

Establishment of Power Supply System Using Renewable Energy and Energy Storage System

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Recently, many railway companies have introduced a number of applications of renewable energy such as solar power, wind power in order to promote saving energy. However, renewable energy cannot be used for railway vehicles directly because such energy has a tendency to fluctuate according to meteorological conditions. Therefore, it is necessary to design a stable supply system of renewable energy to make it usable for electrified railways. In this study, we propose a new power supply system using renewable energy and an energy storage system for DC electrified railways. We have indicated the advantage of the system based on the calculation analysis. Furthermore, we have introduced “renewable energy modeling system” for this study. This paper outlines the control methods of the renewable energy modeling system, and the results of tests on comparison between the proposed control methods and the other control method.