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The Economics of Power Generation Technology Choice and Investment Timing in the Presence of Policy Uncertainty

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ABSTRACT

The purpose of this study is to analyze how market and policy uncertainties affect the general profitability of new investments in the power sector, and investigate the associated investment timing and technology choices. We develop an economic model for new investments in three competing energy technologies in the Swedish electric power sector. The model takes into account the policy impacts of the EU ETS and the Swedish green certificate scheme. By simulating and modeling policy effects through stochastic prices the results suggest that bio-fuelled power is the most profitable technology choice in the presence of existing policy instruments and under our assumptions. The likelihood of choosing gas power increases over time at the expense of wind power due to the relative capital requirement per unit of output for these technologies. Overall the results indicate that the economic incentives to postpone investments into the future are significant.

KEYWORDS

Bioenergy; Investment; Renewable Energy; Electricity; Wind Power

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