

ENERGY: CRISIS OR OPPORTUNITY?

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ENERGY: CRISIS OR OPPORTUNITY?

An Introduction to Energy Studies

DIANA SCHUMACHER

with contributions from

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Ross Hesketh
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M
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To Christiana, Katharine and all young people whose energy inheritance is our concern, responsibility and opportunity

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Foreword

The evolution of Life and Intelligence on planet earth has reached a crisis point. *Homo sapiens*, perhaps arrogantly, thinks he is the culmination to date of an age-long evolutionary process. Certainly that process has resulted in Man having greatly increased his intelligence in a short period as measured on the geological timescale. But he has achieved a highly specialised intelligence in which reason predominates, reason being thought controlled by the discipline of accurate observation, measurements, and the collation of what are taken to be facts. At the same time he has developed an onlooker's consciousness, seeing himself as master and the physical and animal world as something to be shaped and controlled to suit his convenience.

Whether he wants it or not, he has now the power and the responsibility to guide, to some extent, the future path of evolution. Has he the wisdom for this task? He seems to have over-developed the reasoning side of his brain at the expense of the intuitive and imaginative side. As the Scriptures say: 'Where there is no vision, the people perish.'

This lack of vision, of the faculty of choosing the kind of future that would foster the deeper values of life for generations to come, has brought us dangerously close to destroying our earthly home. This predicament now stares Man in the face in many different guises, such as resource depletion, population explosion, irresponsible exploitation of discoveries, poisoning the environment, and perhaps a nuclear war.

Diana Schumacher's book is addressed to what is currently regarded as the 'energy crisis'. It deals with this issue with a wider sweep than any other book I know of among the spate of books on energy now pouring out of the press. She awakens the reader — and most of us need awakening — to the fact that the 'energy crisis' is but one facet of a global crisis of many interlocking parts. Our complex predicament must be recognised for what it is, metaphorically a seamless garment.

Diana Schumacher has put much painstaking work into marshalling a multitude of facts, figures, and trends. The main lines of the picture are clearly portrayed, soundly based, and of enduring value. Change is now so rapid that the details will soon become out of date; the situation is changing while the attempt is made to capture it in words, figures and graphs.

The abiding impression I get from the book is that we must no longer let this change occur by inadvertence, apathy, or culpable ignorance. But that, alas, is what is now happening. It is up to all of us to help fashion a decision-making process that will not only be consistent with growing knowledge but — much more to the point will be guided by Vision and Wisdom.

Diana Schumacher has made a gallant effort to help us rise to the occasion so that we may help create a world to pass on to our children without shame. That is now the great hope. Courage, vision and emerging wisdom must transform that hope into determination and achievement.

Wootans, Branscombe, Devon

Sir Kelvin Spencer
(Formerly Chief Scientist,
Department of Energy, U.K.)

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D.S.

Introduction

‘Watertight compartments of knowledge are dangerous. This is not yet taken into account sufficiently in practice by scientists engaged in energy work. Economics, sociology, political science, are fields of knowledge with which those who consider energy options must be conversant. Woe to him who devises a process of coal gasification without accounting for the climatic influences of its use two or three decades away’

J. O. Bockris (1980)

The title of this book was suggested by the Chinese symbol for crisis which includes the symbol depicting opportunity. *Energy: Crisis or Opportunity?* is intended as background reading for school sixth forms and first-year students of engineering, economics, geography, environmental studies, sociology and other energy-related courses as well as for the interested lay person. The aims of the book are five-fold:

- (1) To offer a broad overview of traditional, current and emerging energy forms, their history, development, present and future potential, together with the practical advantages and disadvantages of each.
- (2) To define patterns of energy use and development in the U.K. and, where appropriate, compare them with those in other countries including Europe, the U.S.A., other industrial nations and the Third World.
- (3) To relate historical growth in energy-consumption patterns (summed up in the first chapter) to estimated future demand and the availability of supply including the life expectation of fossil fuels and the potential of new energy sources (see chapter 12).
- (4) To draw together the various strands implicit in any coherent energy development policy. In future these will not only include resource availability, technology, and economics; but factors such as politics, education, conservation and employment will play an increasing part together with the geographic, sociological and environmental aspects.
- (5) To offer the reader a summary of relevant criteria against which different energy options may be evaluated, and suggested further reading and addresses where more detailed information on particular topics may be obtained.

The book seeks to look at the total context of the energy problem from a multi-disciplinary standpoint. Unfortunately, owing to a necessary but drastic reduction in the length of the book many of the details, figures, references and examples have had to be omitted. Tables and statistics are therefore merely given as illustrations, since these change annually. In posing questions and choices it is hoped that the reader will gain an appreciation of many of the issues involved in formulating energy policy. To quote Amory Lovins: ‘The energy problem is

intimately related to all the great issues of our day and the disadvantage of the semi-quantitative approach to energy futures is that energy studies are done in isolation and do not emphasise the intimate relationship between energy policy and every other kind of policy. The most important, difficult and neglected questions of energy strategy are not mainly technical or economic but rather social and ethical.'

Decisions about energy options for the future will no longer inevitably depend only on what is available, accessible or most economic now. The choices, when all known factors are taken into account, may sometimes be simple. In some instances, however, they may be very finely balanced and may depend on choosing the lesser of two evils, for example short-term gain or long-term investment. After the twentieth century's propensity to live off energy capital rather than energy income, the twenty-first century will need to achieve an energy balance of permanence in order to convert crisis into opportunity.

Godstone, 1984

D.S.