

# The Two-Tiered Demand Structure of Japan's Wood Pellet Import Market: A Dynamic LA-AIDS Approach

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## Abstract

Since the introduction of the Feed-in Tariff (FIT) scheme in 2012, Japan's wood pellet imports, primarily for power generation, have surged, surpassing 6 million tonnes in 2024 and establishing the country as the world's second-largest import market. Despite its significant scale, the demand structure of Japan's wood pellet import market has remained under-analyzed compared to the EU market. This study employs a dynamic Linear Approximate Almost Ideal Demand System (LA-AIDS) model to analyze the characteristics of Japan's wood pellet import demand, specifically accounting for market "inertia" arising from long-term fuel supply contracts between power generators and suppliers. The empirical results reveal a distinct "two-tiered" demand structure within the Japanese market, where North America and Vietnam account for the vast majority of supply. Imports from North America exhibit extremely low price elasticity and function as a necessity good in terms of expenditure elasticity. Moreover, their short-run elasticity exceeds their long-run elasticity in absolute terms, indicating strong adjustment inertia, with demand reverting quickly toward its pre-shock equilibrium. This suggests a strategic procurement stance that prioritizes supply stability. In contrast, imports from Vietnam display characteristics of an expenditure-elastic good with high price sensitivity. The slight difference between its short-run and long-run elasticities implies that changes tend to persist, positioning it as an adjustment mechanism for supply and demand based on cost competitiveness. Such a division of roles among origins suggests that, under the FIT scheme, Japan's power sector has developed a two-tiered procurement strategy, balancing the objectives of supply stability and cost flexibility. These findings highlight the formation of a unique market in Japan, standing in stark contrast to the EU market, which is driven primarily by residential heating demand and exhibits a more homogeneous and generally price-inelastic demand structure.

**Keywords:** Bioenergy; Wood pellets; Feed-in tariff (FIT); Dynamic LA-AIDS model; Demand analysis

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