# Transportation—Shinkansen Network

## Competition with Airlines

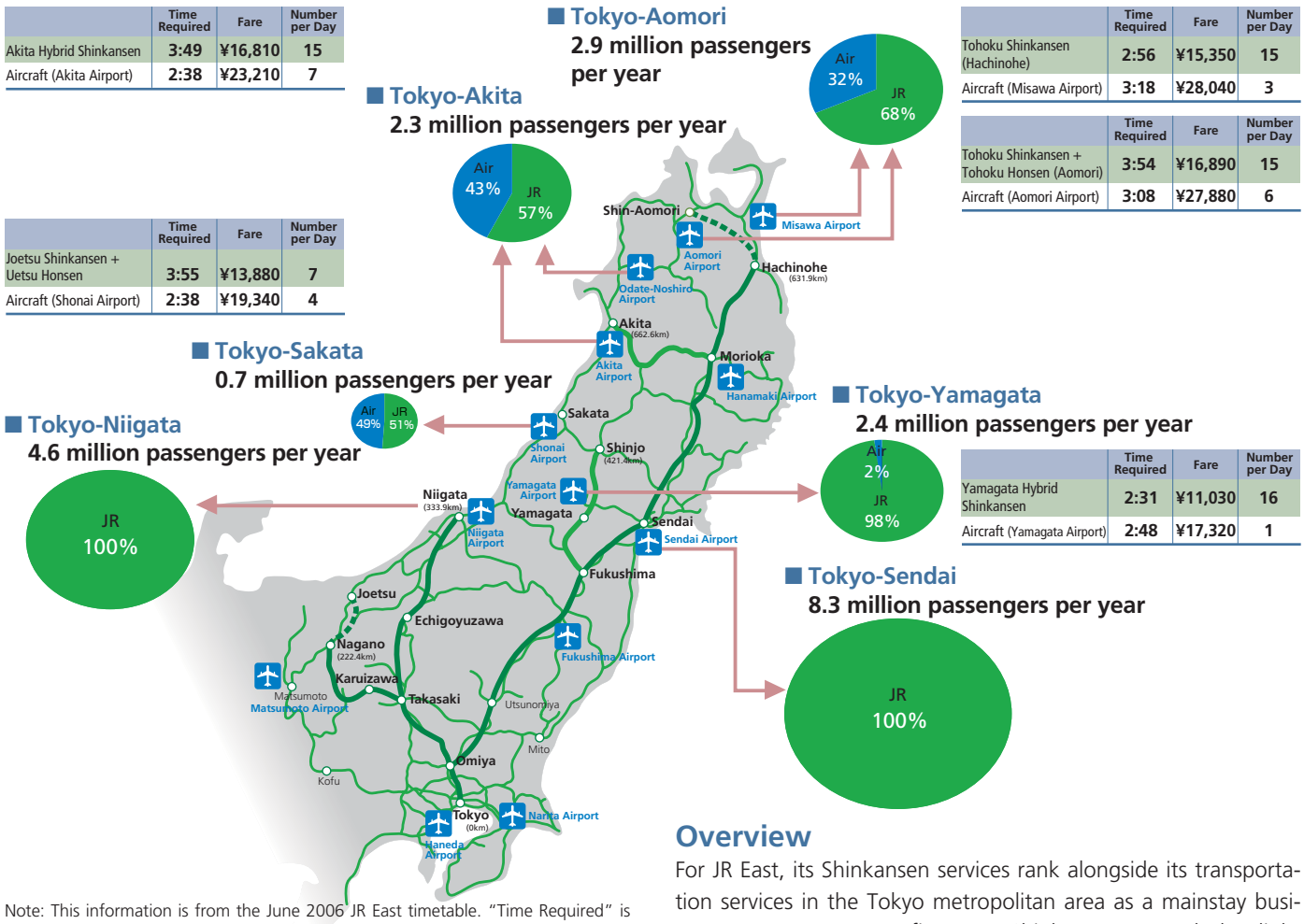
| | Time Required | Fare | Number per Day |
|---|---|---|---|
| Akita Hybrid Shinkansen | 3:49 | ¥16,810 | 15 |
| Aircraft (Akita Airport) | 2:38 | ¥23,210 | 7 |

| | Time Required | Fare | Number per Day |
|---|---|---|---|
| Joetsu Shinkansen + Uetsu Honsen | 3:55 | ¥13,880 | 7 |
| Aircraft (Shonai Airport) | 2:38 | ¥19,340 | 4 |

| | Time Required | Fare | Number per Day |
|---|---|---|---|
| Tohoku Shinkansen (Hachinohe) | 2:56 | ¥15,350 | 15 |
| Aircraft (Misawa Airport) | 3:18 | ¥28,040 | 3 |

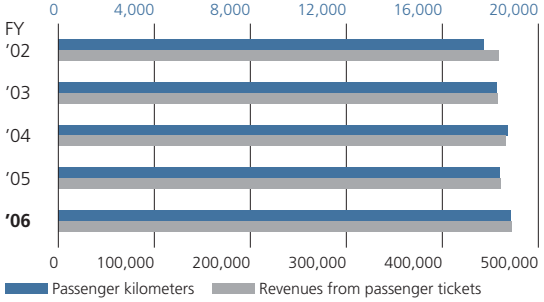
| | Time Required | Fare | Number per Day |
|---|---|---|---|
| Tohoku Shinkansen + Tohoku Honsen (Aomori) | 3:54 | ¥16,890 | 15 |
| Aircraft (Aomori Airport) | 3:08 | ¥27,880 | 6 |

| | Time Required | Fare | Number per Day |
|---|---|---|---|
| Yamagata Hybrid Shinkansen | 2:31 | ¥11,030 | 16 |
| Aircraft (Yamagata Airport) | 2:48 | ¥17,320 | 1 |




Note: This information is from the June 2006 JR East timetable. "Time Required" is based on the time it takes for a regular train operating at maximum speed to reach the given destination. Aircraft times include the 53 minutes it takes to travel from Tokyo Station to Haneda Airport using JR lines and the Tokyo Monorail as well as the time it takes upon arrival for airport buses to reach their destinations. JR fares are for one-way, regular fares, including surcharges for reserved seating. Airfares are also for one-way, regular fares and are for the same month as the JR fares.

### PASSENGER KILOMETERS AND REVENUES FROM PASSENGER TICKETS (Millions, Millions of Yen)




## Overview

For JR East, its Shinkansen services rank alongside its transportation services in the Tokyo metropolitan area as a mainstay business. JR East operates a five-route Shinkansen network that links Tokyo with the regions of Tohoku, Joetsu, Nagano, Yamagata, and Akita. Specially designed hybrid Shinkansen trains—capable of running on the tracks of conventional lines as well as Shinkansen lines—serve the Yamagata and Akita regions.

In Japan, trains are generally considered superior to airplanes for medium-to-long-distance trips of up to 750km in length. The distance from Tokyo to the principal cities in JR East's operating area falls within this range, placing JR East in a superior competitive position vis-à-vis airlines.

## Topics

### December 2005 Service Schedule Revisions

In December 2005, JR East implemented service schedule revisions primarily aimed at improving the Shinkansen network. Besides increasing the volume of services on the Yamagata and

Akita hybrid Shinkansen lines during peak periods, JR East reevaluated the Joetsu Shinkansen timetable and made changes to increase the convenience of travel toward Sakata and thereby enhance capabilities for competing with airlines. JR East also increased transportation efficiency by changing its previous policy of assigning services to individual train platforms in Tokyo Station based on the common direction of the services' destinations. This more flexible use of platforms made it possible to increase train frequency during peak periods to approximately 13 trains per hour, or about one to two trains per hour more than previously feasible, and thereby augment passenger capacity at those times.

In addition, the implementation of environmental countermeasures in certain areas of the Joetsu Shinkansen Line has made it possible to run the line's trains at their top speed of 240km/h. Moreover, JR East began using new control equipment that uses information technology to increase passenger comfort on certain parts of the Tohoku Shinkansen Line, and this enabled the travel times of certain trains to be reduced. The new control equipment is scheduled to be introduced for all Shinkansen lines by the end of fiscal 2009.

### *Hayate* Service in Its Third Year of Operations

In December 2002, the Tohoku Shinkansen Line was extended from Morioka to Hachinohe, reducing the time required to travel between Tokyo and Hachinohe on the quickest train by 37 minutes, to only 2 hours and 56 minutes. Passengers on this line ride in JR East's most advanced E2-1000 series railcars, which employ full active suspension to enhance passenger comfort and low-noise pantographs to reduce noise pollution. To cater to passengers' seating requirements, JR East introduced the *Hayate* all-reserved-car service.

In its third year of operations, the *Hayate* service continued to see impressive passenger volume, and it has enabled JR East to take an increasingly larger share of the market for travel between Tokyo and the Aomori and Misawa areas away from airlines. JR East's share of that market has risen from about 40% before the launch of the *Hayate* service to approximately 70% in fiscal 2006.

## Outlook

### *FASTECH 360*—The 360km/h Challenge

JR East has moved ahead with the development of Shinkansen trains that offer the world's highest levels of speed—it aims to achieve speeds of up to 360km/h—as well as reliability, environmental compatibility, and comfort.

Of the two types of high-speed test railcar prototypes JR East has been developing, the Shinkansen railcar known as the *FASTECH 360S* was finished in June 2005 and the *FASTECH 360Z* hybrid entered operational trials from April 2006. Operational trials of both prototypes are expected to be completed during fiscal 2008.

### Shinkansen Line Extensions

The Japan Railway Construction, Transport and Technology Agency (JRTT) is constructing extensions to the Tohoku Shinkansen Line between Hachinohe and Shin-Aomori and to the Hokuriku Shinkansen Line between Nagano and Kanazawa (Joetsu marks the limit of JR East's service area). The Hachinohe–Shin-Aomori segment is scheduled to be completed at the end of fiscal 2011, and the Nagano–Kanazawa segment is expected to be finished by the end of fiscal 2015 (see page 50 for details).

Shinkansen trains

*Hayate* E2-1000 series railcar

*FASTECH 360S*

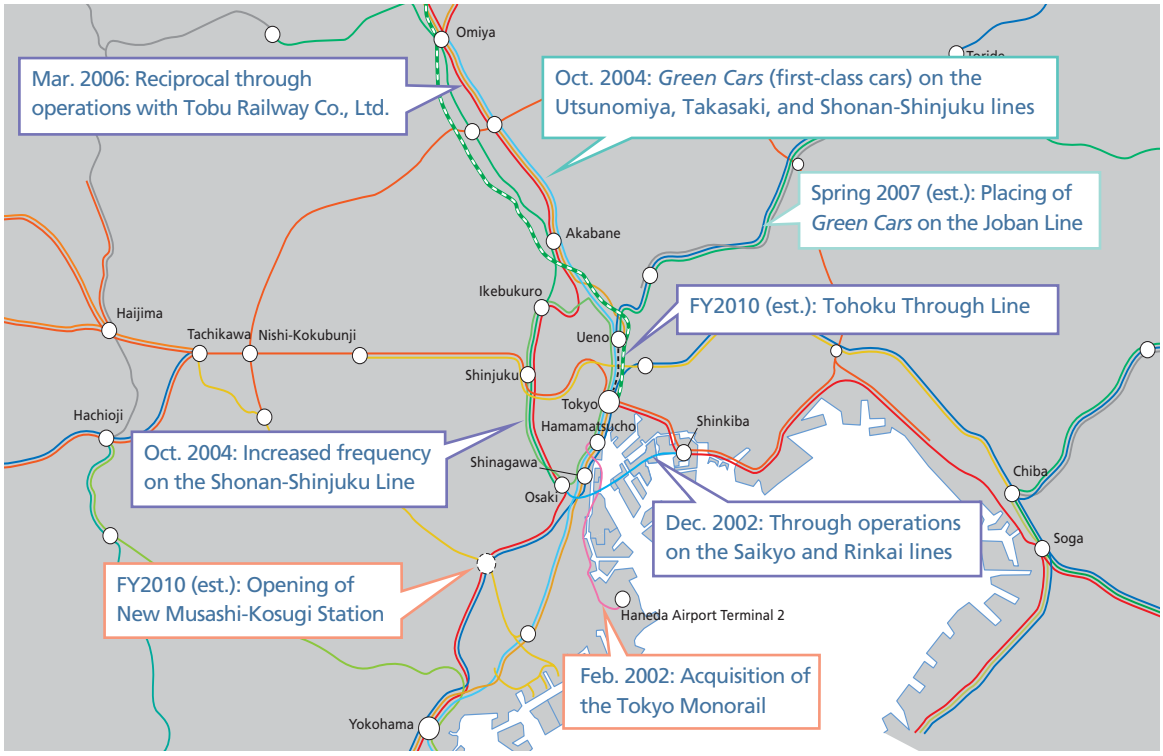
## *Suica* Topics—*Mobile Suica*

Introduced in January 2006, *Mobile Suica*—a more sophisticated version of the *Suica* card—integrates electronic money with mobile phones. By making use of mobile phones' communications and display functions, *Mobile Suica* will be able to be "charged" (loaded with "stored fares" or electronic money) anywhere, at any time.

In addition to enabling users to draw electronic money from their bank accounts, *Mobile Suica* will allow stored fares to be used for Internet shopping, the purchase of *FREX* Shinkansen commuter passes, and a growing number of other services, including enabling passengers to reserve Shinkansen seats and then board their trains without tickets.

# Transportation—Tokyo Metropolitan Area Network

**Enhanced Service on Conventional Lines around the Tokyo Metropolitan Area Network**

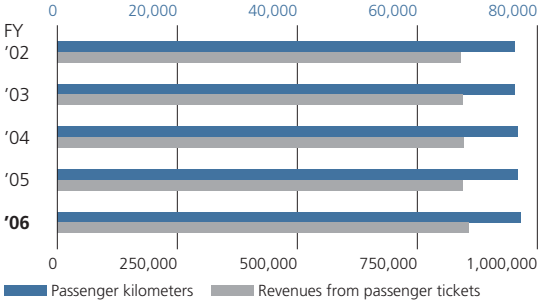



Concept illustration of the Tohoku Through Line

Reserved seating | Through operation

- Shonan-Shinjuku Line
- Tokyo Monorail
- Rinkai Line (TWR)
- Tohoku Through Line

## PASSENGER KILOMETERS AND REVENUES FROM PASSENGER TICKETS (Millions, Millions of Yen)




## Overview

The Tokyo metropolitan area train line network boasts a total route length of about 1,100 kilometers, including numerous lines that are within central Tokyo as well as those linking central Tokyo with nearby suburban cities. Most of the network is within a 100-kilometer radius of Tokyo Station. JR East accounts for nearly half of the Tokyo area's huge, highly profitable rail transportation market in terms of passenger kilometers and operating revenues (see page 84 for details).

## Topics

### Competition with Other Railway Companies

In Tokyo, competition with subway networks and other railway systems is intensifying. In response, JR East has worked to strengthen its network without undertaking large-scale capital investment projects, by making the most of its existing infrastructure.

Competing railway operating companies have implemented large-scale capital investments that have necessitated multiple rounds of fare increases, while JR East has not raised fares since its establishment in 1987, other than to reflect the consumption tax introduction (1989) and revision (1997). As a result, JR East's price competitiveness has risen. Since its establishment, JR East has increased its capacity by an amount roughly three times the

average capacity of its major Tokyo competitors through such measures as those to develop new routes that share existing line segments with other services, increase the number of trains, and lengthen trains.

In response to the August 2005 inauguration of the Tsukuba Express, a new railway route of a competing company, JR East greatly dampened the impact by taking such countermeasures as the introduction of new services that facilitate shorter travel times.

### Shonan-Shinjuku Line—Increased Number of Trains

By sharing existing line segments with other services, JR East launched the Shonan-Shinjuku Line in December 2001. The route has improved passenger flow by eliminating the need to change trains when traveling between suburban cities in the northern and southern districts of the Tokyo metropolitan area.

Initially, the Shonan-Shinjuku Line carried only 25 round-trip trains a day, but measures such as the construction of a track overpass crossing near Ikebukuro Station has enabled a significant rise in service volumes. In October 2004, JR East stepped up the number of such trains to 64. Daily ridership on the portion of the route between Osaki and Yokohama has soared from about 30,000 in the initial stage of the service, to more than 140,000 as of March 2006. A JR East survey revealed that approximately 24% of those passengers had switched to the line from rival railway services. JR East estimates that boosting the number of round-trips per day on this line had the effect of increasing its revenues by approximately ¥1.0 billion in fiscal 2005 and ¥2.3 billion in fiscal 2006.

### *Green Cars*—Extended Coverage Area and Added Value

Since adding double-decker *Green Cars* (first-class cars) to local trains on sections of three additional lines in October 2004, JR East has continued working to increase its revenues and address passengers' seating needs by introducing more of these cars. JR East estimates that boosting the number of *Green Cars* had the effect of increasing its revenues by approximately ¥1.5 billion in fiscal 2005 and ¥4.8 billion in fiscal 2006.

## Outlook

### Tohoku Through Line Concept

JR East aims to establish a new through route by laying additional double tracks between Ueno Station and Tokyo Station. Service rollout is slated for fiscal 2010, and the project is expected to cost approximately ¥30 billion.

In light of its experience with the Shonan-Shinjuku Line, JR East is confident that the improvement and expansion of its network will heighten competitiveness with other railway companies.

### Expanding the Scope of *Green Car* Use and Increasing Added Value

From spring 2007, JR East plans to add *Green Cars* to conventional trains providing medium-distance services on the Joban Line. By catering to passengers' seating needs and increasing the quality of services, JR East expects to generate the same kind of positive effects seen in other lines on which *Green Cars* have been introduced.

### Realizing Seamless *Suica* Usage for All Transportation Companies in the Tokyo Metropolitan Area

From March 2007, JR East and PASMO K.K. will begin introducing an interchangeable IC card that allows passengers to easily transfer to and from other transportation companies. As a result, in the Tokyo metropolitan area, passengers will be able to use one card to ride the trains of both JR East and other railway companies as well as buses and other types of public transportation, thereby creating seamless connections among the various systems.

Shonan-Shinjuku Line

*Green Cars*


*Suica* and *PASMO* cards will be linked


## *Suica* Topics—The *Green Car Suica System*

After a passenger has purchased a *Suica Green Ticket* (an electronic ticket) at a ticket vending machine, he or she then simply taps the ticket against a reader device above the seat. The color of the seat's indicator lamp on the ceiling will then switch from red to green, thus minimizing the need for onboard ticket inspection.

# Transportation—Intercity and Regional Networks, Travel Agency Services

## Intercity and Regional Networks

### Overview

Accounting for more than 70% of JR East's total network, JR East's intercity and regional networks provide non-Shinkansen intercity services and regional services not covered by the Tokyo metropolitan area network.

The intercity network mainly comprises limited express trains, and JR East continues to upgrade services through such measures as those to introduce new types of railcars and more convenient timetables.

JR East is working to progressively improve the business performance of the regional network by scheduling services in line with trends in customer needs as well as through such efficiency-boosting measures as those to operate trains with only one crew member, reduce maintenance costs, and introduce energy-saving trains.

### Topics

**Responding to the Advent of the Car-Oriented Society**

Particularly in rural areas, the advantages of automobiles are increasing, due to highway construction and improvements in local road networks. JR East is adapting to this and seeking new earning opportunities by introducing diverse services that harmonize with road travel, such as park-and-ride, bus, and rent-a-car services.

**Shared Use of the Sendai Airport Line and Introduction of New Railcars**

At the end of fiscal 2007, JR East is scheduled to begin a mutual line-sharing arrangement with the railway that operates the Sendai Airport Line. In conjunction with this initiative, JR East will introduce new E721 series railcars with low floors, making it easier for the physically challenged to get on and off.

**Introduction of the World's First Hybrid Railcars**

From fiscal 2008, JR East will begin the commercial operation of the world's first hybrid diesel/electric battery-powered railcars, which are designed to reduce the environmental impact of the Koumi Line. In addition to being more fuel efficient and quieter than conventional energy-saving railcars, a hybrid railcar's emissions are expected to contain approximately 60% less $NO_x$, graphite, and other particulates. Seeking to create systems that are environment-friendly and provide a response to the depletion of fossil fuels, JR East is moving forward with R&D programs focused on railcar fuel cell drive systems. Based on the results of these programs, JR East intends to undertake the development of the world's first hybrid fuel cell railcars.

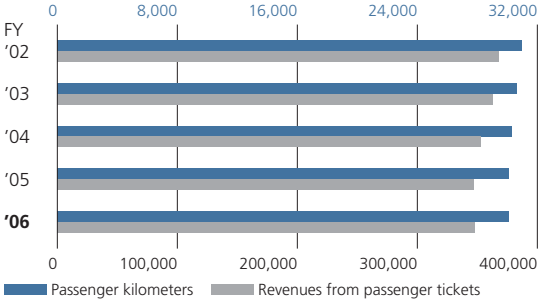
Rent-a-car service


Concept illustration of the Sendai Airport Line


E721 series railcar


Image of a hybrid railcar

**PASSENGER KILOMETERS AND REVENUES FROM PASSENGER TICKETS** (Millions, Millions of Yen)




## *Suica* Topics—Increasing *Suica*'s Coverage Area

Since November 2001, when the *Suica* system was launched at 424 stations in the Tokyo metropolitan area, JR East has expanded the system's scope to encompass 66 stations in the Sendai region (from October 2003) and 36 stations in the Niigata region (from January 2006). JR East has also enabled *Suica* to be used on the Tokyo Monorail Line, the Tokyo Waterfront Railway (Rinkai Line), and the area covered by JR West's ICOCA cards. At the end of fiscal 2006, *Suica* could be used at a total of 897 stations.

## Overview

Unlike the business models of other travel agencies, JR East's travel agency business model calls for unearthing new tourist destinations, developing related travel packages, extensively advertising the travel packages, and thereby triggering "booms" that stimulate railway usage and regional economies. During fiscal 2006, JR East marketed its travel packages—*View Travel Products*—through JR East's *View Plaza* facilities within train stations and also proactively expanded their marketing through such additional channels as websites and other travel agencies. As a result, sales of these packages surged 8.8% from the fiscal 2005 level.

## Topics

### *Otona no Kyujitsu Club*

In view of Japan's demographic graying, JR East is proactively working to meet the needs of a target group of people in their 50s or older and make them fans of JR East travel packages from as young an age as possible. As one means of doing this, JR East created two membership clubs—*Otona no Kyujitsu Club: Zipangu,* for those aged 65 and older, and *Otona no Kyujitsu Club: Middle,* for those aged 50 and older. Club members are offered discounts that promote greater use of JR East rail services, and they are also provided with newsletters that serve as a medium for diverse sales promotion campaigns. At the end of fiscal 2006, membership in the two clubs rose to 290,000.

### Stimulating Tourist Travel in the JR East Business Region

From July through September of 2005, JR East cooperated with local communities in Fukushima Prefecture in implementing the *Fukushima Prefecture Aizu Destination Campaign.* As a result, approximately 300,000 people bought *View Travel Products* for trips to the southern Tohoku region during fiscal 2006, up 8.9% from the fiscal 2005 level. In March 2006, JR East and Tobu Railway Company cooperatively began a limited express through service linking Tokyo with the Nikko-Kinugawa area, famous for its World Heritage registered temples and shrines as well as some of Japan's best hot springs, and JR East has subsequently organized its highly evaluated *PREMIUM JAPAN Nikko-Kinugawa Campaign* to further push up the number of rail passengers who visit that area.


*Otona no Kyujitsu Club* leaflet

A *View Plaza* travel center

JR East and Tobu Railway trains