



Wind power generation potential in Turkey and wind power share electricity production

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Fossil energy sources have an important place in overall energy demand. However, as a result of increasing negative effects of fossil sources, renewable energy sources have been attached greater importance both in Turkey and the world. Wind power, as a renewable source, has rapidly been developing. These developments have particularly been striking over the recent years. Wind power installed capacity in the world reached to 175.000 MW in June, 2010. The U.S.A., China, Germany and Spain are leading countries in that sector. Turkey is a developing country with an increasing energy demand. Main electrical energy sources of Turkey are thermal (natural gas, lignite, coal, fuel oil) and hydraulic. For Turkey, a country which is not rich in fossil sources, wind power has a great potential. According to related calculations, electricity production potential by wind power in Turkey is approximately 48.000 MW. When the fact that the country had a 44.761 MW electricity power installed capacity in 2009 is considered, the highlight on wind power potential is justified. The main purpose of the study is to show wind power potential in Turkey and highlight the importance of this potential in energy sector. Wind power potential in Turkey varies according to wind pace and consistency on regional scale. According to research results, the Aegean and the Mediterranean coasts have the greatest wind potentials in Turkey. Particularly, northeastern Aegean Sea has a huge wind potential. Moreover, in the east of Central Anatolia, Central Toros mountains and Eastern Mediterranean, the average wind pace is higher than 7,5 m/s. Turkey has a large range of regions with moderate winds. The first commercial wind power station in Turkey was established in Çeşme, İzmir in 1998 with a capacity of 8,7 MW and the station started to produce electricity with 15 turbine generators. However, there was no remarkable progress a few years ago. With the recent developments, wind power installed capacity in Turkey reached to 1029 MW in May, 2010. The increase in wind power installed capacity was caused by the legalization of Renewable Energy Law (Number: 5346, dated May 10.2005). Thus, demand for renewable energy sources considerably increased. With Renewable Energy Law, it is expected in Turkey that the number of wind power stations and wind power share in electricity production will increase.