

**Title:** Evaluation of the Energy Consumption, Initial and Operational Costs of Drinking Water Treatment Plants in Turkey by Using Flowrate as a Variable

**Abstract**

Drinking water treatment plants are energy-intensive facilities releasing greenhouse gases. Water utilities or municipalities can save thousands of dollars by choosing energy-efficient treatment process designs and/or incorporating energy efficiency practices into their water treatment plants. This study aims to investigate the energy consumption and the initial and operational costs of drinking water treatment plants in Turkey by using flowrate as a variable. To this end, an inventory of water treatment plants across Turkey will be compiled, and their cost and energy consumption data will be collected. The data collected will then be used to derive cost functions of initial and operational expenditures and also electricity utilization for use during the design of new water treatment plants. The three main treatment schemes to be considered are surface water treatment applying conventional water treatment, groundwater treatment with softening, and groundwater treatment with membrane filtration. If additional treatment process trains are observed to be involved in Turkey, they will also be covered. It is expected that the study results will be helpful to Iller Bank in its decisions on the selection of the optimum water treatment process for the communities.

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