

HIGHER TECHNICAL INSTITUTE

ELECTRICAL ENGINEERING

DIPLOMA PROJECT

PHOTOVOLTAIC SYSTEM

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CHAPTER 1

INTRODUCTION

1.1. RENEWABLE ENERGY

I wonder, if one morning I wake up, I go to my refrigerator for a glass of milk only to discover that the light inside does not turn on and everything inside it has been sitting at room temperature overnight and is quickly beginning to spoil . If I try to brew a cup of coffee the coffee maker does not seem to want to start .My gas stove will not turn on, so it looks like there'll be no have cook my breakfast . After I run out to the car . It will not start . “What is going on ?” I think to myself . “Why doesn't anything work ?”

Does this sound like the beginning to some strange science fiction novel? Well, the scenario we just illustrated could be very real indeed . Together, fossil fuels (coal, petroieum, natural gas and their derivatives) provide more than 85% of the energy used by making today. Unfortunately, the reserves of those fuels are not infinite. Scientists predict that within the next two centuries we will run out of those valuable energy sources. Clearly, something must be done. But what?

The solution is the reneawable energy sourse, derived principally from the enormous power of the sun's radiation, are at once the most ancient and the most modern forms of energy used by humanity.

Solar power, both in the form of direct solar radiation and indirect forms The water and wind power was the energy source upon which early human societies were based. When our ancestors first used fire, harnessing the power of photosynthesis, the solar-driven process by which plants are greeted from water and atmospheric carbon dioxide. Societies wanton to develop ways of harnessing the movements of water and wind, both caused by solar heating of the oceans and atmosphere, to grind corn, irrigate crops and propel ships. As civilization became more sophisticated, architects began to design

buildings to take advantage of the sun's energy by enhancing their natural use of its heat and light, so reducing the need for artificial sources of warmth and illumination.

Technologies for harnessing the powers of sun, firewood, water and wind continued to improve right up to the early years of the industrial revolution. But by then the advantages of coal, and most plentiful of the fossil displace wood, wind and water in the homes, industries and transport systems of the industrial nations

Fossil fuels have been used for many decades as the main source of energy generation. The demand on energy is increasing and it will keep going up because of the technological revolution and the dramatic rise of the world's population. Acid rain, global warming and ozone depletion are some of the environmental impacts of the fossil fuel power generation systems. It is, therefore, necessary to reduce the environmental impacts down to a minimum level with the best energy usage.

A new prospective is given to mankind with the use of Renewables, especially Photovoltaic systems as form of energy production. Big steps have been made in Photovoltaic technologies and so these environmental friendly energy generation systems are the best economical solution for a sustainable future. It is known that the fossil fuels will not last for ever and that is why Photovoltaic systems can have an important role in the world's current and future energy generation.