

Impact analysis of energy policy in Japan. Individual benefits of measures for the promotion of green power.

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Abstract:

The measurement of external costs of power generation is a component part of valuation measures of power generation externalities. Recent examinations about external costs of power generation demonstrate that the available approaches suffer from uncertainties about the amount and the occurrence probability of external costs. As opposed to this in order to examine the effects of power generation from the view of consumer theory the application of economic valuation methods is a suitable measure. The estimation of the Willingness To Pay (WTP) for the reduction of external costs of power generation provides information about consumer preferences regarding environmental issues in energy policy.

The goal of the study is to value welfare effects of energy policy measures in Japan. Promotion schemes for the use of renewable energies determine individual benefits referring not only to market goods but also to non-market goods, e.g. environmental quality and supply security. The extracted data include market and non-market values and characterize the individual benefits of policy measures supporting green power in the Japanese economy.

Standardized questionnaires are used in the WTP survey based on information about power generation and the regarded environmental damage costs in Japan. The survey provides data about individual benefits of power generated with renewable energies. The results also clarify the influences of additional issues in energy policy on the WTP, such as increased energy efficiency and security of supply as well as higher import independency and open market access. Object of investigation of the survey is the measurement of the individual WTP for policy measures which balance the price differences between fossil and renewable energies. The survey considers pure consumption issues as well as the infrastructural framework and technical progress. Starting point of the survey is the difference in emissions between the current state and the target condition of the policy measure.

The revealed WTP will be compared with the real consumption condition to derive reasons for differences between stated preferences and the actual behaviour of households. A special issue of the survey is the examination of significances between the revealed WTP and various elements of the promoting schemes. The determined amount of the WTP for the promotion of green power generation is assumed to be influenced first, by individual attitudes and socio-economic variables and second, by principles of Japanese energy policy regarding the use of revenues for the introduction of promotion programmes.

The results of the study provide information about the stated preferences and attitudes towards environmental energy policy. This makes it possible to identify sources of revenues for the payment of policy measures. In addition, a ranking of financial instruments capable for establishing green power promotion schemes can be derived from the results of the survey. Finally, the relationship between the WTP and the earmarking of revenues can be uncovered to show the effects of the consumers knowledge about the kind of revenue recycling on the revealed WTP.