

Chapter 5

Turkey's Renewable Energy Potential: Policies and Practice

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ABSTRACT

The energy sector holds a crucial strategic importance for development and its sustainability. However, the energy reserves in Turkey are insufficient for the increasing energy demand. For this reason, the need for alternative energy sources has emerged. The fact that fossil fuels used in energy production will be exhausted and their damaging effects on the environment has made it inevitable for the world to use renewable energy. In Turkey, the following are the main energy sources used in electricity production: hydraulic sources, brown coal, natural gas, coal and fuel oil. The use of renewable energy sources in electricity production has shown a considerable development in the world over the past few decades. However, these energy resources have yet to be exploited to any large extent in Turkey. In this chapter, the range of potential renewable energy resources available for electricity production in Turkey will be analyzed in order to determine the necessary technical substructure to make these renewable energy resources more attractive.

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INTRODUCTION

Technological developments and economic growth has accelerated energy demand for alternative resources. The period that started with the 1974 oil crisis showed that oil is a finite resource, and cheaper and easier electricity generation alternatives were extensively discussed in those years.

Faced with the prospect of diminishing fossil-based energy sources, the increases in petrol prices, and environmental problems, the public is paying more attention to sustainable energy generation and sustainable development issues. Energy policies are updated according to renewable energy source usages, increasing efficiency, and environmentally friendly technologies. Many countries prioritize renewable resources and design and implement policies which make them less economically dependent on foreign countries. Ocean energy, geothermal energy, biomass energy and hydro electrical energy are among the numerous renewable energy resources available. These are the energies whose applications vary according to their specific characteristics. Solar power, being the most important among the renewable energy resources is a natural resource which underlies many other energy resources. Energy resources such as wind, solar, and geothermal are used in many fields such as power generation, the operation of industrial plants, and illumination. Although many renewable energy resources require certain costs and labour in our present day, these are the resources which are endless and can sustain the power generation requirements of humanity.

All research conducted conclude that there are ideal energy resources which are environment-friendly. They will respond to the energy demand at a broad perspective, from domestic electrical instruments to space craft, along with technological development. On the other hand, it will remove the unavoidable damage caused by limited energy resources and various contaminant impacts on the environment and thus should be used in all application areas as soon as possible. Parallel to this thought, it should be focused on renewable energy resources under the heading of clean energy.

Renewable energy sources are important for energy deficient and dependent countries. Therefore, there are several favourable legal regulations in place and governmental incentives offered for research and innovative entrepreneurs. However, at this point, the renewable energy sources cannot compete with fossil fuels in terms of costs and requirements and it is not expected that the renewable energy sources will address this issue in the short term. This situation makes the the search for increased use efficiency of conventional sources as important as renewable energy sources.

Regarding renewable energies, Turkey is ahead of the game when compared to many other countries worldwide. When wind energy -the preferred energy among the renewable energy branches- is taken as a basis, Turkey ranks 3rd for wind potential

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