

**FOR IMMEDIATE RELEASE**

## **Hitachi Develops Integrated Railway Systems Simulator for Further Expanding Railway Systems Business Globally**

**Tokyo, September 20, 2011** --- Hitachi, Ltd. (NYSE:HIT / TSE:6501) today announced that it has developed an “integrated railway systems simulator”, which contributes to developing systems that meet the needs of local railway operators, including the improvement of transportation capability and saving energy costs. In the global market, especially outside of Japan, manufacturers are required to provide proposals covering whole railway systems. To expand its global railway systems business, Hitachi will apply this simulator and thereby strengthen its capability in this area.

In the global railway markets, railway operators require manufacturers to provide proposals considering a broad range of items, such as differences in power-feed equipment used by different countries and lines, variations in types of rolling stock, and services passing through electrified and non-electrified zones. Hitachi’s new simulator will be able to evaluate whole railway systems from a comprehensive viewpoint, by simulating large-scale railway systems in consideration of coordination between multiple types of equipment, such as rolling stock, signaling, traffic control, and feeding equipment. It also has the capability to evaluate the effects of changes of conditions, further facilitating the installation of new facilities and equipment in line with technological advances. By applying this simulator, Hitachi will be able to realize optimal equipment location and appropriate energy allocation. Consequently, Hitachi will be able to provide solutions that match global railway infrastructure improvement plans by leveraging the simulation capability.

In recent years, railway systems have been introduced in various countries around the world as an environmentally friendly mode of transportation, and the demand of railway markets is growing strongly in the global arena. As for the international market for railway systems, it is necessary that a manufacturer makes proposals for whole railway systems. In addition, it is necessary to swiftly estimate energy costs in consideration of a variety of complex transportation needs, for example, the differentiation of power-supply systems, AC/DC, and safety standards in different countries as well as operation in electrified and non-electrified zones. In the case of conventional simulators, which simulate stand-alone operations of single-facility models, it is problematic that optimal evaluation of a whole railway system requires a considerable amount of time. With this problem in mind, Hitachi has developed an integrated simulator for railway systems which can evaluate a whole railway system from a comprehensive viewpoint by taking into account interactions between all pieces of equipment and facilities. The key technical features of the developed simulator are summarized as follows.

### **(1) Integrated estimation and analysis technology for railway systems**

Interactions and coordinated control between multiple railway sub-systems, such as rolling stock, signaling, traffic control, and power-feed equipment, are taken into account. Single pieces of equipment can be focused on according to their purpose. In addition, it is also possible to change parameters and the combination of the sub-systems that form the whole railway systems according to an evaluation target. This technology makes it possible to estimate the running performance of a single unit of rolling stock, the effects of phenomena occurring in one sub-system on other sub-systems, for example, through services on several different lines, and performance of a whole railway system including energy consumption.

### **(2) Analysis technology for railway systems with multiple energy supply sources**

Energy supply sources for railway systems differ according to countries and lines. Some rolling stock use electricity supplied from sub-stations, while others utilize internal combustion engines such as diesel engines. As for power-feed systems, some lines use direct current or alternating current, and other lines mix the two. To handle such a variety of railway systems, an

energy-flow model for each type of rolling stock, a current/voltage supply model which simulates energy supply sources, and a model that simulates operation of each piece of equipment used in rolling stock were developed. By combining these models in a flexible manner, it becomes possible to analyze railway systems with multiple energy supply sources.

When this simulator is applied, by adding an electrical storage device model to a rolling stock equipment model and a power equipment model, it is possible to quantitatively evaluate energy savings owing to installation of electrical-storage devices in rolling-stock equipment or in above-ground equipment. Consequently, it is possible to propose the most appropriate railway systems that utilize electrical-storage devices. In addition, it is possible to estimate energy consumption of combined multiple railway sub-systems such as fluctuation of substation power consumption, which depends on substation capacity and headway, devise measures for improving energy saving and transportation capacity, and propose optimum railway systems that match improvement plans for railway infrastructures in different countries around the world.

From now onwards, this simulator will be applied to globally expanding Hitachi's domestically established technologies in the main systems of rolling stock, signaling, and traffic control, and power feed equipment.

### **About Hitachi, Ltd.**

Hitachi, Ltd., (NYSE: HIT / TSE: 6501), headquartered in Tokyo, Japan, is a leading global electronics company with approximately 360,000 employees worldwide. Fiscal 2010 (ended March 31, 2011) consolidated revenues totaled 9,315 billion yen (\$112.2 billion). Hitachi will focus more than ever on the Social Innovation Business, which includes information and telecommunication systems, power systems, environmental, industrial and transportation systems, and social and urban systems, as well as the sophisticated materials and key devices that support them. For more information on Hitachi, please visit the company's website at <http://www.hitachi.com>.

# # #

---

**Information contained in this news release is current as of the date of the press announcement, but may be subject to change without prior notice.**

---