Energy Policy

Volume 31, Issue 8, June 2003, Pages 799-812

Prices versus quantities: choosing policies for promoting the development of renewable energy

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https://doi.org/10.1016/S0301-4215(02)00133-7

Abstract

Now that the risks of climate change have been confirmed and the European States have declared their willingness to pursue ambitious objectives for producing electricity from renewable energy sources, it becomes crucial to take a look at the relative efficiency of the different incentive schemes used. Such schemes may focus on quantitiesâ€”defining national targets and setting up bidding systems, or quota systems providing for green certificate tradingâ€”, or they may focus on pricesâ€”feed-in tariffs. Clearly, these instruments are much the same as those used in environmental policies, with similar discussion involved in their choice. Whatever the system chosen, the role of the public authorities is quite specific: to stimulate technical progress and speed up the technological learning processes so that ultimately renewable energy technologies will be able to compete with conventional technologies, once the environmental costs have

been internalised. A comparison of instruments must thus take into account the characteristics of the innovation process and adoption conditionsâ€”uncertainties regarding cost curves, learning effectsâ€”which means also looking at dynamic efficiency criteria. The authors examine the efficiency of the different incentive schemes for the development of renewable energy sources, both from a theoretical point of view by comparing price-based approaches with quantity-based approaches, and from a practical point of view by looking at concrete examples of how these different instruments have been implemented. The paper concludes that a system of feed-in tariffs is more efficient than a bidding system, but highlights the theoretical interest of green certificate trading which must be confirmed through practice, given the influence of market structures and rules on the performance of this type of approach.

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Keywords

Renewable energy; Public policy; Incentives; Prices; Quotes; Innovation

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