

Impact of Improvement and Deployment of Heat Pump Technologies on Carbon Emission from the Residential Sector in Japan

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Heat pump technology is considered to be one of the most promising measures for CO₂ abatement strategy in Japan. We have developed a diffusion model of demand side technologies in residential sector in Japan, which can examine changes in total energy consumption by penetration of improving technologies and learning effects of innovative technologies, such as fuel cell and heat pump water heater. Using this model, we estimated the potential reduction in CO₂ emission from Japanese residential sector for short- to medium- term, making a parametric analysis about learning rates, technological improvement rates, etc, to find out effective measures for CO₂ reduction.

Keywords:

air conditioner, heat pump water heater, diffusion model, learning effect