

# **CHAPTER 9**

## **RENEWABLE ENERGY RESOURCES AND ARTIFICIAL INTELLIGENCE APPLICATIONS**

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### **RENEWABLE ENERGY**

The concept of energy and the efficient use of energy resources are among the most important issues in our world. Energy has become an indispensable part of our modern world life. In our daily life, with the increasing population, our dependence on energy consumption is increasing day by day to continue our lives. When we look at it from the perspective of countries, energy is an indispensable need for development [1].

The need for electricity is gradually increasing for many reasons such as the growing necessity of the production sector due to the increasing population, the increasing number of vehicles in daily life as a result of many technological developments, the development of electric vehicle technology, the need for heating and cooling systems as a result of the change in seasonal normals. Energy production, consumption, and disposal by using depleted energy resources can cause significant environmental problems that disrupt the ecosystem. The gradual decrease in fossil fuels and the increase in prices are among the disadvantages of these energy source [2]. The damage to the atmosphere caused by gases such as CO<sub>2</sub>, which is produced by the burning of these fuels, causes global warming in terms of the environment. Changing seasonal norms as a result of global warming negatively affects life, production, and the environment. Many advantages such as tariff guarantee, VAT, income tax, and support for R&D studies are offered to encourage renewable energy production around the world. According to the data of the Turkish Ministry of Energy for August 2022, 30.9% of electricity production is hydraulic energy, 24.8% by natural gas, 20.7% by coal, 10.9% by wind, 8.6% by so-

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It is seen that the use of Artificial Intelligence techniques, which are used in many fields, in the field of geothermal and wave energy obtained from the sea is quite limited. Considering today's energy crisis, it is suggested that studies in this field should be increased. The efficient use of limited resources in nature is of great importance to sustaining life on earth in the future. Making the world more livable is a vital issue for both ourselves and future generations. Considering that we are energy-dependent societies to survive in daily life, it is very important to increase and use renewable energy sources efficiently for energy production. In this context, the current position should be determined by making necessary situation assessments, and projects supported by technological methods should be implemented. Predictions should be made by using Artificial Intelligence techniques, which are very popular today, and work should be done for the efficient use of existing resources.

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