of the economic sections superficial, and even misleading at a number of points. This applies to the treatment of external effects in Chapter 9, and to the whole of Chapter 15, on energy and developing countries. Again, the chapters on policy, while stimulating and often very perceptive, suffer from an unduly restrictive conception of the scope of economic considerations, in which strategic and environmental aspects are treated as separate. They also contain some very dubious assertions about the role of markets in general, and of international trade in particular.

The omissions are more worrying. In particular, there is no systematic attempt to outline the economic analysis that is applicable to energy questions, and to convey to the general reader the distinctive contribution of economic modes of thinking. This contribution is important, even fundamental, despite the obvious and depressing facts that economists know little about how economic systems work and find it hard to agree with one another. In energy, as in other spheres, the standard economic theory of resource allocation is useful not only in itself, but also and perhaps mainly because of what it displaces. Most thinking about energy, even in quite exalted political, business and scientific circles, embodies a strong measure of what I call “do-it-yourself economics”, in which the main ingredients are an oversimplified conception of choice, an unreflecting acceptance of various mercantilist notions, and an excessive faith

in the predictability and controllability of events. A book on energy economics which fails to make this point, and which gives no adequate account of the standard theory and its uses, represents in my view a badly missed opportunity — an opportunity such as was brilliantly grasped, albeit in a different context, in Hitch and McKean’s *The Economics of Defense in the Nuclear Age* (1960).

The consequences of this omission extend to the treatment of policy. Actual energy policies are often strongly influenced by dubious forms of economic reasoning, and this helps to explain not only some past mistakes but also the frequent failure of those concerned to learn from experience: British nuclear power programmes provide a depressing example. Such things pass unnoticed here (and incidentally but significantly, Duncan Burn’s perceptive studies of nuclear power in Britain are not listed in the bibliography). In this respect the discussion of policy issues, though in general informed and sophisticated, has a certain unwitting innocence. The evidence of history has not been used to good effect.

Energy Economics is a useful and in many ways impressive book, and an encouraging instance of interdisciplinary teamwork. But unfortunately, it does not fully make good the claim implied in its title. □

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Tunnelling particles

Rudolph A. Marcus

The Tunnel Effect in Chemistry. By R.P. Bell. Pp.222. ISBN 0-412-21340-0. (Chapman and Hall: 1980.) £17, \$39.95.

In this small, tightly-written volume, Professor Bell describes in detail almost every aspect of the tunnelling of protons, atoms and molecules. Tunnelling, a phenomenon which is impossible in Newton’s world of classical mechanics, is associated with a particle’s wave-like behaviour, first recognized in the 1920s.

The author begins with a succinct description of the quantum mechanical origins of the tunnelling effect, considering