CCTEG

CHINA COAL TECHNOLOGY & ENGINEERING GROUP

TO BUILD A WORLD-CLASS
TECHNOLOGICAL
INNOVATION ENTERPRISE

CHINA COAL TECHNOLOGY & ENGINEERING GROUP

Add ／ The Coal Tower Building, District 13, Hepingjie Street, Chaoyang, District, Beijing
Tel ／ 0086-10-84240209
E-mail ／ CCTEGIEC@Hotmail.com
Web ／ https://www.ccteg.cn

MISSION

Leading the development of coal technology

Promoting Industry Progress

Enhancing Corporate Value

Creating a Green Future

VISION

To Build a World-Class Technological Innovation Enterprise

CORE VALUE

Talent-based

Customer-First

Devoting to nation

Striving for perfection

ERTERPRISE SPIRIT

Practicality

Innovation

Strive

Surpass

STYLE OF WORKING

Broadening the mind

Actively innovate

Be fully implemented

Conducting without delay

CORPORATE IMAGE

Loyal and Responsible

Clean and Upright

Forging ahead

Moderate and Harmonious

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Group Profile

China Coal Technology & Engineering Group Co., Ltd., hereinafter referred to as CCTEG, is a central enterprise under the supervision of the State-owned Assets Supervision and Administration Commission of the State Council. As the national team and the pioneer in China's coal industry, CCTEG has a scientific and technological innovation system covering the whole professional fields of the coal industry and has been committed to the development of coal safety, green and intelligent development, and clean, efficient and low-carbon utilization of coal, fulfilling its glorious mission of leading the progress of coal science and technology.

- CCTEG has 136 research platforms at the provincial and ministerial level or above, including 3 state-level key laboratories, 4 state-level engineering research centres, 1 state-level engineering technology research centre, and 3 state-designated enterprise technology centres.
- It has a post-doctoral research mobile station on mining engineering, 5 post-doctoral scientific research stations, four doctoral degree programs, and 12 master degree Programs.
- There are about 27,000 employees in CCTEG, including more than 14,000 professional and technical talents. It has cultivated aggregately 10 academicians of the Chinese Academy of Sciences and Chinese Academy of Engineering including 2 long-appointed academicians, 5 of them being in work; It has cultivated aggregately 10 state-level survey and design masters, including 2 in service; It has 27 national candidates of the National Millions of Talents Project in service, and a total of 550 people having been awarded the special government allowances from the State Council.

With nearly 70 years of development, CCTEG has gradually formed a science & technology innovation and technology service system integrating with basic research, R&D in technology and equipment, engineering demonstration, testing & inspection, and strategic think-tank. It has six major industrial sectors: coal machine intelligent manufacturing, safety technology and equipment, clean energy, design and construction, demonstration engineering, and emerging industries. Affiliated companies of CCTEG are located across China such as Beijing, Shanghai, Chongqing, Xi'an, Shenyang, Nanjing, Wuhan, Taiyuan, Yinchuan, etc., A high-tech public listed company-Tiandi Science & Technology Co., Ltd. (stock code 600582) is under its umbrella, occupying the leading position in the industry.

Since the 13th Five-Year Plan period, CCTEG have been adhering to the leadership of the CPC, strengthening the capacity-building of the Party, and thoroughly implementing the new development philosophy. Meanwhile, CCTEG has been unswervingly performing the strategy of innovation-driven and focusing on the main business. We have built a three-tier R&D system, improved the allocation of scientific and technological resources, increased scientific and technological input and enhanced incentives, and has introduced and cultivated a large number of high-end talents and built a high-level scientific and technological innovation team. We focused on the major scientific and technological needs in coal development and utilization. We concentrated advantageous resources on applied basic research, core technologies, leading-edge technologies, strategic emerging technologies and major industrial technologies. We have filled several technological gaps in the fields of the construction of intelligent coal mines, ecological environment improvement, and disaster prevention & control of coal mines. CCTEG occupies a leading position in coal mining technology and equipment, leads the domestication of major equipment, and has made great contributions to the safety, intelligence, and green development of China's coal industry.

Overall Development Idea

The "1245" overall development idea is our company's development concept, goal, direction and measures. It is the measures CCTEG Party Committee takes to implement Xi Jinping's socialist ideology with Chinese characteristics in the new era and the spirit of the 19th National Congress of the Party. It is the concrete practice of CCTEG to implement the new development concept. It epitomizes CCTEG's valuable experiences in reform and development. It reflects the wisdom of CCTEG's employees. It is also the action guidance for CCTEG to build a world-class technological innovation enterprise.

The "1245" overall development idea

Set one Idea

Business Philosophy

Technology-based Talent-oriented
Market-oriented Customer-centered Leading the industry progress

Set two major strategies

- Innovation-driven strategy
- Focus-on-the-main-business strategy

Promote four major transformations

- Transform core business to technological innovation
- Transform scientific research to facilitate industry progress
- Transform industrial development to high quality and high added-value development
- Transform equipment manufacturing to high-end intelligent manufacturing

Transform

Implement five major measures

- Marketization of resource allocation
- Specialization in industrial development
- Network of operation & management
- Integration of marketing mode
- Results-oriented management of performance

Development History

CHINA COAL RESEARCH INSTITUTE

1951
CCRI-the coal research institution was established.

1976
It carried out the reform of scientific research system.

1999
CCRI was transformed into a science and technology enterprise directly under the umbrella of the central government.

2000
Tiandi Technology CO., LTD. was established and went public.

2001
Beijing Tiandi-Macro Electro-hydraulic Control System CO., LTD. was established.

2006
Beijing Tiandi Huatai Mining Management CO., LTD. was established.

STRATEGIC RESTRUCTURING

China Coal Research Institute and China Coal International Engineering Design & Research Institute CO., LTD. merged to become today's CCTEG.

2008

CHINA COAL INTERNATIONAL ENGINEERING DESIGN & RESEARCH INSTITUTE CO., LTD

1952
The Coal Design Bureau of the Ministry of Fuel Industry of the Central Government, the predecessor of Beijing Coal Design and Research Institute, was established.

1998
With Beijing Coal Design and Research Institute at the core, China Coal Engineering Design Consulting Group was established composed by the Coal Design and Research Institute of Shenyang, Wuhan, Nanjing, Chongqing, and Pingdingshan Coal Preparation Design and Research Institute.

2001
China Coal Engineering Design Consulting Group was renamed as China Coal International Engineering Design & Research Institute CO., LTD.

2009
CCTEG carried out organizational restructuring. Its three-tier subsidiaries have been turned into two-tier ones.

2013
China Coal Research Institute CO., LTD. was established.

2014
14 research institutes were established
Coal Science Institute Energy Conservation Technology CO., LTD. was established.

2015
CCTEG International Engineering CO., LTD. was established.

2016
CCTEG Clean Energy CO., LTD. was established.

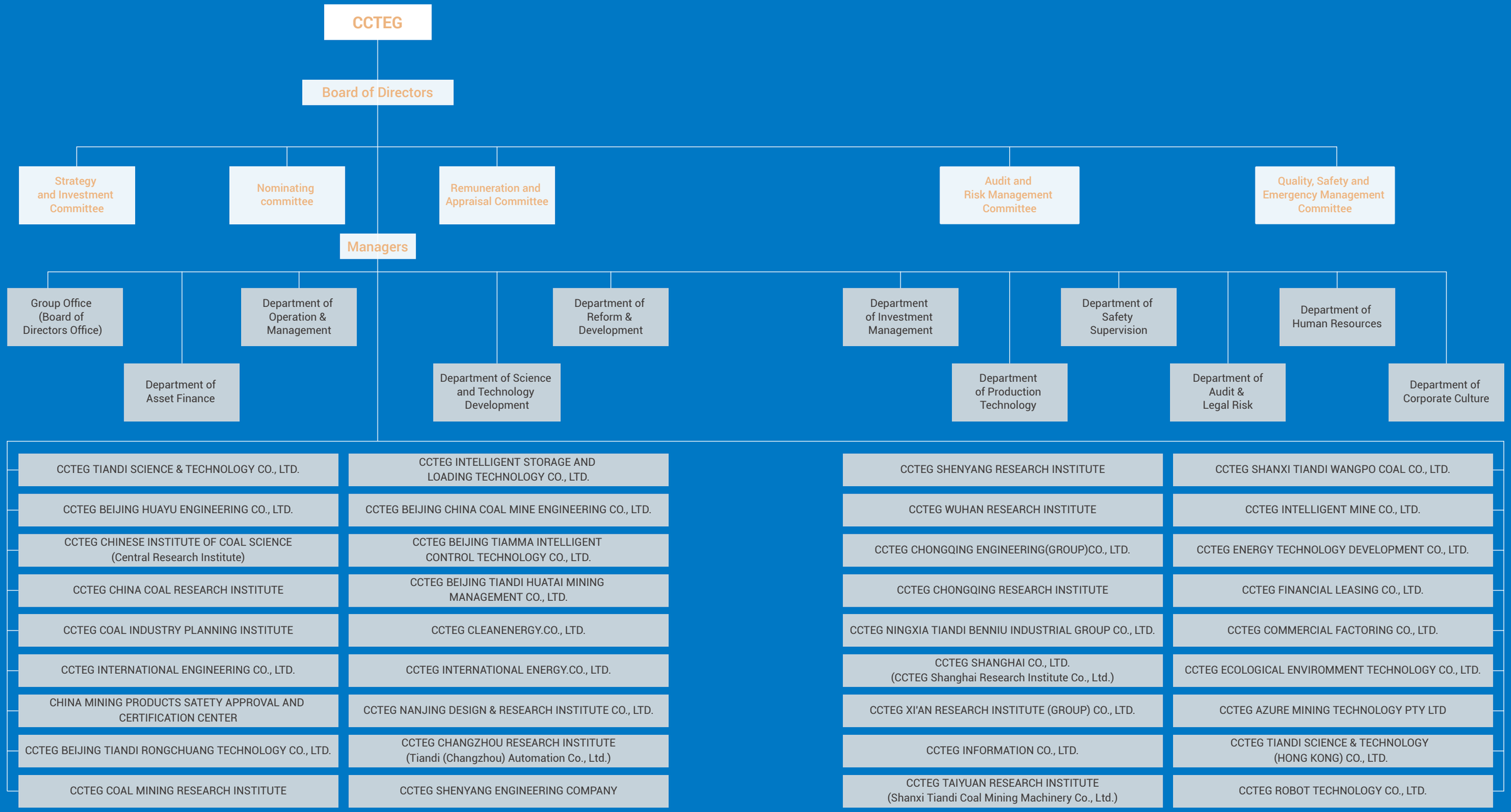
2017
CCTEG Financial Leasing CO., LTD. was established.

2018
In 2018, CCTEG Eco-Environmental Technology CO., LTD., CCTEG Commercial Factoring CO., LTD., and CCTEG Energy Development CO., LTD. were established.

2020
CCTEG Information Technology CO., LTD., CCTEG Intelligent Storage Technology CO., LTD., CCTEG Mining and Designing Research Institute, and CCTEG Intelligent Mine CO., LTD. were established.

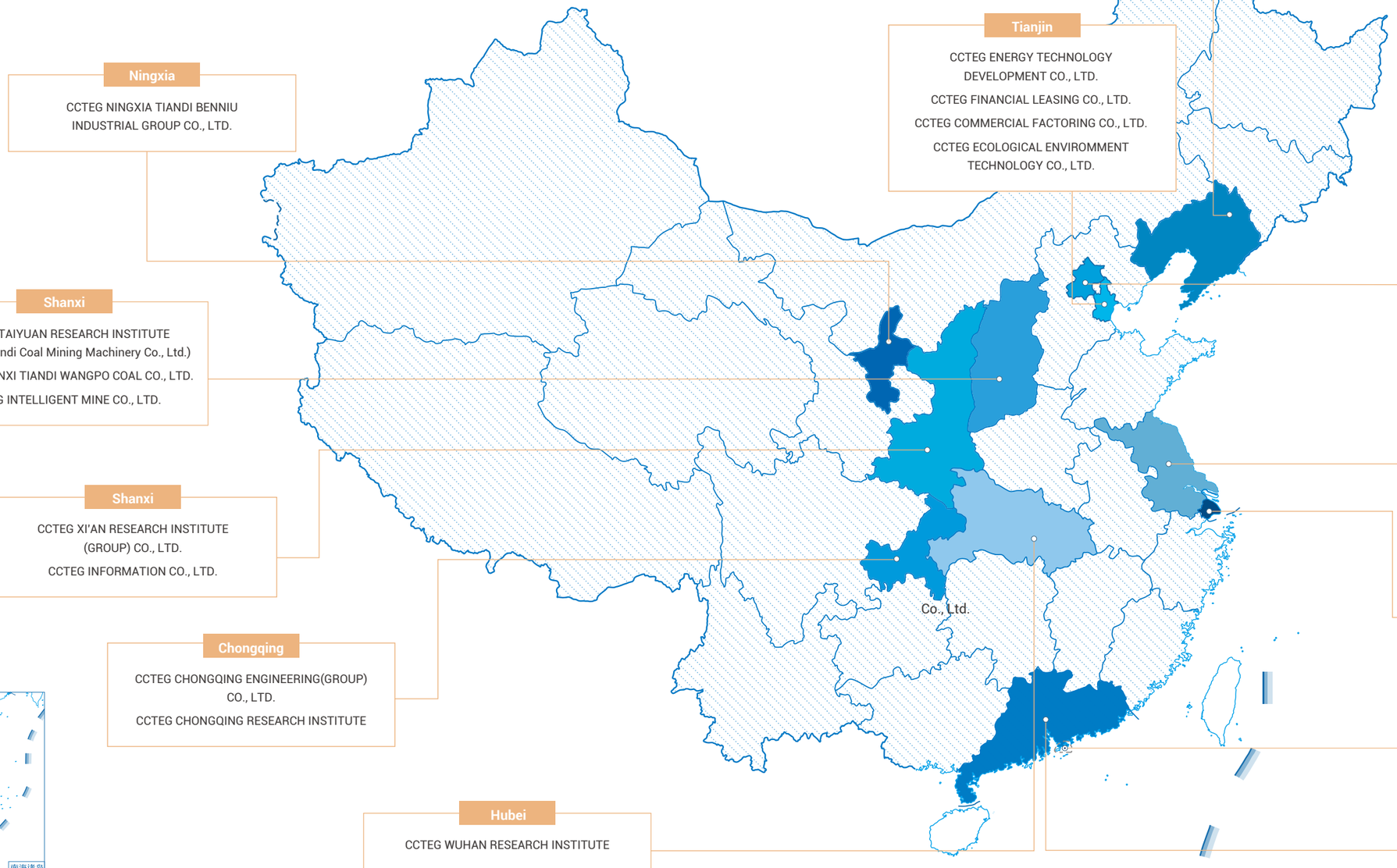
2021
CCTEG Robot Technology CO., LTD. was established.

Organizational Structure



Nationwide Layout

CCTEG's subsidiaries are located in more than 10 major cities with significant regional advantages such as Beijing, Tianjin, Shanghai, Shenzhen, Shenyang, Nanjing, Wuhan, Chongqing, Xi'an, Taiyuan, Yinchuan, etc.



Liaoning

CCTEG SHENYANG ENGINEERING COMPANY

CCTEG SHENYANG RESEARCH INSTITUTE

Beijing

CCTEG TIANDI SCIENCE & TECHNOLOGY CO., LTD.

CCTEG BEIJING HUAYU ENGINEERING CO., LTD.

CCTEG CHINESE INSTITUTE OF COAL SCIENCE (Central Research Institute)

CCTEG CHINA COAL RESEARCH INSTITUTE

CCTEG COAL INDUSTRY PLANNING INSTITUTE

CCTEG INTERNATIONAL ENGINEERING CO., LTD.

CHINA MINING PRODUCTS SATETY APPROVAL AND CERTIFICATION CENTER

CCTEG BEIJING TIANDI RONGCHUANG TECHNOLOGY CO., LTD.

CCTEG COAL MINING RESEARCH INSTITUTE

CCTEG INTELLIGENT STORAGE AND LOADING TECHNOLOGY CO., LTD.

CCTEG BEIJING CHINA COAL MINE ENGINEER ING CO., LTD.

CCTEG BEIJING TIAMMA INTELLIGENT CONTROL TECHNOLOGY CO., LTD.

CCTEG BEIJING TIANDI HUATAI MINING MANAGEMENT CO., LTD.

CCTEG CLEANENERGY.CO., LTD.

CCTEG International Energy CO., LTD.

Tianjin

CCTEG ENERGY TECHNOLOGY DEVELOPMENT CO., LTD.

CCTEG FINANCIAL LEASING CO., LTD.

CCTEG COMMERCIAL FACTORING CO., LTD.

CCTEG ECOLOGICAL ENVIROMMENT TECHNOLOGY CO., LTD.

Ningxia

CCTEG NINGXIA TIANDI BENNIU INDUSTRIAL GROUP CO., LTD.

Shanxi

CCTEG TAIYUAN RESEARCH INSTITUTE (Shanxi Tiandi Coal Mining Machinery Co., Ltd.)

CCTEG SHANXI TIANDI WANGPO COAL CO., LTD.

CCTEG INTELLIGENT MINE CO., LTD.

Shanxi

CCTEG XI'AN RESEARCH INSTITUTE (GROUP) CO., LTD.

CCTEG INFORMATION CO., LTD.

Chongqing

CCTEG CHONGQING ENGINEERING(GROUP) CO., LTD.

CCTEG CHONGQING RESEARCH INSTITUTE

Hubei

CCTEG WUHAN RESEARCH INSTITUTE

Jiangsu

CCTEG NANJING DESIGN & RESEARCH INSTITUTE CO., LTD.

CCTEG CHANGZHOU RESEARCH INSTITUTE (Tiandi (Changzhou) Automation Co., Ltd.)

Shanghai

CCTEG SHANGHAI CO., LTD. (CCTEG Shanghai Research Institute Co., Ltd.)

HongKong

CCTEG TIANDI SCIENCE & TECHNOLOGY (HONG KONG) CO., LTD.

Guangdong

CCTEG ROBOT TECHNOLOGY CO., LTD.

Human Resources

Academician Profile

ACADEMICIAN BOQIAN HONG

Honorary director and consultant of the CCTEG Technical Committee

Academician Boqian Hong experts in large-diameter shaft drilling in the mine construction field and is one of the pioneers in deep and large vertical shaft drilling in underground coal mine in China.

He conducted the completion of 33 projects of the state, coal ministry and coal institute. Academician Boqian Hong won national, provincial, and ministerial Science and Technology Progress Awards 12 times. Among them, there are one First Prize and two Second Prizes of the National Scientific and Technological Progress Award, and two Grand Prizes and one First Prize of ministerial-level Scientific and Technological Progress Special Awards. In 1986, he was awarded the National Young and Middle-aged Experts with outstanding contributions and advanced individual in Scientific and Technological Research during the National "Sixth Five-Year Plan". In July 1990, he was awarded a special allowance from the State Council. In 1997, He was elected to(was granted the title of academician by) the Chinese Academy of Engineering.

ACADEMICIAN HONGPU KANG

The director and the chief scientist of the CCTEG Technical Committee; Director of the State Key Laboratory of Efficient Mining and Clean Utilization of Coal Resources; Secretary of the Party Committee and chairman of CCTEG Mining and Designing Research Institute

Academician Kang Hongpu has long been engaged in the research of rock mechanics and rock control in mines, focusing on the technology of roadway rock control. He has put forward the theory of pre-stressing support for roadways, developed the complete set of anchor-supported technology and 'support'-'modification'-'pressure-releasing' control technology, and formed the complete set of safe and efficient support technology system for coal mine roadways. His research results have been widely used, bringing significant economic and social benefits and improving the technology of the coal mine roadway rock control field in China. He has been awarded the first prize of the National Science and Technology Progress Award once, the second prize three times, and the second prize of the National Technical Invention Award once.

ACADEMICIAN GUOFA WANG

Deputy director and chief scientist of the CCTEG Technical Committee; Director of Coal mine Intelligence Working Committee of CCTEG; President of the Council of Coal Mine Intelligent Innovation Alliance; Director of Intelligent Mine Committee of Chinese Association of Automation

Academician Wang Guofa took the lead in proposing the scientific idea that coal mine intelligence is the core technical pillar for the high-quality development of the coal industry. He presided over the research and development of four modes of intelligent coal mining technology and equipment, and pioneered key technologies on top-level frame of intelligent coal mine giant system and its application under 5G+. He was awarded the National Model Worker, Outstanding Engineer Award, and Sun Yueqi Energy Award, and his research achievements won the first prize in the National Science and Technology Progress Award one time, the second prize in the National Science and Technology Progress Award four times, and more than thirty times in scientific and technological awards at provincial and ministerial levels.

CCTEG

By the end of 2021, CCTEG had a total of **27,029** employees,

14297 professional and technical personnel

4667 with senior titles

115 national-level professional and technical personnel

There are 5 academicians of the Chinese Academy of Engineering (including 2 specially appointed academicians), 2 national survey and design masters, 8 prize-winners of the National Technical Invention Award, 56 prize-winners of the National Science and Technology Progress Award, 72 people enjoying special government allowances under the State Council (550 in total), and 27 national candidates for the National Hundred Million Talents Project.

Currently, CCTEG has **65** Chief Scientists.

Among them, 3 are academicians, 11 are first-class chief scientists, 21 are second-class chief scientists and thirty are third-class chief scientists.

Academics

2 First-level Discipline Authorization Programs for the Doctoral Degree	**1** Second-level Discipline Authorization Program for the Doctoral Degree	**4** First-level Discipline Authorization Programs for Master Degree	**3** Second-level Discipline Authorization Programs for Master Degree
57 Doctoral Tutors	**120** Master Tutors	**267** Phd Students Have Been Recruited	**190** People Have Been Awarded the Doctorate Degree
72 Phd Candidates	**1109** Postgraduates	**972** People Have Been awarded the Master's degree	**136** Postgraduate Candidates

Technology Innovation Platform Construction

CCTEG has **11** state-level research platforms

Three national-level key laboratories

State-level Key Laboratory of Coal Mine Safety Technology
State-level Key Laboratory of Efficient Mining and Clean Utilization of Coal Resources
State-level Key Laboratory of Gas Disaster Monitoring and Emergency Response Technology

Two state-level engineering laboratories

National Engineering Laboratory of Coal Mining Machinery and Equipment

National and local Joint Engineering Laboratory of Intelligent Manufacturing Technology for Fully Mechanized Coal Mine Transportation Equipment

One national engineering technology research centre

National Coal Water Slurry Engineering Technology Research Centre

Two national engineering research centres

National Engineering Research Centre of Coal Mine Safety Technology

National Engineering Research Centre for Deep Mining Construction Technology

Three nationally certified enterprise technology centres

Technology Centre of Beijing Tiandi-Macro Electro-hydraulic Control System Co., Ltd.

Technology Centre of Ningxia Tiandi Benniu Industrial Group Co., Ltd.

Technology Centre of Shanxi Tiandi Coal Mining Machinery Co., Ltd.

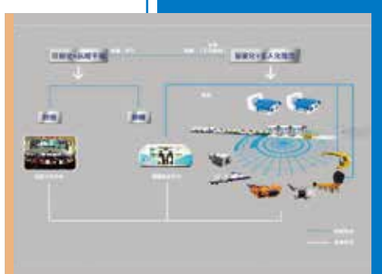
One hundred and twenty-five laboratories, engineering centres, technology centres and testing platforms at the provincial and ministerial level or above.

National Science and Technology Awards

CCTEG has won more than **2,900** awards, including more than **1,300** awards at the national and provincial levels. During the '13th Five-Year Plan' period, CCTEG won **9** national-level science and technology awards and **468** provincial and ministerial-level science and technology awards.

Projects	Awards	Year of Award
Key technology for impact-resistant pre-stress support in coal mine roadways	Second prize of the National Award for Technological Invention	2020
Key technologies of intelligent mining and transportation in underground coal min		
Key technology and equipment for anti-explosion and energy-absorbing support in deep coal mine impact roadways	Second prize of the National Award for Progress in Science and Technology	2020
Key Technology and Engineering Demonstration for Safe and Intelligent Mining in Coal-Oil-Gas Symbiotic UG Mines		
Key technologies and systems for accurate positioning of personnel and vehicles in UG mines	Second prize in National Award for Technological Invention	2019
Key technologies and equipment for the prevention and control of explosions of flammable and explosive hazardous substances	Second prize of the National Award for Progress in Science and Technology	2019
Complete set of technology and equipment for coal mine flexible mould composite material support safety high recovery mining		2018
Development and application of coal-to-oil products/olefin modern coal chemical complete technology		2017
Key technologies and demonstration projects for smart coal mine construction		2016
Key technology and complete equipment for construction of super large diameter deep shaft		2015
Key technologies for enhanced gas pressure relief and permeability enhancement in high gas outburst coal seams and gas resource efficient extraction		2015
Key technologies and equipment for coal mine major flood detection and rapid rescue		2015
Key technology and application of high-performance large-scale vibrating screen	Second prize of the National Award for Technological Invention	2014
Key technology and equipment for fully mechanized top coal caving mining in extremely thick coal seam	First prize of National Award for Progress in Science and Technology	2014
Ningdong extra-large coal base development and construction and deep processing key technologies	Second prize of the National Award for Progress in Science and Technology	2014
Ningdong extra-large coal base development and construction and deep processing key technologies		2013
0.6m-1.3m complex thin coal seam automatic comprehensive mining complete technology and equipment		2013
High-efficiency inhibition method and a key technology for preventing coal spontaneous combustion	Second prize of the National Award for Technological Invention	2012
Research on key technology and equipment of the 'One Expanded Well' rapid drilling method	Second prize of the National Award for Progress in Science and Technology	2012
The key technology of complete equipment for fully mechanized top caving mining face in large inclined seam		
Jinchuan Nickel Mine high stress super large deposit continuous mining comprehensive technology		
Key technologies for coal fire prevention and control in complex mining conditions in Datong mining area		
Ten million tons of mine resources and environment-coordinated development technology		
Open-pit coal mine high-step throwing blasting and bucket shovel stacking technology and application		
Directional drilling technology and equipment for measuring and controlling thousands of meters while drilling underground coal mine		

Major Scientific and Technological Achievements

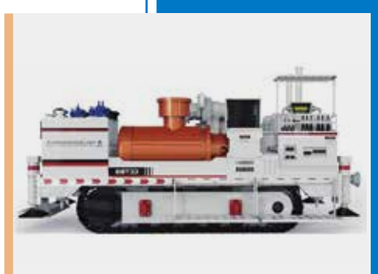


Intelligent unmanned coal mining technology

CCTEG pioneered a new “smart + remote” intervention mining mode and successfully developed the first intelligent system of complete equipment for a fully mechanized coal mining face with the highest installed power, the highest mining height and the highest output in China. CCTEG won the second prize in the National Science and Technology Progress Award through this achievement, leading the development direction of intelligent unmanned mining, which is of great significance to the construction of a safe, intelligent, green and efficient mine.

Shearer with 9 meter mining height

CCTEG has developed the world's first high-power intelligent shearer for a 9m extra-thick coal seam. It can achieve the mining of 6-9m coal seam at one time, with an annual output of 12-18 million tons of ROM coal, creating a world record of the single day output of 58,400 tons and monthly output of 1.46 million tons. It symbolizes the leading position of our shearers at both home and abroad.



Technology and equipment for large-diameter ultra-long directional drilling in coal mines

CCTEG has developed the first high-power directional drilling rig and its supporting equipment in China, reaching the international leading level in terms of drilling capacity, hole-forming diameter, the accuracy of measurement and control, etc. It can achieve 3000 m directional drilling along the coal seam, and provides a new technical solution for gas control in the large panel field. The drilling depth of the main hole of Baode Coal Mine reached world record deep of 3353 m along the coal seam by adopting the ultra-long directional drilling equipment.

The key technology of anti-impact prestressed support of coal mine roadway

The complete set of the technical system of anti-impact pre-stressed support of coal mine roadway developed by CCTEG solved the problems of strong impact, strong disturbance and large deformation of soft rock in roadway support in kilometer-deep underground mines. It's a breakthrough in coal mine roadway support technology, reaching the international leading level. Having won the second prize in the National Technological Invention Award, it provides technical support for the mining of deep and complex coal resources, with significant economic and social benefits.

Land consolidation & utilization and ecological restoration technology in coal mining subsidence area

CCTEG has made a breakthrough in the key technologies of land consolidation & utilization, and ecological restoration in coal mining subsidence areas. Its agricultural reclamation technology applied in coal mining subsidence areas has helped safeguarding the National Arable Land Red Line. Its group construction technology has helped resolving the deficiency of urban construction land., Its technology of manmade wetlands has improved the ecological environment of mining fields, helping mining cities reverse the side effect of the subsidence areas.

Rapid tunnelling system combining tunnelling, bolting and conveying functions

CCTEG's world's first rapid tunneling system combining tunnelling, bolting and conveying functions changed the serial operation of tunneling, bolting, and conveying to parallel operation, which will greatly improve the tunneling efficiency, reduce the labor by 60%, and increase the efficiency up to 3 times on average. The achievement broke foreign monopoly and realized intelligent manufacturing in China. In Shendong mining field, it successfully achieved a monthly advance of 3,088 meters and set a world record for monthly advance in a single roadway. This system was enlisted into the recommended directory of scientific and technological innovation achievements of central enterprises and won the special prize of the Science and Technology Award of the China Coal Industry Association.

The first Harmony OS-based multi-scene inspection robot for underground coal mines

CCTEG has successfully developed the first Harmony OS-based multi-scene inspection robot for underground coal mines, improving manual inspection efficiency and intelligence-level of inspection equipment. The positioning accuracy of the robot is 10 mm, and the multi-parameter measurement accuracy is <3%. It can collect 8 environmental parameters at the same time. It has been successfully applied to Shendong Coal Group, reducing the labor intensity of inspection workers by 80%, and reducing the number of workers in fixed places such as substations by 60%-100%.

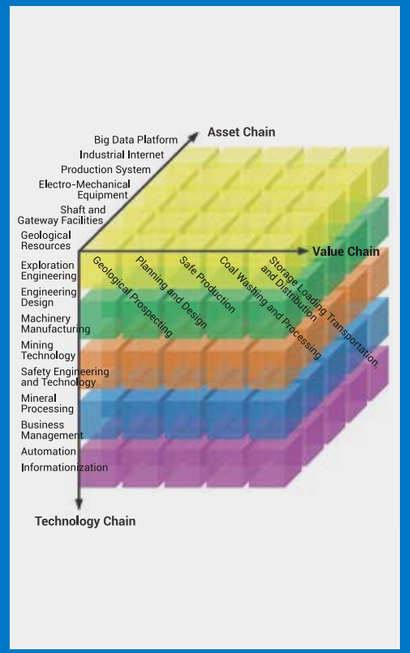
Intelligent Coal Mine

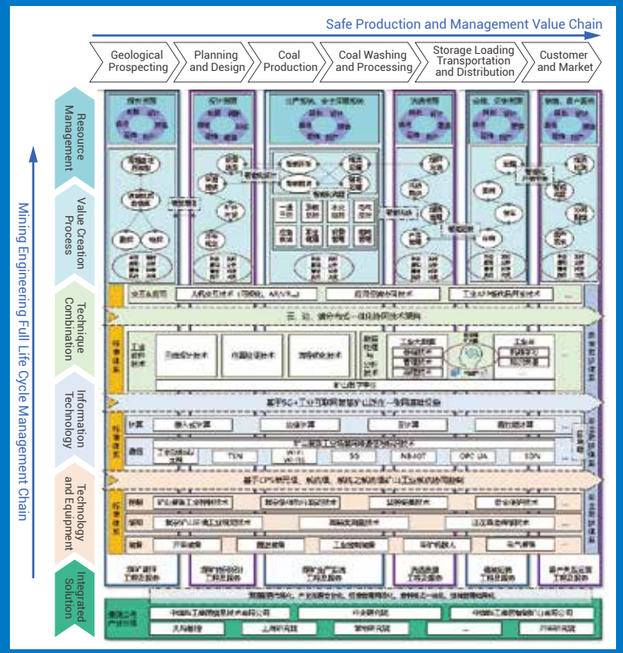
The overall structure of the intelligent mine

CCTEG has set up a supportive system for intelligent mining with relative technologies, products and services covering the whole process and industrial chain.

Intelligent mine system model

We have built the service system model for the whole industrial chain, from geological exploration, plan & design, and coal production to washing & processing, stockpiling & loading, transportation & trading, and marketing.



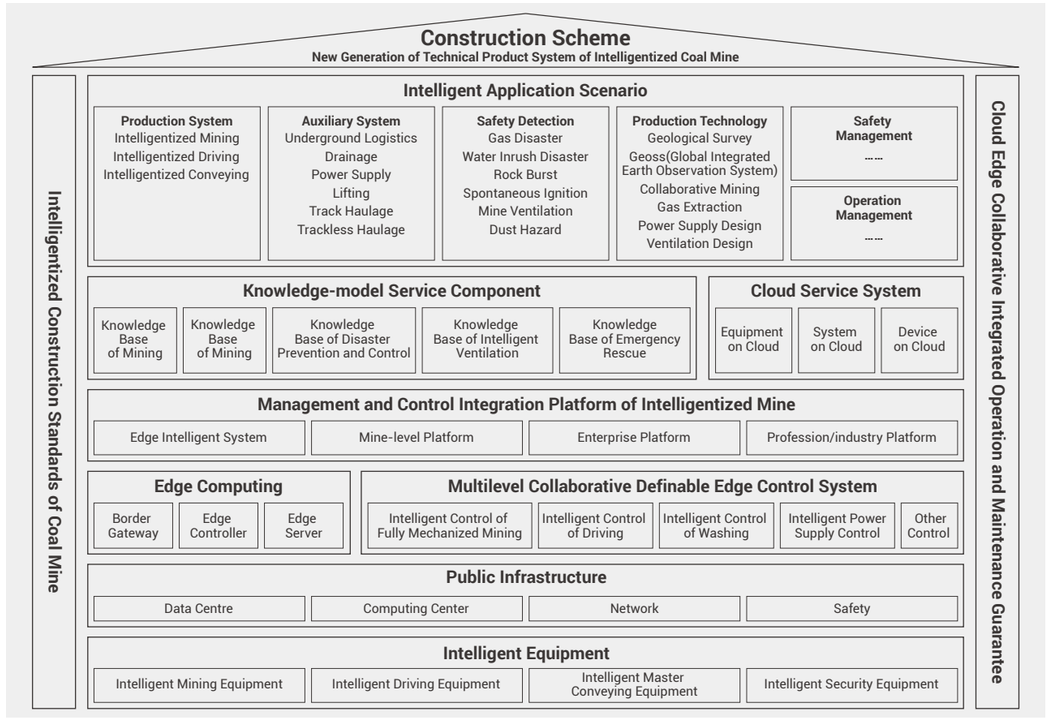


We compiled a standard system for intelligent mining in the coal industry

We have built a standards framework for intelligentcoal mining composing more than 180 standards. We issued Categorization, Classification and Appraisal of Intelligent Coal Mines (UG Mine). We completed the compiling and advice soliciting of 51 standards, such as Terminology on Coal Mining Science and Technology-Intelligent Coal Mine and System Architecture of an Intelligent Coal Mine.

We have developed a new generation of intelligent mine technology, product and system

- Digitally integrate management, sharing and utilization of various mine data and information resources
- Visually simulate and reproduce the geological conditions of mines
- Analyzing the mining activities and its impacts by simulation
- Intelligently analyzing, monitoring and supervising data and intelligently identifying various cataclysm precursors
- Automatically implementing mining system activities and activating the mine safety emergency plan
- We will further improve efficiency, reducing costs, achieving the optimal management, maximizing benefits, and ensuring risk control, to make mining enterprises safer, more efficient, more environmentally friendly and smarter

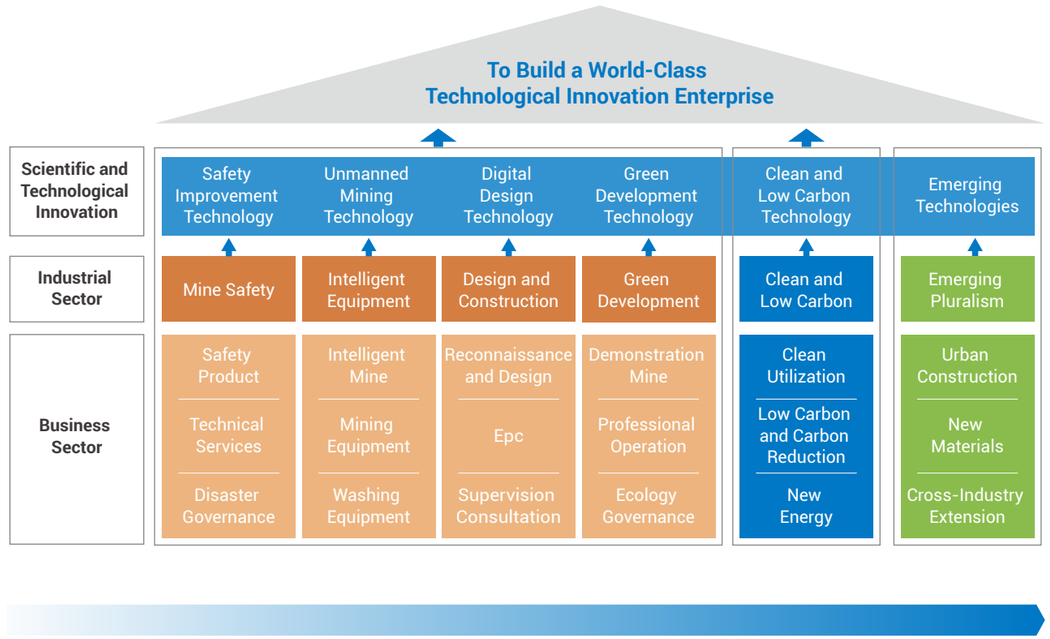


Knowledge and Practical Information Dissemination

CCTEG has 20 scientific and technological academic journals, such as Coal Journal, Coal Science and Technology, Coal Engineering, and Coal Economic Research. They have played an active role in academics exchange and inspiration, and transmitting information.

Industrial Sectors in the 14th Five-Year Plan Period

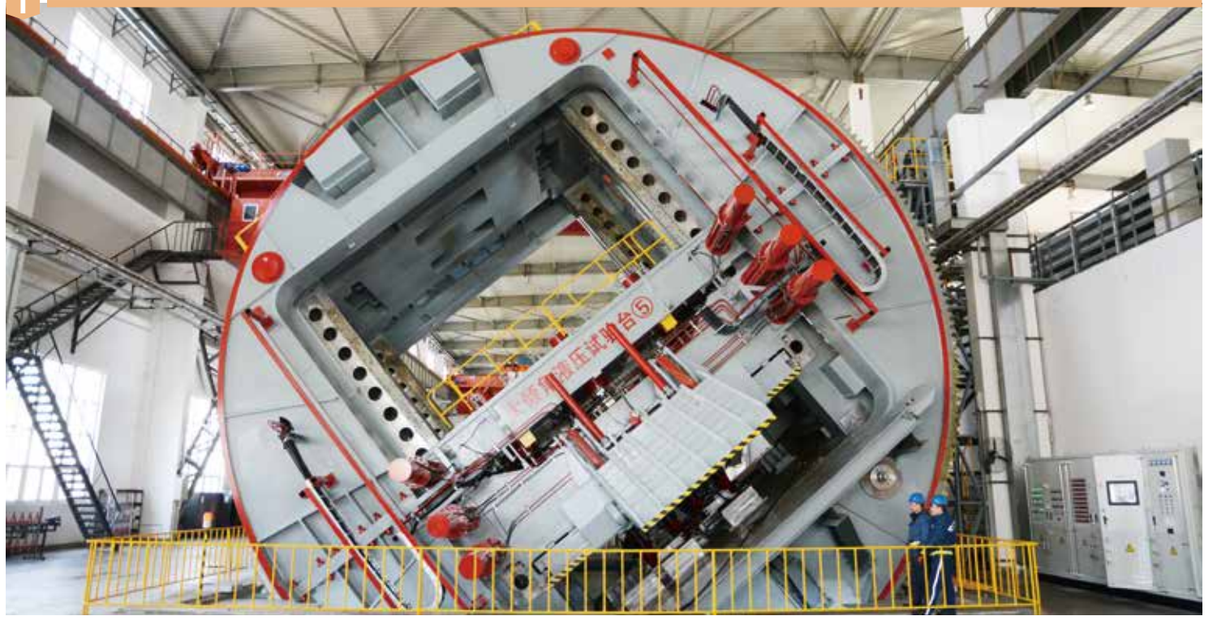
During the "Fourteenth Five Year Plan" period, CCTEG will focus on six major areas in coal mining industry, which is mine safety, intelligent equipment, design and construction, green development, clean and low-carbon development and emerging diversification. We have been continuously improving our technological and scientific innovation capability as well as our advantages in the whole industrial chain in the coal mining field. We are working on intelligent and unmanned mining while also striving for of the improvement in the four areas of "mine safety, intelligent equipment, design and construction, and green development". We have made a strategic plan for the clean and low-carbon coal mining industry, including strengthening the clean utilization of coal, developing low carbon and carbon reduction businesses, and exploring new energy industry. We will lead the clean, green and low-carbon transformation of the coal industry relying on our advantages in technologies of the industry. We are actively making strategic plans for emerging industries, promoting the all-round transition of coal science and technology to non-coal fields, and accelerating the development of emerging and diversified industries. By optimizing the industrial layout and focusing our business of six major sectors, we are committed to be a world-class integrated solution service provider in the area of intelligent mines, green mines and safe mines. Besides, we also aim to be a champion enterprise in a number of subdivisions, such as safety products, high-precision equipment, ecological governance in mining areas and distributed multi-fuel boilers.



Mine Safety

In the mine safety sector, we will enhance the emergency rescue capability and disaster management level to ensure the safety of the industry. We will meet customers' demand for mine safety, especially focusing on the prevention and solutions for major safety risks; We will strengthen the leading edge of safety technology, including developing highly reliable intelligent safety products and carrying out mine disaster engineering services, in particular providing a comprehensive solution of "technology +products+engineering services"; We will actively expand into non-coal mine safety products, urban public emergency rescue and other fields; We will maintain our core position in safety certificate issuing and supervision of mining safety equipment.

1



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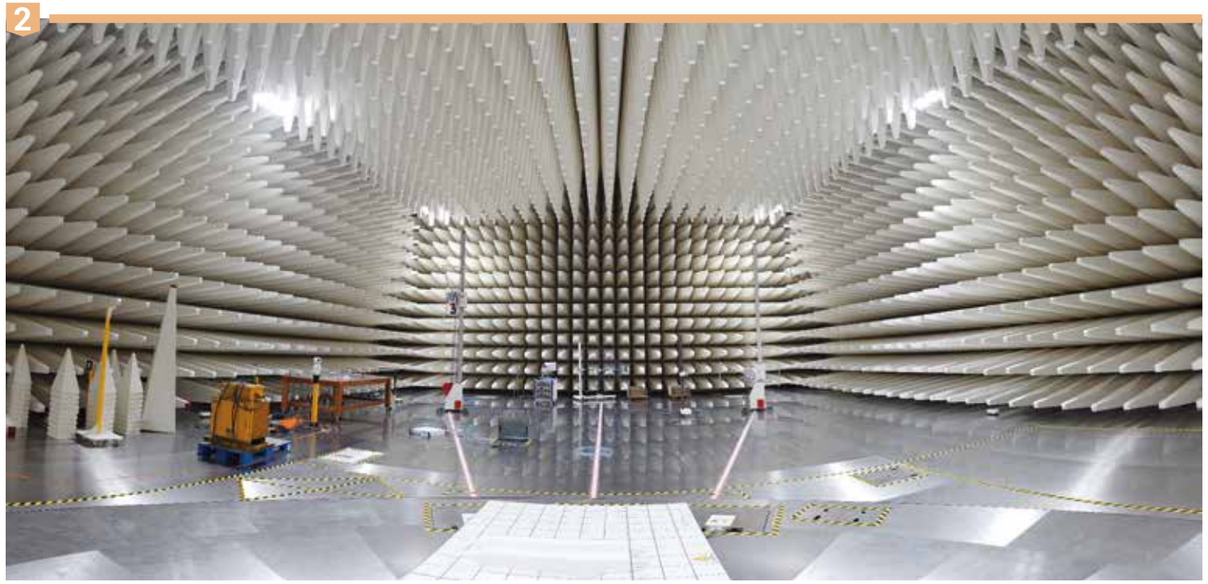

3

4

1. World's only equipment to analyze and verify steeply inclined hydraulic supports
2. EMC laboratory
3. Coal and gas outburst simulation experiment system
4. Patrol inspection robot for mining face
5. Intelligent respiratory mask
6. Drilling robot for gas drainage for undergroundcoal mine

5

6

Intelligent Equipment

In the intelligent equipment sector, we make full use of our advantages in intelligent mining and transform our businesses to intelligence and service sectors. To reach this goal, our advantageous resources are integrated to build a development pattern of "R&D and industry concentration" We will better create an integrated solution and marketing network for intelligent mines. Also, we will upgrade our manufacturing of mining and coal washing equipment to make them more intelligent. We will build high-level intelligent factories to improve high-end equipment manufacturing capacity. We will improve the basic capabilities of the industrial chain through high level opening up and international cooperation while ensuring the self-reliance in the industrial chain and supply chain; We will develop service-oriented manufacturing industry, providing customers with full life cycle services for our intelligent equipment. We will actively extend our businesses into non-coal fields such as non-coal mining equipment and other engineering equipment.

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1. High-power intelligent shearer for 9m extra thick coal seam
2. Highly-effective dismountable non-foundation extensible belt conveyor
3. Rapid quantitative loading system
4. Intelligent and efficient tunneling system integrating excavation, support and transportation
5. Intelligent auxiliary transporting robot
6. Intelligent fully mechanized mining and conveying equipment with an annual output of 20 million tons
7. Transparent Geological Guarantee Centre for Intelligent Mining

Design and Construction

In terms of the design and construction sector, we aim to promote the building of high-end think tanks. We will implement the differentiation strategy of "one enterprise, one policy" to accelerate transformation and upgrading; We will promote the innovation of organizational and business patterns; carrying out collaborative design, cloud design, package design and modular design, improving our service capability and level. We will steadily expand the scale of project contracting and gradually cultivating and establishing high-quality project management team. We will expand our supervision and consultation services to municipality, transportation and other fields; accelerating the building of high-end think-tank to build our brand as an authoritative consultant in the industry.

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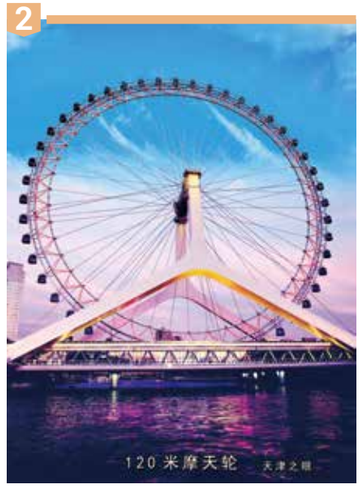

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1. Shenhua Shendong Boertai Coal Mine and Coal Preparation Plant, the world's largest underground coal mine
2. China's first 110-meter high ferris wheel "Eye of Tianjin" on highway bridge
3. Huadian Group Mengtai Buliangou Mine and Coal Preparation Plant
4. Tunliu Coal Mine, with the first main shaft derrick in Asia
5. Anjialing Open-pit Coal Preparation Plant-one of the largest coal preparation plants in the world and China's first super large modern preparation plant for thermal coal
6. Shaft tower and production system of Hongqinghe coal mine
7. Shenhua Group Halwusu Open-pit Coal Mine

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Green Development

In the green development sector, we will uphold the green concept in the whole life cycle and promote green mine construction. We will carry out integrated application of new concepts, technologies and equipment in Tiandi Wangpo Coal Mine, building it into a demonstration base to demonstrate intelligent unmanned mining. We will steadily develop specialized coal mine trusteeship operation and strengthen safety management and risk control. We will enhance business collaboration with other sectors to improve industry development. We are also focusing on ecological governance of mining areas, with extension to the front end of the industrial chain like soil improvement and vegetation restoration, and to the back end of the industrial chain such as waste rock and solid waste recycling. To explore large-scale and industrialized development, We will build green mining demonstration projects in the Yellow River basin, such as Shanxi, Shaanxi and Inner Mongolia, and then we will explore the scale and industrial development of the area.

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1. Tiandi Wangpo Coal Industry Co., Ltd.
2. Heishantou Open-pit Mine
3. West Fushun Open-pit Mine
4. Ningxia Yinxing No.2 Coal Mine-a model for conducting trust operation cooperation with large central enterprises
5. Tangshan Nanhu Wetland
6. Overall restoration of Muli coal field

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Clean and Low Carbon

In the clean and low-carbon sector, we take various ways and measures to vigorously develop clean and low-carbon transformation. We will give full play to our scientific and technological advantages in such fields as clean coal utilization, and accelerate the development of distributed multi-fuel boilers, coal water slurry, mine water treatment, coal chemical waste water treatment, coal bed methane utilization and other clean utilization businesses. We will promote the industrialization of modern coal chemistry and coal catalyst, seizing the opportunity of merger and acquisition of advanced technology entities at home and abroad. We will explore CCUS technology innovation and industrial layout. We will develop new energy industry. Based on our present businesses in survey, design and consulting of photovoltaic, wind power and other new energy power, we will tap into new energy project construction, EPC, and operation services. We will explore photovoltaic and wind power business in on ecological restored land. If opportunity allows, we will establish new energy companies through merger and acquisition, joint venture to explore the development of photovoltaic, wind energy, energy storage, hydrogen energy and other fields of business.

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1.
Tianjin Huayuan Heat Source Plant
currently the largest pulverized coal boiler heating centre in China

2.
Qingyang 4 × 70MW pulverized coal industrial boiler heating project

3.
Heating centre investment

4.
Environment-friendly non chlorine snowmelt agent

5.
Key technologies of multi-stage membrane concentration and evaporation crystallization treatment for high salt mine water

6.
The bottom of atomizer mill and supporting equipment of China Coal Yulin Co..

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Emerging Industry and Business Pluralism

In the emerging and diversification sector, CCTEG is committed to enriching the connotation of the sector with emphasis on the all-round transformation. We put much effort in the business development of reconnaissance and design services in non-coal fields, urban construction (including smart city) and new material research (polymer materials, thin spray materials, etc.).

Relying on our strength in coal science and leading position in coal industry, we will expand our business scope to the non-coal industry by both endogenous growth and extending growth. We will deepen the integration of coal industry and finance to promote our business development.

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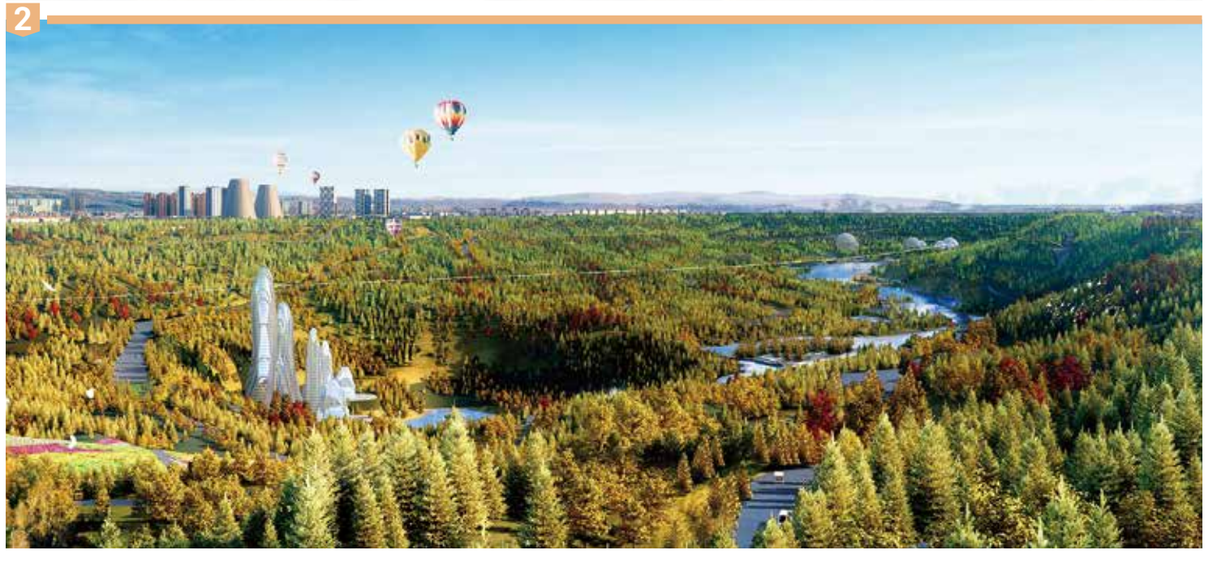

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1.2.
Comprehensive governance and development planning for coal mining affected area in Fushun City

3.
Tashkent Capital Airport Design

4.
Uzbek “Asian Youth Association” Planning Project

5.
High performance halogen-free flame retardant materials for mining

6.
Guizhou A-Mei Qituo Characteristic Town Construction, Helping Poverty Reduction in Qinglong County, Guizhou Province

International Market

Under the guidance of the socialist diplomatic ideology with Chinese characteristics in the new era, CCTEG upholds the Silk Road spirit of “peaceful cooperation, openness and inclusiveness, mutual learning and mutual benefit” and actively promote the the Belt and Road Intiative. Our international operations have made great achievements, demonstrating the scientific and technological strength of CCTEG.

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1. Polyak Eynez Coal Mine Technical Service Project in Turkey

2. Melnikova Coal Mine Modernization Project in Ukraine

3. “Presidential Avenue”in Uzbekistan

4. “Binhe Park”and other projects in Uzbekistan

5. CCTEG won the “Outstanding Contribution Award for China-Uzbekistan Friendship”

6. Angelian Open-pit Coal Mine Modernization Project in Uzbekistan

7. Kuzbass Complete Coal Mine Comprehensive Mining Equipment Sales Project in Russia

8. Siberian Business Union complete equipment and roadheader supply project in Russia

9. Laos MCZ630 potassium mining machine

10. Mengba Coal Mine Phase III Mine and Face Water Control Technology Research Project in Bangladesh

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Vision

To Build a World-Class Technological Innovation Enterprise

In the Fourteenth Five-Year Plan period and the years to come, CCTEG will adhere to the guidance of Xi Jinping socialist ideology with Chinese characteristics in the new era, and will implement new development concepts and build new development patterns. We will fulfill CCTEG "1245" overall development thinking, that is, science and talent-based, market-oriented, and customer-centered development. We will also uphold "innovation-driven, main business-centered" strategy, leading the science and technology development, to meet national requirement and improve people's well-being. centered on the goal of "peaking carbon emissions and carbon neutrality", we will build a modern energy system that is clean, low carbon, safe and efficient. Our development will be oriented towards capability building in intelligence technology, intelligent equipment, safety assurance, green development, clean and efficient use, intelligent design and construction. We are also focusing on unmanned mining by developing core technologies and equipment. We are committed to making more scientific and technological achievements and maintaining a leading position in the coal industry. By doing so, we will become the base for original technologies and national strategic technological force. We will build our company into a world-class technological innovation enterprise.