AU J.T. 8(1): 35-43 (Jul. 2004)

Delivery of Affordable Alternative Energy Resources Today and Tomorrow: Facing up to the Fossil Fuel Problem

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Abstract

The bounty of fossil fuels - coal, oil, and gas - which biology conspired to trap underground millions of years ago, is limited, and is not being replaced. Once a barrel of oil is burned, it is gone forever. For decades world leaders have been coming up with plans to deal with the fact that one day the world will run out of its key sources of energy, hydrocarbon fuels. When oil no longer flows from rich Middle Eastern fields, there is no way, over the long run one can reverse the decline of crude-oil reserves worldwide. Alternative energy technologies offer the promise of clean, abundant important benefits compared to those of conventional fossil energy sources.

Keywords: *Earth, fossil fuels, plants, sun, wind, water, power.*

Introduction

From the dawn of human civilization to about 100 years ago, the sources of energy used by mankind were predominantly human and animal muscle and wood, with lesser amounts of solar, wind, hydro, and geothermal energy. With the discovery of oil, the development of natural gas fields, and the widespread distribution of electricity from coal-powered central power plants, fossil fuels became the predominant sources of energy in the world (Bull 2001). Unfortunately, geology limits the outlook for domestic oil and gas, finding additional huge oil fields is much less possible than in the past. Coal and nuclear power face political barriers. They inflict penalties or side effects paid for not directly by utility customers, but by the general public. These include air pollution caused by burning coal, unsightly damage caused by strip mining, fear of a nuclear accidents, and the dislike of passing nuclear wastes along to future generations (Stobaugh 1981).

Scope and Objectives

The scope of this study is limited to the decline of the availability of fossil fuels and the progress of alternate energy technologies, which are cost-effective today and are making steps to broader commercialization.

The objectives of this research are listed below:

- Replacement of fossil fuels - coal, oil, and natural gas.
- Alternative energies - solar, wind, photovoltaic, biomass, biofuels, hydrogen, geothermal, and nuclear energy.

Fossil Fuels

The three most universally used fossil fuels are: coal, oil, and natural gas, all of which are hydrocarbons. Each contains mainly two elements: hydrogen and carbon. Statistics about world reserves and consumption of these fuels must be in terms of their conversion to other forms, such as mechanical power, electricity, and synthetic materials, in addition to their familiar use in direct combustion for heat.

Coal

As the most plentiful fossil fuel in the world, coal has the potential of filling a growing proportion of the demands for energy, but problems such as underground coal fire plague this promising old fuel.