





南方电网国际有限责任公司



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# 企业简介

## ABOUT US

### 中国南方电网有限责任公司 China Southern Power Grid Co., Ltd.

中国南方电网有限责任公司负责投资、建设和经营管理广东、广西、云南、贵州和海南五省（区）电网，供电面积100万平方公里，供电人口2.72亿人。近年来，公司加快向数字电网运营商、能源产业价值链整合商、能源生态系统服务商转型，着力打造安全、可靠、绿色、高效、智能的现代化电网，着力推动管制、新兴、国际、金融、共享服务五大战略单元业务协同发展，致力建设成为具有全球竞争力的世界一流企业。2024年，资产总额1876亿美元，售电量14544.4亿千瓦时。目前，在世界500强企业排名第78位，获得标普、穆迪、惠誉三大国际评级机构给予的国家主权级信用评级。

China Southern Power Grid Co., Ltd. (CSG) invests in, constructs and operates power grids in the southern provinces of Guangdong, Guangxi, Yunnan, Guizhou and Hainan with a total service area of 1 million km<sup>2</sup> and a population of 272 million. In recent years, CSG is committed to transforming into a digital grid operator, an energy value chain integrator and an energy ecosystem service provider by building a safe, reliable, green, highly efficient and smart modern grid and promoting the coordinated development of five strategic businesses namely the regulated, emerging, international, financial and shared service businesses. CSG aims to build a world-leading company with a competitive edge around the globe. In 2024, CSG's total assets was \$187.6 billion, covering generation, transmission & distribution, and power sales amounted to 1454.4 TWh. CSG is ranked -78th on the 2023 Fortune Global 500 list. Standard & Poor's, Moody's and Fitch Group have all honored CSG with their ratings equivalent to those of China's sovereign ratings.

### 南方电网国际有限责任公司 China Southern Power Grid International Co., Ltd.

南网国际公司于2007年成立，南网国际香港公司于2005年成立，是南方电网公司的全资子公司，是南方电网公司国际业务的主要实施平台、投融资平台。南网国际公司与南网国际香港公司按照“一套人马、两块牌子”的模式运作。2023年12月20日，南网国际香港公司正式进入实体化运作阶段。

China Southern Power Grid International Co., Ltd. (CSGI), founded in 2007, and China Southern Power Grid International Hong Kong Co., Ltd., or CSGI(HK), founded in 2005, are both whollyowned subsidiaries of CSG and the executors of its international businesses. CSGI and CSGI (HK) currently share the same staff force. On December 20, 2023, CSGI(HK) started substantive operation.

南网国际公司经营范围为：跨国（境）输变电项目资产经营；投资与管理电力及相关项目和股权；电力工程承包和劳务合作；对外技术合作与技术进出口；国际贸易；设备成套及货物进出口贸易；中介和信息服务。南网国际香港公司的经营范围主要包括：境内外电力设施投资、经营与管理；跨国（境）的购售电贸易；境外电力及相关项目和股权的投资、经营与管理；境外电力工程承包和劳务合作；对外技术合作和技术进出口国际贸易。

The business scope of CSGI covers: transnational/cross-border power transmission project asset management; equity investment, operation, and management of overseas electric power projects; EPC projects in the power sector; international technological cooperation; international trade; import and export trade of complete set equipment and goods; intermediary and information services. The business scope of CSGI (HK) is: investment, operation and management of domestic and overseas electricity facilities; transnational/cross-border electricity trade; entity investment, operation, and management of overseas electricity projects; EPC projects in the power sector; international technological cooperation and the import and export of technology; international trade.

南网国际公司获得三大国际评级机构之一惠誉授予的国家主权级国际信用评级“A+”。截至2024年12月31日，南网国际公司境外电源、电网资产分布在亚洲、欧洲、南美三大洲和港澳地区，资产总额772.12亿元。

Fitch Group has honored CSGI with their highest rating, "A+". As of December 31, 2024, CSGI had power generation and grid assets in three continents, namely Asia, Europe, Latin America and the two SARs of Hong Kong and Macao, with a total asset value of RMB 77.2 billion.

#### 战略定位

国际市场开拓者、国际资源整合者、国际资产运营者、港澳供电支撑者

#### Strategic Positioning

International Market Explorer, International Resource Integrator, International Asset Operator, Power Supplier to Hong Kong and Macao

#### 战略目标

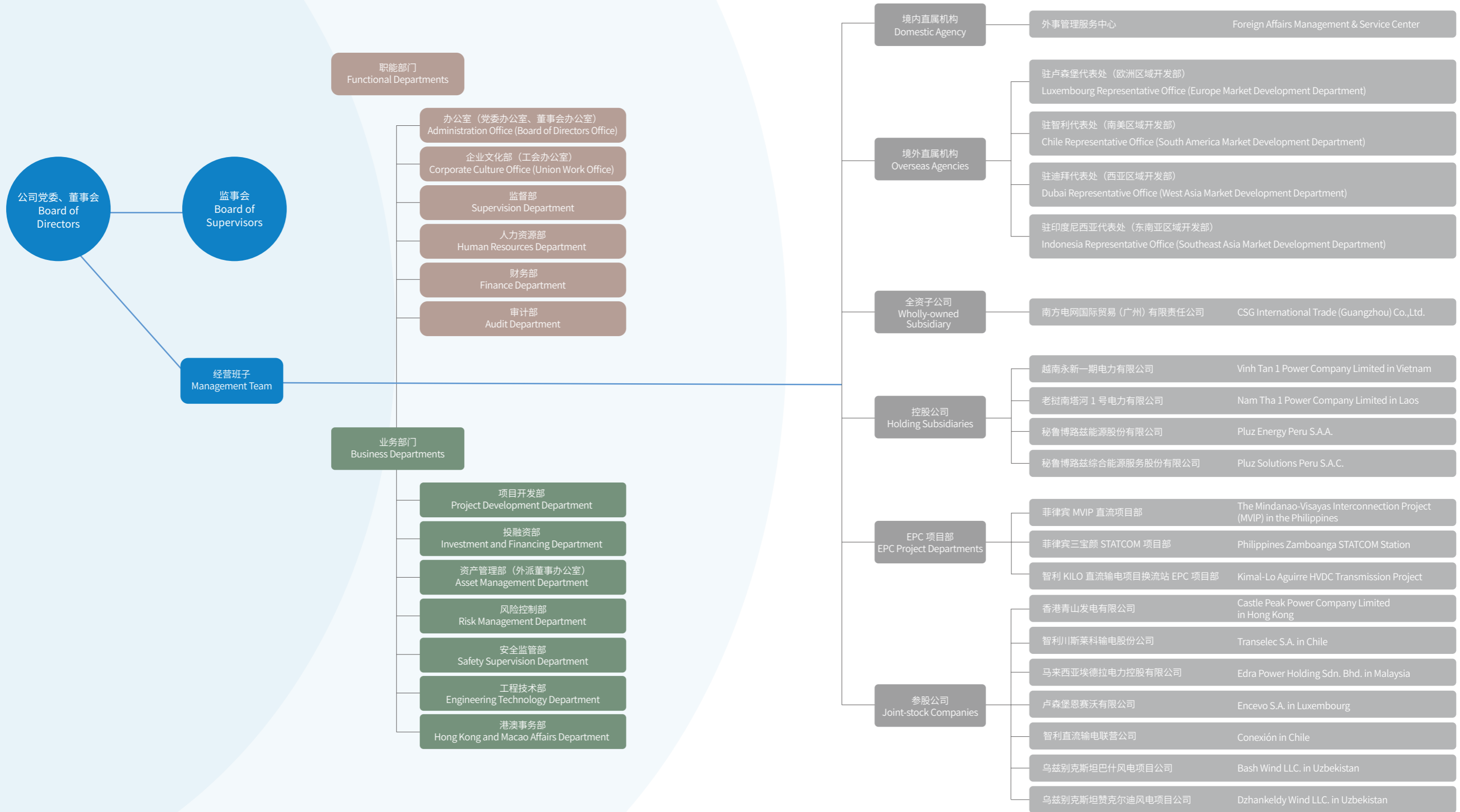
成为具有全球竞争力的一流电力投资建设运营商

#### Strategic Goal

To become a first-class electric power investor, constructor and operator with global competitiveness

# 组织架构

## ORGANIZATIONAL STRUCTURE



# 一流平台 推动高质量共建“一带一路”

HIGH-QUALITY DEVELOPMENT

南网国际公司坚持新发展理念，努力把握新发展机遇，主动服务融入国家“一带一路”倡议和粤港澳大湾区发展战略，聚焦投资、运营、工程、贸易四大核心业务板块，坚持控股、参股并举，坚持资产并购、绿地开发并举，深耕亚洲、南美、欧洲及港澳地区等重点开发区域，加快培育企业核心竞争力，努力实现“投资-建设-运营”一体化目标。

Adhering to the new development philosophy, CSGI grasps new development opportunities, and integrates into the international development strategies including the Guangdong-Hong Kong-Macao Greater Bay Area. Focusing on four core business sectors of investment, operation, engineering and trade, we practice both holding and non-holding equity participation, both asset acquisition and greenfield development, in-depth participation in Asia, Latin America, Europe and the SARs of Hong Kong and Macao, and step up building core competence to serve the goal of investment-construction-operation as a whole.

HIGH-QUALITY

DEVELOPMENT

# 01

## 绿地投资 GREENFIELD INVESTMENT



### 越南永新一期 电力有限公司

Vinh Tan 1 Power Company Limited, Vietnam

越南永新燃煤电厂一期BOT项目是中越两国领导人见证的中越两国经贸合作的重点项目，也是中国企业在越南的第一个BOT电力投资项目。项目位于越南平顺省，装机容量2×620MW。项目于2015年6月16日开工建设，于2018年11月27日投入商业运行，比BOT合同工期提前了200天，创造了越南境内同类型机组最快建设纪录，在保证安全、质量的前提下，高标准实现了建设“先进、可靠、绿色”示范性电厂的目标，被中越两国总理多次在公开场合点名表扬，获得了各方的高度认可。2021年获得越南工程质量最高荣誉“国家优质工程奖”，2022年获得“中国电力优质工程奖”，并入选“2022年中国建设工程鲁班奖（境外工程）”名单。项目机组稳定运行，关键指标在越南处于领先水平，三次获得越南电力集团颁发的电厂运营管理优异奖。2023年荣获越南公安部颁发的“消防安全典型标杆队伍”奖，2024年荣获越南联合国教科文组织协会联合会颁发的“文化企业模范”称号。

As a key project of China-Vietnam cooperation signed under the witnesses of state leaders of the two countries, the Vinh Tan 1 BOT Coal-fired Power Plant Project is the first is the first build-operate-transfer (BOT) power project invested by Chinese firms in Vietnam. Located in Binh Thuan Province, Vietnam, the Project has two power generation units with an installed capacity of 2\*620MW. Started being built on June 16, 2015, the Project was put into commercial operation on November 27, 2018, 200 days ahead of the construction schedule agreed in the BOT Contract and creating a record of the fastest construction speed in Vietnam for similar type of units. Having achieved the goal of building an "advanced, reliable, and green" demonstration power plant, which has been repeatedly praised by the Prime Ministers of China and Vietnam in public and highly recognized by all parties. In 2021, it was awarded the "National Quality Engineering Award" representing the highest honor in the construction field of Vietnam by the Ministry of Construction of Vietnam. In 2022, it was awarded the "China Power Quality Engineering Award" and was selected for the "2022 China Construction Engineering Luban Award (Overseas Engineering)" list. The project units operate stably, with key indicators at a leading level in Vietnam. It has been awarded the Annual Power Plant Operation and Management Excellence Award three times by Vietnam Electricity(EVN). In 2023, it won the "Fire Protection Model Team" Award granted by the Ministry of Public Security of Vietnam. In 2024, it was honored the title of "Cultural Enterprise Model" by the Vietnam UNESCO Associations.



2024年，荣获越南联合国教科文组织协会联合会颁发的“文化企业模范”称号  
In 2024, Vinh Tan 1 Power Company Limited won the title of "Cultural Enterprise Model" by the Vietnam UNESCO Associations.

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In 2023, Vinh Tan 1 Power Company Limited won the "Fire Protection Model Team" Award granted by the Ministry of Public Security of Vietnam.





## 老挝南塔河1号电力有限公司

Nam Tha 1 Power Company Limited, Laos

老挝南塔河1号水电站项目位于老挝北部革命老区博乔省，装机 $3 \times 56$  MW，总装机容量168 MW，采用BOT投资模式，特许权经营期限为28年，于2019年4月进入商业运营期，缓解了老挝北部地区电力供应不足的局面。项目建设期间，搬迁移民10,523人，促进了当地经济发展。

The Nam Tha 1 Hydropower Plant is located in Bokeo Province, northern Laos with a total installed capacity of  $3 \times 56$  MW (168 MW). It adopts the BOT (build-operate-transfer) investment mode with a franchise period of 28 years. The project was put into full commercial operation period (COD) in April, 2019. It has alleviated power shortage in northern Laos. During construction, 10,523 migrants were relocated, contributing to local economic development.

## 智利高压直流输电联营公司

Conexión Kimal Lo Aguirre, Chile

2021年12月，南网国际（香港）公司与智利川斯莱科公司、哥伦比亚国家电力公司组成的三方联营体成功获得智利首个高压直流输电项目，即Kimal-Lo Aguirre高压直流输电项目的执行和开发权。2022年5月，三方联营体在智利成立智利直流输电联营公司，负责项目的投资、建设、运营管理工作。项目两端的换流站分别位于智利北部的Kimal变电站和中部的Lo Aguirre变电站附近，直流线路全长约1,352千米，采用 $\pm 600$  kV常规直流输电系统，输送功率达300万千瓦。建成后，智利北部充裕的可再生能源可输送到中部负荷中心地区。

In December 2021, the Consortium formed by CSGI(HK), Transelec S.A. of Chile and ISA of Columbia was awarded the execution and development rights of Chile's first HVDC transmission project, the Kimal-Lo Aguirre HVDC project. In May 2022, the Consortium set up Conexión Kimal Lo Aguirre S.A, which will be responsible for the investment, construction, operation and management of the project. The project constructs converter stations adjacent to the Kimal substation in northern Chile and Lo Aguirre substation in central Chile. The HVDC transmission line has a total length of approximately 1,352 kilometers, with  $\pm 600$  kV LCC-HVDC technologies and a transmission capacity of 3GW. Upon completion, abundant renewable energy from northern Chile can be transmitted to central Chile.



## 02

## 股权并购

## EQUITY MERGERS AND ACQUISITIONS

### 秘鲁博路兹能源股份有限公司& 秘鲁博路兹综合能源服务股份有限公司

Pluz Energy Peru S.A.A. & Pluz Solutions Peru S.A.C.

2024年6月，南网国际（香港）公司完成对秘鲁博路兹能源股份有限公司83.15%和秘鲁博路兹综合能源服务股份有限公司100%的股权收购，同年完成对秘鲁博路兹能源股份有限公司要约收购，持股比例达97.16%。秘鲁博路兹能源股份有限公司为利马证券交易所上市公司，在秘鲁首都利马北部及周边区域拥有永久特许经营权，主要从事220千伏及以下的配电及售电业务，供电面积1602平方公里，服务用户数量161.2万，是秘鲁用户数最多的配电公司。秘鲁博路兹综合能源服务股份有限公司依托配电业务侧重开展分布式光伏、公共照明节能改造、新型储能、需求侧响应及电动公交车推广等新兴业务。

In June 2024, CSGI(HK) acquired 83.15% equity of Pluz Energy Peru S.A.A. (formerly known as Enel Distribución Perú) and 100% equity of Pluz Solutions Peru S.A.C. (formerly known as Enel X Perú). Pluz Energy Peru S.A.A. is a listed company on the Lima Stock Exchange (Bolsa de Valores Lima). With a permanent concession in the northern and surrounding areas of capital Lima, the company engages in power distribution and sales business of 220 kV-and-below. It serves an area of 1,602 km<sup>2</sup> and 1.612 million users, making it a distributor with the most users in Peru. Pluz Solutions Peru S.A.C. focuses on emerging businesses such as distributed photovoltaic, energy-saving upgrades on public lighting, new energy storage solutions, demand response, EV buses, etc. based on its distribution services.



2024年6月27日，秘鲁总统博鲁阿尔特会见南方电网公司董事长孟振平、总经理钱朝阳

On June 27, 2024, President Dina Boluarte of Peru met with China Southern Power Grid Chairman Meng Zhenping and President Qian Chaoyang.

### 香港青山发电有限公司

Castle Peak Power Company Limited ,Hong Kong



全球最大FSRU顺利靠泊  
香港海上浮式天然气接收站  
World's largest FSRU received first commercial load  
in Hong Kong.

2014年5月，南网国际（香港）公司联合香港中华电力，收购埃克森美孚能源持有的青山发电公司60%的股权。交割后，南网国际（香港）公司持有青山发电有限公司30%的股权。截至2024年底，青山发电公司拥有龙鼓滩、青山和竹篙湾三家发电厂，总装机容量达7,222兆瓦。2021年10月，青电新增联合燃气轮机D1机组正式投运。青电海上浮式天然气接收站项目于2023年投入使用，该接收站是香港第一个海上浮式天然气接收站。香港特别行政区行政长官李家超出席投运仪式。

In May, 2014, CSGI(HK) and CLP Power Hong Kong Limited jointly acquired 60% equity of Castle Peak Power Company Limited (CAPCO), which was previously held by ExxonMobil Energy. Since the transaction was completed, CSGI(HK) has held 30% equity of CAPCO. In 2024, CAPCO owns three generation plants including Black Point, Castle Peak and Penny's Bay with a total installed capacity of 7.222 GW. Commercial operation of CCGT D1 Project took place on October 28, 2021. The Hong Kong LNG Terminal Project, the first of its kind in Hong Kong, was completed in 2023. Mr. John KC Lee, Chief Executive of the Hong Kong SAR, attended the completion ceremony.



## 智利川斯莱科输电网公司

Transelec S.A., Chile

2018年3月，南网国际（香港）公司成功完成智利川斯莱科公司27.79%股权收购。智利川斯莱科公司是智利最大输电公司，主要从事智利国家、区域输电系统等监管资产的运营。作为智利行业标杆输电运营商，智利川斯莱科公司积极拓展输电、海水淡化等业务，资产规模不断扩大，截至2024年12月，川斯莱科公司拥有输电线路10,082公里及79个变电站，服务覆盖智利98%的人口。川斯莱科公司业务分布于智利及秘鲁等南美国家。

In March 2018, CSGI(HK) completed the acquisition of 27.79% of equity in Transelec S.A. ("Transelec"), the largest power transmission company in Chile, which mainly engages in operating the regulated assets of Chile's National and Zonal power transmission systems. As a benchmark transmission system operator in Chile, Transelec has been expanding transmission, desalination and other business with continued growth of asset values. As of December, 2024, Transelec had owned 10,082 km length of transmission lines and 79 substations, which serves 98% of the Chilean population. Transelec serves South American countries including Chile and Peru.



## 乌兹别克斯坦巴什及赞克尔迪网源一体化项目

Bash and Dzhankeldy wind farms Project, Uzbekistan

2024年7月12日，南网国际（香港）公司完成对乌兹别克斯坦巴什及赞克尔迪网源一体化项目35%股权收购。该项目是中亚地区装机规模最大的网源一体化项目，总投资约14亿美元。项目在乌兹别克斯坦中部布哈拉（Bukhara）地区建设2个风电场，配套建设291公里、500kV输电送出线路，总装机规模约100万千瓦。项目由南网国际（香港）公司与沙特国际电力和水务公司(ACWA Power)共同建设运营。乌兹别克斯坦当地时间2025年4月2日，该项目正式投产，已全面接入乌兹别克斯坦国家电网，预计每年可为当地提供约30亿千瓦时清洁电力，减少二氧化碳排放160万吨。

On July 12, 2024, CSGI(HK) acquired 35% of the equity of the Bash & Dzhankeldy Integrated Grid & Generation Project in Uzbekistan. This project is the largest integrated grid & generation project in Central Asia, with a total investment of approximately USD 1.4 billion. The project involves the construction of two wind farms in the Bukhara region of central Uzbekistan, along with 291 km of 500 kV transmission lines, and has a total installed capacity of approximately 1 GW. The project is jointly constructed and operated by CSGI(HK) and ACWA Power. On April 2, 2025, this project began commercial operations and was fully integrated into Uzbekistan's national grid, with an annual expected output of 3 TWh(terawatt hours) of clean energy, reducing CO<sub>2</sub> emissions by 1.6 million tons.



## 马来西亚埃德拉公司

Edra Power Holdings Sdn Bhd, Malaysia

2018年4月，南网国际（香港）公司成功完成马来西亚埃德拉公司37%股权收购。马来西亚埃德拉公司是东南亚最大的独立发电商之一，截至2025年4月，共有6个燃气电厂，1个燃煤电厂和1个太阳能电厂，总装机容量为553.7万千瓦，分布于马来西亚、孟加拉、巴基斯坦、阿联酋等国家。2022年2月，马来西亚埃德拉公司EMPP电厂实现全厂商业运行，总装机容量224.2万千瓦，是目前东南亚地区最大规模的联合循环燃气发电厂。EMPP电厂采用全球先进高效的燃机技术，可满足马来西亚半岛约12%的总电力需求。

In April 2018, CSGI(HK) acquired 37% of the equity of Edra Power Holdings Sdn Bhd ("Edra") in Malaysia. Edra is one of the largest independent power plants (IPP) in Southeast Asia. As of April, 2025, it had owned and operated 6 gas plants, 1 coal plant and 1 solar PV plant with a total installed capacity of 5,537MW. Its projects are distributed in Malaysia, Egypt, Bangladesh, Pakistan and the UAE. In February 2022, the EMPP Power Plant invested by Edra, which has a total installed capacity of 2,242MW, started its commercial operation. EMPP power plant is the largest CCGT (combined cycle gas turbine) plant in Southeast Asia. It adopts the world-leading and highly efficient gas turbine technology, which meets 12% of total power demand of Peninsular Malaysia.

## 卢森堡恩赛沃公司

Encevo S.A., Luxembourg

2018年10月，南网国际（香港）公司成功完成卢森堡恩赛沃公司24.92%股权收购。卢森堡恩赛沃公司是卢森堡境内最大电力和燃气输配网运营商，主要从事卢森堡和德国输配电与输配气监管业务。截至2024年12月，卢森堡恩赛沃公司在卢森堡运营12,595公里电力线路和2,211公里天然气管道，在德国运营450公里电力线路和1,650公里天然气管道。卢森堡恩赛沃公司在聚焦核心业务的同时，积极发展能源销售、可再生能源发电和现场技术服务业务，业务分布于卢森堡、德国、法国、荷兰、比利时等欧盟国家。

In October 2018, CSGI(HK) acquired 24.92% of the equity of Encevo S.A. ("Encevo"). Encevo is the largest electricity and gas transmission & distribution network operator in Luxembourg, mainly engages in the regulated electricity & gas transmission and distribution businesses in Luxembourg and Germany. By the end of 2024, Encevo had owned and operated 12,595 km length of transmission lines and 2,211 km length of natural gas pipelines in Luxembourg as well as 450 km length of transmission lines and 1,650 km length of natural gas pipelines in Germany. In addition to its core business, Encevo is actively developing other diversified businesses such as energy sale, renewable energy generation and on-site technical services in the EU countries of Luxembourg, Germany, France, the Netherlands, and Belgium.



## 03

## 工程承包

### EPC PROJECTS



### 菲律宾 MVIP直流项目

The Mindanao-Visayas Interconnection Project(MVIP), the Philippines

菲律宾MVIP直流项目是连接菲律宾维萨亚斯群岛和棉兰老岛的跨海直流输电工程。作为南方电网公司第一个牵头执行的境外直流总承包项目，项目直流电压等级为±350kV，额定电流634A，输送容量为2×225MW。南方电网、中国电建与西电国际组成联合体，承建2座350kV换流站，2座接地极，以及5座交流变电站改扩建工程。项目于2018年11月签订总承包合同，并于2023年12月23日起正式进入试运行期。

The Mindanao-Visayas Interconnection Project (MVIP) is a cross-sea HVDC transmission project connecting the two islands in the Philippines. As CSG's first overseas DC contracting project, it has a nominal voltage of ±350kV, a rated current of 634A, and a transmission capacity of 2\*225MW. The consortium of CSG, Power Construction Corporation of China (POWERCHINA) and Xi'an Electric Engineering Company Limited (XD) was entitled to build two 350kV converter stations, two ground electrode stations, and reconstruction and expansion of five AC substations. The EPC Contract was finalized in November, 2018, and trial operation of the project started on December 23, 2023.



2021年10月，南网国际公司与智利川斯莱科公司、哥伦比亚国家电力公司组成的三方联营体签订备忘录，由南网国际公司牵头的联合体负责KimalLo Aguirre高压直流输电项目换流站EPC总承包工作。



In October 2021, the Yallique Consortium, which signed a memorandum with the CSGI-XD consortium, which entitled the latter to execute the EPC contract of converter stations of the Kimal-Lo Aguirre HVDC project to.

### 智利KILO直流 输电项目换流站 EPC项目

Kimal-Lo Aguirre HVDC Transmission Line Project, Chile

2020年12月，由南网国际公司牵头的联合体成功中标菲律宾宿务-薄荷岛230千伏变电站扩建&棉兰老岛-维萨亚斯互联项目的Dumanjug 138/69千伏扩建总承包项目。

In December 2020, the consortium led by CSGI won the EPC Contract of Dumanjug 230kV Substation Expansion Project under Cebu-Bohol 230kV Interconnection Project & Dumajug 138/69kV Expansion Project under the MVIP.

### 菲律宾 DUMANJUG站 扩建总承包项目

The Dumanjug 230KV Substation Expansion, the Philippines

2022年2月，由南网国际公司牵头的联合体成功中标菲律宾首个静止无功补偿站——三宝颜STATCOM站总承包项目。

In February, 2022, the consortium led by CSGI won the bid for the EPC Contract of Zamboanga STATCOM Station--the first static reactive power compensation station in the Philippines.

### 菲律宾三宝颜 STATCOM站 总承包项目

The Zamboanga STATCOM Station, the Philippines

2022年6月，由南网国际公司参与的联合体成功中标菲律宾第二个静止无功补偿站——维萨亚斯STATCOM站总承包项目。

In June 2022, the consortium in which CSGI participated won the bid for the EPC Contract of Visayas STATCOM Station--the second static reactive power compensation station in the Philippines.

### 菲律宾维萨亚斯 STATCOM站 总承包项目

Philippines Visayas STATCOM Station, the Philippines

## 04

## 国际贸易

## INTERNATIONAL TRADE

## 对澳电力交易业务

## Guangdong-Macao Grid Interconnection Scheme

南方电网公司积极推进粤澳电网互联互通，通过12回110kV及以上线路与澳门电网相联，历史最高年度向澳门供电量55亿kWh，约占澳门全社会用电量九成。自1984年开始送电至今累计电量超过770亿kWh。为确保澳门社会用电安全可靠，南网国际公司持续加大基建投入，通过8回220kV电缆正常供电、4回110kV线路备用向澳门送电。2022年11月，粤澳联网220kV第三通道投产，送电能力提升至1,700MW，满足澳门“十四五”用电需求。2023年12月，南网国际公司与澳门电力公司签署绿色电力证书交易协议，完成粤澳首笔520万千瓦时绿色电力证书交易，本次交易实现了中国绿证在境外市场“零”的突破。

CSG advances Guangdong-Macao grid interconnection and connects with Macao's grid through 12 circuits of 110kV-and-above lines. Peak annual power supply to Macao was 5.5 TWh, almost 90% of the SAR's total consumption. Since 1984, the cumulative power transmitted has exceeded 77 TWh. To ensure safe and reliable power supply to Macao, CSGI intensified infrastructure investments and transmitted electricity through 8 circuits of 220 kV lines and 4 circuits of 110kV lines as the backup scheme. In November, 2022, the Third 220kV Guangdong-Macao Interconnection was completed, which increased the transmission capacity to 1.7 GW, serving Macao's electricity demand during the 14th Five-Year Plan period. In December, 2023, CSGI signed a green power certificate transaction agreement with Companhia de Electricidade de Macau (CEM), completing the first 5.2 GWh green power certificate transaction between Guangdong and Macao, which is the first cross-boarder transaction of China's green power certification.



## 货物贸易

## Trade in Goods

2014年，南网国际公司成立对外贸易分公司，专业承接南方电网国际投资项目的设备物资供应，多年来已顺利完成老挝、越南、澳门等多个境外项目的成套设备和备品备件供应，打造了一支涵盖采购、物流、仓储一体化的供应链全过程管理专业人才队伍。2021年11月，南网国际公司在原外贸公司基础上组建成立了全资子公司“南方电网国际贸易（广州）有限责任公司”，专业从事跨境电力贸易、一般商品及大宗商品贸易、机电设备成套及备品备件供应、技术开发及技术转让、技术咨询服务、进出口代理等业务，提供供应链管理一站式服务，是南方电网对外贸易的重要窗口，也是“一带一路”沿线国家进出口货物的供应链平台。

In 2014, CSGI established its branch company for foreign trade, specializing in supplying equipment and material for overseas projects. Over the years, the FTB has accomplished in supplying equipment for overseas projects in Laos, Vietnam and the S.A.R. of Macao, and nurtured a team of management professionals capable of handling procurement, logistics, and warehousing in supply chain integration. In November 2021, CSGI took a significant step by establishing a wholly-owned subsidiary known as "CSGIT" building upon the foundation of the former FTB, which provides a professional one-stop service for supply chain management. CSGIT specializes in crossborder electricity trade, general commodity and bulk material trade, the supply of complete sets of electromechanical equipment and spare parts, technology development and transfer, technical consulting services, import and export agency as well as other businesses. It serves as an important outlet for CSG's foreign trade and acts as a supply chain platform for import and export goods along the "Belt and Road" initiative countries.

# 南网情深 创造多元价值

CREATING DIVERSIFIED VALUES

CREATING

DIVERSIFIED

VALUES

## 助力实现环保目标

### ESPOUSING THE ENVIRONMENTAL GOALS

老挝南塔河公司加强库区维护，营造库区绿色风景  
The Nam Tha 1 Power Company strengthened the maintenance of the reservoir area for a green landscape

南网国际公司坚持“绿色低碳”发展理念，加强境外在建、运营项目管理，助力实现环保目标。

Adhering to green and low carbon development, CSGI strengthens overseas construction and operation project management to contribute to local environmental goals



老挝南塔河公司开展库区增殖活动，维护库区生物多样性  
The Nam Tha 1 Power Company conducted bio-enrichment activities to maintain biodiversity in the reservoir area



越南永新公司开展海上溢油应急演练  
The Vinh Tan 1 Power Company, Vietnam performed a drill on oil spill emergency



越南永新项目采用先进技术实现废水“零排放”，维护良好的生态环境，项目码头区域的珊瑚生态系统得到了蓬勃发展  
The Vinh Tan 1 BOT Coal Fired Power Plant Project adopts advanced technology to achieve Zero Discharge of wastewater, preserving sound ecological environment. The coral reef ecosystem near the dock area of the project survived and thrived

## 融合当地文化

### BONDING WITH LOCAL COMMUNITIES



秘鲁博路兹公司举办文化交流体验活动  
Cultural activities at Pluz Energy Peru S.A.A.



老挝南塔河公司开展中老友好学校足球友谊赛  
Nam Tha 1 Lao Power Company held China-Laos Friendship School Football Match



越南永新公司举办中越传统文化活动  
Chinese and Vietnamese cultural activities were held



公司开展“国际大讲堂”传播南网企业文化  
A lecture held to promote CSG's corporate culture



智利直流输电联营公司举办中秋、国庆文化交流活动  
Conexión organized cultural exchange activities to observe Chinese Mid-Autumn Festival and National Day



菲律宾MVIP项目部开展包饺子活动  
Employees of the Mindanao-Visayas Interconnection Project (MVIP) making dumplings

南网国际公司开展形式多样的文化活动，积极融入当地社会。

CSGI stages various cultural activities to bond with local communities.

# 履行社会责任

## FULFILLING CSR

南网国际公司积极履行社会责任，开展慈善捐赠、教育援助等活动，为项目所在地贡献南网力量，树立中国企业海外负责任的良好形象。

CSGI honors its corporate social responsibilities, launches charitable donations, educational support, etc. to contribute to communities around project sites. The company has established itself as a responsible Chinese company.



南网国际公司开展中老友好学校援建  
CSGI built China-Laos Friendship Schools



南网国际公司为中老友好学校搭建“知行图书角”  
CSGI built reading corners in the China-Laos Friendship Schools



南网国际公司向智利捐赠防疫物资  
CSGI donated COVID-19 relief goods to Chile



越南永新一期电力有限公司向平顺省永进小学和李自重中学捐赠教学智慧屏  
Vinh Tan 1 Power Co., Ltd. donated smart screen for teaching to Vinh Tien Primary School and Ly Tu Trong Middle



老挝南塔河公司高质量完成水电站移民搬迁  
High-quality relocation of residents living around the Nam Tha 1 Power plant.

# 万家灯火 展现南网技术实力

LEADING TECHNOLOGIES

通过优秀的科技研发团队不断努力，南方电网公司掌握了特高压直流和柔性直流输电、大型电网安全稳定运行、电网节能经济运行、大容量储能和超导技术等一系列核心技术，促成了许多世界先进的成果、专利和标准，大部分具有自主知识产权。南方电网公司还掌握了复杂的大型交直流并联输电系统运行控制的核心技术，建立了一体化智能电网操作系统（OS2）、运行控制室、智能分析、稳定控制和仿真测试等世界领先的技术研发实验室、特高压工程实验室和直流输电技术实验室。

近年来，南网国际公司依托南方电网公司雄厚的技术实力，全面贯彻新发展理念，建设安全、可靠、绿色、高效、智能的现代化电网，助力南方电网公司建设成为具有全球竞争力的世界一流企业。

With unremitting efforts of our excellent R&D professionals, CSG has mastered a series of core technologies, including UHVDC and VSC-HVDC power transmission, safe and stable operation of large power grids, energy saving and economical operation of power grid, large capacity storage and superconducting. Among these, many have independent intellectual property rights, contributing to a number of state-of-the-art achievements, patents and standards.

CSG staff has also mastered the core technology for the operation and control of complicated and large-scale AC/DC parallel transmission systems and has built an integrated and intelligent power grid operating system (OS2); an operation control compartment; a world-leading technology R&D lab for smart analysis; stability control and simulation testing; a UHV engineering lab and a DC transmission technology lab.

In recent years, relying on the technological strengths of CSG, CSGI has thoroughly implement the new development philosophy. CSGI strives to build a safe, reliable, green, efficient and smart modern power grid and contributes to CSG's aspiration to become a top-tier enterprise.

TECHNOLOGY

# 高压直流输电技术

## HVDC TRANSMISSION

南方电网公司已建成并运行世界上第一个±800千伏特高压直流输电工程，荣获国家科技进步奖特等奖，标志着南方电网在特高压输电领域处于世界领先水平。

南方电网交直流混合运行，远距离、大容量、超高压输电，结构复杂、科技含量高，开发了具有大储量的特高压柔性直流换流阀，并掌握着这项技术的所有核心环节。

目前已经形成包括4个±800千伏特高压直流在内的“八条交流、十一条直流”共19条500千伏及以上西电东送大通道，送电规模超过5800万千瓦。

CSG has built and operated the world's first ± 800 kV UHVDC project. It won the special prize of the National Science and Technology Progress Award, consolidating CSG as a world leader in UHVDC transmission.

CSG's AC/DC hybrid transmission system features long distance, bulk capacity, and ultrahigh voltage. It is complex in constructure, technologically-intensive, has developed the VSC-UHVDC Converter Valve with large storage and manages all technical aspects of this technology.

At present, the West to East Power Transmission has formed 19 500kV and above transmission lines(8 AC and 11 DC), including 4 ±800 kV UHVDC, the transmission volume exceeds 58 GW.

# 01

## 世界首个±800kV特高压直流输电工程—— 云南—广东±800kV特高压直流输电示范工程

### The World's first ±800kV UHVDC Project--The Yunnan-Guangdong HVDC Project

- 世界电力工业领域的里程碑式工程
- 中国在系统研究、成套设计、工程设计、调试安装和调试运行等各个方面在世界上率先全面掌握特高压直流核心技术的标志
- 输电线路长度: 1,373km
- 额定电压与输送功率: ±800kV/5,000MW

- The Yunnan-Guangdong HVDC project is a milestone in world electricity industry
- In a system research, set design, engineering design, commissioning, installation and commissioning operation, CSG has fully mastered the critical HVDC technologies
- Length: 1,373km
- Rated voltage and power: ±800kV/5,000MW



# 02

## 世界首个多端柔性直流输电工程——南澳多端直流

### The World's First Multi-terminal VSC-HVDC Project--The Nan'ao VSC-HVDC Project

- 三个柔直换流站输送多个风电场风电上网，交直流线路并行
- 站址近海，考虑防腐及绝缘，所有设备室内安装
- 混合输电线路形式
- 额定电压与最大输送功率: ±160kV/200MW

- Multiple sending converter stations for multiple wind farms integration, parallel AC and DC lines
- In a close-coastline situation, all equipment are installed indoor for erosion prevention and insulation
- Overhead Lines+Underground Cable+Submarine Cable Rated voltage and power: ±160kV/200MW



## 世界首个特高压多端混合直流——昆柳龙直流工程

### Hybrid Multi-terminal UHVDC--The Kunbei-Liubei-Longmen HVDC Project

- 额定电压在±800kV的三端混合直流系统
- 系统送端8,000MW, 受端3,000/5,000MW
- 架空线输电线路: 1,489km

- Rated voltage at ±800 kV, three-terminal, hybrid LCC/VSC HVDC
- Rectifier: 8,000MW, Inverter :3,000MW(Guangxi), Inverter : 5,000MW(Guangdong)
- Overhead Transmission Lines: 1,489km



# 抽水蓄能技术

## PUMPED STORAGE

南方电网公司是世界上最大的应用抽水蓄能技术的电力供应商，具有最成熟的抽水蓄能应用技术

CSG is the world's largest power supplier to use the hydropower pumped storage and boasts the most mature technology application in the world.

抽水蓄能是目前世界上最成熟、最实用的大规模储能方式

Pumped storage is currently the world's most mature and practical way of large-scale energy storage

已投运抽水蓄能电站**7**座，  
总装机规模**1,028**万千瓦

7 pumped storage power plants were put into operation, with a total installed capacity of 10.28 GW

在建抽水蓄能电站**9**座，  
总装机容量**1,080**万千瓦

9 pumped storage power stations are under construction, with a total installed capacity of 10.8 GW

前期及储备项目**28**个，总装机容量超过**3,700**万千瓦

Preliminary work now underway for 28 projects with a total installed capacity of 37 GW

## 02

### 清远抽水蓄能电站

#### Qingyuan Pumped Storage Power Station



- 装机容量：128万千瓦（4×32万千瓦）
- 投产时间：2016年8月全部投产
- 电站特色：南网独资建设的首座抽水蓄能电站。土建、机电质量指标超过国优标准，2021年荣获“菲迪克工程项目优秀奖”

- Capacity: 1.28 GW (4×320 MW)
- Commissioning time: full operation in 2016
- Features: CSG's first sole-venture pumped storage power station. The quality indexes of civil construction and electromechanics exceed the national excellent standard, and won the "Fidic Engineering Project Excellence Award" in 2021

## 01

### 广州抽水蓄能电站

#### Guangzhou Pumped Storage Power Station

- 装机容量：240万千瓦（8×30万千瓦）
- 投产时间：2000年全部投产
- 电站特色：水电建设“五朵金花”之一，我国第一座“一流水力发电厂”。我国自行设计和施工的第一座高水头、大容量的抽水蓄能工程，工程设计获“国家设计金奖”，施工质量获评“鲁班奖”

- Capacity: 2.4 GW (8 × 300 MW)
- Commercial operation time: 2000
- Features: The first pumped storage project with high head and large capacity designed and constructed domestically, one of the "Five Golden Flowers" of hydropower construction. The project was the Chinese Design Awards Gold Winner for its engineering design, and won a Lu Ban award for its construction quality



## 03

### 梅州抽水蓄能电站

#### Meizhou Pumped Storage Power station

- 装机容量：120万千瓦（4×30万千瓦）
- 投产时间：2022年5月全部投产
- 电站特色：项目建设从主体工程开工到首台机组投产发电，仅用时41个月，创造中国国内工期最短的纪录。

- Capacity: 4\*300MW
- Commissioning time: full operation in 2022
- Features: The construction only took 41 months from the commencement of the main works to the operation of the first unit, which sets the record for the shortest construction period in China.



## 04

## 海南琼中抽水蓄能电站

## Hainan Qiongzong Pumped Storage Power Station

- 装机容量: 60万千瓦 (3×20万千瓦)
- 投产时间: 2018年7月全部投产
- 电站特色: 我国首个海岛抽水蓄能电站, 创造了主体工程45个月的国内同类电站最短工期记录, 获评“国家水土保持示范工程”等。
- Capacity: 60MW (3\*20MW)
- Commissioning: 2022
- Features: China's first island pumped storage power station, setting a record for the shortest construction time of similar stations in China of 45 months. A "National Soil and Water Conservation Demonstration Project".



## 无人机、直升机自主巡检技术

## UAV &amp; Helicopter Patrol and Inspection

南方电网建立了“无人机智能监测为主, 直升机为辅”的输电巡检模式。无人机、直升机年均数据处理能力达到12.5万公里, 覆盖巡视作业、特种作业等业务, 在电力行业首次完成重载无人机物资吊运试飞工程。

CSG's transmission line patrolling is dominated by unmanned aerial vehicles (UAVs) and supplemented by helicopters.

The average annual data processing capacity of UAVs and helicopters has reached 125,000 km. They perform inspection patrol and special operations, etc.. This marked the first time in the powersector to complete trial flight project using heavy-duty drones to lift materials.



## 01

## 无人机自主巡检

## UAV Patrol and Inspection

- 实现220千伏及以上线路全覆盖, 99.5%变电站实现无人值守
- 通过远程监控巡视和监查数据, 为所辖线路的运行状态实时“体检”
- 通过系列算法, 第一时间识别并预警线路隐患, 有效保障电网安全稳定运行。
- Drones autonomously inspect all 220kV-and-above lines and 99.5% substations are now unmanned
- Through remote monitoring and patrolling and data monitoring, real-time examination is performed on the operating status of the lines in the jurisdiction
- With a series of algorithms, hazards in the lines are identified and alerted immediately, effectively ensuring the safe and stable operation of the grid



# 02

## 直升机自主巡检

### Helicopter Patrol and Inspection

- 直升机具备应急物资运输、应急救援等服务能力, 开展输电线路巡视超过30万公里。
- Helicopter units are capable of emergency material transportation and emergency rescue. These units have inspected more than 300,000 km of transmission lines.



## 其他先进技术

### OTHER ADVANCED TECHNOLOGIES



仿真实验室  
Simulation Laboratory



自主研发中国首款电力专用主控芯片“伏羲”  
The Fuxi, China's first homegrown electric-specific control chip



珠海东澳岛智能微网  
Zhuhai Dongaodao Smart Microgrid



电化学储能  
Electrochemical Energy Storage

# 展望未来

## FUTURE VISION

站在新征程的起点上，南网国际公司努力打造南方电网国际化发展平台、境外投资运营平台、服务粤港澳大湾区和海南自贸港发展平台，坚持做国际市场开拓者、国际资源整合者、国际资产运营者、港澳供电支撑者战略定位，提升国际资源配置能力，力争至2035年发展成为具有全球竞争力的一流电力投资建设运营商。

As we embark on a new journey, CSGI will work to establish itself as CSG's platform for international development and overseas investment and operation to serve the Guangdong-Hong Kong Macao Greater Bay Area and the Hainan Free Trade Port. As an international market pioneer, resource integrator, asset operator, and electricity provider to the SARs of Hong Kong and Macao, we will strengthen capacity to allocate international resources to emerge as a globally competitive electricity investment and construction operator by 2035.

