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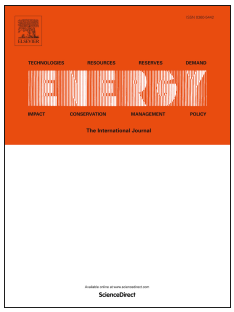

Cost and environmental efficiency of U.S. electricity generation: Accounting for heterogeneous inputs and transportation costs

Benjamin Hampf

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

by

Benjamin Hampf*

Department of Law and Economics, Darmstadt University of Technology,

Hochschulstraße 1, D-64289 Darmstadt, Germany

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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

*Tel.: +49 6151 1657283, Fax: +49 6151 1657282, E-Mail: hampf@vwl.tu-darmstadt.de