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SENSITIVITY ANALYSIS OF ELECTRICITY PRODUCTION BASED HOURLY AND DAILY CO_2 EMISSION ESTIMATION FOR TURKEY

ABSTRACT

The main aim of this study was to determine the electricity production based daily and hourly emissions profile. Electricity production based hourly and daily emissions are calculated by utilizing long period data. It is determined as CO_2 intensity of electricity generation fluctuates with both hour and day. Maximum, minımum and the average CO_2 intensity of electricity generation amounts are determined. It varies from 384g/kWh to 738g/kWh, 580g/kWh in average. According to hourly bases analyzes, highest CO_2 intensity of electricity generation occurs between 06:00 and 07:00. According to Turkey's power plant utilization characteristics and electricity demand, lowest CO_2 intensity of electricity generation occurs between April 1st and 20th for Turkey. The highest CO_2 intensity per kWh electricity occurs during the New Year season. The highest CO_2 intensity of electricity generation occurs in Sunday despite the lowest electricity demand. The annual total of 161 Mt CO_2 is released to atmosphere as a result of electricity generation. Electricity production based CO_2 emission per capita is calculated as 2.025 ton CO_2.

Keywords: Electricity Production, Sensitivity Analysis, CO_2 Intensity of Electricity Generation, CO_2 Emission Per Capita, Turkey

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