ISBN: 9781638069560

CHAPTER ONE

Clean Energy

Shiv Sankar Das

According to Oxford Dictionary (2019), energy means "power derived from the utilisation of physical or chemical resources, especially to provide light and heat or to work machines". The word energy is derived from the Greek word 'energon', which means 'in-work' or 'work content'. The work output depends on the energy input. Any activity carried out, whether by humans or by nature is mainly caused due to flow of energy in one form or the other. Julius Robert Mayer in 1842 discovered the law of conservation of energy, which is now called first law of thermodynamics, "Energy neither can be created nor be destroyed".

The energy sources can be classified in different ways. It includes primary and secondary energy, commercial and non-commercial energy and clean and unclean energy. Primary energy is found in nature. Example of primary energy sources include coal, oil, natural gas and biomass. When primary energy is converted, it results in secondary energy. Example of secondary energy sources include steam, electricity, etc. Commercial energy is the energy sources that are traded in the market. Example of commercial energy sources include coal, oil, natural gas and electricity. Energy sources that are not traded in the market, are called non-commercial energy. Example of non-commercial energy sources include biomass, solar, wind, etc.

There is no uniformly accepted definition of clean energy. Although it is referred to many renewable energy sources, petroleum products and electricity. For the purpose of present study, the "clean energy" is defined as that energy source or form which when used does not produce negative externalities. As an example, electricity when used at household level for cooking does not produce noxious gases like that from wood or coal or kerosene. Hence, electricity is a clean energy and wood, coal and kerosene