

ICRERA 2024

**13th INTERNATIONAL CONFERENCE ON RENEWABLE
ENERGY RESEARCH AND APPLICATIONS**

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Abstract

Title: Trends of challenges to zero carbon by railway companies in Japan

Electric railways have environmental advantages compared with other transportations such as cars, aircrafts, and so on. On the other hand, electric power consumption in the railway sector is 17.5TWh/year, which corresponds to about 2% of the total consumption in Japan. Under these circumstances, many Japanese railway companies have conducted and are planning various efforts to reduce CO₂ emissions aiming to achieve carbon neutrality by 2050.

This presentation will focus on some specific initiatives about decarbonization in Japanese railway, such as improvements in efficiency and energy control on rolling stock through replacements, further utilization of regenerative energy by introducing equipment such as energy storage systems or adjusting feeder voltage, energy saving efforts at stations or buildings, installing or procuring of renewable energy, implementing energy saving driving control patterns and so on.

In this keynote presentation, some specific examples of them will be explained in detail including technological prospects of electric railway. The other important issues surrounding railway industry such as labor shortage and sustainable infrastructure in the future will be also mentioned..