Chapter 13
Energy Resources and Their Consumption

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ABSTRACT

Power is a significant cause of economic growth and crucial to the sustainability of the economy. Energy consumption is an indicator of a nation's economic growth. Economic growth is focused, among other aspects, on the long-term acquisition of affordable, existing resources, and their use does not pollute the environment. Industrialization serves economic growth and consumes energy. In 2018, 68% of total capital power was consumed by largest energy-intensive areas. When fossil fuel is the primary source of energy, energy consumption is positively correlated with ecosystem cleanliness. Fossil fuels account for more than 70% of the decent energy expectations of India and other economies. In this chapter, problems related to non-renewable energy sources are discussed, and emphasis is given to use more renewable sources.

1. INTRODUCTION

Electricity is the strength to do work and is crucial for operations of life. An alternative energy source can create heat, power life, move objects, or generate power. It is titled as fuel which carries energy. Intake of human energy has steadily grown throughout human history. Early humans required limited energy, mainly food and fuel to cook and keep warm. (Ministry of New and Renewable Energy, n.d.).

Human absorbs as much as 110 times as much power per person as early humans in today's age. Much of the energy we are using today comes from fossil fuels (solar power stored). But fossil fuels have a limitation because on a human time scale they are non-renewable and cause other possibly damaging environmental consequences (Ren 21, n.d.).

1.1 Classification of Energy Resources

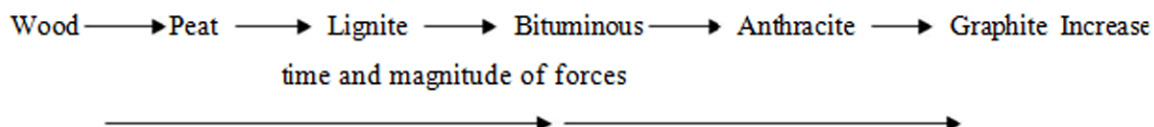Energy resources are classified as shown in figure 1:

Figure 1. Classification of energy resources(Ren 21, n.d.)
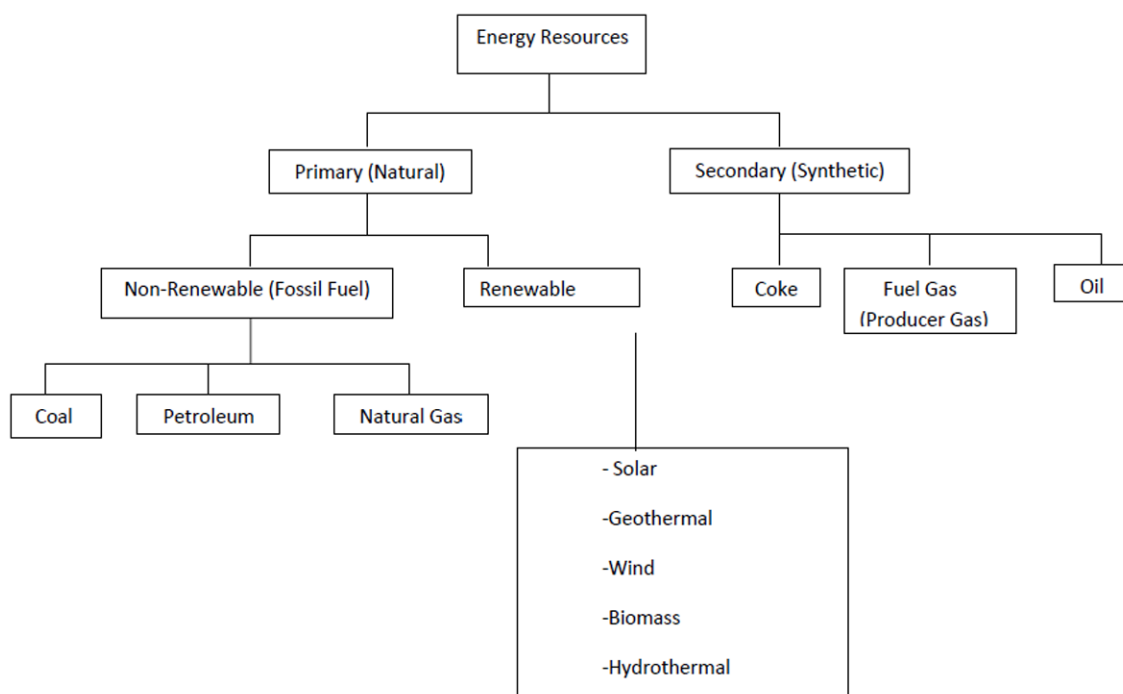
It should be indicated that all fossil fuel reserves come from plants and it takes millions of years to form a reserve below the earth's crust through physico-chemical modifications.

1.1.1 Types of Non-Renewable Sources of Energy

Coal: It is created by the protracted action of geological forces accumulated below the earth's crust on plant and organic matter and is called as "COALIFICATION". Coalification is dependent on both moment and force and it leads to modifications in the acquired plant (Ani & Abubakar, 2015).

Wood ⟶ Peat ⟶ Lignite ⟶ Bituminous ⟶ Anthracite ⟶ Graphite Increase
time and magnitude of forces

Almost all physical changes, such as colour, strength, density, and composition; and there is chemical change. It is essential to make chemical changes.

- Oxygen is reduced from 40% in timber to 305% in peat, 20% in lignite, 5% in bituminous and 2% in anthracite carbon.
- For anthracite coal, volatile matter reduces from about 70% for timber to 5% or less.
- Carbon increase from around 30% for timber and peat to 90-95%

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