

# Chapter 4

## Consumer Attitudes Towards Renewable Energy: A Study in Turkey

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### ABSTRACT

*This chapter attempts to study the view of Turkish consumers towards various types of renewable energy production methods and to assess whether consumers will pay premium prices for different types of renewable sources. The chapter makes use of an online survey for data collection. 927 responses were collected in total during 2015. 92% of the respondents state that they believe in global warming. The results indicate that one-fourth of the consumers are not willing to pay anything extra if electricity is obtained from renewable sources. However, almost half thinks that they could pay 5% to 10% more. In terms of the importance placed by the consumers on different means of electricity generation by renewable sources, the highest importance is placed on solar energy, followed by wind, biomass, and hydroelectric. Policy makers in the public and private sectors can consider these results when making changes to the current energy generation and distribution infrastructure.*

### INTRODUCTION

There is growing concern over global warming all around the world. As a result of these concerns alternative ways of creating electrical energy are being explored and in some cases governments are providing incentives for these. The 2020 initiative of the European Union requires that 20% of the electricity generation come from renewables in addition to requiring 10% of the transportation fuels to come from renewable sources (EU, 2009). The 2030 targets take this one step further and require a 40% reduction in greenhouse gas emissions compared to 1990 levels, at least a 27% share of renewable energy consumption and at least 27% energy savings compared with the way things are currently going (EU, 2016a). According to data from Eurostat, the total share of renewable energy in the EU in 2012 was 14.1%, up from 8.7% in 2005 (EU, 2016b). Although Turkey has a huge potential of renewable energy

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resources, the progress of the energy market is still slow such that it's not widespread and integrated to urban planning (Okay, 2016). Using renewable energy wisely can also be an important tool for Turkey's global competitive position (Akkucuk, 2014a; 2014b; 2011a). Nongovernmental organizations (NGOs) are also important for promoting every aspect of sustainability including using renewable energy wisely (Akkucuk & Sekercioglu, 2016; Akkucuk & Gencer, 2017).

In Turkey the energy market was marked by privatization in the last 10-20 years. Most of the energy producers are owned by private companies. The energy is sold to the centralized distribution company at an auction by the producers and the regional distributors sell the electricity at a government determined rate to the final consumers. In some cases the final consumers whose average monthly bills exceed a certain quantity may choose their providers, or in other cases billing may be different according to the time of day. With the aforementioned exceptions electricity is billed to consumers at 39 kuruş/KWh (or about 12 Euro cents).

In terms of the composition of energy production in Turkey, the most important element as a renewable course is hydroelectric energy production. Solar and wind energy are unfortunately not utilized to a great extent in Turkey. With respect to total "capacity" in terms of Megawatts Turkey has 73,147.6 MW of production capacity in 2015. In this overall capacity wind energy only has 6.2% and solar has 0.3% share. On the other hand hydroelectric power (due mainly to Turkey's geographical structure) has 35.4% share. Geothermal, which is another fossil free energy source, has a share of 0.9%. The rest of the capacity (more than half) therefore comes from fossil fuels like coal, natural gas and others. When it comes to actual production (rather than technical capacity) we see that the fossil fuels gain even a bigger share. From 1/1/2015 to 31/12/2015 there has been production of 259,610,000 MWh of electricity. Of this 4.4% came from wind, 1.3% geothermal and 25.8% hydroelectric. Solar is not even accounted for in the report because the theoretical maximum capacity cannot be realized. Again roughly 70% of the "actual" production comes from fossil fuel related energy sources. Table 1 and Table 2 provide the detailed breakdown of the numbers both in terms of capacity and actual production for the year 2015.

Turkey strives to use the renewable energy sources with greater efficiency. There are actually government programs aimed at increasing the share of renewables. This approach which has been dominant for a long time has recently resurfaced. There is an incentive mechanism for renewable energy sources like wind, hydroelectric, solar, and biomass. "Yenilenebilir enerji kaynaklarını destekleme mekanizması (YEKDEM)" as it is called in Turkish can be translated as "Mechanism for Supporting Renewable Energy

*Table 1. Energy Production Capacity of Turkey in 2015*

Type	Quantity (MW)	Share
Hydroelectric Dam	19,077.2	26.1%
Hydroelectric River	6,790.6	9.3%
Wind	4,503.2	6.2%
Solar	248.8	0.3%
Coal	15,087.5	20.6%
Natural Gas and LNG	21,222.1	29.0%
Thermal Other	5,594.3	7.6%
Geothermal	623.9	0.9%

Source: Turkish Chamber of Electrical Engineers (EMO), 2016

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