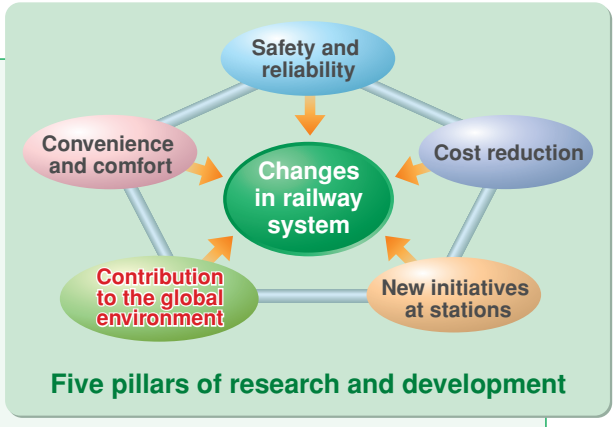
Research and development contributing to environmental conservation



Five pillars of research and development

JR East's R&D initiatives for environmental conservation

JR East is committed to contributing to environmental conservation through research and development by placing "contribution to the global environment" as one of the five pillars of our R&D initiatives. Specifically, our main R&D initiatives related to environmental conservation are: the creation of new energy-efficient systems; the promotion of resource circulation efforts to reduce waste generation and to use and make materials that are designed to facilitate recycling; and the conservation of the environment along railway lines by reducing noise and environmental pollution.

Here, we present two examples of new energy-efficient systems that have made significant advances.

Introducing the world's first hybrid railcar

We developed the New Energy (NE) Train, a prototype hybrid-system diesel railcar with the key concept of reducing environmental impact. We began test run of this new train in May 2003, in order to examine its running performance and energy-conservation efficacy.

Around the summer of 2007, we plan to commercially introduce the hybrid train, the world's first. Three Kiha E200 hybrid electric railcars will run on the Koumi line (between Kobuchizawa and Komoro). Like the NE Train, the hybrid railcar makes efficient use of an accumulator battery charged by a diesel engine and regenerative brakes. We will also examine the possibility of mass-producing these railcars, based on the operational data gathered over the next two years.

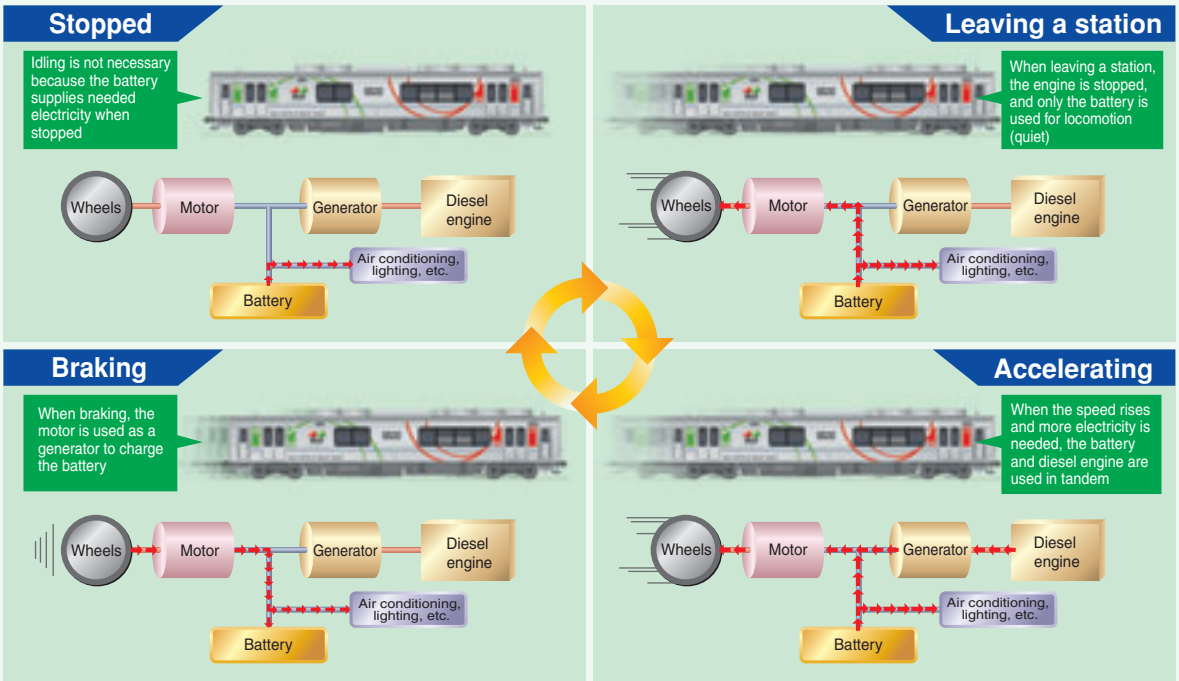
Beginning development of railcars using fuel cells

Hopes are rising for fuel cells as electricity-generation technology with low environmental impact. Fuel cells feature high electricity-generation efficiency, and the only by-product generated through their reactions is water. JR East has begun the research and development of railway systems using fuel cells.

In July 2006, we began test run of the world's first fuel-cell hybrid railcar as a modified version of the NE train. We continue to develop control, safety, and other technologies, and ascertain remaining challenges. There are still many challenges to overcome in the fuel cell technology for itself, and it will take more time for its commercially viable application, but we are committed to the development of this technology with an eye to the future.


A fuel-cell hybrid railcar will also help beautify the environment along railway lines by eliminating utility poles and overhead wires.

Overview of the hybrid railcar



* The fuel-cell hybrid railcar is based on this diesel hybrid system, replacing the diesel engine and generator with a fuel cell.