

**GSTIKC**



中国国际可持续交通创新和知识中心  
GLOBAL SUSTAINABLE TRANSPORT  
INNOVATION AND KNOWLEDGE CENTER

# China's HSR Experience

# Infrastructure Design, Standardization and Sustainability

*ZHENG Huaiyu, Deputy Director - General of GSTIKC*

*May, 2024*

# The Reasons Why China Vigorously Develops High-speed Rail

## China attaches great importance to the Development of high-speed rail.

China is a country with a population of 1.4 billion. The mobility and traffic demand of the population is very large. As a fast, convenient and secure way of transportation, the high-speed rail can better meet people's travel needs.

In addition, the development of China's high-speed rail can also provide strong support for economic development and social progress.

# TABLE OF CONTENT

**01** Development Characteristics

**02** Development Experience

**03** Development Initiatives

# TABLE OF CONTENT

**01**

**Development Characteristics**

**02**

**Development Experience**

**03**

**Development Initiatives**

□ *Created a Chinese high-speed rail brand of “Safety, Efficiency, Convenience and Affordable”.*

## Safety

Safe operating mileage  
**16.8 billion** kilometers.



## Efficiency

It is responsible for **23%** of the total passenger volume and **31%** of the total passenger turnover.



## Convenience

The completed 12306 railway network ticketing system sells **3 billion** tickets a year.



## Affordable

The average ticket price for China's high-speed rail is about **1/3 to 1/4** of that in other countries.



□ *China has built the world's largest high-speed rail network.*

*The operating mileage has reached **45,000** kilometers.*

*Achieve commercial operation of high-speed rail at a speed of **350** km/h*





**01** **Development Characteristics**

**02** **Development Experience**

**03** **Development Initiatives**

□ *Formulate a unified railway plan to ensure coordination of standards and specifications.*

Formulate and implement the Mid-and-Long-Term Railway Network Plan, Unified standards and specifications ensure that the planning, construction, and operation of high-speed railways across the country are in step.

There are **11 national standards and 62 industry standards** currently in use in China related to high-speed railways.



# EXPERIRNCE

*Adhere to technological innovation and strengthen international cooperation.*



*The Beijing-Xiong'an Intercity Railway has 71 intelligent design applications.*



*The Jakarta-Bandung high-speed railway will reduce the travel time from Jakarta to Bandung to 40 minutes.*



□ *Implementing centralized and unified command of railway transport dispatching.*

Establishment of a wholly state-owned company - China Railway Corporation as the construction and operation entity of the national railway.

During the Chinese New Year, **every 1.35 minutes** one high-speed train departs from Zhengzhou East Station taking passengers going home.

**01**

**Development Characteristics**

**02**

**Development Experience**

**03**

**Development Initiatives**

# 中国国际可持续交通创新和知识中心成立揭牌仪式

The Inauguration of the Global Sustainable Transport Innovation and Knowledge Center

2022年10月14日 中国 北京

October 14, 2022 Beijing, China



GSTIKC is the first working organization established by the Chinese government based on global sustainable transportation development. It will continue to take a series of practical measures to contribute to the sustainable development of high-speed rail in the world.

**CORE VALUE**

*To promote sustainable transport and sustainable development.*



GSTIKC will organize the Global Sustainable Transport Forum and China International Exhibition on Transport Technology & Equipment, etc, use the platform's cohesive effect to promote in-depth cooperation in the global high-speed rail field.

**Playing the role of platform**

An aerial photograph of a large high-speed rail yard. Numerous tracks run parallel, with many white and blue high-speed trains parked in neat rows. The background shows a cityscape with buildings and some greenery under a clear sky. The image is overlaid with a semi-transparent blue filter.

“

GSTIKC is willing to work with relevant parties to continuously deepen cooperation in knowledge sharing and technology transfer in the field of high-speed rail, jointly contribute more wisdom and strength to accelerate the implementation of the United Nations 2030 Agenda for Sustainable Development, and contribute to global sustainable transportation development!

”

# China's Electrified Railways Green Development Project Application Cases from EEB

*LIU Yuanlue,*

*Deputy Manager of EEB International Engineering Department*

*May, 2024*



# Reasons for China's Vigorous Development of Electrified Railways

Electrified railways, as an important component of green transportation, play a significant role in achieving sustainable development goals and reducing greenhouse gas emissions. Data shows that the energy consumption per unit of transport for high-speed rail is only 1/20th that of aviation and 1/7th that of road transport.

China places great emphasis on the green development of railways, promoting the widespread application and green transformation of electrified railways through technological innovation, policy support, and international cooperation.



# Reasons for China's Vigorous Development of Electrified Railways

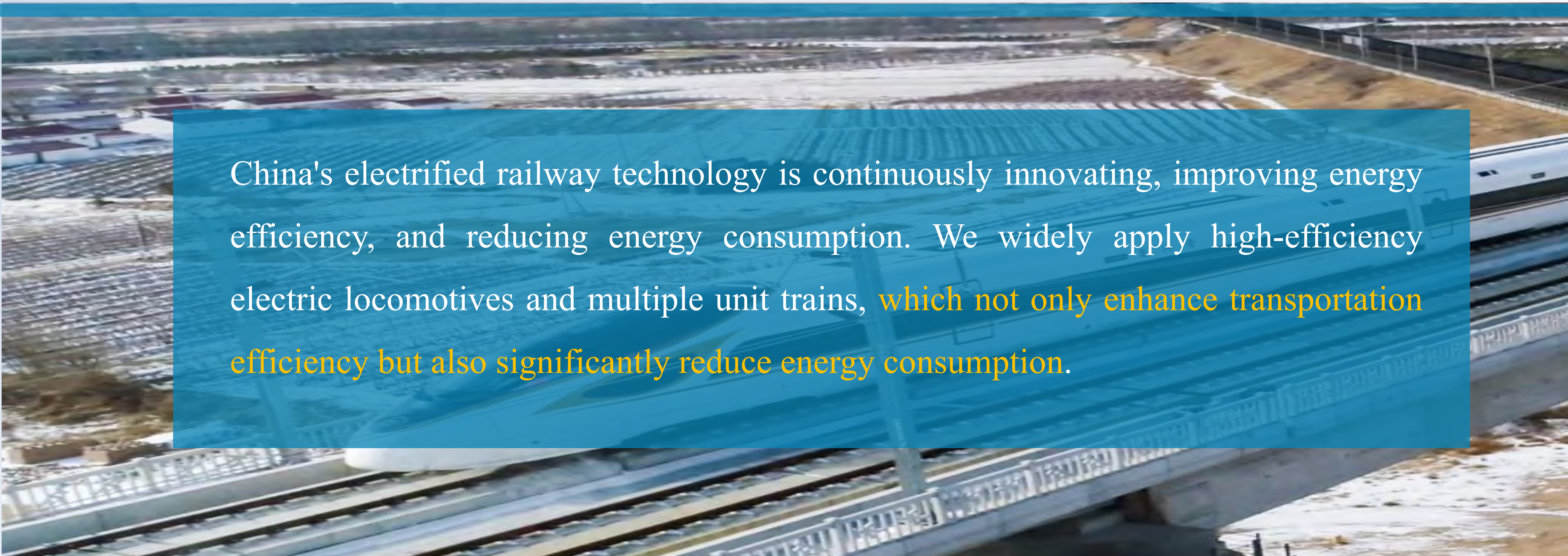
China built the first electrified railway in 1958, by the end of 2023, China's railway mileage has reached 159,000 kilometers, the electrification rate reached 73.8%, of which 45,000 kilometers of high-speed rail, a world's largest electrified railway network and the most developed high-speed rail network is rapidly expanding.

A high-speed train, likely a Shinkansen, is shown from a side-on perspective at a station platform. The train is white with a prominent blue stripe running horizontally along its side. Two sets of doors are open, revealing the interior of the train cars. A large, semi-transparent blue rectangular overlay is centered over the train, featuring a faint world map pattern. The text "Technological Innovation and Achievements" is written in a white, serif font across the center of this overlay. The platform in the foreground has a red brick surface and a yellow tactile paving strip. The background shows a modern station building with a curved roofline.

# Technological Innovation and Achievements

### □ *High-Efficiency Electrified Railway Technology.*

China's electrified railway technology is continuously innovating, improving energy efficiency, and reducing energy consumption. We widely apply high-efficiency electric locomotives and multiple unit trains, **which not only enhance transportation efficiency but also significantly reduce energy consumption.**

An aerial photograph of a modern high-speed railway bridge spanning a wide river. The bridge features multiple tracks and overhead power lines. A high-speed train is visible on the tracks, moving across the bridge. The surrounding landscape includes some buildings and greenery.

## □ *New Energy and Intelligence.*

China actively explores and applies new energy sources to **provide clean energy supply for electrified railways.** Meanwhile, China extensively utilizes **railway electrification and intelligent technology.**

- Solar
- Wind power
- Intelligent dispatching systems
- Smart grid technology



中国国际可持续交通创新和知识中心  
GLOBAL SUSTAINABLE TRANSPORT  
INNOVATION AND KNOWLEDGE CENTER

*Staying Connected with the World  
and Abreast with the Times*

*Thanks for your time !*

Contact Us :

Address : 11 Jianguomennei Avenue, Dongcheng District, Beijing

Post code : 100736

Tel : +86-10-65290902

Email : [Public@gstikc.org.cn](mailto:Public@gstikc.org.cn)