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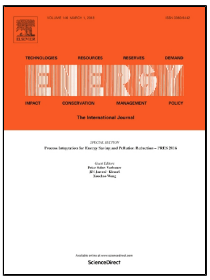

Hydropower and potential for interfuel substitution: The case of electricity sector in Malaysia

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Abstract

The electricity sector in Malaysia is dominated by fossil fuels. This has immensely increased the amount of CO_2 emissions and other pollutants thereby causing severe environmental problems in the country. The objective of this paper is to investigate the potential for inter-fuel substitution between the four major fuels of coal, gas, oil, and hydropower that are currently being used in the generation of electricity in Malaysia. Using a translog production function, the study adopted a ridge regression procedure to estimate the parameters. The results suggest a potential for substitution among the fuels. Hydropower is observed to be a substitute for other fossils fuels which is an indication that the country can gradually move towards adopting a cleaner fuel in the generation of electricity. We also extended the analysis to Thailand and China to show the consistency of the method when applied to different countries.

Keywords: Interfuel substitution; Electricity sector; Hydropower; Translog production function; Ridge regression; Malaysia