

A Comparative Look at the Processes of Wind Power Innovation and Diffusion in Germany and Japan

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1. BACKGROUND AND RESEARCH OBJECTIVE

In order to meet global climate and energy challenges, a wider diffusion of renewable energy has become the central issue. Both Germany and Japan are major industrial countries which could shape the direction of the global environment. Although the two countries have been tackling the challenges above, the different outcomes are obvious in the field of renewable generation, especially wind power. While Germany could exploit its wind resource successfully, Japan's wind resource potential still largely remains untapped across the country. The research aim is to understand the different paths of wind energy development and analyzing the factors for the varying results. Also this paper intends to learn lessons from the successful German experience in order to implement further diffusion of wind power in Japan.

2. ANALYTICAL FRAMEWORK

The research target remains on onshore wind development since 1970s. The assessments are qualitative and based on secondary literatures and interviews. An analytical framework is based on the concept of technological innovation system applied in the case studies on innovation and diffusion processes of wind turbines (Bergek & Jacobsson, 2004; Jacobsson & Lauber, 2006). The following four key processes for a take-off into a rapid growth are focused: institutional change, market formation, entry of new firms, and formation of a technology specific advocacy coalition.

3. CONCLUSIONS

(1) Findings from the comparison

German government's R&D supports have fostered wind manufacturers and their networks, and the Feed-in scheme has stimulated the market formation by obligating the utilities to buy the electricity produced at the fixed price. As a result of many new entrants and a positive external economy, a wind advocacy coalition was formed to influence the institutional set-up. In the meantime, in Japan, although institutional changes such as the government's subsidies and the utilities' voluntary purchase agreement have stimulated to create the market, a further diffusion is blocked by institutional constrains. Thus, Japan's wind industry still remained weak over the institutional set-up due to the lack of positive external economy produced by domestic manufacturing since overseas manufacturers have dominated in the market.

(2) Lessons for Japan

Japan's challenge is to set-up institutional framework for market creation. Lessons from the successful German case are following; effective economic incentives, priority access, burden sharing of additional costs and enhancement of political networks over institutional changes.

4. REFERENCES

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