

摘要

本文以最適控制理論證明，獎勵再生能源產出之政策，應以再生能源淨能源產出做為獎勵的基礎，而非現行以再生能源總能源產出做為獎勵基礎之模式。這裡的淨能源產出，指的是再生能源廠商生產出之再生能源，減去生產再生能源時所用的能源投入。本文首先將社會最適情況下的總能源產出分別與以淨能源產出和總能源產出為獎勵政策基礎之價格與數量政策下之總能源產出作比較，提出獎勵再生能源產出的政策，需以淨能源產出做為獎勵的基礎，而非現行以總能源產出作為基礎的政策，接著，在以淨能源產出為基礎的政策下，探討環境外部性與防治成本以及研究發展的議題。

【關鍵詞】 最適控制理論、淨能源、研究發展、邊做邊學



ABSTRACT

A Study of Policy Base to Promote Renewable Energy

Production

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July 2007

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By the optimal control theory, this paper proves that policies on encouraging the production of renewable energy should be based on its net output or net energy instead of on its gross output or gross energy. Here net energy is defined as the surplus of renewable energy output minus energy input from its production. This paper first compares the optimal gross output of the renewable energy under the social optimal condition with the gross outputs under the price-based policy instrument and the quantity-based policy instrument based on net energy output and gross energy output, respectively, suggesting that policy instruments used to encourage the production of renewable energy should be based on its net output instead of on its gross output. Finally, it probes the cases of environmental externality and R&D based on the net output of renewable energy.

Key words: Optimal control theory ; Net energy ; R&D ; Learning-by-doing