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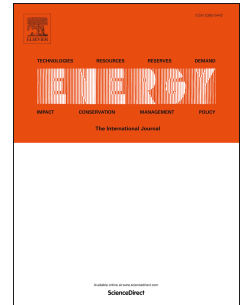
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# Cost and Environmental Efficiency of U.S. Electricity Generation: Accounting for Heterogeneous Inputs and Transportation Costs

by

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## Abstract

In this paper we conduct an empirical analysis of the environmental and economic performance of coal-fired power plants in the United States. Using nonparametric methods for efficiency analysis we propose a theoretical framework that builds upon the restrictions of mass balances for production possibilities and explicitly takes into account heterogeneous fuel quality and prices of the fuel input. This heterogeneity influences both the cost of the production and the emission of environmentally harmful pollutants. Moreover, we analyze how the incorporation of transportation costs influences the cost efficiency of the electricity generating units and quantify the trade-off between environmentally efficient and cost-minimizing production of electricity.

**JEL classification:** D24, L92, Q40, Q53

**Keywords:** Environmental efficiency; Cost minimization; Heterogeneous inputs; Mass balance  
Transportation costs; Electricity generation; Nonparametric efficiency analysis

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