

哈大電 化 鐵 路

HARBIN-DALIAN ELECTRIC RAILWAY

北京出版社



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哈 大 电 化 铁 路

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哈尔滨至大连铁路电

SKETCH MAP OF HARBIN-DALIAN

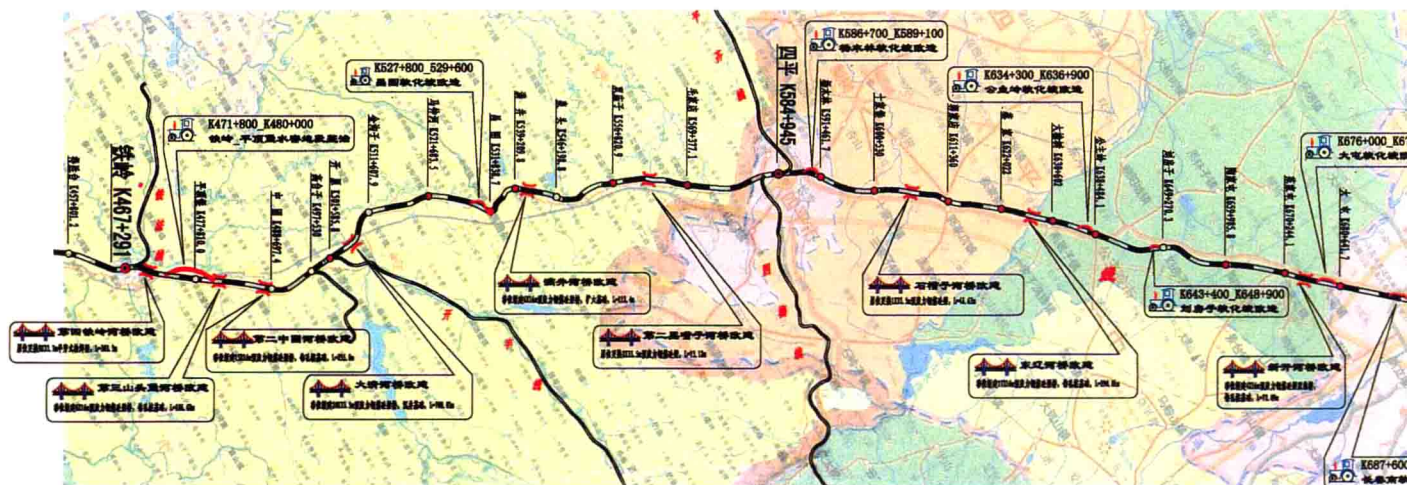
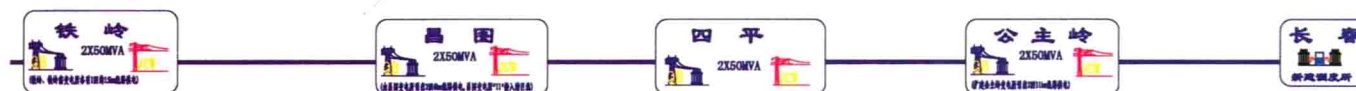
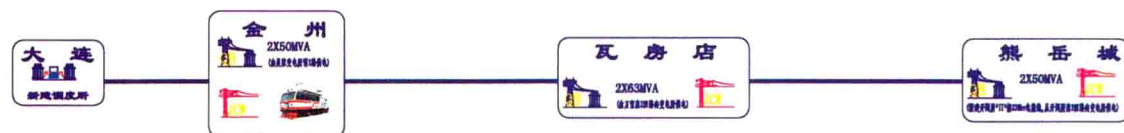
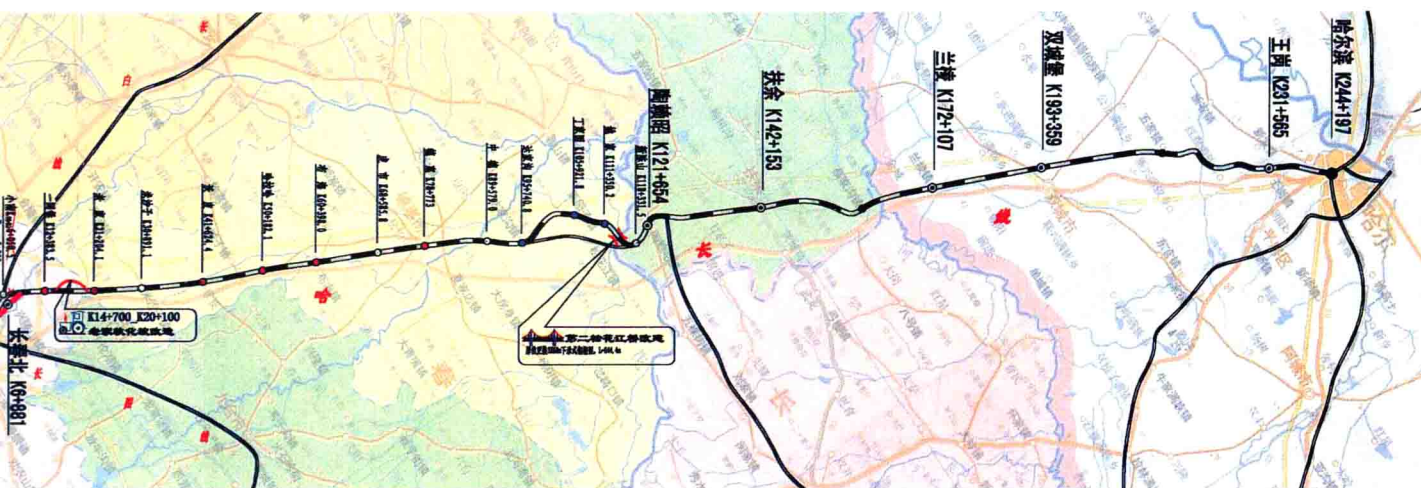
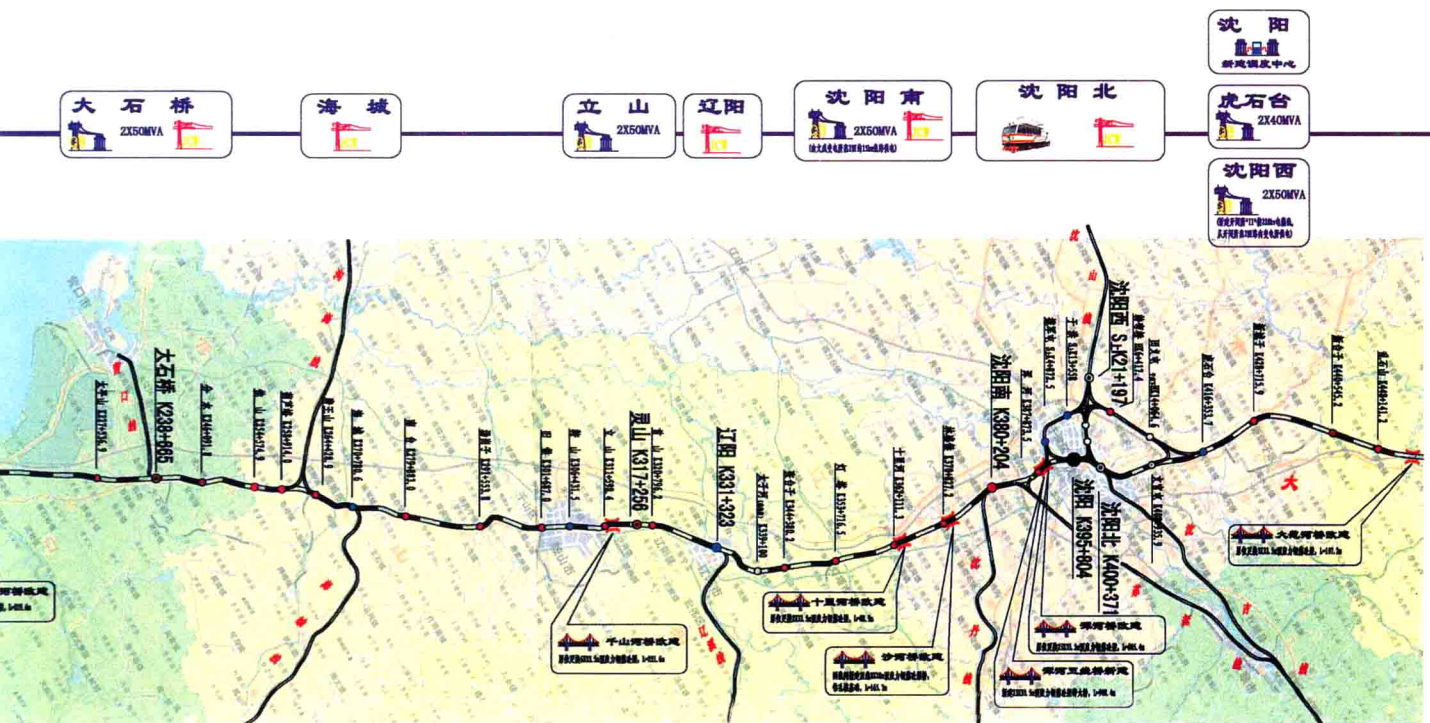


图 例

- | | | | |
|--|------------|--|------------|
| | 新建牵引变电所 | | 新建接触网工区 |
| | 新建牵引供电调度中心 | | 新建牵引供电抢修基地 |
| | 老桥改造 | | 区间路基、轨道工程 |

气 化 改 造 工 程 示 意 图

RAILWAY ELECTRIFICATION PROJECT



沈阳铁路局哈大电气化工程建设指挥部基建室绘制

Drawn by Capital Construction Office of the Construction Headquarter for
Harbin-Dalian Railway Electrification Project under Shenyang Railway Bureau

哈尔滨——大连铁路电气化改造

工程概况

哈大线南起大连，北至哈尔滨，始建于1898年。哈大线贯通东北三省23个市县，衔接沈山等24条铁路干支线，设车站108个，线路全长946.5KM。

哈大电气化工程于1990年立项，由铁道部第三勘测设计院初步设计。1994年7月4日，中德两国政府总理签署《谅解备忘录》，决定由德国政府提供3.6亿马克贷款，引进德方牵引供电技术设备与管理。1995年2月14日，技术改造工程开工。技术改造标准为双线铁路I线干线。近期旅客列车时速140KM/H，设计最高时速160KM/H，远期时速为200KM/H。货物列车牵引重量为5000吨，年运量为7000万吨；信号自动闭塞为WG-21A及18信息两种类型。

改造工程总投资为128.9亿元。工程分两阶段进行。第一阶段完成了金州、长春北、哈尔滨、沈阳南四大编组站的新建和改造；73个车站到发线股道延长(1050米)；软化线路坡度8处；改造老龄桥17座；改造小半径曲线91处，更换提速道岔523组；平交道口改立交311处；改造机务段5处，新建折返段、运用段4处、空调车检修基地3处；完成光缆敷设852公里；电气集中设备改造完成146个站场。第二阶段始于1999年5月，整个牵引供电工程包括17个变电所的建设；2800线路公里接触网的安装；建立完整的远动控制系统，设置1个主控中心，4个分控中心；牵引变电所采用220KV高压单相主变压器供电(最大容量为63MVA)，接触网采用直供加回流线供电方式。

2001年8月18日，沈阳北——哈尔滨间开通，同年11月28日沈阳北——大连间开通。11月30日，在沈阳举行了哈大电气化铁路全线开通庆典。



Overview of Harbin-Dalian Railway

Electrification Project

Initially built in 1898, Harbin-Dalian Railway starts from Dalian in the south and ends in Harbin in the north. This railway, with a gross length of 946.5 kilometers and a total of 108 stations, passes through 23 cities and counties in the northeast of China, connecting Shenshan and other 24 feeder railways.

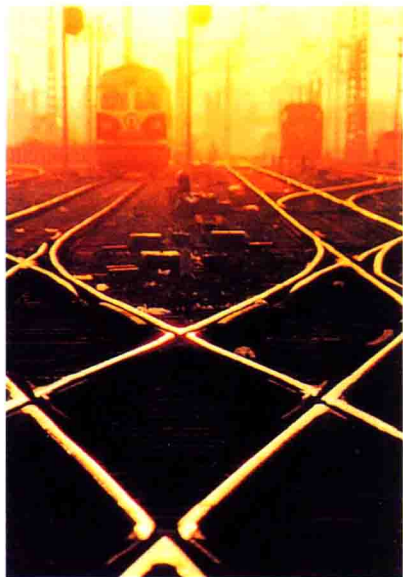
Harbin-Dalian Railway Electrification Project was put under an authorized plan in 1990, and the 3rd Reconnaissance and Design Institute of the Ministry of Railways completed its preliminary design. On July 4th, 1994, the Premier of the State Council and the Prime Minister of Germany signed the "Memorandum of Understanding". Both sides reached an agreement that the German government would provide a loan of DM 360 million together with the introduction of its equipment, management and technology of traction engine power supply to the project. On February 14th, 1995, technical renovation project commenced with the standard of feeder railway I of double-rail line. The short-term speed for passenger trains is 140km/h with the maximum designed speed of 160km/h; while the long-term speed of the same type is 200km/h. Traction weight of cargo trains is 5000 tons with an annual amount of 70 million tons; while two types of automatic block signals are WG-21A and Message-18.

The total sum of investment for Harbin-Dalian Railway Electrification Project is RMB 12.89 billion. The project consists of two phases and following building and reconstruction were completed during the first phase:

- * 4 large marshalling yards of Jinzhou, North Changchun, Harbin and South Shenyang,
- * 1050-meter extension of the arrival and departure rails for 73 stations;
- * 8 softening slopes,
- * 17 aging bridges and 91 mini radius lines,
- * 523 speed-upgrading switches,
- * 331 overpasses for flat junctions,
- * 5 locomotive depots,
- * 4 new work sections for turn-back and operation;
- * 3 bases of maintenance for air-conditioned trains,
- * 852-kilometer optical fiber
- * Electric concentrated equipment for 146 stations

The second phase of the project commenced in May 1999. The whole project of traction power supply included the construction of 17 transformer substations, the installation of trolley wire of 2800 kilometers, the establishment of remote control system with 1 control center and 4 sub-control centers. High-voltage and single-phase 220 kV main transformers supplied the power for the traction transformer substations with the maximum capacity of 63 MVA; while direct and return circuit supplied the power for trolley wires.

On August 18th, 2001, Shenyang-Harbin line opened, and likewise Shenyang-Dalian line on November 28th of the same year. Two days later on November 30th, opening ceremony of Harbin-Dalian Electric Railway was held in Shenyang.





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序 言

人们翘首以待的哈大电气化铁路，在铁道部领导的亲自部署和指挥下，经过铁路建设者艰苦卓绝的努力奋斗，于2001年11月30日举行了隆重的通车庆典。哈大电气化铁路的开通，结束了东北铁路无电气化的历史，必将为东北经济的发展插上腾飞的翅膀！

哈大铁路始建于1898年，是中国路网最早形成能力的通道。新中国建立以后，这条回到人民怀抱的铁路，在社会主义建设与发展中发挥了巨大的作用，立下了不朽的功勋。但是，经百年沧桑的磨蚀，这条生机勃勃的巨龙衰老了。面对改革开放出现的经济大繁荣，面对东北地区日益增长的运量，它已经力不能支，不堪重负。极度的不适应，使这条铁路成为国民经济发展的“瓶颈”！

为改变东北路网的不适应状况，国务院早在1990年就做出决策，批准对哈大铁路进行电气化改造。1994年7月，时任总理的李鹏与德国总理科尔签署了关于哈大电气化铁路引进德国设备、技术和管理，进行政府间合作的《谅解备忘录》，从而拉开了哈大铁路电气化改造的序幕。从立项设计到技术改造，从系统引进到全面竣工，哈大电气化改造工程整整历时10年。用“十年磨一剑”这句中国人形容成大事的成语来概括哈大电气化铁路的建设过程当之无愧！

哈大电气化改造工程是国家“九五”重点项目。它不但是全国路网目前营业里程最长的电气化铁路，也是新中国铁路史上第一次大规模引进国外先进设备、技术与管理的可喜尝试，创造了对既有线进行电气化改造的可借鉴经验。

在“决战哈大”的日日夜夜里，铁路的决策管理层，铁路的科技工作者，铁路的工程建设者们，用他们的智慧和汗水，在东北大地上第一次写下了电气化铁路的锦绣文章，向新世纪献上了沈铁人的一份厚礼。这946公里在既有线上建起的电气化铁路，展示了铁路人驶入改革开放快车道的气魄与风采！

为反映和记录哈大电气化铁路的建设历程，展现这条现代化铁路的英姿，沈阳铁路局组织专门力量，编印了这本画册，以志存念并献给所有关心中国铁路建设和发展的朋友。

沈阳铁路局局长



党委书记





PREFACE

On November 30th, 2001, Harbin-Dalian Electrification Railway Project, which represented the achievements of the assignments and guidance of leaders from the Ministry of Railway and the utmost efforts of railway constructors, held its opening ceremony in Shenyang. The opening of this railway line has ended the history of no electrification railway line in the northeast of China and this line will greatly facilitate the economic development of the region.

The railway line from Harbin to Dalian was built in 1898, it is the earliest connection in the railway networks in China. After the foundation of the People's Republic of China, the state became the owner of railway, it played an important role and also performed immortal feats for the construction and developments of the country. However, this vigorous "iron dragon" has become old and exhausted after hundred years of labor and weathering, so now it can hardly bear the increasing burden of transportation in the northeast region and can not match the economic bloom by the reform and opening policy of China. Consequently, this railway line has become the bottleneck which restricts the national economic development.

Early in 1990, the State Council made the decision to reconstruct Harbin-Dalian railway into electrification in order to change the unsuitable situation of railway networks in the northeast China. In July 1994, Premier Li Peng and Prime Minister of Germany Kohl signed the "Memorandum of Understanding" for the cooperation between the two countries concerning the introduction of German equipment, technology and management for Harbin-Dalian Electric Railway. That's the beginning of Harbin-Dalian Railway Electrification Project. It took 10 years for the project from authorized planning, designing, technical reconstruction, system introduction to the completion of the project, it's undoubtedly to appreciate describe the whole construction process with the Chinese proverb "it takes 10 years to make a sword".

Harbin-Dalian Railway Electrification Project is on of the national key project in the "9th Five-Year Plan". the operation distance is the longest in the whole present railway networks of China and the project is the first large scale introduction of overseas equipment, technology and management in the railway history of the People's Republic of China, it gained referable experience for the electric reconstruction of the existing railways.

During the final stage of the project construction works, all the participants, whatever they worked at management, technology or construction sites, have created with their wisdom and perspiration, the first masterpiece of electric railway on the land of northeast China, and they presented it as a generous gift to the new century. This 946km-long railway line has demonstrated courage and integrity of the railway people in the era of China's economic reform and opening-up.

To reflect and record the whole process of the electrification project and to present the grand view of this new railway line, we organized professionals to compile this album, for the memory of all the friends concerned with China's railway construction and development.

Zhang Wei

Director General of Shenyang Railway Bureau

Song Dayue

Party Secretary of Shenyang Railway Bureau

一条金路 彪炳史册

世纪之交的东北平原上，出现了一道亮丽壮阔的风景，这就是哈大电气化铁路。

在新中国铁路史上，哈大电气化铁路的修建结束了东北无电气化铁路的历史。而哈大电气化铁路总长946.5公里，又是迄今为止世界上较长里程的电气化铁路。按照铁道部领导要求，这条铁路的沈阳北——哈尔滨段于今年8月18日先期开通，沈阳北——大连段又于11月28日开通，从而实现全线开通运营。这是两个值得隆重纪念的日子，它包含了几代铁路人的梦想和企盼，几届铁道部领导的决心和期望，几届铁路局领导的指挥和支持，几万名工程建设、设计、施工人员的汗水和心血。哈大电气化建设者们创造了三个国内之最，即：既有线电气化改造时间最短，一次性电气化开通距离最长，目前国内电气化标准最高。他们的丰功伟绩，将永载史册。

哈大铁路，始建于1898年。在全国铁路网中，这条大通道，无论在中国的抗日战争、解放战争、抗美援朝战争中，还是在五十年代新中国的经济建设时期，都是功不可没，成为一条国人皆知、杰出的“钢铁运输线”。历史前行，时代发展，中国进入改革开放新时期。在竞争激烈的经济大潮中，这条旧有铁路，运能与运量的矛盾日趋突出。经济发展与铁路运输极不相称，迫切需要修建新的通道，迫切需要改变对交通基础设施滞后的局面进行改变。于是，祖国呼唤哈大铁路的改造与发展，人民渴望这条光荣的运输动脉重振雄风，哈大电气化铁路，已成为时代的呼唤、历史的需要。

党中央、国务院审时度势，正确决策，于1990年就批准了哈大铁路电气化改造工程并正式立项，继而，把它作为国家“九五”时期的重点工程，第一次系统引进德国牵引供电先进技术、设备和管理，进行政府间合作。这为哈大电气化铁路的全面建成创造了先决条件。

哈大电气化铁路的工程建设具有：工期长，工程量大，施工难度大，技术含量高，管理模式新的特点。为保证项目的顺利实施，铁道部指定由沈阳铁路局作为建设单位。为此，沈阳铁路



局专门组建了哈大电气化工程建设指挥部。于是，一场多部门协同作战，多单位戮力同心进行铁路建设的世纪壮举，在东北大地轰轰烈烈、扎扎实实地展开了。

哈大电气化铁路，是在既有线照常运营前提下对全线进行技改并对大连枢纽、沈阳枢纽、长春枢纽的全面改造，是我们在特殊困难的条件下进行的一场特殊战斗。我们在长达近千公里的线路上和飞奔的列车旁摆开几十个施工战场。千军万马会战哈大。广大参战职工在党的号召下，舍小家，顾大业，弃私利，图大局，战酷暑，斗严寒，披荆斩棘，用汗水和心血浇铸每一寸铁路，在广阔的东北大地，在几千万东北父老的心中，树起了一座铁路建设者的英雄丰碑。

工程建设指挥部在建设的实施阶段，克服了多种困难，多次与路外方方面面协调，积极创造条件，很好地完成每年的施工生产任务和投资计划。在施工过程中，施工单位坚持质量就是生命，质量就是进入市场的通行证，干优质活，出精品工程，胜利建成了沈阳、长春、大连三个枢纽，胜利完成了中间站股道延长工程。哈大铁路的牵引供电工程，具有世界九十年代先进水平。哈大线共设17座牵引变电所，2800线路公里接触网，4个远动控制调度中心。客车时速为每小时140公里至160公里，货车时速为每小时120公里。值此开通之际，沈阳铁路局34万职工为哈大电气化铁路的建成欢欣鼓舞。它向世界昭示：中国人一定能把哈尔滨——大连的电气化铁路真正建成一条高标准、高质量的现代化铁路。

千军万马战哈大的光辉业绩已成为历史。明天，更需要开拓、创新。哈大电气化牵引供电的引进，对我们来说是全新的概念，我们知道搞好设备维护和运营安全，还有大量的工作要做。我们有充足的信心，管好用好哈大电气化铁路，使之成为对东北经济以致整个国民经济发展产生积极影响的一条经济发展之路，一条黄金之路。

哈大电气化铁路，将光耀东方，彪炳史册。

沈阳铁路局 副局长
哈大电气化工程建设指挥部总指挥

A glittering Road Adds an Illustrious Page to the Railway History

Harbin-Dalian Electric Railway, as a significant view on the northeast plain of China, presents itself at the beginning of the new century.

In the railway history of China, Harbin-Dalian railway electrification project has ended an era of no electrified railway in the northeast China. With the gross length of 946.5km, this railway line is one of the longest railway in the world so far. In accordance with the requirements and instructions of the leaders from the Ministry of Railways, the north line, Shenyang to Harbin, opened first as scheduled on August 18, 2001, and the south line, Shenyang to Dalian opened on November 28 in the same year, after then the whole line is under successful operation. On these two memorable days all the dreams and wishes from generations of railway constructors became true. Simultaneously, the resolution and expectation from terms of leadership of the Ministry of Railways together with the supervision and support from terms of leadership of Shenyang Railway Bureau, and efforts of thousands of the project designers, engineers and constructors, they presented their fruitful results on these two days. Constructors of the contact wire project have created three tops of the same kind of projects in China, namely, the shortest term for electric wire construction, the longest traffic distance for electrified railway at one time and presently the highest level of electrified railway in China, therefore, the great achievements of the project will be recorded permanently in the history.

Harbin-Dalian railway was built in 1898. As a large aisle in the railway networks of the country, it played an important role and showed its merits in the Anti-Japanese War, the Liberation War of China and the Korean War as well as in the economic construction period of new China in the 1950's. The railway thus became well known to the whole country as a "steel transportation line". With the proceeding of history and time, China came into the new era of economic reform and opening-up, the old railway cannot afford itself in aspects of transport capacity and volume to the economic bloom with intense competition. Therefore, the conflict between the economic development and the railway transportation calls for the construction of a new channel to change the laggard traffic infrastructure. For this reason, the state government asks for a reconstruction and promotion of this grand railway, and people wish this transport artery to regain its glory in the past.

The Central Committee and the State Council made the decision to approve Harbin-Dalian Railway Electrification Project and put it under authorized plan in 1990, the project was also listed as one of the key projects of the national "9th Five-Year Plan", it was the first Sino-German cooperation to import German traction power supply technology, equipment and management to China. All these have created the preconditions for Harbin-Dalian Railway Electrification Project.

Long construction term, heavy workload, difficult operation, high technical requirements and new management modes characterized Harbin-Dalian Railway Electrification Project. To assure the successful implementation of the project, Shenyang Railway Bureau was authorized as the construction unit by the Ministry of Railways. Shenyang



Railway Bureau set up the construction headquarter specially for the Harbin-Dalian project, thus launched the grand project of the century in the northeast China with the cooperation concerned various departments and units. The project is compared to a special, formidable and intricate combat because it is the technical renovation under the precondition that the present operation of the line proceeds as usual, and simultaneously, it is also the overall reconstruction of Dalian Junction, Shenyang Junction and Changchun Junction. Dozens of construction sites were distributed along thousands of kilometers of railway with trains roaring through, where thousands of constructors battled for the final victory. In answer to the Party's call, all the participants of the project put the interest of the nation in the first place. They fought against extreme hot and bitter cold and tackled all difficulties with their efforts in the construction, thus setting up a heroic monument of railway constructors in the minds of tens of millions of people on the broad northeast land.

During the construction phases of the project, the Construction Headquarter overcame lots of difficulties and consulted with all the relevant departments outside the railway system so as to create favorable conditions for the successful accomplishment of the annual task of construction and production. In the whole process of the construction, all the units involved constantly took quality as life and pass to the market. They completed high-quality projects including successful construction of the three junctions of Shenyang, Changchun and Dalian, the extension of rails for the intermediate stations and the project of traction power supply for Harbin-Dalian Electric Railway. All the above projects have reached the advanced standard of the world in the 1900's. Along Harbin-Dalian Electric Railway there are 17 traction transformer substations, 2800 kilometers of trolley wire and 4 remote control centers. The speed for the passenger trains is 140km/h to 160km/h and the speed for the cargo trains is 120km/h respectively. Upon the opening of the railway, 340,000 staff members of Shenyang Railway Bureau have been greatly inspired, for it demonstrates to the world that we Chinese are able to construct Harbin-Dalian Electric Railway to a modern one with top level and high quality.

The great achievements of the project have already become historic and the future still requires us for more exploration and innovation. The introduction of new technology of the traction power supply to Harbin-Dalian Electric Railway is a new concept for us, so we are aware that we still have a lot of jobs to do for the equipment maintenance and operation safety. We are fully confident that we can make full use of this railway so that it can be actively helpful for the economic development in the northeast region as well as the overall national economic development and become the golden road in the northeast of China.

Harbin-Dalian Electric Railway will be splendid forever in the East and will keep its glorious record permanently in the history.

Lu Junsheng

Vice Director General of Shenyang Railway Bureau

Chief Commander of the Construction Headquarter of Harbin-Dalian Railway Electrification Project



哈大电气化工程（哈尔滨——大连）全长 946 公里，是东北第一条电气化铁路。

始建于 1995 年，是国家“九五”计划重点工程项目。是引进德国牵引供电技术，进行政府间合作的项目。该工程科技含量高，管理模式新，居全国铁路领先地位。



With a gross length of 946kilometers, Harbin—Dalian Electric Railway is the first electric railroad in the northeast of China.

Initially built in 1995, Harbin-Dalian Electric Railway is one of the key projects in the national “9th Five-YearPlan” as well as the project with introduction of German technology of traction power supply and cooperation be between the Chinese and German governments. With high technical contents and new management modes,the project takes the leading place in of the railway construction of the country.

