

FURTHER READING

The amount of information on energy facts and issues – in books, textbooks, newspapers, and magazines – is overwhelming. What follows is just a “drop in the bucket.” But I think it is a representative ‘drop’, and it should give the reader useful signposts for exploring some of the issues in more detail. Some older references are included deliberately, to reinforce the point that – in many respects – when it comes to energy issues, the more things change, the more they (seem to) stay the same.

GENERAL

Listed below are some general books, textbooks, monographs or magazine volumes on energy and the environment.

Aubrecht, G., *Energy*, Merrill Publishing Company, 1989. A comprehensive overview of energy options and technologies, with emphasis on the physics of energy use, and some neglect of the importance of fossil fuels, both today and in coming decades.

Aubrecht, G., *Energy*, Second Edition, Prentice Hall, 1995. Updated to some extent, with the same emphasis as the 1st edition.

Brown, L. R., Flavin, C., and Kane, H., *Vital Signs 1996*, W. W. Norton & Company, 1996. Published annually by the Worldwatch Institute, it summarizes “the trends that are shaping our future,” including those pertaining to energy and the environment.

Cassedy, E. S. and Grossman, P. Z., *Introduction to Energy: Resources, Technology, and Society*, Cambridge University Press, 1990. A review of energy resources and modern energy technologies, with an emphasis on electric power generation and nuclear energy.

Cook, E., *Man, Energy, Society*, W. H. Freeman and Company, 1976. An early general overview of energy alternatives and problems, in response to the first “energy crisis.”

Doolittle, J. S., *Energy: a crisis—a dilemma or just another problem?*, Matrix Publishers, Champaign, IL, 1977. A survey of “our past and present uses of energy” and “an attempt to show what our future demands will be,” this book “is designed to be used as a text,” but it should also “prove valuable to all citizens who have only a very limited background in sciences.”

Energy Information Administration, *Annual Energy Review*. Published annually by the statistical and analytical agency of the U.S. Department of Energy. Also available on the Internet: www.eia.doe.gov.

Fowler, J. M., *Energy and the Environment*, Second Edition, McGraw Hill, 1984. Another book and textbook for the nonspecialist. The emphasis is on the “big three” energy alternatives: nuclear fission, nuclear fusion and solar energy.

Hinrichs, R. A., *Energy*, Saunders College Publishing, 1991. (The 2nd edition is also available from the same publisher.) An introductory textbook intended for a general education course that should appeal to non-science majors. It does dwell on many physical principles behind energy use.

Hollander, J. M. (Editor), *The Energy–Environment Connection*, Island Press, 1992. A series of very readable review articles on the environmental impact of energy use and the benefits of energy efficiency.

Kraushaar, J. J. and Ristinen, R.A., *Energy and Problems of a Technical Society*, John Wiley & Sons, 1988. (The 2nd edition is also available from the same publisher.) Similar to Aubrecht's and Hinrich's textbooks, with some (excessive?) emphasis on the physics of energy conversion, despite claims that “the topics of energy and the environment [have not been used] to teach physics through the back door.” It does have many useful quantitative examples.

Miller, Jr., G. T., *Living in the Environment*, Seventh Edition, Wadsworth Publishing Company, 1992. A popular and nicely illustrated environmental science introductory textbook. It contains a good discussion of both renewable and nonrenewable energy resources, air pollution and the politics and economics of the environment.

Ramage, J., *Energy: A Guidebook*, Oxford University Press, 1983. A very readable and comprehensive overview of “the way we use energy, and some of the ways we might use in the future.” The only thing missing is greater emphasis on environmental issues, reflecting current public concerns. (The 2nd edition is available from the same publisher.)

Raven, P. H., Berg, L. R., and Johnson, G. B., *Environment*, Saunders College Publishing, 1993. Similar to Miller's textbook in many respects, contains nice illustrations of how energy is used and how its use leads to environmental pollution.

Scientific American, “Managing Planet Earth” (Special Issue), September 1989. Contains authoritative reviews on the changing climate, the growing human population and the strategies for energy use and sustainable economic development.

Scientific American, “Energy for Planet Earth” (Special Issue), September 1990. Contains authoritative reviews on energy past, present and future, including efficient use of electricity, energy for buildings and homes, energy for industry, energy for motor vehicles, energy for the developing world and Eastern Europe, as well as more focused analyses of fossil fuels, nuclear energy and solar energy.

Shepard, M. L., Chaddock, J. B., Cocks, F. H., and Harman, C. M., *Introduction to Energy Technology*, Ann Arbor Science Publishers, 1976. Another forerunner of the current general education textbooks on energy. The authors have “tried to present the material in such a way as [...] to provide the students with a knowledge of energy sources,

uses, and methods of conversion sufficient for an understanding of our energy crisis and an appreciation of its technical problems.”

Steinhart, C. E. and Steinhart, J. S., *Energy: Sources, Use, and Role in Human Affairs*, Duxbury Press, North Scituate, MA, 1974. A qualitative overview of energy in nature and history, energy resources and their use, as well as prospects for the future.

Tester, J. W., Wood, D. O., and Ferrari, N. A. (Editors), *Energy and the Environment in the 21st Century*, The MIT Press, 1991. Proceedings of a conference that reviewed the interaction of energy technologies and energy policies and their effect on the environment.

Thirring, H., *Energy for Man: Windmills to Nuclear Power*, Indiana University Press, 1958. An early overview of the sources of energy, with emphasis on power production, written in “[p]lain language and [with] suitable illustrations [...] intended to make the volume readable and interesting enough for a public ranging from secondary-school boys to industrial managers.”

United Nations (Department for Economic and Social Information and Policy Analysis), *Energy Statistics Yearbook*. Published annually, and now in its 38th volume, this is a comprehensive collection of international statistics on energy consumption and resources.

CHAPTERS 2-4

The scientific concepts introduced in Chapters 2-4, as well as elsewhere in this book, have not been discussed in any detail or with (necessary?) rigor. A more detailed treatment – still intended for the general readers and students not majoring in science and engineering – can be found in the following books:

Atkins, P. W., *The 2nd Law: Energy, Chaos and Form*, Scientific American Books, 1994.

Davies, P., *The Last Three Minutes: Conjectures about the Ultimate Fate of the Universe*, BasicBooks, 1994.

Glashow, S. L., *From Alchemy to Quarks: The Study of Physics as a Liberal Art*, Brooks/Cole, Pacific Grove, CA, 1994.

Goldstein, M. and Goldstein, I. F., *The Refrigerator and the Universe*, Harvard University Press, 1993.

Hawking, S., *A Brief History of Time: From the Big Bang to Black Holes*, Bantam Books, 1988.

Hazen, R. M. and Trefil, J., *Science Matters: Achieving Scientific Literacy*, Doubleday, 1991.

Hazen, R. M. and Trefil, J., *The Physical Sciences: An Integrated Approach*, Doubleday, 1996.

Holton, G., *Introduction to Concepts and Theories in Physical Science*, Addison-Wesley, 1952.

Rifkin, J., *Entropy: Into the Greenhouse World*, Bantam Books, 1989.

Tyndall, J., *Heat: A Mode of Motion*, D. Appleton and Company, 1879.

Weinberg, S., *The First Three Minutes: A Modern View of the Origin of the Universe*, BasicBooks, 1988.

The reader may find clarifying ideas in the following books dealing with science history:

Sarton, G., "The Discovery of the Law of Conservation of Energy," *Isis*, Vol. 13, 18-34 (1929-30).

Kuhn, T. S., "Energy Conservation as an Example of Simultaneous Discovery," in *Critical Problems in the History of Science* (M. Clagett, Editor), The University of Wisconsin Press, 1959, pp. 321-356.

Elkana, Y., *The Discovery of the Conservation of Energy*, Harvard University Press, 1974.

Finally, the many fine biographies of the scientists mentioned in these chapters are always a useful source of information. For quick access to basic information, see Britannica Online at <http://www.eb.com>.

CHAPTERS 7-11

Longwell, J. P. (Chairman), *Coal: Energy for the Future*, Report of the Committee on the Strategic Assessment of the U.S. Department of Energy's Coal Program, National Research Council, National Academy Press, 1995.

Wilson, C. W. (Project Director), *Coal – Bridge to the Future*, Report of the World Coal Study, Ballinger Publishing Company, 1980.

Yergin, D., *The Prize: The Epic Quest for Oil, Money, and Power*, Simon & Schuster, 1991. A fascinating account of the history of "black gold" which is at the same time a history of the modern world. It explains how oil has shaped the politics of the 20th century and profoundly changed our daily lives in the process.

CHAPTERS 12-15

Cobb, Jr., C. E., "Living with Radiation," *National Geographic*, April 1989, p. 403.

Holloway, D., *Stalin and the Bomb: The Soviet Union and Atomic Energy 1939-1956*, Yale University Press, 1994. The *NYT Book Review* (10/2/94) describes this book as a "superb history, recounting the Soviet nuclear weapons program until three years after Stalin's death, with an eye to the part played by the atomic bomb in the outbreak of the cold war."

Medveded, G., *The Truth About Chernobyl*, Basic Books, 1991. The *NYT Book Review* (4/7/91) describes this book as follows: "It is difficult to imagine that a more absorbing

account of the explosion of the nuclear power facility at Chernobyl in the early hours of April 26, 1986, will ever be written.”

Miller, P., “A Comeback for Nuclear Power?,” *National Geographic*, August 1991, p. 60.

Powers, T., *Heisenberg's War: The Secret History of the German Bomb*, Little, Brown and Company, 1993. *Time* magazine of 3/15/93 describes it as “a fascinating if argumentative account of why Hitler never developed nuclear weapons.”

Read, P. P., *Ablaze: The Story of Chernobyl*, Random House, 1993. According to a review in the *Economist*, the author has “exhaustively tracked down the actions and thoughts of all those close to the accident. He employs a thorough, impartial descriptive style. He definitely recounts the events at Chernobyl and the consequences for everything from Ukrainian nationalism to medical knowledge.”

Rhodes, R., *The Making of the Atomic Bomb*, Simon & Schuster, 1986. Winner of the Pulitzer Prize, this is the complete story of how the bomb was developed. It includes a very readable account of the history of nuclear energy.

Rhodes, R., *Dark Sun: The Making of the Hydrogen Bomb*, Simon & Schuster, 1995. Like its predecessor, *The Making of the Atomic Bomb*, this is a historical, scientific and political account of how nuclear fission and fusion were used as tools in the first years of the cold war. In the words of a *Time* magazine reviewer (8/21/95), it recounts how “the scientists triumphed over the politicians: they created a weapon so appalling that leaders on both sides of the cold war were deterred from using it.”

CHAPTERS 16-17

Organizations such as the Worldwatch Institute (<http://www.worldwatch.org>) and the Rocky Mountain Institute (<http://www.rmi.org>) are strong advocates of renewable energy sources. See also the following publications:

Brower, M., *Cool Energy: Renewable Solutions to Environmental Problems*, The MIT Press, 1992.

Flavin, C. and Lenssen, N., *Power Surge: Guide to the Coming Energy Revolution*, W. W. Norton & Company, 1994.

Grubb, M., *Renewable Energy Strategies for Europe. Volume I: Foundations and Context*, The Royal Institute of International Affairs, Earthscan Publications, London, 1995.

Rosenberg, P., *The Alternative Energy Handbook*, The Fairmont Press, Inc., 1993.

CHAPTER 21

Clark, J. G., *Energy and the Federal Government: Fossil Fuel Policies, 1900-1946*, University of Illinois Press, 1987.

Easterbrook, G., *A Moment on the Earth: The Coming Age of Environmental Optimism*, Penguin Books, 1995.

Landsberg, H. H. (Chairman), *Energy: The Next Twenty Years*, Ballinger Publishing Co., 1979. It is always good, and somewhat amusing, to review some of the old reports whose difficult (and thankless) task was to look into a crystal ball and predict our energy future. This one was sponsored by the Ford Foundation.

Lovins, A., *Soft Energy Paths: Toward a Durable Peace*, Harper Colophon Books, New York, 1977.

National Energy Strategy, First Edition, U.S. Government Printing Office, Washington, D.C., 1991/92.

Peet, J., *Energy and the Ecological Economics of Sustainability*, Island Press, 1992.

Putnam, P. C., *Energy in the Future*, D. Van Nostrand Company, Inc., Toronto, 1953. A report to the U.S. Atomic Energy Commission, containing an estimate of the "maximum plausible world demands for energy over the next 50 to 100 years." It offers a wealth of statistical information on energy consumption, economic and population trends; a comparison of projections and realities after 50 years shows, however, that the possession of this information is not a sufficient condition for making 'reliable' forecasts.

Stobaugh, R. and Yergin, D. (Editors), *Energy Future*, Report of the Energy Project at the Harvard Business School, Ballantine Books, 1979.

Sustainable Energy Strategy: Clean and Secure Energy for a Competitive Economy, U.S. Government Printing Office, Washington, D.C., July 1995.

Tietenberg, T., *Environmental Economics and Policy*, HarperCollins College Publishers, 1994.