

### **Characteristic Change and Hazard Analysis of Fuel Cells in Long Time Use**

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The durability is important when fuel cells are used for the railway vehicles. So, we made a test railway vehicle powered by 100 kW-class fuel cells and have carried out experimental running tests for 10 years on our test track. The results show that the output voltage of the fuel cells decreases by 5% in comparison with the voltage at the time of the start of the experiment. On the other hand, the energy conversion efficiency of the fuel cells maintained approximately 50%. And, we conducted analysis of the hazards that might cause harm by the components of the fuel cell system. We revealed that the items which need improvement and formulated a guideline for the development of our new fuel cell system.