CHAPTER 7

ENERGY PRODUCTION FROM BIOWASTE IN TERMS OF SUSTAINABILITY

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INTRODUCTION

Energy is an essential factor for production and is among the important basic factors in reflecting the social and economic development potential of countries. The world population is constantly increasing therefore the energy demand is increasing rapidly. Energy is mainly provided by renewable and non-renewable sources. Since energy production is mostly produced from non-renewable energy sources, the amount of energy production for the next generations creates a risk factor depending on the existence of the resources used [1-2]. Fossil fuels have a large share of the world's energy supply. The intensive use of these resources causes some negativities due to the release of gases such as CO_2 and CO into the environment. With the rapid depletion of fossil-based energy sources and fluctuations in prices, searches and research on new energy sources continue intensively [3].

The European Union Countries have agreed on some issues within the framework of climate and energy. It can be said to reduce greenhouse gas emissions by 40% compared to the 90s until the first quarter of the 2000s, and even to bring this rate to 80-95% by 2050. They also agreed to ensure that 27% of the energy consumed in 2030 is obtained from renewable sources and to increase energy efficiency by at least 27% [4,5].

Biomass, which is one of the renewable energy sources, includes organic wastes in a wide range of areas such as animal waste, vegetable waste, industrial waste, forestry, and urban waste.

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inexpensive, and can be completed and put into operation in a short time like 2 years at the most. In addition, in a country like Türkiye where agriculture and animal husbandry are common, dozens of facilities can be established in almost every region and can be put into service quickly. Biogas production will not only increase agricultural efficiency by bringing quality fertilizers and energy production but also reduce our dependence on foreign energy and provide cheap energy to the farmer [34]. Apart from the energy value of biogas, it is possible to say that it plays an important role in reducing methane emissions from agricultural and urban wastes. Methane emission, especially as a result of open storage of manure resulting from animal production, is an important factor in the increase of greenhouse gases. The use of these wastes in biogas production will reduce greenhouse gas emissions, and the evaluation of the by-products as organic fertilizers will reduce environmental pollution and provide additional income. As a result; In today's world, when the economic bottleneck has reached the stage, it brings to the agenda that the energy resources are not wasted and that the available energy resources are obtained in cheap ways, as well as the restriction to save everything. Another dimension of the issue is the need for energy resources to be environmentally friendly, among the steps to be taken to ensure that our increasingly deteriorating environment does not worsen or even improve [12,35].

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