

From “Partially Optimal” to “Totally Optimal”



Background for Establishing the Environmental Engineering Research Laboratory

Under the principal of balancing environmental protection with business activities, JR East has carried out environmental activities in each section according to targets established individually. In order to achieve the high target of a “50% reduction of CO₂ in railway operations by fiscal 2031 compared with fiscal 1991 levels” stated in the JR East 2020 Vision - *i do mu* -, we determined that a research and development organization should be created, to be responsible for issuing energy strategies and developing technology for, and from the perspective of, the entire group. In April 2009, we established the Environmental Engineering Research Laboratory.

Conventionally, electricity-related departments have been responsible for reducing use, and rolling stock development departments have been responsible for reducing weight and developing fuel-cell hybrid railway cars. The research laboratory integrates brainpower and technologies across the group - rather than each department pursuing existing technologies separately - and produces innovative environmental technology. Through this integration in a single place, moreover, we are able to move environmental technology from being “Partially Optimal” to being “Totally Optimal,” and make unified efforts on global environmental issues.

Responsibilities of the Laboratory

The laboratory has two basic responsibilities. The first is to work on energy strategy for the entire group. It considers what the JR East Group, with railway operations at the core, should do, clarifies the axis and positions of activities, and draws the roadmap for achieving targets.

The second responsibility is new environmental technology. The laboratory determines what new developments JR East should pursue for the benefit of society. Rather than adhere to a notion that we must always be original and create everything ourselves, the laboratory cooperates with external organizations and companies, seeking applications of new technology from whatever source.

Specific Activities Hereafter

In April 2009, the laboratory began research and development of a next generation “rechargeable battery train,” to follow upon diesel hybrid and fuel cell hybrid systems. We will continue these efforts toward realization of such a train - a train that will draw power from overhead lines where available, simultaneously running and charging its batteries, and will then run on battery power where there are no overhead lines.

JR East recognizes its environmental responsibility. It is the mission of the Environmental Engineering Research Laboratory to provide the technological foundation enabling us to fulfill that responsibility.



Seichiro Oi

Executive Director

Railway Operations Headquarters;
Technology Planning Department,
Corporate Planning Headquarters;
Facilities Department,
Railway Operations Headquarters;
Electrical & Signal Network System Department,
Railway Operations Headquarters;
Research & Development Center of JR East Group