energy. It is estimated that early man had a daily energy consumption rate of around 2500 kilocalories [1]. Later on, in primitive agricultural societies, which already had some domestic animals, this rate was around five times as large [2]. By the time of the low-technology industrial revolution in the mid-1800s, per capita daily consumption of energy reached 70 000 kilocalories in England, Germany and the United States [3]. During that period fuel wood and coal constituted the main sources of energy with smaller contributions from petroleum and hydropower. In the last quarter of the twentieth century, the dominant energy sources switched to petroleum, natural gas, nuclear energy and coal, while the average per capita consumption of energy in industrialized nations rose to over 230 000 kilocalories per day [3], two orders of magnitude larger than that of primitive man!

23.1.2 Let There be Electricity

With the early studies on electricity in the nineteenth century and the eventual development of the electric power industry, around 1882, the face of the Earth was changed forever. Electric lighting began flooding the cities at night and electric motors became the main source of power in factories. Earlier, in 1846, long distance communication had been made easier and faster with the introduction of the electric telegraph. Over the years, many inventions based on electricity increased the productivity in factories and made life at home easier and more comfortable.

Modern life became an endless chain of activities and events, fuelled by electricity: the alarm clock to wake people up in the morning, followed by the news on television or on the radio, the electric shaver and the hair dryer, the coffee brewer, the blender and the microwave oven or the electric stove, the refrigerator, the air conditioner, the computer, and so on and so forth. Electricity has also been the main element in improving the quality of basic services for the well being of people, such as clean water, education, medical care, entertainment and modern means of information and communication like the Internet.

23.1.3 One Third of Humanity Still in Darkness

Unfortunately, even today, not everybody has the fortune of enjoying all the benefits of progress: about one-third of humanity lacks access to electricity and, therefore, to a large number of electricity-based services and commodities. Around two billion people, mostly in the so-called developing countries, have remained in the earlier stages of human development, and still rely on wood fire, animal grease or kerosene lamps to light their paths and their homes at night. Modern means of communication and entertainment are either not known to them or are a distant possibility. Millions of people die every year from drinking polluted water, while others suffer from the lack of basic medical services. Illiteracy denies millions of people any possibility of gaining access to better opportunities. As hard as it may seem to believe, at the onset of the twenty-first century, with all the technology mankind has been able to create, survival is still the name of the game for millions and millions of people in remote rural areas of the world.

Reasons for such disparity are manifold, but certainly access to reliable, affordable and high-grade energy sources is one of them. The direct relationship between the