

Energy intensity modeling for wastewater treatment technologies

Molinos-Senante, M., Sala-Garrido, R., & Iftimi, A. (2018). Energy intensity modeling for wastewater treatment technologies. *Science of the Total Environment*, 630, 1565-1572. <<https://doi.org/10.1016/j.scitotenv.2018.02.327>> [30 de abril de 2020]

Abstract

Wastewater treatment plants (WWTPs) are energy intensive facilities; therefore increased pressure has been placed on managers and policy makers to reduce the facilities' energy use. Several studies were conducted to compare the energy intensity (EI) of WWTPs, which showed large dispersion in EI among the facilities. In the present study, the degree EI influenced WWTPs was tested using a set of technical variables by modeling the EI of a 305 WWTP sample grouped into five secondary treatment technologies. Results indicated the following two major findings: i) WWTPs using conventional activated sludge, extended aeration, trickling biofilters, and biodisks exhibited significant economies of scale in energy use; and ii) pollutant removal efficiency demonstrated low impacts on WWTP EI. The methodology and results of this study are of value to policy makers in planning new WWTPs and developing management plans to improve energy efficiency of wastewater treatment.

Keyword

Energy efficiency | Wastewater treatment | Energy use | Economies of scale | Regression