

# The Chuo Shinkansen using the Superconducting Maglev System

## In order to continually carry out our mission

JR Central, whose mission is to operate high-speed railway linking the three major metropolitan areas of Tokyo, Chukyo and Kinki, aims for the realization of the Chuo Shinkansen using the Superconducting Maglev system and is steadily proceeding with necessary procedures and works.



## Promoting the Chuo Shinkansen using the Superconducting Maglev System

We are promoting the Chuo Shinkansen project using the Superconducting Maglev system based on the Nationwide Shinkansen Railway Development Act ("Act") to continually carry out our mission of operation of high-speed railway linking the Tokyo Metropolitan areas, Chukyo regions and Kinki regions, which is vital to our business, and to provide the future foundation of the company.

It has been 47 years since the inauguration of the Tokaido Shinkansen, which presently fulfills the mission, and we have entered a time when we must think of drastic ways to deal with feared future aging and large scale disasters based on the fact that it takes a very long time to construct and realize a railway. It is for this reason that we will realize as quickly as possible the Chuo Shinkansen that can substitute the mission by utilizing the Superconducting Maglev system, which we have developed, under the condition that we bear the cost of rail construction. We will operate the Chuo Shinkansen in an integrated manner along with the Tokaido Shinkansen. To promote this project, we shall invest as necessary to ensure safe and reliable transportation and enhance competitiveness as well as ensure sound management that will continue to provide stable dividends. We will also surely and steadily engage in various efforts aimed at the realization of the Chuo Shinkansen first to the City of Nagoya and after recovering management vitality, to the City of Osaka as soon as possible.

In order to confirm that the rules of a privately owned company, such as autonomy of capital investment and discretion of management, would not be hindered by application of the Act, we referred fundamental clauses regarding application of the Act to the Ministry of Land, Infrastructure, Transport and Tourism ("the Ministry"), and received a reply in January 2008 indicating that those rules would not be hindered.

After some legal processes, in May 2011, the Transport Policy Council of the Ministry reported that it was appropriate to designate JR Central as the operator and constructor of the Chuo Shinkansen. The Transport Policy Council also reported that it was appropriate to utilize the Superconducting Maglev system and the Southern-Alps route. Based on this report, the Minister of the Ministry ("the Minister") designated JR Central as the operator and constructor of the Chuo Shinkansen between Tokyo and the City of Osaka after obtaining our consent on the matter. Thereafter, the Minister determined the development plan after obtaining our consent and instructed JR Central to construct the Chuo Shinkansen.

We are now promoting assessment of environmental impacts between Tokyo and the City of Nagoya, where we will start to construct the line as the first step. In June and August, 2011, we announced a rough route, locations of stations and environmental considerations in the "Report for Environmental Consideration at the Planning Phase" and in September, 2011, published the "Report for Procedure of Environmental Assessment."

In November 2011, we decided and explained to the local governments that we would construct the intermediate stations at our own expense, where we modified the existing idea, for the early realization of the Chuo Shinkansen by sharing the roles with the local governments.

## Investment on the Yamanashi Maglev Test Line and Improvement of the Superconducting Maglev Technology

In consideration of the fact that Superconducting Maglev is most suitable for use on the Chuo Shinkansen due to its speed and advanced technology, technological developments have been conducted and test runs have been performed at the priority section of 18.4 km of the Yamanashi Maglev Test Line.

As a result, The Superconducting Magnetic Levitation Technological Practically Evaluation Committee of the Ministry acknowledged that the Superconducting Maglev technology had already achieved levels sufficient for commercial operation in July 2009 and the Minister established the technological standards of the Superconducting Maglev in December 2011.

In September 2006, we decided to invest 355 billion yen of our own capital to completely upgrade facilities along the Yamanashi Maglev Test Line to practical specifications, and to extend the line to 42.8km. Currently, with the goal of beginning running tests by the end of 2013, we are advancing construction in a steady and speedy manner, and are proceeding to manufacture the new vehicle Series L0 (L zero).

On the test line after it has been extended and improved, running tests will be conducted with the Series L0, and we are committed to bringing down costs for construction, operation and maintenance of commercial lines as well as improving the superconducting Maglev technology, for which the practical technology has been completed.



▲A running image of the new vehicle Series L0 (L zero)

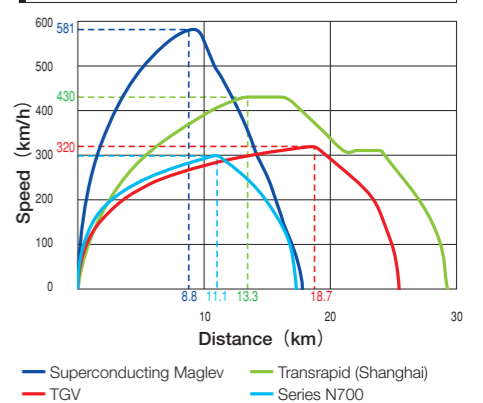
## Reducing Costs thoroughly while Ensuring Safety

The burden of the cost for construction of the Chuo Shinkansen rests entirely on us, and all costs are examined by the internally established "the Chuo Shinkansen Construction Cost Reduction Committee," which continues to thoroughly reduce costs while ensuring safety. At the same time, we will flexibly distribute resources in an optimal fashion in accordance with managerial environments.

## Superconducting Maglev and Global Environmental Preservation

Tokyo and Osaka will be connected in approx. one hour by the Chuo Shinkansen using the Superconducting Maglev system, and the actual travel time required to move between the centers of Tokyo and Osaka can be shortened to approximately half that of airplanes. In addition, the amount of CO<sub>2</sub> emissions that Superconducting Maglev produces when carrying one person between Tokyo and Osaka is approx. one-third that of airplanes. As this shows, Superconducting Maglev is a transport system suitable of the 21st-century in which global environmental preservation is becoming more important.

## The comparison of accelerating/decelerating performance among high-speed railway systems



## A Rough Route and Locations of Stations of Chuo Shinkansen (between Tokyo and City of Nagoya) announced in the "Report for Environmental Consideration at the Planning Phase"



## Overview of the Yamanashi Maglev Test Line

