

EMISSION REDUCTION BENEFITS OF TAIWAN'S ENERGY TRANSITION POLICY FOR ROAD TRANSPORTATION

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ABSTRACT

The transportation sector is a major contributor to carbon emissions, making it a focus for decarbonization efforts. Conventional fuels in transportation are high-carbon-emitting and difficult to replace. Countries worldwide, including Taiwan, are seeking low-carbon and zero-carbon energy sources. The International Energy Agency (IEA) predicts a significant role for hydrogen, with the transportation sector constituting a substantial portion of hydrogen consumption by 2050. The strategies focus on energy transition and the promotion of electric vehicles. Measures include increasing the share of renewable energy, importing green hydrogen, and applying carbon capture in blue hydrogen production. Hydrogen vehicles have not yet become operational, suggesting that further steps are needed to develop hydrogen-related infrastructure and enhance the supply chain. Road transport is identified as the primary source of carbon emissions in Taiwan's transportation sector, contributing to 96% of total emissions. It aims to evaluate the carbon reduction benefits of both electric and hydrogen vehicles, considering Taiwan's energy transition pathway.

In summary, Taiwan is actively engaged in addressing climate change and decarbonizing its transportation sector, with a particular focus on hydrogen as a key solution. However, challenges remain, and the government is encouraged to take proactive steps to develop the necessary infrastructure for hydrogen adoption in the transportation sector. The study's assessment will likely provide valuable insights into the effectiveness of Taiwan's current energy transition strategy in achieving its net-zero emissions goals in the transportation sector.

Keywords: Green Hydrogen, Blue Hydrogen, Renewable Energy, Hydrogen-Powered Vehicles, Road Transportation