



2024 社会责任报告

SOCIAL RESPONSIBILITY REPORT

国家电力投资集团有限公司
State Power Investment Corporation Limited (SPIC)

建设具有全球竞争力的世界一流清洁能源企业
BUILD A WORLD-CLASS CLEAN ENERGY ENTERPRISE WITH GLOBAL COMPETITIVENESS

报告导读

时间范围

2024 年 1 月 1 日至 2024 年 12 月 31 日，部分内容超出上述范围。

发布周期

国家电力投资集团有限公司社会责任报告为年度报告。

组织范围

报告覆盖国家电力投资集团有限公司整体，为便于表达和阅读，在报告中以“国家电投集团”“集团公司”“公司”或“我们”表示。

参考依据

- 国务院国资委《关于新时代中央企业高标准履行社会责任的指导意见》
- 中国社科院《中国企业社会责任报告指南（CASS-CSR 4.0）》
- 国家标准化管理委员会《社会责任报告编写指南》（GB/T 36001—2015）
- 全球报告倡议组织《可持续发展报告标准》（GRI Standards）
- 国际标准化组织《社会责任指南》(ISO 26000:2010)
- 联合国可持续发展目标 2030（SDGs）

数据说明

本报告所引用的历年数据为最终统计数据，财务数据如与年报有出入，以年报为准。报告中的财务数据以人民币为单位，特别说明除外。

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国家电投集团山东公司山东半岛南 V 场址 50 万千瓦海上风电项目获得 2024 年度电力行业优质工程奖。
SPIC Shandong Company's 500 MW Offshore Wind Power Project at Shandong Peninsula South Site V won the 2024 China Electric Power Quality Engineering Award.

Introduction

Time Frame

From January 1, 2024 to December 31, 2024. Some content exceeds the time frame mentioned above.

Release Cycle

The Social Responsibility Report of State Power Investment Corporation Limited is issued annually.

Coverage

The report covers State Power Investment Corporation Limited. For the convenience of expression and reading, "State Power Investment Corporation Limited", "SPIC", "Group", "Company", and "we" are respectively used in proper positions in the report.

References

- Guidelines to the State-owned Enterprises Directly under the Central Government on Fulfilling Corporate Social Responsibilities per Higher Standards in the New Era* issued by the State-owned Assets Supervision and Administration Commission of the State Council
- Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 4.0)* issued by the Chinese Academy of Social Sciences
- Guidance on Social Responsibility Reporting* (GB/T 36001-2015) issued by the Standardization Administration of China
- Sustainability Reporting Guidelines* issued by Global Reporting Initiative (GRI standards)
- Guidance on Social Responsibility* (ISO 26000:2010) issued by International Organization for Standardization
- Sustainable Development Goals 2030 (SDGs)

Data

The data over the years cited in the report is the final statistical data, and in case there is a difference between the financial data and the annual report, the latter shall prevail. Unless otherwise specified, the unit of the financial data in the report is RMB.

QA

State Power Investment Corporation Limited standardizes the entire process of social responsibility reporting, ensuring that the content of the report is true, accurate, and complete, and that there are no false records, misleading statements, or material omissions.

Version

The Social Responsibility Report is available both in print and online.

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You can check the website of SPIC (<http://www.spic.com.cn>) to browse or download the PDF version of this report, and to learn about the latest information about our social responsibility activities.

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国家电投集团山东海阳核电项目，规划建设 6 台百万千瓦级核电机组、预留 2 台扩建余地。一期 1、2 号机组是国家三代核电自主化依托项目，截至 2024 年底，两台机组寿期内累计发电 1225.3 亿千瓦时。二期 3、4 号机组截止目前，已完成 32 个里程碑节点。

SPIC Shandong Haiyang Nuclear Power Project plans to construct 6 sets of 1 million-kilowatt-class nuclear power units and reserves space for 2 additional units for future expansion. Units 1 and 2 of Phase I are national independent third-generation nuclear power demonstration projects. As of the end of 2024, the two units have generated a total of 122.53 billion kilowatt-hours of electricity during their service life. So far, Unit 3 and 4 of Phase II have completed 32 milestones.

董事长致辞 Message from the Chairman

在中国式现代化的宏大格局中，高标准履行社会责任是中央企业更好达成战略使命、发挥功能价值，实现高质量发展的重要途径和必然要求。

回望百年征程，中国能源工业的发展足迹烙印着民族复兴的奋斗历程，也镌刻着国家电投砥砺前行红色血脉与精神底色。始建于 1911 年的上海杨树浦电厂是上世纪初亚洲最大的火力发电厂，被誉为“中国电力工业的摇篮”，自此根植了国家电投红色基因。1956 年，新中国首个五年计划重点工程项目——重庆狮子滩水电站，通过建设者们的手挑肩扛提前 14 个月投运，拉开了共和国能源建设的序幕。20 世纪 70 年代，我国首台自主研发的 30 万千瓦火电机组在河南姚孟电厂投运，被誉为“共和国争气机”。80 年代，所属“七二八工程研究设计院”独立自主研发设计中国大陆第一座核电站——秦山核电站开工建设，于 1991 年成功并网，结束了中国大陆无核电的历史，被誉为“国之光荣”。2015 年 7 月 15 日，经国务院批准，中国电力投资集团公司与国家核电技术有限公司合并重组成立国家电力投资集团有限公司。国家电投集团成立之初，就成为我国第一家拥有光伏发电、风电、核电、水电、煤电、气电、生物质发电等全部发电类型的能源企业，不仅开创了我国能源体制改革的先河，也为能源转型提供了新的动力支撑，肩负保障国家能源安全的重要使命。

2024 年是中华人民共和国成立 75 周年，也是全面贯彻落实党的二十届三中全会精神的开局之年。国家电投集团新一届党组深入学习贯彻习近平新时代中国特色社会主义思想，研究确立并系统实施“均衡增长战略”，推动企业高质量发展与高标准履行社会责任同频共振。全年发电量达 7244 亿千瓦时，总装机规模突破 2.6 亿千瓦，清洁能源装机占比近 73%，光伏、新能源及清洁能源装机继续保持全球首位。核能产业技术突破与项目建设成果斐然，“国和一号”推动我国在世界核电主流赛道上跑在最前列，“廉江一号”为核电产业高效安全与生态友好协同发展开辟了新路径，海阳核电历时 3 年实现了主泵变频器国产化“三步走”，“暖核一号”为 1300 万平方米区域供暖，惠及 20 万居民，成为我国核能民生应用的标杆；自主研发的最大功率、最高技术等级的 300 兆瓦级 F 级重型燃机如期完成满负荷试验年度目标，创造了燃机首台样机从点火到满

负荷周期最短的世界纪录。粤东、粤西百万千瓦级海上风电基地全面建成，光伏和新能源大基地建设稳步推进。以“光伏治沙”为代表的荒漠化治理利用新能源特性探索人沙和谐共生的新模式，让荒漠披“绿衣”。由 19.6 万块光伏板在库布其沙漠构筑的“骏马”图形电站，不仅荣获吉尼斯世界纪录，更以“板上发电、板下修复、板间种植”的林光互补模式，成为集科技创新、生态治理与文化符号于一体的绿色发展典范。

国家电投集团的发展成就，既是经济贡献，更是社会责任的生动实践。我们始终牢记能源央企安全保供的政治责任，8414 万千瓦保供机组安全运行守护万家灯火。我们积极服务国家重大战略，助力乡村振兴、促进共同富裕。2024 年，河南商城 12 万千瓦户用光伏项目让 680 户农户增收 196 万元，增加就业岗位约 350 个，投入 5000 万元支持陕西延川铁业社转型，带动当地形成新型产业链。“映山红”爱心助学项目持续开展 20 年，从 7 人善举到 3 万人倾情参与，17 个子品牌将风电、核电等产业优势转化为教育扶智、乡村医疗的社会价值，“听风沐光”项目为 6 名听障儿童带来“新声”，2807.5 万元公益捐赠精准投向教育、医疗、救助等民生领域，以实际行动传递央企大爱。我们践行全球公民责任，助力“一带一路”能源合作，为海龟构筑“生命通道”，土耳其胡努特鲁电厂以实际行动守护当地生物，在缅甸打造光伏示范项目，让“无电村”亮起“中国灯”。截至当前，国家电投集团境外业务覆盖 47 个国家和地区，境外权益发电装机达 1192 万千瓦，以能源之力绘就国际责任画卷。

2025 年是“十四五”规划收官之年，是“十五五”规划谋篇布局之年，也是国家电投集团重组成立十周年。国家电投集团将始终以习近平新时代中国特色社会主义思想为指导，全面落实“四个革命、一个合作”能源安全新战略，持续增强核心功能、提升核心竞争力，积极培育发展新质生产力，高标准履行能源央企社会责任。我们将以更坚定的步伐，更坚韧的意志，更坚实的举措，加快建设世界一流清洁能源企业，在以中国式现代化全面推进强国建设、民族复兴伟业征程中展现新担当、作出新贡献，为全球应对气候变化、实现可持续发展目标贡献“中国方案”和“东方智慧”。

As China advances the grand cause of Chinese modernization, it is both essential and imperative for central SOEs to fulfill their social responsibilities with high standards. This is a key pathway for achieving their strategic missions, maximizing their functions and value, and promoting high-quality development.

Over the past century, the growth of China's energy industry has mirrored the nation's journey toward rejuvenation, and SPIC's steadfast efforts as an energy group have embodied its revolutionary heritage and original aspiration. When the Yangshupu Power Plant was established in Shanghai in 1911, it was the largest thermal power plant in Asia, hailed as the “cradle of China's power industry.” From this historic starting point, SPIC's revolutionary tradition took root. In 1956, the Shizitan Hydropower Station in Chongqing—a key project under China's First Five-Year Plan—was commissioned 14 months ahead of schedule through the tireless efforts of its builders, marking the beginning of New China's energy development. In the 1970s, China's first independently developed 300MW thermal power unit entered operation at the Yaomeng Power Plant in Henan, becoming a symbol of national pride in the power industry. In the 1980s, the Qinshan Nuclear Power Station—the first nuclear power station on the Chinese mainland independently designed by the 728 Institute (now the Shanghai Nuclear Engineering Research and Design Institute)—began construction. When it was successfully connected to the grid in 1991, it ended the history of the lack of nuclear power on the Chinese mainland and was hailed as a “national honor.” On July 15, 2015, with the approval of the State Council, China Power Investment Corporation and State Nuclear Power Technology Co., Ltd. were merged to form the State Power Investment Corporation Limited (SPIC). The new corporation thus became the first energy enterprise in China to have all types of power generation, including photovoltaic power, wind power, nuclear power, hydropower, thermal power, gas power, and biomass power. It not only pioneered the energy system reform in China, but also provided new momentum for energy transition, carrying the vital mission of ensuring the nation's energy security.

The year 2024 marked the 75th anniversary of the founding of the People's Republic of China and the first year of implementing the guiding principles of the Third Plenary Session of the 20th CPC Central Committee. Guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, SPIC's new Leading Party Group has developed and systematically implemented the “Balanced Growth Strategy,” promoting synergy between high-quality development and high-standard performance of social responsibilities. In 2024, SPIC's total power output reached 724.4TWh and its total installed capacity exceeded 260GW, with clean energy accounting for nearly 73%. Remarkable achievements have been made in nuclear industry, both in technological breakthroughs and project construction. The Guohe One has positioned China at the forefront of the global race of mainstream nuclear technologies. The Lianjiang One has opened a new path for nuclear power development that accommodates efficiency, safety, and eco-friendliness. At Haiyang Nuclear Power Plant, the localization of the main pump frequency converter has been achieved—a three-stage process spanning three years, while the “Warm-U-Clear 1” project supplied heat to 200,000 residents living across an area of 13 million square meters, setting a benchmark for civil nuclear energy application. SPIC's independently developed 300MW F-Class heavy-duty gas turbine—featuring the largest power and the highest technological standards—completed its full-load test within the year on schedule, setting a world record for the shortest period from ignition to full-load operation of a prototype. The GW-class

offshore wind power bases in eastern and western Guangdong were fully completed, while the construction of large PV and new energy bases was under steady progress. Leveraging the advantages of PV power, SPIC has explored a new model of harmonious coexistence between man and sand by building PV stations to help with desert control, cloaking the desert with a “green dress.” The horse-shaped PV station in the Kubuqi desert, comprised of 196,000 PV panels, not only won a Guinness World Record, but also set an example for green development integrating S&T innovation, ecological governance, and cultural symbolism. Through its innovative “forestry—PV integration” model—power generation above, vegetation restoration below, and crop cultivation in between—SPIC has redefined sustainable development in desert regions.

What SPIC has achieved represents not only economic contributions but also its commitment to social responsibilities. Bearing firmly in mind our political mission as a central energy SOE to ensure energy supply, SPIC has guaranteed the safe operation of its 84.14GW energy supply units, keeping the lights on in millions of homes. We have actively served major national strategies, assisting in rural revitalization and promoting common prosperity. In 2024, the 120MW household PV project in Shangcheng County, Henan Province, increased the income of 680 farming households by 1.96 million yuan and created about 350 jobs. We provided 50 million yuan to support the transformation of the Iron Industry Society in Yanchuan, Shaanxi Province, fostering an emerging local industrial chain. Over the past two decades, the “Yingshanhong” volunteer program has grown from seven participants to 30,000. Under its 17 sub-brands in sectors such as wind and nuclear power, SPIC has transformed industrial strengths into social value by supporting education and rural healthcare. The “Yingshanhong-Hearing Aid” program has helped six hearing-impaired children regain their hearing. SPIC has donated 28.075 million yuan to education, healthcare, and other social causes, demonstrating the compassion and responsibility of a central SOE through tangible actions. In fulfilling our responsibilities as a global citizen, we have advanced energy cooperation under the Belt and Road Initiative. In Turkey, the Hunutlu Power Plant took concrete action to protect local wildlife, creating “life corridor” for sea turtles. In Myanmar, we developed a PV demonstration project, lighting up villages that had no electricity before with “Chinese electricity.” At present, SPIC has overseas operations in 47 countries and regions, with a total equity installed capacity of 11.92 GW. We are committed to fulfilling our international responsibilities through the power of energy.

The year 2025 is the final year for implementing the 14th Five-Year Plan and the year for planning the 15th Five-Year Plan. SPIC will continue to uphold Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, and comprehensively implement the new energy security strategy of “Four Revolutions and One Cooperation.” We will further strengthen our core functions and competence, actively cultivate new quality productive forces, and fulfill our social responsibilities with high standards. With firmer steps, stronger resolve, and more concrete actions, SPIC will accelerate the building of a world-class clean energy enterprise, and demonstrate new responsibility and make new contributions to building a great country and advance national rejuvenation on all fronts through Chinese modernization. SPIC is committed to contributing “Chinese solutions” and “Eastern wisdom” to tackling global climate change and achieving the Sustainable Development Goals.

Liu Mingsheng, Chairman of SPIC

关于我们 About us

公司概况 SPIC Overview

国家电力投资集团有限公司（简称“国家电投集团”）是中央直接管理的特大型国有重要骨干企业，肩负保障国家能源安全的重要使命。2015 年 5 月经国务院批准，中国电力投资集团公司与国家核电技术有限公司重组成立国家电力投资集团有限公司。

截至 2024 年 12 月底，国家电投集团资产规模 1.9 万亿元，员工 12.68 万人，所属二级单位 68 家。总装机 2.6 亿千瓦，其中清洁能源装机占比 72.71%。国家电投集团具有三个鲜明特点：

发电品类全，是我国第一家拥有光伏发电、火电、风电、水电、核电、生物质发电等全部发电类型的能源企业。

清洁发展好，经过十余年的绿色低碳转型发展，实现清洁能源装机 1.93 亿千瓦，成为全球最大的光伏发电、新能源发电、清洁能源发电企业。

科技创新责任重，同时牵头负责“大型先进压水堆核电站”“重型燃气轮机”两个国家科技重大专项，承担近百项国家和地方部署的关键自主攻关任务，承担 40 个国家和省部级创新平台建设任务。

国家电投集团以服务国家重大战略为己任，以增强核心功能、提升核心竞争力为目标，着力取得一批前沿优势领域的重大原创性成果，着力解决一批面向国家战略需求的重大科学问题，增强高质量科技供给能力。

国家电投集团以“创造绿色价值”为使命，以“绿色、创新、融合，真信、真干、真成”为核心价值观，以全面深化改革为动力，以发展新质生产力为重要着力点，正全面实施“均衡增长战略”，推动具有全球竞争力的世界一流清洁能源企业建设，为中华民族伟大复兴贡献能源力量，为人类可持续发展提供中国方案。



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Scan the QR code to access SPIC digital museum.
Understand SPIC's centenary history of revolution, struggles, and aspiration.

State Power Investment Corporation Limited (SPIC) is a power generation group based in China. In May 2015, it was established through the merger between China Power Investment Corporation and State Nuclear Power Technology Co., Ltd. with the approval of the State Council.

As of the end of December 2024, SPIC boasted RMB 1.9 trillion worth of assets, 126,800 employees, and 68 subsidiaries and affiliates. The total installed capacity has hit 260 GW, of which installed capacity using clean energy has accounted for 72.71%. SPIC has three distinct characteristics:

We have a wide range of power generation categories. SPIC is the first energy enterprise in China to have all types of power generation, including photovoltaic power, thermal power, wind power, hydropower, nuclear power, and biomass power.

We see robust clean energy development. With over ten years of green and low-carbon transition, SPIC has developed into the world's largest PV power, new energy and clean energy generation enterprise. Notably, our installed capacity using clean energy totals 193 GW.

We boast strong scientific and technological innovation capability. We are leading two major national science and technology projects, namely “Large Advanced Pressurized Water Reactor Nuclear Power Plant” and “Heavy-duty Gas Turbine”, and undertaking nearly a hundred key independent research and development tasks deployed by the state and local governments along with 40 national and provincial innovation platform set-up tasks.

With a strong commitment to major national strategies, SPIC aims to enhance core functions and competence. To this end, we redouble efforts to achieve significant original breakthroughs in frontier advantageous areas, address major scientific challenges aligning with national strategies, and step up our capacity for delivering high-quality scientific and technological outcomes.

With the mission of “creating green value” and the core values of “Pursuing Green, Innovative and Integrated Development; Delivering Great Performance with Belief”, SPIC is fully implementing its “balanced growth strategy” by further comprehensively deepening its reform, focused on developing new quality productive forces. It is committed to building a World-class Clean Energy Company with Global Competitiveness, contributing to the great rejuvenation of the Chinese nation and delivering Chinese solutions to the sustainable development of humankind.



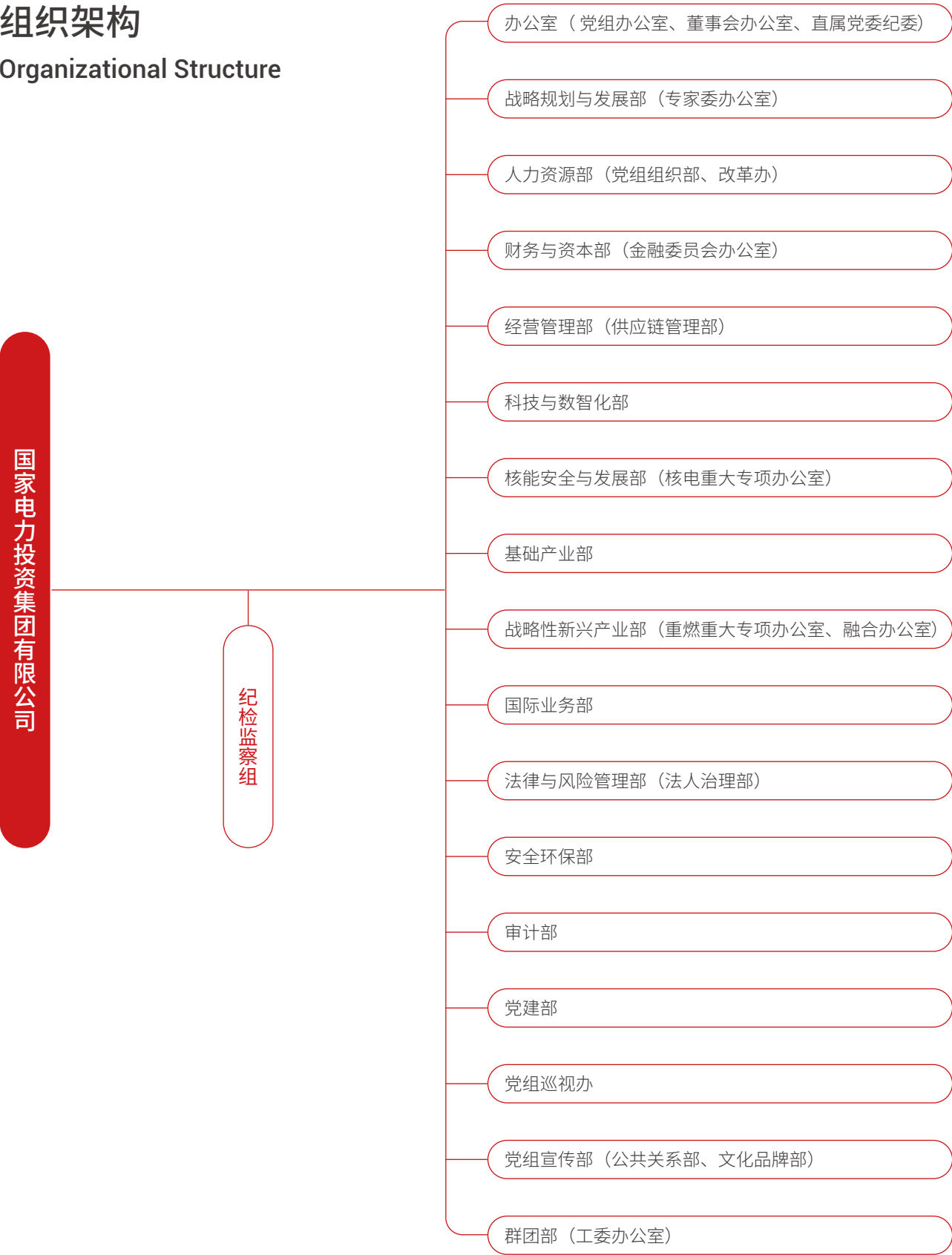
国家电投集团吉电股份山东潍坊多能互补试点项目
SPIC Jilin Electric Power Co., Ltd. Shandong Weifang Multi-Energy Complementary Pilot Project

产业板块
Business Segments

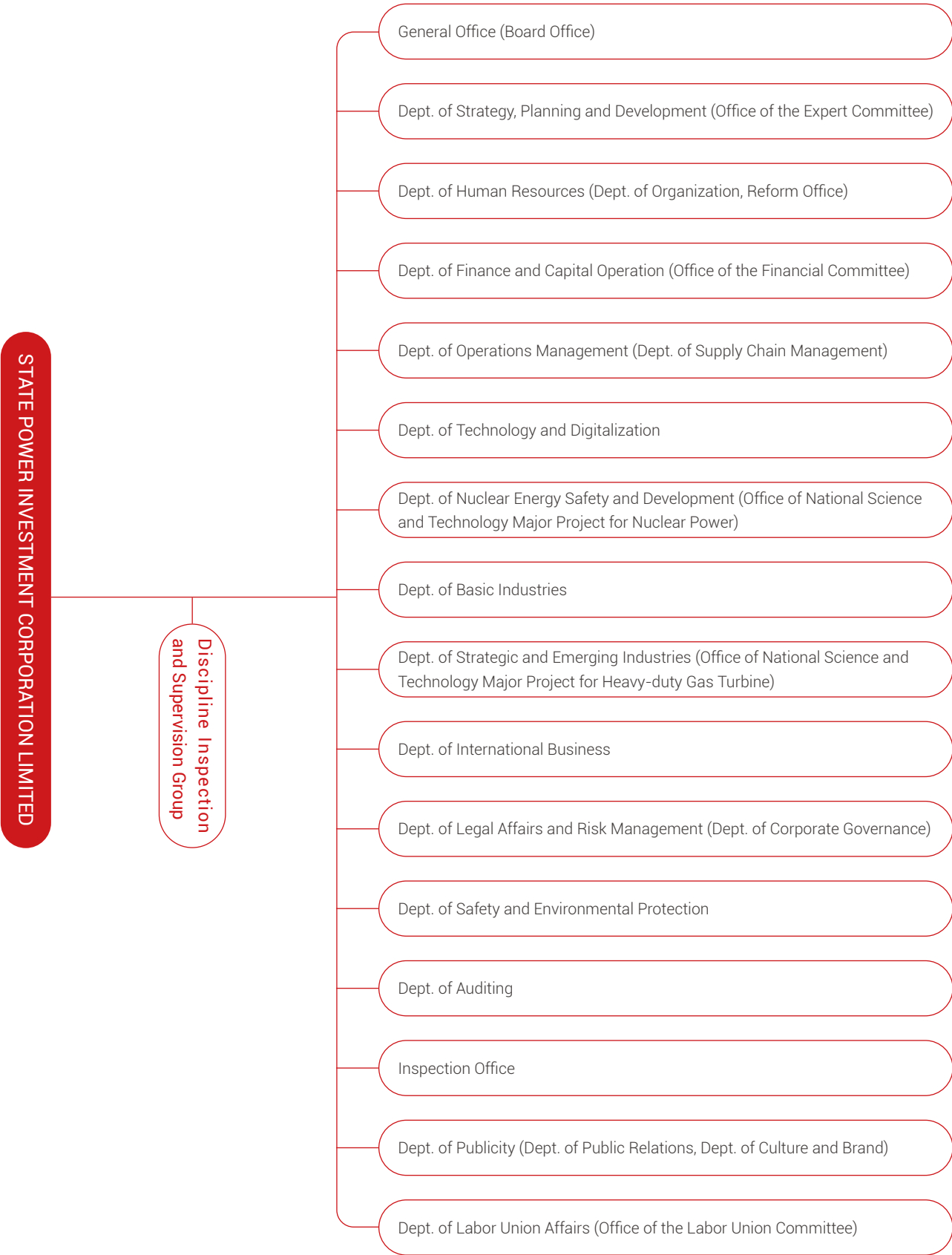


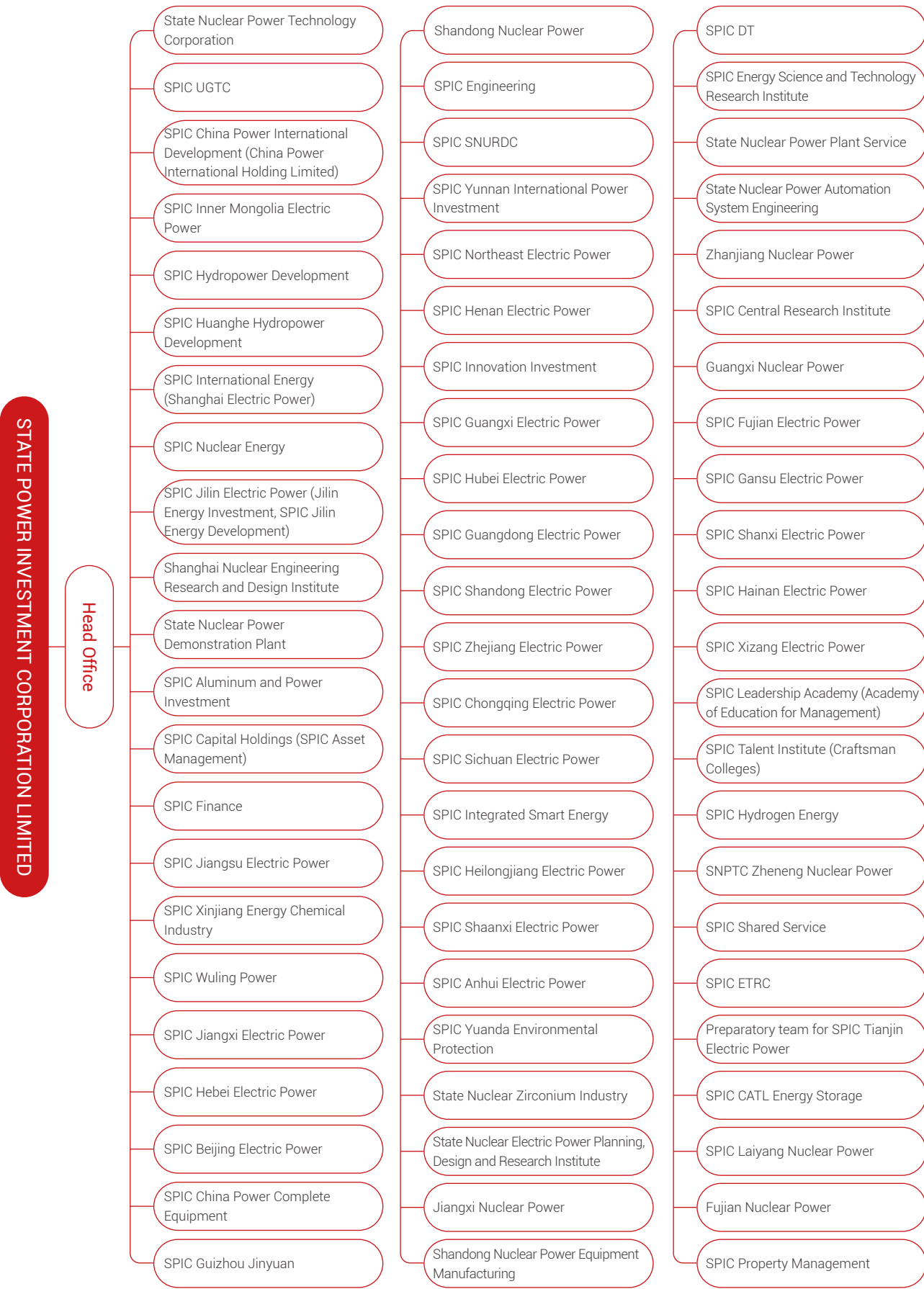
国家电投集团贵州金元织金清洁能源项目，是世界首台套 660 兆瓦超超临界双拱型燃煤机组。
SPIC Guizhou Jinyuan Zhijin Clean Energy Project is the world's first set of 660 MW ultra-supercritical double-arch coal-fired units.

组织架构
Organizational Structure



STATE POWER INVESTMENT CORPORATION LIMITED





全面实施“均衡增长战略”

Comprehensively implementing the “balanced growth strategy”

2024 年 7 月 30 日至 31 日，国家电投集团召开学习贯彻党的二十届三中全会精神暨 2024 年年中工作会议，提出全面实施“均衡增长战略”，这是国家电投集团在发展战略层面践行国家使命、彰显责任担当的深刻体现，是对全面深化改革的主动跟进，是在继承优良传统和成功做法基础上实现新的自我超越的优化创新。

From July 30 to 31, 2024, SPIC convened a meeting to study and implement the guiding principles of the third plenary session of the 20th CPC Central Committee and the mid-year work conference for 2024. The meeting proposed to implement the “Balanced Growth Strategy” comprehensively. Proactively taking a further step for comprehensively deepening its reform, the Group aims to renew itself by leveraging its fine traditions and building on past successes.

国家电投集团中国电力甘肃能投瓜州北大桥风电项目
SPIC China Power Gansu Energy Investment Guazhou Beidaqiao Wind Power Project

均衡是必要的调整

Balance necessitates adjustments

“均衡增长战略”的关键是均衡，以均衡谋求高质量的发展，这是国家电投集团党组对全面深化改革的战略考量。

The key to the “balanced growth strategy” is balance, and we must pursue high-quality development through balanced growth. This reflects SPIC's strategic considerations for comprehensively deepening the reform.

增长是永恒的主题

Growth is an eternal theme

“均衡增长战略”的核心是增长，在发展中解决不均衡问题，这是国家电投集团党组对企业经济属性的深刻把握。

The core of the “balanced growth strategy” is growth, and any imbalance has to be addressed through development. This demonstrates SPIC's deep understanding of corporate economics.

“均衡增长战略”，即坚持“四个均衡” The “balanced growth strategy” pursues balance in four respects

规模增长和投资能力均衡匹配

Matching scale with investment ability

传统产业和创新业态均衡发展

Developing traditional and innovative industries in a balanced manner

电源品种和区域布局均衡优化

Optimizing generation portfolio and business regions

存量提质和增量做优均衡推进

Improving existing assets and pursuing excellent performance of new ones

企业文化
Corporate Culture

企业愿景
Corporate Vision

建设具有全球竞争力的世界一流清洁能源企业
Build a World-Class Clean Energy Enterprise With Global Competitiveness

企业使命
Corporate Mission

创造绿色价值
Create Green Value

核心价值观
Core Values

绿色、创新、融合，真信、真干、真成
Pursue Green, Innovative and Integrated Development; Deliver Great Performance with Belief

干部行为公约
Code of Conduct for Managerial Personnel

1. 信念坚定对党忠诚

2. 勇于创新敢于担当

3. 知人善用善于成事

4. 甘于奉献率先垂范
5. 顾全大局精诚团结

6. 平等待人关爱员工

7. 清正廉洁修身齐家

8. 自我批判持续提升
1. Keep strong belief

2. Be innovative and responsible

3. Be good at recognizing and using talent and getting things done

4. Be willing to contribute and lead by example

5. Bear in mind the overall interests and be united

6. Treat people equally and care for employees

7. Be upright and incorruptible and cultivate your morality

8. Engage in self-criticism for continuous self-improvement

员工行为公约
Code of Conduct for Employees

1. 以客户为中心

2. 热爱自己的工作

3. 按制度流程办事

4. 创造价值

5. 像钉钉子一样落实
6. 协作支持一公里

7. 当绿色品牌代言人

8. 守住底线

9. 做一个让人舒服的人

10. 持续提升自我
1. Be customer-centered

2. Love what you do

3. Follow company operating procedures

4. Create value

5. Deliver solid outcomes

6. Be committed to collaboration

7. Play your part in representing our green brand

8. Hold the bottom line

9. Be sociable and easy-going

10. Engage in constant self-improvement

国家电投集团甘肃公司酒泉风电场
SPIC Jiuquan Wind Power Project in Gansu

品牌影响力
Brand Influence

国家电投集团坚持以提升品牌认知度、认可度与认同度为核心目标，构建具有集团特色的品牌架构体系。通过打造一批行业影响力突出的重点子品牌，激发全员参与品牌建设的积极性与创造力。

Aiming to enhance the awareness and recognition of the SPIC brand, the Group, leveraging the creativity and enthusiasm of all its employees, has established a distinctive brand framework comprising a number of key and influential sub-brands across various sectors.



“码”上进入国家电投集团品牌商店
Scan the QR code to visit SPIC brand store.

集团品牌 SPIC Brand	“国家电投” SPIC
品牌口号 Our tagline	风光无限 国家电投 Sustainable Power for an Invaluable Cause
核心子品牌 Core Sub-brands	国家电投 国和一号 Guohe One 国家电投 氢腾 Hydrofore 国家电投 国冉一号 Guoran One 国家电投 融和 Ronghe 国家电投 暖核一号 Warm-U-Clear 1 国家电投 低碳 e 点 SPIC Carbon Reduction Applet …… ...

国家电投集团与联合国可持续发展目标 SDGs

1 无贫穷
组织参加“一起来购”“Let's 购”“央企消费帮扶兴农周”等消费帮扶活动，合计购买脱贫地区农产品 7632 万元，帮销脱贫地区农产品 4746 万元。

2 零饥饿
组织中国农业科学院农业专家赴河南省商城县开展水稻种植技术“送教下乡”，为当地农户注入科技兴农新动能，助力粮食增产增收。

3 良好健康与福祉
慰问、帮扶困难员工，发放慰问金 129.3 万元，构建心理健康关爱平台，面向全体员工开展心理健康活动，实现员工健康体检全覆盖。

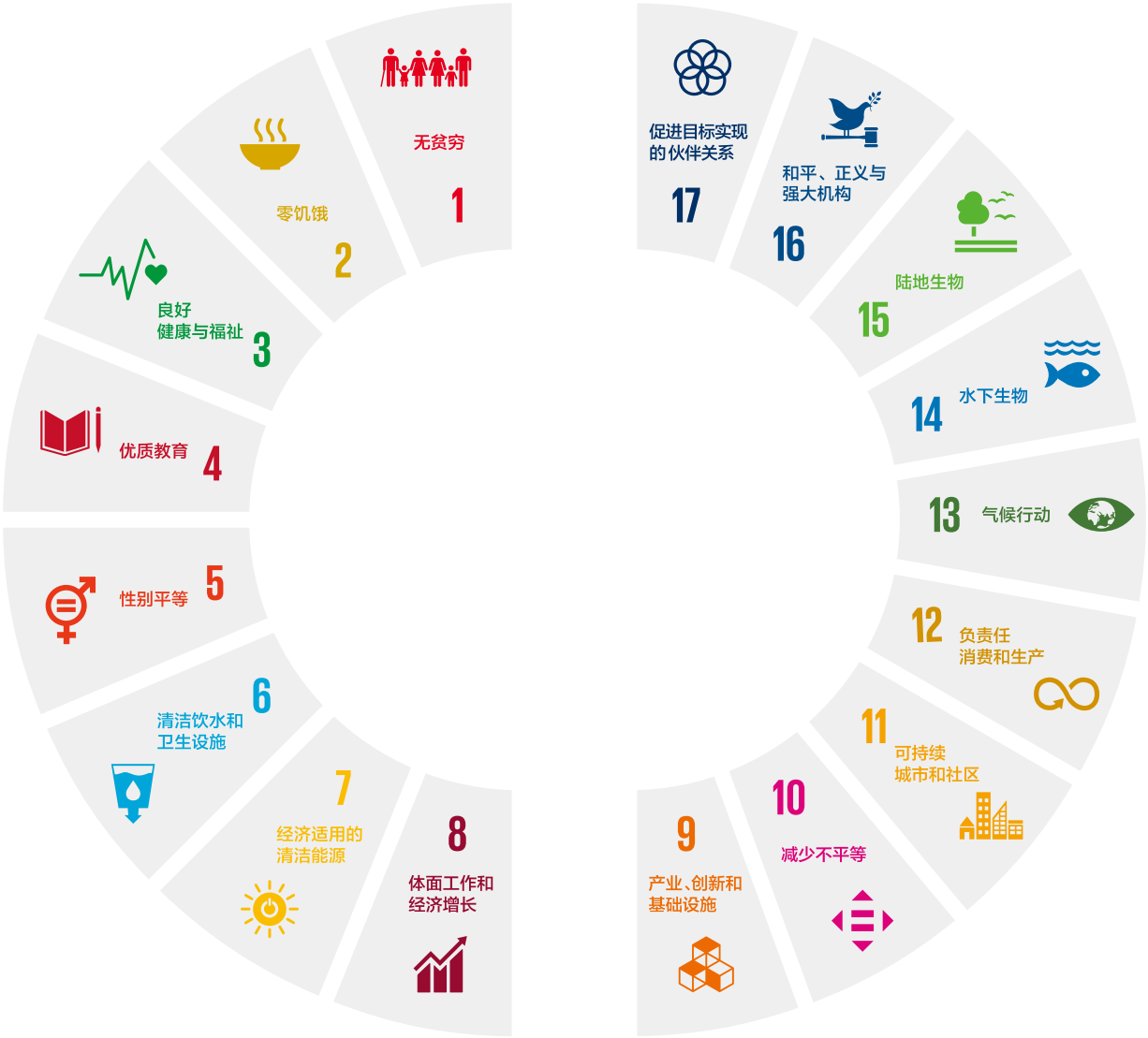
4 优质教育
组织北师大教育专家分赴“3 个定点帮扶县 +1 个援青县 +1 个示范区”开展教育质量评估，共同提出“教育圆梦”工程三年行动方案。组织举办定点帮扶县和对口援青县校园长培训班，培训覆盖 108 所中小学校，近 3900 名校长和教学骨干受益。

5 性别平等
平等对待不同性别的员工，加强女职工关爱、持续评选“巾帼标兵”，女性管理者占比 12.8%。

6 清洁饮水和卫生设施
着力改善当地清洁用水和医疗卫生条件，在四川省美姑县建设侯古莫卫生院，为当地提供医疗帮扶工作提升方案，惠民 3 万余人。

7 经济适用的清洁能源
坚持以清洁能源为增量主体，大力推进风电、水电、沿海核电等清洁能源基地开发建设，保持清洁能源先进发展优势，目前，清洁能源装机 1.93 亿千瓦。

8 体面工作和经济增长
为员工打造收入分配规范有序、社会保险覆盖全面、福利待遇精准多样的保障体系和舒适舒心、安全可靠的工作环境，开展科学、多元的培训项目，助力员工成长。



积极开展战略合作，搭建沟通交流平台，与国际知名供应商开展全球化的战略合作，累计签约 50.81 亿美元。

坚持阳光采购，接受监管部门监督，反商业贿赂、反不正当竞争，与社会公众建立交流机制，建立信息公开平台。

在青海共和打造 609 平方公里光伏产业园，通过光伏板微气候改善与雪菊、紫苏等生态作物种植，恢复荒漠植被面积超 100 平方公里，使戈壁转化为高原生物栖息地。

通过污水处理装置处理污水，实现风电场海域零污染，保护海豚等珍稀海洋生物的生活环境。长江黄河流域企业完成雨污分流专项整治，从源头切断水体污染链条。

攻坚绿氨掺烧、CCUS 等技术，建超百座虚拟电厂，苏州综合智慧能源项目获得第 28 届联合国气候变化大会“能源转型变革者”奖；牵头发布 3 项碳管标准，推广农产品碳标签，全链控碳赋能气候行动。

江西公司新电分公司实施燃煤耦合污泥发电技术改造，每年无害化处置污泥量达 11 万吨，河北公司良村热电生物质掺烧项目将石家庄国家生物产业基地内制药企业的制药菌渣转化为无害无毒的高品质燃料。

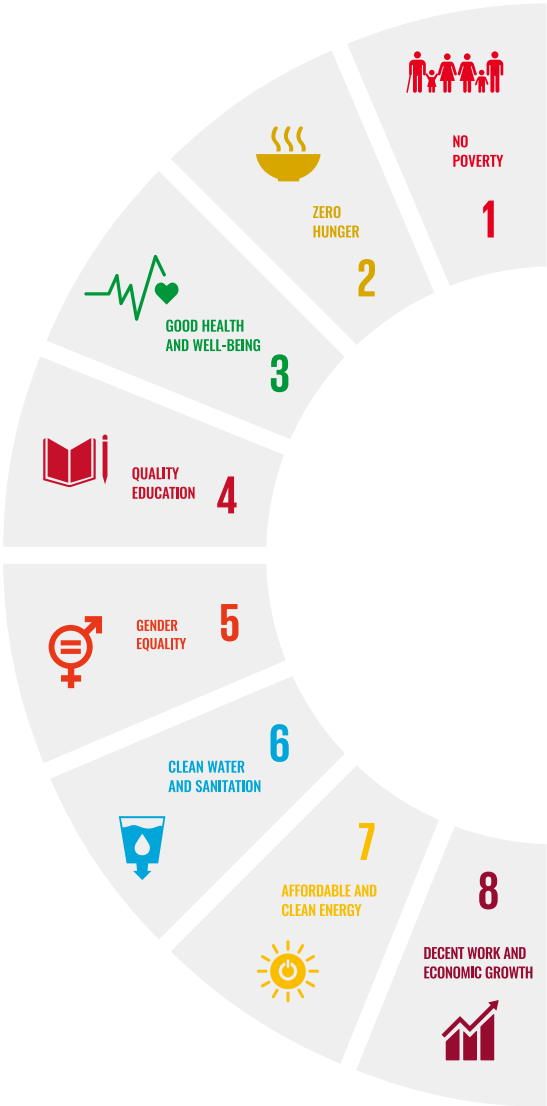
倡导“双面用纸”“光盘行动”等绿色行动，组织员工开展义务植树、垃圾分类等绿色环保小活动，国核设备联合地方政府，在海阳市万米海滩海岸线上开展“守护碧水蓝天，共筑美丽海滩”志愿服务活动。

公平公正公开引才育才，坚决反对强迫劳动和骚扰虐待，杜绝非法用工，平等对待不同民族、性别和文化背景的员工，尊重员工隐私。

国家光伏、储能实证实验平台（大庆基地）成功入选中央企业科技成果应用拓展工程首批项目清单，攻克新能源 + 储能协调稳定运行等关键技术，光伏电站系统效率和多能互补利用效率达到国际先进水平。

SPIC and UN SDGs

1 NO POVERTY	We participated in poverty relief activities such as “Let’s Shop Together,” “Let’s Shop,” and “Central SOEs Assist Rural Revitalization with Consumption Week.” Through these activities, we bought 76.32 million yuan worth of agricultural products from poverty-stricken areas, and helped them sell another 47.46 million yuan worth of agricultural products.
2 ZERO HUNGER	We arranged for agricultural experts from the Chinese Academy of Agricultural Sciences to visit Shangcheng County in Henan Province and train the local farmers on rice planting technologies. This initiative helped increase grain output and farmers’ income, injecting new momentum to agricultural development with technology.
3 GOOD HEALTH AND WELL-BEING	We helped employees in difficulty, not only distributing a total of 1.293 million yuan in relief funds, but also establishing a counseling platform and organizing mental health activities for all employees. We also provided health check-ups for all employees.
4 QUALITY EDUCATION	We organized educational experts from Beijing Normal University to conduct educational quality assessment in three targeted assistance counties, one assisted county in Qinghai Province, and one demonstration zone. Together with the university, we put forth a three-year action plan for the “Realizing Dreams Through Education” Program. We also organized training sessions for headmasters in the assisted counties, covering 108 primary and middle schools and benefiting nearly 3,900 headmasters and teachers.
5 GENDER EQUALITY	We ensured equal treatment for male and female employees while providing more care for the latter and consistently selecting “Model Female Employees.” Female managers account for 12.8% of the total.
6 CLEAN WATER AND SANITATION	To enhance local access to clean water and quality healthcare services, SPIC constructed a clinic in Hougumo Town, Meigu County, Sichuan Province, and implemented a medical assistance improvement plan, benefiting over 30,000 residents.
7 AFFORDABLE AND CLEAN ENERGY	Taking clean energy as the major growth drive, we vigorously promoted the development and construction of clean energy bases, including wind power, hydropower, and coastal nuclear power, maintaining our advantage in clean energy. SPIC’s current installed capacity using clean energy stands at 193 GW.
8 DECENT WORK AND ECONOMIC GROWTH	We provided our employees with standardized income distribution, full social insurance coverage, targeted and diverse benefits, and a pleasant, safe, and reliable working environment. We also organized sound and diversified training programs to support employee growth.



We actively engaged in strategic cooperation and built platforms for communication and exchange, signing contracts with world-renowned suppliers worth US\$5.081 billion so far.	17 PARTNERSHIPS FOR THE GOALS
Upholding transparent procurement, we welcomed oversight from regulatory authorities, and opposed commercial bribery and unfair competition. We established communication mechanisms with the public, and set up platforms for information disclosure.	16 PEACE, JUSTICE AND STRONG INSTITUTIONS
We developed a 609-sq-km PV industrial Park in Gonghe County, Qinghai Province. By using PV panels to improve the microclimate and planting eco-crops such as snow chrysanthemum and purple perilla, we have restored over 100-sq-km vegetation, converting the desert into a habitat for plateau creatures.	15 LIFE ON LAND
Wastewater is treated with specialized facilities to achieve zero pollution in the sea areas where the wind farm is located, helping to protect the habitat of rare marine species such as dolphins. SPIC subsidiaries situated in the Yangtze River and Yellow River basins implemented dedicated programs to separate rainwater from sewage, preventing water pollution at source.	14 LIFE BELOW WATER
We made significant efforts to master cutting-edge technologies such as green ammonia co-firing and CCUS, and have established over 100 virtual power plants, with the Suzhou Integrated Zero-Carbon Power Plant project winning the “Energy Transition Changemaker” award at the 28th United Nations Climate Change Conference. We also took the lead in issuing three carbon management standards and promoted carbon labeling for agricultural products, practicing carbon control throughout the industry chain to empower climate actions.	13 CLIMATE ACTION
The Xindian Branch of SPIC Jiangxi Electric Power carried out a technical retrofit for sludge-coal co-combustion and power generation, achieving harmless treatment of 110,000 tons of sludge annually. The biomass co-firing project of SPIC Hebei Electric Power’s Liangcun Co-generation Plant converted pharmaceutical residue from pharmaceutical companies within the Shijiazhuang National Bio-industry Park into high-quality, harmless, and non-toxic fuel.	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
We advocated green actions such as “double-sided paper use” and “Clean Plate Campaign,” and organized employees to participate in voluntary tree planting and waste sorting activities. Shandong Nuclear Power Equipment Manufacturing, in collaboration with the local government, launched a volunteer service campaign, “Protecting Clear Waters and Blue Skies, Building a Beautiful Beach Together,” along the 10,000-meter coastline in Haiyang City.	11 SUSTAINABLE CITIES AND COMMUNITIES
We adhered to the principles of fairness, justice, and transparency in our HR work. We firmly opposed forced labor, harassment and abuse, and eliminated illegal practices in employment. We treated employees of different ethnicities, genders, and cultural backgrounds equally, and respected their privacy.	10 REDUCED INEQUALITIES
The National PV Power Generation and Energy Storage Testing and Assessment Platform (Daqing Base) was selected as one of the first projects for the expanded application of SOEs’ S&T achievements. It succeeded in grasping key technologies such as the coordinated and stable operation of new energy + energy storage, improving system efficiency of the PV station and the utilization efficiency of multi-energy complementarity to world-leading levels.	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

党建引领 擘画高质量发展蓝图

坚持党的全面领导



国家电投集团全面深入学习贯彻习近平新时代中国特色社会主义思想 and 党的二十大及二十届二中、三中全会精神，深入贯彻落实习近平总书记“2·26”重要批示精神、“11·6”重要批示精神和党中央重大决策部署，认真履行管党治党主体责任，以党的政治建设为统领，全面系统整体提升党建质效，引领保障企业高质量发展取得新成效。

国家电投集团获 2024 年度中央企业党建工作责任制考核 A 级，实现连续 6 年在国务院国资委党建工作责任制考核中获评 A 级；两项课题研究成果获得中央企业党建思想政治工作研究会荣誉表彰。

强化政治历练扎根铸魂

加强党的政治建设，坚决落实党中央重大决策部署和习近平总书记重要指示批示精神，全面深入推进中央巡视整改，扎实开展党纪学习教育，深化落实“第一议题”制度，全面提升党组理论学习中心组学习质量，聚焦增强“政治三力”，举办“一把手”政治能力提升培训班，党组成员给“关键少数”上好“关键一课”，进一步坚定“国之大者”的使命担当。

2024 年 2 月 6 日，国家电投集团召开学习贯彻习近平新时代中国特色社会主义思想主题教育总结会议，深入学习贯彻习近平总书记关于主题教育重要讲话和重要指示批示精神，认真落实中央主题教育总结会议精神，系统总结国家电投集团两批主题教育开展成效和经验，对巩固拓展主题教育成果进行部署。

夯实基层基础凝心聚力

牢固树立“抓好党建就是最大政绩”理念，全面实施党支部建设“达标创优”和党建基层基础问题“消缺”行动，深入开展基层党组织联建共建、“一分钱·支部在攻坚、党员在行动”和“党员身边无违章”等主题实践，基层党建价值创造能力进一步凸显；制定混合所有制企业、境内参股企业等坚持党的领导加强党的建设 5 个创新性制度和一揽子措施，“一体两翼”党建格局构建成型；制定新时期加强党务干部队伍建设实施意见，建立国家电投集团版党务干部“选育管用”样本。



全面从严治党纵深推进

突出全面从严、一严到底，贯通落实“两个责任”，进一步把全的要求、严的基调、治的理念落实到健全全面从严治党体系中，正风肃纪反腐的力度效果显著提升，以高质量党建引领保障企业高质量发展。

2024 年，国家电投集团高质量推进党纪学习教育走深走实，一体推进 338 个党委、2805 个党支部（党总支）、53392 名党员的党纪学习教育，形成 22 项行动项、50 项落地举措；建立一个方案、一张图、一张清单的“三个一”工作督导机制，累计印发 11 期工作指引，为基层答疑解惑 500 余次；集团层面累计现场督导 40 余次，各二级单位专班深入基层督导 500 余次，高站位高标准推动党纪学习教育扎实开展；集团党组将党纪学习教育与抓好中央巡视整改紧密结合，举一反三深入查摆纪律、作风等方面问题，一体纳入巡视整改措施台账推进整改，以党纪学习教育成效赋能企业改革发展。



“码”上了解国家电投集团
各级党组织扎实推进党纪
学习教育

01

绿色引领转型 共建可持续美好未来

Green Transition Towards a Sustainable Future

国家电投集团深入贯彻习近平生态文明思想，以建设世界一流清洁能源企业为目标，以生态保护和污染治理为重点，以有效管控生态环保风险为抓手，以生态环保科技创新为动力，助力国家能源产业结构优化升级、展现山河锦绣生态画卷，为构筑人与自然和谐共生的美丽中国贡献力量。

Implementing the Xi Jinping Thought on Ecological Civilization, we, aiming to build a world-class clean energy enterprise, took effective measures to manage and control ecological and environmental risks leveraging relevant technological innovations, with the focus on ecological conservation and pollution control. We assisted China in improving and upgrading its energy mix and restoring a beautiful ecological landscape, making our contributions to building a beautiful China where humans and nature coexist in harmony.

国家电投集团积极响应联合国可持续发展目标（SDGs）：

SPIC actively responds to the UN's SDGs:



加快推进绿色发展，增强绿色低碳产品和服务供给

It accelerated green development to provide more green and low-carbon products and services.

国家电投集团中国电力谢家集“渔光互补”光伏发电项目
SPIC China Power Xiejiaji "Fish-Solar Complementary" Photovoltaic Power Generation Project

加快绿色低碳转型

Accelerating green and low-carbon transition

国家电投集团是全球最大的清洁能源发电企业，2024 年，在持续加大清洁能源投资的基础上，更加关注清洁能源的发展质量，提升电源结构的核心竞争力。截至 12 月底，国家电投集团清洁能源装机占比再创新高。

SPIC is the largest clean energy power generation enterprise in the world. In 2024, while continuing to increase investment in clean energy, we paid more attention to its development quality and to enhancing our core competitiveness in power structure. As of the end of December, the proportion of SPIC's installed capacity of clean energy reached a new high.

青海羊曲水电站 Yangqu Hydropower Station in Qinghai

总装机 120 万千瓦，年平均发电量 47.32 亿千瓦时，可满足约 158 万个家庭的年用电需求，相当于每年可节约标准煤约 146.7 万吨、减排二氧化碳约 441.2 万吨。作为我国 ±800 千伏“青豫直流”特高压外送通道的重要支撑调峰电源，该电站在促进青海省新能源规模化开发应用等方面发挥重要作用。

With a total installed capacity of 1200 MW, the Yangqu Hydropower Station generates 4732 GWh of electricity on an annual average, enough to meet the power demand of approximately 1.58 million households and equivalent to saving about 1.467 million tons of standard coal and reducing around 4.412 million tons of CO₂ emissions per year. As a vital peak-shaving power source for the Qinghai-Henan ±800 kV UHVDC power transmission project, the project plays an important part in promoting the large-scale development and application of new energy in Qinghai Province.

青海海南州戈壁清洁能源基地 Hainan Prefecture Gobi Clean Energy Base in Qinghai

规划总容量 1934 万千瓦，建设风电 720 万千瓦、光伏 840 万千瓦、光热 10 万千瓦、煤电 264 万千瓦（4×66 万千瓦）。基地外送通道年送电量 365.2 亿千瓦时，年利用小时数 4565 小时，可再生能源电量占比 64.6%，新能源利用率 87%。

With a planned installed capacity of 19.34 GW, the Clean Energy Base consists of 7.2 GW of wind power, 8.4 GW of PV, 100 MW of photo-thermal power, and 2.64 GW (4×660 MW) of coal power. The base delivers 36.52 TWh of electricity annually, with 4,565 annual utilization hours, 64.6% of electricity from renewable energy, and 87% utilization rate for new energy.

广西白龙核电项目 Bailong Nuclear Power Project in Guangxi

项目位于防城港市江山半岛的最南端，是国家电投集团在桂开发的首座核电站，也是广西建设国家综合能源安全保障区的标志性工程。2024 年 8 月 19 日，广西白龙核电一期工程获得国家核准。

Located at the southernmost end of the Jiangshan Peninsula of Fangchenggang, the Guangxi Bailong Nuclear Power Project is SPIC's first nuclear power station in Guangxi, and a landmark project in the autonomous region's plan for building a national comprehensive energy security zone. On August 19, 2024, Phase I of the project was approved.

广东廉江核电基地 SPIC Lianjiang Nuclear Power Base in Guangdong

项目规划建设六台百万千瓦级核电机组，总装机容量 862 万千瓦。一期工程建设两台 125 万千瓦的 CAP1000 三代非能动压水堆核电机组，已分别于 2023 年 9 月、2024 年 4 月开工建设，计划于 2028 年建成投运。截至 2024 年 12 月底，广东廉江核电一期工程全年已完成 15 个重要里程碑节点，两台机组建设正在安全有序推进。

The base is planned to house six GW-class nuclear power units, with installed capacity totaling 8.62 GW. The 2×1250 MW CAP1000 Gen-III passive PWR units in Phase I commenced construction in September 2023 and April 2024, respectively, and are expected to be completed and put into operation in 2028. As of the end of December 2024, 15 key milestones in Phase I have been completed, and the two units are in safe and smooth progress.

山东海阳核电基地 Haiyang Nuclear Power Base in Shandong

项目是国家电投集团首个开工建设并投运的核电站，1、2 号机组是我国三代核电自主化依托项目，3、4 号机组预计 2027 年正式投运，5、6 号机组已获得核准，同时建成并投运我国首个核能商用供热工程——“暖核一号”，完成国家“十四五”规划核能供热示范任务。

The Shandong Haiyang Nuclear Power Project is the first nuclear power station developed and operated by SPIC. Units 1 and 2 serve as a cornerstone for China's third-generation nuclear power technology self-reliance initiative. Units 3 and 4 are slated for commercial operation in 2027, while Units 5 and 6 have received approval to proceed. Additionally, the Haiyang Project pioneered China's first commercial nuclear heating initiative, "Warm-U-Clear 1," now operational and serving as a model for nuclear heating during the 14th Five-Year Plan period.

粤东粤西百万千瓦级海上风电基地建成 GW-class Offshore Wind Power Base in Guangdong

2024 年 12 月 17 日，国家电投集团湛江徐闻海上风电场 30 万千瓦增容项目全容量并网，标志着国家电投集团粤西百万千瓦级新能源基地全面建成。项目每年可发出 8.99 亿千瓦时清洁电能，等效节约标准煤 27.19 万吨，减少二氧化碳排放 72.33 万吨。当年 12 月 24 日，国家电投集团揭阳海洋牧场支腿式重型网箱试验项目陆上完工。该项目是国家电投集团首个海洋牧场项目，也是全球单体容量最大风渔融合示范项目。

On December 17, 2024, the 300 MW expansion project at SPIC Xuwen Offshore Wind Farm in Zhanjiang, Guangdong was fully connected to the grid, marking the completion of SPIC's GW-class new energy base in western Guangdong. The project can generate 899 GWh of clean electricity annually, equivalent to saving 271,900 tons of standard coal and reducing 723,300 tons of CO₂ emissions. On December 24, the leg-support heavy net cage testing project at SPIC's Jieyang marine pasture was completed onshore. This was SPIC's first marine pasture project and also the world's largest single integrated wind power-fishery demonstration project.

山东半岛南海上风电基地 Offshore Wind Power Base in Shandong Peninsula

2024 年 10 月 26 日，国家电投集团山东半岛南海上风电基地 U1 场址二期 45 万千瓦项目成功并网，标志着我国单体最大的平价海上风电场——山东半岛南 U 场址海上风电场实现全容量并网。项目投产后，每年可为社会提供清洁电能约 25.5 亿千瓦时，节省标煤消耗约 82.9 万吨，减少二氧化碳排放约 229.9 万吨。

On October 26, 2024, the 450 MW Phase II project at the U1 site was successfully connected to the grid, marking the full-capacity synchronization of the Shandong Peninsula South U offshore wind farm, the largest single parity offshore wind farm in China. When put into operation, the project will produce approximately 2.55 TWh of clean electricity annually, saving about 829,000 tons of standard coal and reducing 2.299 million tons of CO₂ emissions.

江苏盐城海上风电基地 Yancheng Offshore Wind Power Base in Jiangsu

截至 2024 年底装机容量 110 万千瓦，分别为滨海北 H1、滨海北 H2、滨海南 H3、大丰 H3 四个海上风电项目。2023 年 3 月 29 日，以滨海北 H1、H2 项目为底层资产的全国首单央企新能源公募 REITs 成功上市，为同类型资产的证券化模式树立行业典范。滨海北 H1 项目积极探索业务外包规范管理，2024 年 7 月实现独立自主运维，取得良好的发电效益。

As of the end of 2024, the Yancheng Offshore Wind Power Base had an installed capacity of 1100 MW, consisting of four projects: Binhai North H1 & H2, Binhai South H3, and Dafeng H3. On March 29, 2023, China's first new energy REITs by a central SOE, with Binhai North H1 & H2 as the underlying assets, was successfully launched, setting an example for the securitization of assets of the same type. Additionally, the Binhai North H1 project actively explored standardized outsourcing management. In July 2024, it realized independent operation and maintenance, registering sound economic performance.

大型清洁能源基地

Large-scale Clean Energy Bases

国家电投集团大力推进陆上风电、水电、海上风电、沿海核电等清洁能源基地开发建设，为构建清洁低碳能源供应体系、推动能源转型作出重要贡献。

SPIC strongly advances the development and construction of clean energy bases, including onshore wind power and hydropower, offshore wind power, and coastal nuclear power. It is making important contributions to establishing a clean and low-carbon energy supply system and pushing the energy transformation.

推动清洁能源发展
Promoting clean energy development

国家电投集团坚持以清洁能源为增量主体，保持清洁能源产业高增长、高比例、高质量、规模化发展优势。

Always taking clean energy as its major growth drive, SPIC maintained the sector's high-speed, large-proportion, high-quality, and large-scale development.

光伏产业 | PV segment

国家电投集团始终牢记习近平总书记“一定要将光伏产业做好”的殷切嘱托，全力打造世界一流光伏产业，突破世界领先的光伏技术，一系列成果跻身国家及行业领先行列，建成全球最大的集团化能源数字化平台，以数字化深度赋能光伏产业发展。截至 2024 年 12 月底，光伏控股装机 8365 万千瓦，连续 8 年保持世界第一。

Bearing in mind President Xi Jinping's remark that "SPIC should bolster the PV industry," we have worked hard to develop a world-class PV industry. We have grasped world-leading PV technologies, achieved a series of advancements leading in the country and the industry, and built the world's largest integrated digital energy platform, empowering PV development through digitalization. As of the end of December 2024, SPIC has registered a consolidated PV installed capacity of 83.65 GW, taking the global top spot for eight consecutive years.



国家电投集团黄河公司在青海省海南州建设全国首座“百兆瓦太阳能光伏发电实证基地”。

China's first "100 MW PV verification base" in Hainan Prefecture, Qinghai developed by SPIC.

核能产业 | Nuclear power segment

国家电投集团是中国四大核电投资运营商之一、领先的核电技术供应商，拥有第三代非能动核电产业链，具备研发、设计、工程建设、关键设备制造、运营和寿期服务能力。始终将核安全置于首位，统筹推进核电高质量发展和高水平安全，以批量化建设“国和”系列核电机组为中心任务。截至 2024 年 12 月底，国家电投集团核电总装机 1074 万千瓦，在辽宁红沿河、山东海阳等地拥有 8 台控股在运机组，在山东荣成、山东海阳、广东廉江等地拥有 6 台控股在建机组，拥有一批沿海和内陆厂址资源。

SPIC is one of the four nuclear power investors/operators and a leading nuclear power technology provider in China. It boasts the whole industry chain centered on the third-generation passive nuclear technology, with capabilities across R&D, design, engineering construction, key equipment manufacturing, operation, service-life maintenance, and related services. Giving top priority to nuclear safety, the Group advances the high-quality development and high-level safety of nuclear power in a holistic approach, focused on the large-scale construction of "Guohe" units. As of the end of December 2024, SPIC's installed nuclear power capacity totaled 10.74 GW, including eight operating units in Liaoning's Hongyanhe and Shandong's Haiyang, and six units under construction in Shandong's Rongcheng and Haiyang as well as Guangdong's Lianjiang, all with a majority stake. It has also reserved several coastal and inland sites for future development.



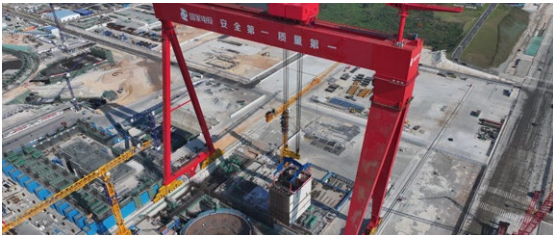
“码”上了解如何安全建设一座现代化核电站？

Scan the QR code and learn how to build a modern nuclear power station safely.

廉江核电一期工程 2 号机组正式开工建设
The construction of Unit 2 of the Lianjiang Nuclear Power Phase I Project has officially commenced

2024 年 4 月 26 日，廉江核电一期工程 2 号机组核岛实现第一罐混凝土浇筑（FCD），廉江核电一期工程进入“双机组”建设新阶段。廉江核电项目规划建设 6 台百万千瓦级核电机组，总装机容量 850 万千瓦。其中一期工程预计于 2028 年建成投运，年发电量可达 200 亿千瓦时，可满足约 400 万户家庭年用电需求。截至 2024 年 12 月底，廉江核电一期工程全年已完成 15 个重要里程碑节点，两台机组建设正在安全有序推进。

On April 26, 2024, Unit 2 of the Lianjiang Nuclear Power Phase I Project achieved First Concrete Date (FCD), marking the project's entry into a new phase of "dual-unit" construction. The Lianjiang Nuclear Power Project is planned to construct six 1-GW-class nuclear power units, with a total installed capacity of 8.5 GW. The Phase I project is expected to be completed and put into operation in 2028, with an annual power generation capacity of up to 20 TWh, which can meet the annual electricity demand of approximately 4 million households. By the end of December 2024, the Lianjiang Nuclear Power Phase I Project had completed 15 important milestone nodes throughout the year, and the construction of the two units was progressing safely and orderly.



国家电投集团国核湛江廉江核电 2 号机组千吨级模块一次精准就位。

The 1,000-ton-class module of Unit 2 of Guangdong Lianjiang Nuclear Power Plant was hoisted and put in place at one go.

国家电投集团广西白龙核电项目一期工程建设全面启动
SPIC Bailong Nuclear Power Project Phase I in Guangxi commenced full-scale construction

广西白龙核电一期工程位于防城港市江山半岛的最南端，东、南、西三侧临海，是国家电投集团在广西壮族自治区开发的首座核电站。广西白龙核电一期工程 1、2 号机组采用 CAP1000 三代非能动核电技术，单台机组容量 125 万千瓦。一期工程建成投产后，年发电量约 200 亿千瓦时，每年可减少标煤消耗约 600 万吨，减排二氧化碳约 1600 万吨、二氧化硫约 5.2 万吨、氮氧化物约 4.5 万吨，减排效应相当于种植阔叶林约 4.4 万公顷，将对优化广西能源结构、节能减排发挥积极作用。

The Bailong Nuclear Power Project Phase I, SPIC's first nuclear power station in Guangxi Zhuang Autonomous Region, is located on the southernmost end of the Jiangshan Peninsula in Fangchenggang City, being surrounded by the sea on the east, south and west. Adopting the CAP1000 third-generation passive nuclear power technology, the 2×1250 MW units of the project, once put into operation, will generate an annual power output of approximately 20 TWh of electricity, saving about 6 million tons of standard coal and reducing 16 million tons of CO₂, 52,000 tons of SO₂, and 45,000 tons of NO_x emissions per year. That is equivalent to planting about 44,000 hectares of broad-leaved forests, playing a positive role in improving Guangxi's energy mix, saving energy, and reducing emissions.



“码”上观看央视新闻，了解国家电投集团山东海阳核电 3 号核岛安全壳封顶

Scan the QR code and watch CCTV news to learn how the dome of a nuclear island containment vessel is put in place at SPIC Shandong Haiyang Nuclear Power Plant

国家电投集团山东海阳核电 3 号核岛安全壳封顶。

The dome of Unit 3's nuclear island containment vessel of SPIC Shandong Haiyang Nuclear Power Plant was put in place.



风电产业 | Wind power segment

国家电投集团坚持集中与分散开发利用并重的原则，以陆海并进、区域互济的布局，叠加深远海、智慧运维技术突破，筑牢风电产业发展新生态。2024 年，风电开工规模首超 1000 万千瓦，较 2023 年度实现翻番，山东半岛南 U 场址二期全容量并网、通辽发电总厂兴安盟突泉县 44.5 万千瓦风电项目首台风机并网……截至 2024 年 12 月底，风电总装机 6044 万千瓦，位居全球第二位。

State Power Investment Corporation adheres to the principle of equal emphasis on centralized and decentralized development and utilization, with a layout of land sea integration and regional mutual assistance, combined with breakthroughs in deep sea and intelligent operation and maintenance technologies, to build a new ecosystem for the development of the wind power industry. In 2024, the scale of wind power construction exceeded 10 million kilowatts for the first time, doubling compared to 2023. The second phase of the South U site in Shandong Peninsula was fully connected to the grid, and the first wind turbine of the 445 MW wind power project in Tuquan County, Xing'an League, Tongliao Power Plant was connected to the grid... As of the end of December 2024, the total installed capacity of wind power was 60.44 million kilowatts, ranking second in the world.



国家电投集团上海电力宕昌一期 20 万千瓦风力发电项目
SPIC Shanghai Electric Power Dangchang Phase I 200 MW Wind Power Generation Project



水电产业 | Hydropower segment

国家电投集团按照国家“流域、梯级、滚动、综合”的开发方针，以黄河上游流域、湖南沅水流域为重点，有序推进流域梯级水电站的开发建设。截至 2024 年 12 月底，水电总装机 2658 万千瓦。

In accordance with the state's principle of cascade, progressive and comprehensive development by one owner in the same basin, SPIC advances the development and construction of cascade hydropower stations mainly on the upper basin of the Yellow River and the basin of Yuanshui River in Hunan. As of the end of December 2024, our installed capacity of hydropower totaled 26.58GW.



国家电投集团五凌电力五强溪水电厂
SPIC Wuling Power Wuqiangxi Hydropower Plant



煤电产业 | Thermal power segment

国家电投集团稳妥有序推进煤电清洁低碳发展，持续推动煤电机组超低排放、降低供电煤耗。共 36 台火电机组获得中国电力企业联合会 2024 年度电力行业火电机组能效对标奖、4 台机组获得单项奖，火电机组脱硫装备率 100%，火电机组脱硝装备率 100%。

SPIC promoted the clean and low-carbon development of thermal power in a sound and orderly manner, consistently striving for ultra-low emissions and reduced coal consumption of thermal power units. Altogether 36 thermal units won the 2024 energy efficiency award (thermal power category) and 4 units won individual award granted by the China Electricity Council. The desulfuration and denitration rates of thermal power units were both 100%.



国家电投集团上海电力田集发电厂
SPIC Shanghai Electric Power Tianji Power Plant



氢能产业 | Hydrogen energy

国家电投集团聚焦氢能产业链关键环节，统筹推进绿色氢基能源开发与核心装备自主化攻关，构建产用协同、技术引领的可持续发展体系，为“双碳”目标实现提供坚实支撑。

Focused on critical links of the hydrogen energy industry chain, SPIC has advanced the development of green hydrogen-based energy and the localization of core equipment in a holistic approach, establishing a sustainable development system powered by leading technologies and characterized by coordinated production and utilization. This has provided strong support for achieving the “dual carbon” goals.

绿色氢基能源 Green hydrogen-based energy

国家电投集团聚焦绿色氢基能源布局，着力打通“绿电—绿氢—绿色氢基能源产品”产业链，破解新能源消纳及氢基能源产业发展瓶颈。国家电投集团自 2023 年启动大安风光制绿氢合成氨一体化示范项目建设，依托当地丰富的新能源资源，布局绿色氢基能源产业，因地制宜发展新质生产力。作为全球最大规模一次性投产绿色合成氨单体项目，创新应用“绿氢消纳绿电、绿氨消纳绿氢、源网荷储一体化”全产业链思路设计，建成行业最大规模的直流微电网制氢、碱液与 PEM 混合电解水制氢系统及固态储氢装置，研发具有完全自主知识产权的“电—氢—化”一体化柔性控制系统，有效解决氢气储运难、安全性差等制约氢能产业发展瓶颈难题，项目所产绿氨完全符合绿色认证标准，贯通由新能源消纳到绿色合成氨消纳全产业链的绿色价值，为我国新能源富集地区解决消纳难题提供了可复制、可借鉴的新方案。

Focused on the green hydrogen-based energy sector, SPIC has established the industrial chain integrating green power, green hydrogen, and green hydrogen-based products, breaking bottlenecks hindering new energy consumption and the development of the hydrogen-based energy industry. The Group kicked off the Da'an integrated demonstration project of producing green hydrogen and synthetic ammonia with wind and PV power in 2023. Leveraging the rich local green energy resources, it has made a series of moves in the green hydrogen-based energy sector to foster new quality productive forces. The Da'an project is the world's largest single green synthetic ammonia facility that was put into operation at one go. Employing a whole-industry-chain design approach, it uses green electricity to produce green hydrogen and uses green hydrogen to produce green ammonia, integrating power source, grid, load, and storage. Boasting the largest hybrid system in the industry that produces hydrogen using DC microgrid and alkaline water-PEM water electrolysis, as well as the solid hydrogen storage device, the project has achieved integrated and flexible “electricity-hydrogen-chemistry” control with independent IPR, effectively addressing problems that impede the development of the industry, such as the difficulty in hydrogen storage and transportation and poor safety performance. The green ammonia produced is fully compliant with green certification standards, realizing green value across the whole chain and providing a replicable and referential new road for new-energy-rich regions to consume their energy products.

绿电交通 E-mobility

国家电投集团以自主化装备制造为支撑，构建从核心材料到系统集成的氢燃料电池全产业链能力，推动绿电交通场景规模化落地。在核心技术与部件领域，国家电投集团成功开发国内最大规模 500Nm³/hPEM 电解槽并通过第三方认证，为绿电交通装备提供硬核技术支撑。“氢腾”系列燃料电池系统自 2020 年发布以来，已广泛应用于客车、中重卡、无人机等多场景，累计交付超 2000 套，运行总里程突破 6000 万公里。黄河流域氢能产业基地布局的水冷发电燃料电池、空冷燃料电池及车用系统生产线，年产能达 3000 台套，为交通、分布式供能、低空经济等领域提供终极绿色能源解决方案，持续助力氢能产业生态体系的协同构建与高质量发展。

Bolstered by self-reliant equipment manufacturing, SPIC has developed all-round capabilities in hydrogen fuel cell ranging from core materials to system integration, advancing the realization of e-mobility scenarios on a large scale. Regarding core technologies and components, we have successfully developed China's largest 500Nm³/hPEM electrolyzer, which passed third-party certification, providing hardcore technological support for powering e-mobility equipment. The Hydrofore fuel cell series launched in 2020 has been extensively used in passenger cars, medium-to-heavy-duty trucks, UAVs, and many other scenarios. More than 2,000 sets of the system have been delivered to date, with the total operating mileage exceeding 60 million kilometers. The Yellow River Basin Hydrogen Energy Industrial Base has installed production lines of water-cooled fuel cells, air-cooled fuel cells, and automotive systems, with an annual production capacity of 3,000 sets. The base will provide green energy solutions to areas such as transport, distributed energy supply, and low-altitude economy, assisting in the balanced establishment and high-quality development of the hydrogen energy ecosystem.

助力交通强国，推进氢能零碳交通
Advancing hydrogen energy, zero-carbon transport



2024 年 2 月 20 日，交通运输部批复下发《关于国家电力投资集团有限公司开展重卡换电站建设组网与运营示范等交通强国建设试点工作的意见》，国家电投集团正式成为交通强国建设试点单位。

On February 20, 2024, the Ministry of Transport issued the “Opinions on State Power Investment Corporation Implementing the Pilot Project for Building a Nation with Strong Transportation—The Construction, Networking, and Demonstrative Operation of Heavy-Duty Truck Battery Swap Stations,” officially designating SPIC as a pilot enterprise for building a transportation-strong nation.

国家电投集团以“交通强国”试点任务为契机，推进国家电投集团氢能零碳交通建设，2024 年 1 月 9 日，搭载国家电投集团“氢腾”船用氢燃料电池系统的氢能船舶“西海新源 1 号”下水；2024 年 7 月 1 日，100 辆搭载“氢腾”燃料电池系统的欧马可智蓝氢能物流车正式在北京房山投运；2024 年 12 月 3 日，30 辆搭载 240 千伏“氢腾”燃料电池系统的重汽 49 吨牵引车在河北辛集投运……截至 2024 年 12 月，已完成新型车用水冷燃料电池电堆模块系列化产品、百千瓦级大功率商用车燃料电池系统和氢能船舶使用的燃料电池系统开发，探索先进氢能技术在中重型牵引车、自卸车、船舶等领域的示范应用。

Taking the opportunity of undertaking the pilot project for building a transportation-strong nation, SPIC redoubled efforts to develop hydrogen-powered, zero-carbon transport. On January 9, 2024, the hydrogen-powered ship, Xihai Xinyuan No. 1, equipped with SPIC's "Hydrofore" marine hydrogen fuel cell system entered water. On July 1, 2024, 100 AUMARK Smart Blue hydrogen-powered logistics vehicles fitted with "Hydrofore" fuel cell system were put into use in Fangshan, Beijing. On December 3, 2024, 30 of Sinotruk's 49-ton tractors fitted with 240 kV "Hydrofore" system were put into use in Xinji, Hebei Province. As of December 2024, we have developed a series of new-type automotive water-cooled fuel cell stack modules, 100 kW passenger car fuel cell system, and the fuel cell system for hydrogen-powered ships. SPIC is continuously exploring the demonstrative application of advanced hydrogen energy technologies in heavy-duty tractors, dump trucks, ships, and other fields.

国家电投集团作为本次试点任务的牵头实施单位，立足“交能融合”战略，以核心自研产品、创新商务模式，全面加速市场推广。截至 2024 年 12 月，已在全国布局重卡充换电站超 1100 座，交付电动重卡及工程机械超 49000 台，覆盖中国内地所有省级行政区，以点织线，串联里程超过 30000 公里。在百兆瓦级站网互动方面，共计有 13 个省份近 100 座站完成协议签约，累计响应电网需求 800 余次。

As the leading company in this pilot project, we, upholding the “energy and transportation integration” strategy, have taken faster steps to promote independently developed core products and novel business models. As of December 2024, we have deployed over 1,100 heavy-duty truck battery swap stations and delivered over 49,000 electric heavy-duty trucks and engineering machines across the country, amounting to more than 30,000km across all provincial regions nationwide if connected. Nearly 100 of the stations in 13 provinces have signed contracts with the grid, responding to grid demands for over 800 times.



国家电投集团吉电股份大安风光制绿氢合成氨一体化项目液氨球罐
Liquid ammonia spherical tanks at SPIC Da'an Project of Green Hydrogen and Synthetic Ammonia Production with Wind and PV Power



搭载国家电投集团“氢腾”燃料电池的系列车型
Models equipped with SPIC's "Hydrofore" fuel cells

深耕环境友好实践

Deepening eco-friendly practices

国家电投集团全力构建现代环境治理体系，制定科学的污染防治管理制度，打好污染防治攻坚战，以节能降碳为目的不断创新降碳工艺、设备和技术，努力打造生态美、环境优的绿色家园。

SPIC has made great efforts to establish a modern environmental governance system and formulated sound pollution prevention and control regulations. Aiming at energy conservation and carbon reduction, we have constantly developed new carbon-cutting processes, equipment and technologies, striving to create a green home planet with a beautiful environment.

健全环境管理

Improving environmental management

国家电投集团严格遵守《中华人民共和国环境保护法》等国家及地方性环保法律法规要求，全面落实生态环境保护主体责任，不断完善生态环保管理制度体系，扎实开展生态环保培训，严控环境合规风险，持续提升环境治理能力。

2024 年，国家电投集团全年未发生生态环保严重违法违规及突发环境事件。

Strictly complying with the *Environmental Protection Law of the People's Republic of China* and other national and local environmental laws and regulations, we comprehensively fulfilled our responsibility for eco-environmental protection and refined the institutional system in support of this work. We conducted sound training on eco-environmental protection and strictly controlled environmental risks, so as to consistently improve our capability of ecological governance. In 2024, SPIC did not have serious violations of laws and regulations or emergencies related to environmental protection.

环保责任落实
Fulfilling environmental responsibilities

制定印发《国家电力投资集团有限公司总部全员生态环境保护责任制》，明确生态环保“保证、监督、支持”三大体系定位，及各岗位生态环境保护职责和到位标准，实现公司总部岗位生态环境保护责任全覆盖。

We formulated and released the *Responsibility System for Ecological Environment Protection of All Employees in SPIC Head Office*, which outlined the three major systems of guarantee, supervision, and support for environmental protection, and the relevant duties and criteria for all posts at the Head Office.

环保制度建设
Establishing the institution for environmental protection

修编《生态环境保护管理工作规定》等管理制度，建立运转有效的工作机制，按要求制定生态环保规划和工作计划，并按计划开展生态环保专项督查和日常检查，推进生态环保管理水平持续提升。

We formulated and revised management regulations such as the *Work Rules on Ecological Environment Protection Management*, established effective work mechanisms, worked out ecological environment protection plans and work plans as required, and carried out dedicated supervisions and routine inspections to ensure their smooth implementation, in order to improve the management of ecological environment protection constantly.

环保能力提升
Improving environmental protection capabilities

举办生态环境保护管理人员及处级领导干部培训班，重点对国家生态环保法律法规、政策规定、公司生态环保规章制度和管理要求进行系统培训，讲解生态环保重点问题和典型案例，交流分享生态环保管理实践。

We organized training sessions for personnel responsible for eco-environmental protection and for department-level officials. The training mainly covered national laws, regulations, and policies of ecological environment protection, as well as in-house rules, regulations and management requirements in this field. Trainees learned major issues and typical cases of ecological environment protection, and shared management practices.

环境合规管理
Managing environmental compliance

建立生态环保“一项目一清单”工作机制，为每个项目建立一套生态环保过程管理档案，全面执行新建项目环境评估，切实发挥源头预防、过程控制、末端治理的风险防范作用，实现对所有项目的全过程、全方位无死角生态环保合规信息化监管和评价。

We established a "One Project, One List" work mechanism for eco-environmental protection, creating a set of process management records for each project. Environmental impact assessment was conducted for all new projects to effectively forestall risks through source prevention, process control, and end-stage treatment. This achieved full-process, all-round, and seamless IT-based oversight and evaluation of ecological and environmental compliance.

环保绩效考核
Assessing environmental protection performance

发布《生态环境保护专项督查实施办法》《生态环境保护奖惩实施办法》等制度，建立生态环保奖惩机制，明晰生态环保管理职责，制定环境管理量化目标，建立运转有效的生态环保管理体系，管理和改善环境绩效。

We issued the *Implementation Methods for Special Inspection of Ecological Environmental Protection*, and the *Implementation Methods for Rewards and Punishment Related on Ecological Environmental Protection*. Subsequently, an eco-environmental protection reward and punishment mechanism was established, and an effective management system was in place with clearly defined duties and quantified targets, resulting in improved environmental performance.

国家电投集团中国电力姚孟能源鲁山姚电 100MW 风电项目
SPIC China Power Yaomeng Energy Lushan Yaodian 100MW Wind Power Project

优化资源利用

Optimizing resource utilization

国家电投集团致力于打造资源节约型、环境友好型的发展模式，以节能精细化管理和新技术应用为抓手，多措并举推进节能降耗，可持续利用水资源，促进物料、燃料高效利用。同时，深度参与服务地区的“无废城市”建设，通过燃煤掺烧、升级废水系统，推动废水、废弃物的循环利用，打造循环经济。

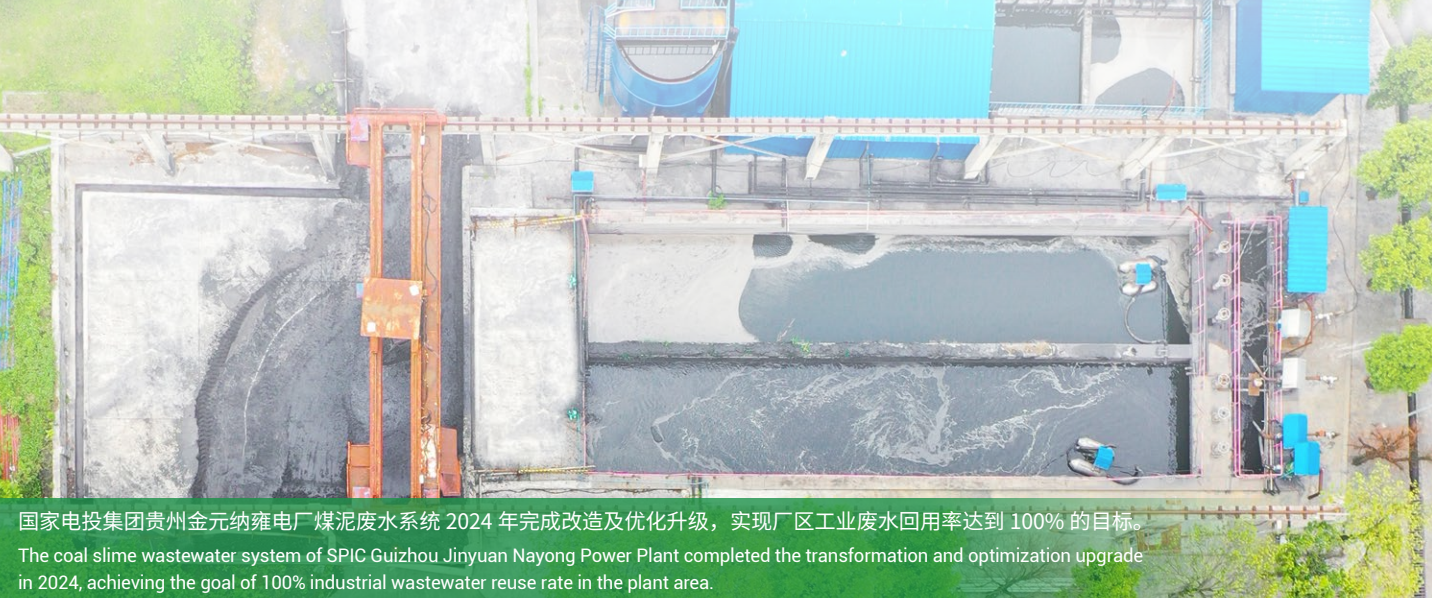
SPIC is committed to a resource-saving and environment-friendly development model. Leveraging fine management and new technologies for energy conservation, we rolled out multiple measures to conserve energy and reduce consumption with the aim of achieving sustainable water use and efficient utilization of materials and fuels. Meanwhile, we deeply engaged in the “zero waste city” initiatives in our service areas, trying to develop a circular economy by means of mixed combustion, upgrading wastewater system, and promoting solid and liquid waste recycling.

“节”尽所“能”，降本增效有奇招
Minimizing energy consumption for lower cost and higher efficiency



国家电投集团东北公司大连发电公司坚持控排与节能“双管齐下”，深挖机组节能降耗空间，先后完成凝结水泵、引风机、热网循环水泵变频改造，优化机组辅机运行方式，建立“循泵优化运行曲线”“循泵运行经济性测算表”，开展真空系统漏点排查治理，提高机组真空度，实现供电煤耗降低 1.11 克 / 千瓦时，节约标煤约 2300 吨。通过实施“火电机组深度调峰单汽泵运行”“300 兆瓦热电联产机组供暖期双机单循环水泵运行”“单侧送风机运行”等方案措施，年可节约厂用电 1071 万千瓦时。

The Dalian Power Generation Company of SPIC Northeast Electric Power intensified emission control and energy conservation in parallel and took stringent measures to further save energy and reduce consumption in its units. It successively completed the frequency conversion retrofitting of condensate pumps, induced draft fans, and heat supply network circulation pumps, optimized the operation of unit auxiliaries, established an “Optimized Circulating Pump Operation Curve” and a “Circulating Pump Operating Economy Calculation Table,” and carried out leak detection and treatment in the vacuum system to improve unit vacuum. As a result, the net coal consumption rate has been reduced by 1.11 grams per kilowatt-hour, saving approximately 2,300 tons of standard coal. By implementing measures such as “Deep Peak Regulation of Thermal Power Units with Single Steam Pump Operation,” “Dual-Unit Single Circulating Water Pump Operation for 300 MW Co-generation Units During Heating Season,” and “Single-Side Forced Draft Fan Operation,” the company could save electricity of 10.71 GWh in station service power annually.



国家电投集团贵州金元纳雍电厂煤泥废水系统 2024 年完成改造及优化升级，实现厂区工业废水回用率达到 100% 的目标。
The coal slime wastewater system of SPIC Guizhou Jinyuan Nayong Power Plant completed the transformation and optimization upgrade in 2024, achieving the goal of 100% industrial wastewater reuse rate in the plant area.

变“废”为宝，看绿色场站“课代表” “Wastes to treasures” at green plants

● **国家电投集团田集电厂**秉持“一分钱行动”，在 4 台机组检修中，主机电气系统、汽机系统、锅炉辅助系统检修皆由检修部和常维单位检修完成，2024 年共压降外包费用 903 万元。充分挖掘自身潜力，通过开展设备自主防腐、修旧利废等工作。由专业人员制定方案，利用厂内现有资源，采用现场放样、内外挖补中间加注耐磨料并增加耐磨陶瓷的联合修复方法对出口粉管短节壳体、法兰进行现场修复，修复后经锅炉专业整体质量验收评估，修复质量及耐磨性优于出厂标准，年度节省费用约 255 万元。

SPIC Tianji Power Plant launched the “Every Penny Counts” initiative to control costs. Its Maintenance Department and in-house teams took charge of inspecting and maintaining the main electrical systems, steam turbine system, and boiler auxiliary systems, saving 9.03 million yuan in outsourcing fees in 2024. The plant also repaired and recycled old equipment and implemented anti-corrosion measures. Guided by expert planning, Tianji Power Plant maximized the use of existing resources and carried out targeted repairs on key components such as flanges. The repaired boiler passed professional quality assessments, achieving abrasion resistance beyond factory standards and delivering annual savings of approximately 2.55 million yuan.

● **国家电投集团珠海横琴热电厂**一期装机 78 万千瓦，以南海天然气作为燃料，几乎没有烟尘和 SO₂ 排放，被国家能源局、南方监管局和南方电网列为对澳保电重点单位。开展修旧利废工作 5 项，降低物资采购费 27.52 万元。

SPIC Zhuhai Hengqin Co-Generation Co., Ltd. Phase I has a total installed capacity of 780 MW. Fuelled by natural gas from the South China Sea, it emits near-zero dust and SO₂, being designated by the National Energy Administration, its South China Energy Regulatory Bureau, and the Southern Grid as a key entity for ensuring power supply to Macao. The company launched five equipment retrofit projects, saving 275,200 yuan in procurement costs.



国家电投集团广东公司横琴热电 2024 年建成国内首个天然气电厂原始烟气微藻固碳示范工程。
In 2024, Hengqin Thermal Power of SPIC Guangdong Company completed the construction of the first domestic demonstration project for microalgae carbon fixation in raw flue gas of a natural gas power plant.

加强污染管理
Strengthening pollution control

国家电投集团严格遵守《中华人民共和国大气污染防治法》《中华人民共和国固体废物污染环境防治法》《中华人民共和国放射性污染防治法》等国家和地方有关法律法规要求，对废气、废水、固体废物等进行严格把控，加强放射性废物全生命周期规范化监管，严控污染排放，确保合规处理，坚决打好蓝天、碧水、净土保卫战。

We strictly complied with national and local laws and regulations, including the *Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution*, the *Law of the People's Republic of China on Prevention and Control of Environmental Pollution by Solid Waste*, and the *Law of the People's Republic of China on Prevention and Control of Radioactive Pollution*. In light of them, we strictly controlled the discharge of waste gas, water and solids, intensified standardized full-life-cycle oversight of radwaste, and tightened the emission of pollutants, determined to safeguard blue sky, clear water, and clean soil through vigorous compliance.

污水变清流，绘就人水和谐生态画卷
Restoring ecological harmony by turning sewage into clear flows

国家电投集团山东公司在威海乳山打造了国内单体容量最大的 1000 兆瓦模块化海上升压站，通过污水处理装置处理生活、生产污水，处理后的污水可达到排放标准，定期将污水运输回陆地进行回收处理，这一举措实现了风电场海域零污染，还能观测到海豚等珍稀海洋生物出没。

SPIC Shandong Electric Power built China's largest single 1,000 MW modular offshore substation in Rushan, Weihai, Shandong Province. The treated domestic and industrial wastewater from the substation's wastewater treatment facilities met the discharge standards and was regularly transported ashore for recycling, achieving zero pollution in the sea area where the wind farm is situated. Rare marine species, such as dolphins, have been spotted in the area.

国家电投集团重庆公司实施各类节水措施，制定《用水管理制度》《节水管理工作规定》等制度，加大技术改造工作力度，投入近 1000 万元实施水力除灰系统、脱硫废水、雨水收集等 10 余个节水技术改造项目。该公司原水耗水率从 2017 年的 7.94 千克 / 千瓦时降低至当前的 2.19 千克 / 千瓦时。

SPIC Chongqing Electric Power adopted various water-saving measures, formulating regulations such as the Water Use Regulation and the Water Conservation Regulation, and stepping up technical renovations. The company invested nearly 10 million yuan in over ten water conservation retrofit projects, including the hydraulic dedusting system, wastewater desulfurization, and the rainwater collection system, reducing raw water consumption rate from 7.94kg/kWh in 2017 to the current 2.19kg/kWh.

废气污染治理
Waste gas pollution control

持续推进大气污染物有组织排放协同治理，深化火电机组超低排放及电解铝烟气提标改造。加强施工、物料（含废渣）运输、装卸、储存和转移等全过程无组织排放深度治理，提高清洁化运输水平。

We continued to advance the coordinated control of organized emissions of air pollutants, and further promoted the ultra-low emission retrofitting of coal-fired power units and the upgrading of flue gas system at aluminum smelters. We intensified control over unorganized emissions throughout the process of construction, material (including slags) transportation, loading/unloading, storage, and transfer, in a bid to improve the level of clean transportation.

废水污染治理
Wastewater pollution control

严格落实“雨污分流、清污分流”要求，规范排污口管理，加强工业和生活废水处理设施升级改造，实现废水分类治理、分级回用、综合利用，确保废水排放总量持续下降。

Following the requirements for "separation of rainwater and sewage, of clean water and sewage," we strengthened the drain outlet management, and stepped up the retrofitting and upgrading of industrial and domestic wastewater treatment facilities. As a result, we realized classified treatment, graded recycling, and integrated utilization of wastewater, ensuring a continuous reduction in total wastewater discharge.

固体废物治理
Solid waste control

推进固体废物源头减量，强化工业固体废物资源化利用，加快固废贮存场整治，强化土壤污染防治；严格落实新污染物治理工作要求；规范危险废物识别、申报、登记、储存、转移全过程管理。

We reduced solid waste at source, intensified the recycling of industrial solid waste, and sped up the management of solid waste storage yards to better prevent and control soil pollution. We stringently implemented the new requirements on pollutant disposal, and standardized the full-process management of hazardous waste ranging from identification, declaration, registration, storage, to transfer.

放射性废物治理
Radioactive waste control

低水平放射性废物经过压缩减容、水泥固化等技术处理后，送往指定处置场；高放射性核废料主要为乏燃料，贮存在乏池中，待乏池满容后运送至指定设施以多重屏蔽隔离系统进行集中安全贮存。

Low-level radwaste is compressed and cement-solidified before transported to designated disposal sites, while high-level radwaste, primarily spent fuel, is stored in spent fuel pools and, when the pool is full, transported to designated facilities for centralized and safe storage in a multi-barrier, multi-isolation system.

国家电投集团广西公司长洲水利枢纽位于珠江干流浔江段，发电、通航、防汛、压咸补淡、城市供水、鱼道过鱼等经济、社会和生态效益显著。

The Changzhou Water Control Project of SPIC Guangxi Company is located in the Xunjiang section of the main stream of the Pearl River. It has remarkable economic, social and ecological benefits in power generation, navigation, flood control, saltwater intrusion prevention and freshwater supplementation, urban water supply, and fish passage.

关注气候变化

Responding to climate change

作为首个提出碳达峰目标愿景的能源央企，国家电投集团多措并举助力国家“双碳”目标实现，充分发挥行业引领作用，推动各方全面履行《联合国气候变化框架公约》及《巴黎协定》，积极参与应对气候变化全球治理，助力能源转型。

As the first central SOE in the energy sector to propose the vision of carbon peak, SPIC adopted a variety of measures to support China in achieving the "dual carbon" goals. Leveraging our leading role in the industry, we called for the comprehensive implementation of the *United Nations Framework Convention on Climate Change* (UNFCCC) and the Paris Agreement by all parties, and actively participated in global climate governance to contribute to the energy transition.

提升管碳能力

Improving carbon management capability

国家电投集团主动培育“能算、能认、能减”的一体化“双碳”服务能力，建设服务地方政府和企业的能源和碳排放动态监测、分析平台，解决碳排放管理痛点；以全面系统思维做好降碳，切实加强碳排放数据质量管理工作，通过自主数据监测、碳排放管理培训等举措提升碳数据管理能力，积极开展并完成全口径碳足迹核算；统筹碳资产开发与交易，丰富低碳产品与服务矩阵，优化配额及 CCER 交易策略，拓展国内外自愿减排产品开发；充分挖掘农产品碳足迹在农村建设中的潜力，陆续落地枣类、苹果干、蜂蜜、豆干、贡米、贡茶等农产品“碳标签”，举办“碳标签助力乡村振兴、国家电投集团年货节”直播带货活动，助力乡村新产业新业态蓬勃发展。

SPIC strengthened its service capabilities to support China's "dual carbon goals," focusing on carbon accounting, identification, and reduction. We developed dynamic energy and carbon emission monitoring and analysis platforms tailored to the needs of local governments and enterprises, addressing key challenges in carbon management. Taking a comprehensive and systematic approach to carbon reduction, we enhanced the quality management of carbon data, unified carbon footprint accounting, and improved our management capabilities through independent data monitoring, targeted training, and other initiatives. We developed and traded carbon assets, expanding the low-carbon product and service matrix, refining our quota and CCER trading strategies, and exploring CCER products both in China and abroad. We fully tapped the potential of agricultural products' carbon footprints in rural development, successively securing "carbon labeling" for such agricultural products as jujubes, dried apples, honey, dried tofu, tribute rice, and tribute tea. We also hosted live-streaming sales events like the "Carbon Labeling Assists in Rural Revitalization; SPIC New Year's Shopping Gala" to support new rural industries and business formats.



国家电投集团广西公司白龙核电站效果图
SPIC Guangxi Bailong Nuclear Power Project

研发减碳技术

Developing carbon-cutting technologies

国家电投集团紧密结合能源领域做好碳达峰工作有关实施方案，加大低碳零碳技术研发迭代与转化应用，加快新质生产力示范应用。

SPIC developed a sound implementation plan for carbon peak centered around the energy sector, stepped up the R&D, iteration, and commercialization of low-carbon and zero-carbon technologies, and accelerated the demonstrative application of new quality productive forces.



组建工作专班进行专项推进，经过对绿氨掺烧、生物质掺烧及碳捕集（CCUS）等技术的广泛、深入调研，形成《国家电投集团煤电低碳化改造建设行动方案》，助力集团公司煤电清洁化发展。远达环保积极构建火电产业 CCUS 技术体系，化学吸收法碳捕集技术应用的项目累计碳减排超 12 万吨，技术达到国际领先水平。

We formed a dedicated taskforce to conduct extensive and in-depth research on technologies including green ammonia co-firing, biomass co-firing, and carbon capture, utilization, and storage (CCUS). Based on these efforts, we formulated the "SPIC Action Plan for Low-Carbon Retrofitting of Coal-Fired Power Plants," supporting the Group's commitment to the clean development of coal-fired power. SPIC Yuanda Environmental Protection has established a CCUS framework for the thermal power industry, and its chemical-absorption-based carbon capture technology is leading in the world, helping reduce carbon emissions by over 120,000 tons cumulatively.



大力建设虚拟电厂，已在浙江湖州、江苏苏州、广东深圳、重庆等多地建设百余个项目，应用虚拟电厂技术的苏州综合智慧能源项目获得第 28 届联合国气候变化大会“能源转型变革者”奖项。

We vigorously developed virtual power plants, with over 100 such projects implemented across multiple places, including Huzhou in Zhejiang, Suzhou in Jiangsu, Shenzhen in Guangdong, and Chongqing. The Suzhou Integrated Zero-Carbon Power Plant project employing the virtual power plant technology won the "Energy Transition Changemaker" award at the 28th United Nations Climate Change Conference.

助力实现“碳达峰”“碳中和”，多项行业标准首创发布 Initiating multiple industrial standards to help achieve "dual carbon" goals



国家电投集团牵头主编的《虚拟电厂稳定运行准则》《温室气体自愿减排交易管理指南》2 项标准，参编的《二氧化碳捕集、运输与封存工艺技术规范》1 项标准，于全国团体标准信息平台正式发布，在国内综合智慧能源领域、CCUS 领域均为首创，有效填补了相关行业空白。

SPIC led the compilation of two standards—*Code for Stable Operation of Virtual Power Plants* and *Guidelines for the Management of Voluntary GHG Emission Reduction and Trading*, and participated in the compilation of *Technical Specification for Carbon Dioxide Capture, Transportation, and Storage*. All three standards, first of their kind in the integrated smart energy sector and CCUS sector in China, have been officially released on the National Group Standard Information Platform, effectively filling industrial gaps.

发展绿色金融
Developing green finance

国家电投集团深度融合产业与金融资源，将绿色金融作为驱动低碳转型的核心引擎，构建全周期金融服务体系，从项目前期筹备到后期运营，精准助力产业升级。

SPIC integrates industrial and financial resources, leveraging green finance as a key engine for our low-carbon transition. We have established a comprehensive financial service system covering the entire project lifecycle—from initial preparation to later-stage operations—providing targeted support for industrial upgrading at every step.

电投产融聚焦集团公司主业及上下游绿色产业，推进公司信托、期货、保险经纪、供应链金融等绿色金融业务转型升级，有效增强服务集团公司主责主业发展质效，创新绿色低碳金融产品和服务开发。

财务公司持续加大内部信贷投放，为集团重点项目发展提供资金支持，日均清洁能源贷款占比超 70%，通过“打包融资”“碳配额质押融资”等绿色金融产品，打造丰富绿色金融服务谱系，为重点项目提供全流程资金保障。

创新投资公司以基金、REITs 等工具为抓手，累计投资 630 万千瓦清洁能源项目。同步设立 107.5 亿元绿地开发基金及多支产业基金，形成覆盖项目全周期的资本支持体系。

资产管理公司牵头落实“省为实体”战略，构建“绿电交易+绿证营销”区域体系，完成中新生态城绿证交易。

SPIC IFH focuses on SPIC's main businesses and upstream and downstream green industries. Transforming and upgrading green finance businesses such as trust, futures, insurance brokerage, and supply chain financing, it has supported the development of SPIC's main sectors with higher quality and efficiency with innovative green and low-carbon financial products and services.

SPIC Finance continued to expand internal credit lines to support the Group's key projects, with clean energy loans accounting for over 70% of the daily average. By introducing innovative green financial products such as "package financing" and "carbon quota-pledged financing," SPIC Finance has built a comprehensive portfolio of green financial services, ensuring robust funding for critical initiatives.

SPIC Innovation Investment has cumulatively invested in 6,300 MW of clean energy projects, primarily through funds, REITs, and other instruments. It has also launched a 10.75-billion-yuan greenfield development fund and several industrial funds, establishing a financial support system that spans the entire project life cycle.

SPIC Asset Management took the lead in implementing a province-based strategy and establishing regional systems for "green power transactions + green certificate marketing." Notably, it completed the transaction of green certificates for the China-Singapore Tianjin Eco-City.

国家电投集团落地全国首单 CCER 碳减排量挂钩债券
SPIC issued China's first CCER carbon reduction-linked bond



2024 年 4 月 25 日，国家电投集团中国电力 2024 年度第一期熊猫绿色中期票据（可持续挂钩）成功发行，标志着全国首单 CCER 碳减排量挂钩债券成功落地，完成碳金融融资 20 亿元，实现两个“创新”和一个“最低”：一是创新在国内首次将 CCER 开发量作为关键绩效指标与债券利率挂钩；二是创新以全国 CCER 市场首单碳保险作为风险保障；三是创有史以来中央企业已发行同期限公募债券利率最低。此次发行利率较原存量贷款低 1.3 个百分点，三年累计可节约利息支出约 7800 万元。

On April 25, 2024, SPIC China Power International Development issued the first batch of green medium-term panda notes (sustainability-linked), marking the successful issuance of China's first CCER carbon reduction-linked bond, which raised 2 billion yuan. The issuance registered two "innovations"—(1) For the first time in China, CCER volume as a key performance indicator was linked with bond interest rate; and (2) It was secured with the first carbon insurance in the national CCER market as a risk guarantee. It also featured the lowest interest rate ever among publicly issued bonds of the same maturity by a central SOE—1.3 percentage points lower than that of the existing loans, so the company could save approximately 78 million yuan in interest payment over three years.

参与新兴市场
Engaging in emerging markets

积极参与新兴市场建设，2024 年，公司受邀参加 CCER 重启首日交易，完成全国首个 CCER 项目登记；开展绿色能源装备全生命周期碳足迹数字化评价系统研究，申请 6 项发明专利；牵头编制生物质发电碳足迹国家标准，参编中国电力企业联合会组织的风电、光伏、核电、电解铝等 9 项产品碳足迹标准。

We actively engaged in the development of emerging markets. In 2024, we were invited to participate in the first-day trading after the CCER was relaunched, and completed the registration of the first CCER project in the country. We conducted research on a digital evaluation system for the full-life-cycle carbon footprint of green energy equipment and applied for six invention patents. We took the lead in formulating the national standard for the carbon footprint of biomass power generation and participated in the compilation of carbon footprint standards for nine sectors, including wind power, PV, nuclear power, and aluminum, organized by the China Electricity Council.

国家电投集团黄河公司羊曲水电站累计投资 2.63 亿元建成系列生态保护工程。
SPIC Huanghe Company Yangqu Hydropower Station has invested a total of 263 million yuan in the construction of a series of ecological protection projects.

倡导绿色生活
Advocating green lifestyle

国家电投集团致力于宣传及贯彻绿色生活理念，积极开展环保公益与宣传活动，引导员工把节能、低碳、绿色理念转化为自觉行动，通过规范办公用品使用、倡导“双面用纸”“人走灯灭”“光盘行动”等绿色行动，形成独有的绿色办公意识，组织开展义务植树、垃圾分类、海滩垃圾清理等绿色环保小活动，推动勤俭节约、高效低碳的绿色生活新风尚。

SPIC is committed to promoting and implementing the concept of green lifestyle. It actively carried out environmental public welfare and publicity activities, urging the employees to translate the concepts of energy conservation, low carbon, and green living into conscious actions. By regulating the use of office supplies and advocating green practices such as “double-sided paper use,” “turning off lights when leaving a room,” and the “clean plate campaign,” we have fostered a unique awareness of green office practices. We also organized green activities such as voluntary tree planting, waste sorting, and beach cleanup, promoting a green lifestyle that is thrifty, efficient, and low-carbon.



国家电投集团在海阳市万米海滩海岸线上开展“守护碧水蓝天，共筑美丽海滩”志愿服务活动。

SPIC launched a volunteer service campaign, “Protecting Clear Waters and Blue Skies, Building a Beautiful Beach Together,” along the 10,000-meter coastline of Haiyang City.



国家电投集团开展“和谐生态 践行节约”主题活动。
SPIC conducted the “Conservation for Harmonious Ecology” thematic event.

推进美丽中国建设

Advancing the building of a beautiful China

国家电投集团始终坚持“在发展中保护，在保护中发展”的原则，积极践行“绿水青山就是金山银山”理念，持续开展荒漠化治理、矿山生态修复和生物多样性保护等工作，促进人与自然和谐共生，让良好生态环境成为经济社会持续健康发展的支撑点。

SPIC adheres to the vision of “lucid waters and lush mountains are invaluable assets” and the principle of “advancing development and protection in a holistic approach.” We actively engaged in desertification control, ecological restoration at mines, and biodiversity conservation, fostering harmonious coexistence between man and nature and bolstering sustainable and sound economic and social development with a healthy ecological environment.

生态恢复与治理

Ecological restoration and governance

国家电投集团坚持把项目开发的生态修复及治理工作落到实处，针对项目的地理环境、气候和生态环境状况，探索清洁能源与生态修复融合发展的新模式，因地制宜开展矿山生态修复与治理，有效促进了项目建设和生态环境保护协调发展。

SPIC is committed to ecological restoration and governance during project development. In light of the geographical environment, climate, and ecological conditions of projects, we explored new models for integrating clean energy development with ecological restoration, and implemented site-specific ecological restoration and improvement measures at mines, effectively coordinating project development with environmental protection.

由于部分单位在项目并购前的生态环境保护尽职调查不细致，没有发现个别新能源并购项目存在未按要求办理林地手续或手续缺失等问题，导致整改时限长且难度大。对此，国家电投集团迅速行动，进一步强化执行刚性约束与闭环监管，构建全过程监督管控机制，压实责任体系，提升相关岗位人才专业资质，通过多种举措促进问题妥善解决，为后续项目尽职调查积累经验。

Due to an unsatisfactory pre-M&A eco-environmental due diligence, some subsidiaries failed to discover that for individual new energy M&A projects, forest and grassland-related documents were either not obtained as required or incomplete, resulting in a long period and great difficulties in rectification. In response, SPIC took quick actions to further intensify regulatory constraints and closed-loop supervision, establishing whole-process supervision and control mechanisms, reinforcing responsibilities, and improving the professional competence of employees in related positions. The series of measures can help address the problems and gather experience for the due diligence for future projects.

国家电投集团广西公司坭坪风电场通过挖槽撒播草籽、挂网喷混植生、移植植被等方式复绿，整体绿色植被覆盖面积超 80%。

The Qiuping Wind Farm of SPIC restored vegetation through grass seeds sowing, TBS, transplantation, and other approaches, reaching a green coverage of over 80%.

荒漠化治理，为黄土地换上绿色新衣 Clothing the loess with green to combat desertification

国家电投集团持续推进光伏治沙，牵头组建以荒漠化生态治理与新能源开发为创新方向的战略联盟，助力荒漠化和土地沙化面积“双缩减”。采取边规划、边研究、边实践的方式，借助“沙戈荒”光照长、地域广且集中的特点，开展光伏+“沙戈荒”工作，有效降低区内风速，促进土壤墒情和退化草场恢复。同时，通过放牧与作物种植，探索出“板上发电+板下修复、板间种植”的牧光互补新模式，实现生态环境改善与治沙综合效益提升。

SPIC continuously advances sand control efforts through PV development. We took the lead in forming a strategic alliance focused on the ecological improvement of deserts and new energy development in innovative ways, aiming to help reduce areas or desertification and sandification. By adopting an integrated approach to planning, research, and implementation, we developed PV projects in deserts and Gobi deserts leveraging their long sunlight hours and expansive and concentrated land areas, thus effectively reducing wind speeds within the region, improving soil moisture content, and restoring degraded grasslands. Additionally, through grazing and crop cultivation, we explored a new model of “pastoral-PV integration” whereby power is generated from PV panels, grassland is restored under them, and crops are planted between them. This has not only improved the ecological environment, but also enhanced the overall benefits of sand control.



“码”上了解国家电投集团更多防治荒漠化治理实践
Scan the QR code and learn more about what SPIC has done to prevent and control desertification.



国家电投集团东北公司敖汉旗敖润苏莫15万千瓦光伏治沙项目完成生态修复面积近7000亩。

SPIC 150 MW PV+sand control project in Aorunsumo, Aohan Banner completed ecological restoration across an area of nearly 7,000 *mu* (about 466.67 ha).



国家电投集团黄河公司黄河上游大中型梯级水电站蓄水拦沙，增加沿岸湿地面积，使黄河的输沙量降低近61%。

The cascade hydropower stations operated by SPIC in the upper reaches of the Yellow River have achieved a nearly 61% reduction in the river's sandcarrying volume, primarily through water impoundment and the expansion of riparian wetland areas.



国家电投集团北京公司首个沙漠区域全域空间种植示范项目，首批蔬菜首次采摘收获颇丰。

SPIC's first spatial planting demonstration project in the desert harvested the first batch of vegetables, yielding a bumper crop.



国家电投集团内蒙古公司阿拉善右旗20万千瓦光伏电站实现光伏场区草方格全覆盖。

SPIC's 200 MW PV station in Alxa Right Banner is completely covered by grass pane sand fence.



国家电投集团四川公司60万千瓦超高海拔光伏实证基地创新开展“光伏+生态修复项目”，培育四川嵩草等莎草科植被，养护绿色植被高达910公顷。

The 600 MW ultra-high-altitude PV base of SPIC implemented a "PV + eco-restoration" program, resulting in the cultivation of up to 910 hectares of vegetation, predominantly Sichuan pygmaea.



风电建设为守护生态赋能添“绿”
Empowering green ecology via wind power development



国家电投集团吉电股份华中区域公司大水山、莲花山风电场在建设过程中主动践行“两山”理念，实施采用国内首创的山地风电场生态环保关键技术和岩质边坡生态复绿防护结构及养护装置，“复绿工程”累计投资达 1.3 亿元。据统计，项目播种各类草籽 206.66 万平方米，覆绿面积近 80 万平方米，修建挡土墙约 64000 平方米、排水沟 42 公里，不断厚植江西兴国绿色生态优势，全力打造绿色生态风电场。

The Central China Company of SPIC Jilin Electric Power implemented the vision that “lucid waters and lush mountains are invaluable assets” when developing the Dashuishan and Lianhuashan wind farms. It adopted key eco-environmental technologies for mountain-based wind farms—a first in China—and protective structures and eco-caring devices for rock slope re-greening, cumulatively investing 130 million yuan. Statistics from the company showed that through these two projects, a variety of grass seeds were planted across 2,066,600 square meters, nearly 800,000 square meters became green again, and about 64,000 square meters of retaining walls were built and 42 km drainage channels were dug. The two green, eco-friendly wind farms reinforced the ecological strengths in Xingguo, Jiangxi Province.

国家电投集团吉电股份大水山、莲花山风电场
SPIC Jilin Electric Power Co., Ltd. Dashuishan and Lianhuashan Wind Farms

生物多样性保护
Protecting biodiversity

国家电投集团深知“生态兴则文明兴”，高度重视场站涉及的生物多样性保护工作，持续完善和优化相关生物多样性保护措施和解决方案，最大限度避免对生物的影响，实现人与自然和谐共生。

Fully aware that “a civilization may thrive if its natural surroundings thrive,” SPIC attaches great importance to biodiversity conservation at and around its power stations by consistently refining relevant measures and solutions, so as to minimize impacts on living organisms and achieve harmonious coexistence between man and nature.

留住珍稀“回头客”，共护中华秋沙鸭
Protecting the rare Chinese merganser



每年 3 月，国家电投集团五凌电力凌津滩电厂下游附近水域都会迎来迁徙的“国宝”中华秋沙鸭。为守护好中华秋沙鸭迁徙地环境，加强水域生态文明建设，保护沅江水域生态，电厂自 2023 年开展河道清渣工作，全年处理河道垃圾约 3000 立方米，有效防止上游垃圾破坏下游流域生态环境。同时，五凌电力投入 1.85 亿元建成世界首创低温水治理隔水幕墙试验工程，主动承接历年生态环境部鱼类增殖放流联合行动，年度放流湖南吻鮠、岩原鲤、湘华鲮等土著鱼类 32 万尾。

Every March, waters downstream of SPIC Wuling Power's Lingjintan Power Plant would welcome the migratory Chinese merganser (*Mergus squamatus*), a national treasure. To protect their habitat, safeguard the ecological environment of the Yuanjiang River, and advance ecological civilization efforts in the region, the power plant began the riverway cleanup work in 2023. In 2024, approximately 3,000 cubic meters of garbage was cleared from the riverway, effectively preventing upstream waste from damaging the downstream ecological environment. Additionally, SPIC Wuling Power has invested 185 million yuan to initiate the world's first experimental project of low-temperature water control with waterproof curtain wall. It has also proactively undertaken the fish proliferation and releasing joint actions led by the Ministry of Ecology and Environment, releasing 320,000 native fishes of various kinds annually, including *Rhinogobio hunanensis*, *Procypris rabaudi* and *Bangana decora*.

02

合规稳健经营 筑牢责任治理根基

Sound Operation Ensures Responsible Governance

国家电投集团深入贯彻落实党中央决策部署，聚焦创建世界一流企业目标，筑牢稳健治理根基，健全现代化公司治理体系，严守依法合规经营底线，以深化改革为驱动，优化治理机制、激发创新活力，推进治理能力现代化，加快构建高质量发展新格局，切实增强核心竞争力和价值创造能力，在服务能源强国建设中展现央企使命担当，为推进中国式现代化提供坚实支撑。

Following the decisions and plans of the CPC Central Committee, SPIC has consolidated the foundation of sound governance and improved the modern corporate governance system, focused on the goal of creating a world-class enterprise. Adhering to the bottomline of lawful operation and taking deepening reform as the driving force, we have also optimized governance mechanisms, stimulated innovative vitality, and pushed the modernization of governance capabilities. We strive to form a new pattern of high-quality development at a faster pace, and effectively enhance our core competence and value creation capabilities, so as to live up to a central SOE's mission of helping build a nation of a strong energy sector and providing firm support for advancing Chinese modernization.

国家电投集团积极响应联合国可持续发展目标（SDGs）：

SPIC actively responds to the UN's SDGs:



强化改革创新，完善中国特色现代企业制度

It reinforces reform and innovation to improve the modern corporate system with Chinese characteristics.

国家电投集团内蒙古公司乌兰察布风电基地贺希格风储电站

SPIC Inner Mongolia Company Wulanchabu Wind Power Base Hexige Wind-Storage Power Station

巩固公司治理基础

Consolidating the foundation for corporate governance

国家电投集团着力构建中国特色现代企业治理体系，强化党组引领作用，以提升治理效能为核心，系统优化治理架构与决策机制，形成权责法定清晰、运行透明规范、监督制衡有效的治理机制。2024 年，全面贯彻落实新《中华人民共和国公司法》，动态优化党组织前置研究事项，进一步强化实质性把关管理；加强科学、理性、高效董事会建设，集团外部董事充分发挥表率作用；以专职董事召集人为重点建强二级单位董事会，推动子企业董事会运行更加规范高效；优化规章制度体系框架，制度体系结构基本形成较为合理的“金字塔”型。截至 2024 年底，专职董事达到 69 人。

SPIC makes great efforts to establish a modern corporate governance system with Chinese characteristics. Focused on improving governance efficacy, we have systematically refined the governing framework and decision-making mechanism defined by clear-cut duties and responsibilities, transparent and standard operation, and effective oversight and restraint. In 2024, we comprehensively implemented the revised *Company Law of the People's Republic of China*, stepped up efforts to build sound, rational, and efficient boards of directors, with the Group's external directors playing an exemplary role, and reinforced boards of directors at subsidiaries featuring more standardized and efficient operations, focusing on designating full-time conveners of directors. We also optimized the framework of rules and regulations, basically establishing a sound “pyramid-shaped” institutional structure. As of the end of 2024, we had 69 full-time directors.

坚持依法合规经营

Upholding law-based operation

国家电投集团深入践行习近平法治思想，坚守合规经营底线，将法治思维融入发展全局，健全制度流程与风险防控体系，深化合规文化培育，以高标准合规运营筑牢风险防控屏障，以法治化、规范化的治理实践服务国家战略，为推进高质量发展和建设社会主义法治国家贡献央企力量。

Following the Xi Jinping Thought on the Rule of Law, SPIC adheres to the bottomline of lawful operation and integrates the “rule of law” mindset as an integral part of its development philosophy. We have improved the systems and procedures and the risk prevention and control system, and cultivated a compliance culture, erecting risk barriers via high-standard compliance and serving the implementation of national strategies through law-based and standardized governance. We as a central SOE are determined to contribute to promoting high-quality development and building a socialist country under the rule of law.

法治央企建设高效有序推进

Developing a law-based central SOE

国家电投集团制定《贯彻落实新公司法，保障集团高质量发展实施方案》全面贯彻落实新《中华人民共和国公司法》；深入推进世界一流法治企业建设试点工作，确定 10 个方面 27 项重点工作任务，细化建设世界一流法治企业措施，建立工作台账，明确责任主体和完成时限；制订一流法治人才规划及实施方案，全面部署法治队伍建设工作；强化法治建设责任落实，修订完善《法治建设规定》，重点调整法治建设考核评价方式，确保考评的科学性、有效性；积极参与国家和行业立法，参加《中华人民共和国能源法》《中华人民共和国原子能法》《中华人民共和国电力法》《中华人民共和国可再生能源法》等重要法律立法、修法过程，审慎提出立法和修法建议。

We have formulated the *Plan for Implementing the New Company Law and Ensuring SPIC's High-quality Development* to comprehensively implement the revised *Company Law of the People's Republic of China*. We have deeply advanced the pilot work of building world-class law-based enterprises, determining 27 key tasks in 10 respects and detailing relevant measures, and have established a work ledger clearly defining the responsible entities and deadlines. We have formulated a plan for fostering first-class rule of law talent along with an implementation plan as part of the efforts to comprehensively develop a team specializing in this area. We have intensified the implementation of rule of law responsibilities, revising the *Regulations on Rule of Law Work* with a focus on adjusting the assessment and evaluation methods to ensure their soundness and effectiveness. We have also actively participated in the formulation of national and industrial laws, having engaged in the formulation and revision of important laws such as the *Energy Law of the People's Republic of China*, *Atomic Energy Law of the People's Republic of China*, *Electricity Law of the People's Republic of China*, and *Renewable Energy Law of the People's Republic of China* by proposing prudent suggestions.

开展 2024 年“宪法宣传周”活动
2024 “Constitution Publicity Week”

2024 年，国家电投集团组织各单位开展了丰富多彩的普法宣传活动。总部组织印发“宪法宣传周”方案，全面安排部署宪法宣传学习活动，在总部宣传屏上播放宪法宣传知识和宣传视频。组织全系统开展线上宪法知识答题活动，全系统共 33814 人参与答题，更加深入学习了宪法知识，增强了宪法意识，形成遵守宪法的自觉。

In 2024, SPIC and its subsidiaries carried out a variety of legal publicity activities. The Head Office issued a plan for the “Constitution Publicity Week,” making comprehensive arrangements for Constitution publicity and study activities. A video of constitutional knowledge and publicity activities was played on the big screen at the Head Office, and an online constitutional quiz was organized across the entire system, involving a total of 33,814 employees. These activities deepened the employees’ understanding of constitutional knowledge, enhanced their constitutional awareness, and propelled them to more conscientiously abide by the Constitution.

“码”上了解国家电投集团 2024 年“宪法宣传周”精彩活动。

Scan the QR code and learn more about SPIC's “Constitution Publicity Week.”



国家电投集团吉电股份大安风光制绿氢合成氨一体化示范项目基建现场
Construction site of SPIC Da'an integrated demonstration project of producing green hydrogen and synthetic ammonia with wind and PV power

合规风险内控全面提质增效

Enhancing quality and efficiency in internal control of compliance risks

国家电投集团健全完善合规管理体系，结合业务实际升版《诚信合规手册》，制定《反商业贿赂合规指引》《反垄断合规指引》《知识产权和数据合规指引》，编制招标采购、境外投资、工程建设、金融管理等 10 个重点领域合规风险、流程管控清单，并坚持“一企一策”抓实重大风险精准防控；持续深化企业内部控制管理，抓紧抓实金融专项治理工作，持续压降房地产、政信类信托业务规模，全力防范化解各类风险隐患，风险防控坚决有力、扎实有效，切实保障企业发展质效更实更优。

SPIC improves the compliance management system, not only revising the *Manual on Good Faith and Compliance* in light of business realities, but also formulating the *Compliance Guidebook Against Commercial Bribery*, *Compliance Guidebook Against Monopoly*, and *Compliance Guidebook on Intellectual Property and Data*. We have put in place the lists of compliance risks and procedural control for ten key areas, including bidding and procurement, overseas investment, project construction, and financial regulation, focusing on the targeted prevention and control of major risks through enterprise-based policies. We have continuously enhanced internal control, making special efforts on financial governance and steadily scaling down real estate business and government-related trust business. Rigorous and effective measures have been adopted to forestall and resolve various risks and hidden hazards, so as to ensure better quality and higher efficiency of our development.

聚焦深化改革质效全面提升

Comprehensively Deepening the Reform

国家电投秉承强烈使命感和探索创新精神，全面贯彻落实国务院国资委改革深化提升行动部署要求，扎实推进各项改革任务落地。高质量完成功能性改革，推动两个国家科技重大专项取得里程碑式突破，清洁能源产业占比超 72%，圆满完成元旦、春节和全国两会等重要能源保供任务，有力发挥“三个作用”，不断增强服务国家战略能力。推动体制机制类改革提质扩面，深化中国特色现代企业制度建设，深入落实新型经营责任制，薪酬分配进一步向一线科研人员和苦脏险累岗位倾斜，市场化运营机制更加规范高效。做精做深“科改行动”“双百行动”，推动中国电力、上海核工院等 10 家单位深化改革，有效激发基层干事创业的活力动力。

国家电投集团聚焦“均衡增长战略”，深化改革破局起步，系统实施“三步走”管控体系改革。优化总部组织机构，总部部门由 20 个压至 18 个、服务保障中心由 21 个减至 9 个，总部更加聚焦战略管控、精干高效；按照“一业一企”推进专业化机构优化调整，整合组建工程公司、电投综能、能研院、经研院，重塑中央研究院，形成了协同互补、优势突出、市场竞争力更强的专业化支撑体系；布局组建产业专业化管理平台，按照“一业为主、多业协同”实施战略性重组，启动核电、水电资产上市平台搭建工作；区域化改革围绕“省为整体”推进资源集约配置，规范跨区域发展机制，切实提升区域发展竞争力。

国家电投集团连续 10 年获评中央企业负责人经营业绩考核 A 级。

2024 年，国家电投集团布局结构持续优化，经营质量全面提升，“一利”稳定增长，“五率”持续优化，穆迪评级上调至 A1。截至 12 月底，已完成国企改革深化提升行动三年总体任务量的 82%，进一步提升企业管理效能和创业动能。



国家电投集团 5 案例入选国务院国资委《千帆竞渡：基层国有企业改革深化提升行动案例集》，“码”上阅读国家电投集团入选案例。

Five cases from SPIC are included in the book, *Case Studies of the Enhancement Action for Deepening the Reform of Grassroots-level State-owned Enterprises*, compiled by the SASAC. Scan the QR code and learn more about SPIC case studies of deepening the reform.



Driven by a strong sense of mission and an exploratory and innovative spirit, SPIC has comprehensively implemented the SASAC's requirements for deepening SOE reform, advancing various reform tasks steadily. We completed our functional reform with high quality, achieving milestone breakthroughs in two major national sci-tech projects and increasing the proportion of clean energy industries to over 72% in our total portfolio. We accomplished energy supply missions during the New Year and Spring Festival holidays and the national "Two Sessions", and performed well the "three roles" expected of central SOEs, continuously enhancing our capabilities to support national strategies. We expanded our institutional reform with better performance, making greater efforts to establish the modern corporate system with Chinese characteristics. Thanks to these efforts, a new type of operational responsibility system has been implemented, the compensation structure gives greater consideration to frontline research personnel and those in positions of harsh conditions, and a more standardized and efficient market-oriented operating framework has been established. We also intensified the "Science and Technology Reform Action" and the "Double 100 Action," deepening the reform in ten of our subsidiaries, including SPIC China Power International Development and Shanghai Nuclear Engineering Research and Design Institute, and effectively stimulating their enterprise and initiative at work.

Upholding the "balanced growth strategy," SPIC has systematically implemented the "three-step" approach to management system restructuring, making substantive progress in deepening its reform. We optimized the organizational structure at the Head Office, cutting the number of departments from 20 to 18 and the number of service and support centers from 21 to 9, allowing the Head Office to concentrate on strategic management and control in an intensive and efficient manner. We reorganized specialized enterprises/institutions on the principle of "one enterprise in one industry," establishing the SPIC Engineering, SPIC Integrated Smart Energy, SPIC Energy Science and Technology Research Institute, and SPIC ETRC, and reshaping the SPIC Central Research Institute. This has given rise to a professional, more competitive supportive system featuring coordination, complementarity, and specialized strengths. We also carried out strategic restructuring on the principle of "one main business with multiple coordinated businesses," setting up platforms for our nuclear power and hydropower assets to go public. Our regional reform promoted the intensive allocation of resources on a provincial basis, standardizing cross-regional development to enhance competitiveness in specific regions.

SPIC Maintains Grade A Rating in Central SOE Performance Evaluations for 10 Consecutive Years.

In 2024, SPIC optimized its business portfolio and distribution with comprehensively enhanced performance. "One profit" steadily increased, "five ratios" continuously improved, and Moody's rating was upgraded to A1. By the end of December, we have completed 82% of the tasks under the three-year enhancement action for deepening the reform of SOEs, pushing our governance efficacy and developmental momentum to a higher level.

强化社会责任管理

Strengthening CSR management

国家电投集团坚决贯彻落实“四个革命、一个合作”能源安全新战略，聚焦“双碳”目标，以“创造绿色价值”为使命，践行“绿色、创新、融合，真信、真干、真成”企业价值观，努力和每一个利益相关方携手共建美丽中国、共享低碳生活、共迎幸福未来。

SPIC steadfastly implements the new energy security strategy of “Four Revolutions, and One Cooperation,” focusing on the dual-carbon goals. With a mission to create green value, SPIC practices its core corporate values “Pursue Green, Innovative and Integrated Development; Deliver Great Performance with Belief”. It strives to collaborate with all stakeholders to jointly build a beautiful China, share a low-carbon lifestyle, and embrace a prosperous future.

责任治理

CSR-based governance

国家电投集团建立统分结合、权责明确、协调顺畅、运转高效的社会责任工作机制。

SPIC has established an efficient corporate responsibility framework. This framework integrates unified planning with delegated execution, ensures clear division of roles and responsibilities, and promotes effective coordination.

责任组织

CSR organization

成立由集团公司董事长、党组书记担任主任的社会责任工作委员会，委员会下设办公室作为委员会的日常办事机构，办公室设在集团公司总部社会责任工作牵头部门，各二级单位作为集团公司履行社会责任的主要载体。

SPIC has set up the CSR Committee led by the Chairman, and an executing agency in the Head Office to lead CSR-related work. We assign subsidiaries and affiliates to fulfill specific CSR tasks.

责任制度

CSR system

升版《国家电力投资集团有限公司社会责任管理规定》，明晰、规范国家电投集团社会责任管理原则、组织和职责、议题管理、ESG 管理、监督考核等事项，确保责任工作落到实处、取得实效。

The *SPIC CSR Management Regulations* outlines our CSR management principles, organizations and duties, topic management, ESG management, as well as supervision and assessment, among other things. This document ensures effective CSR efforts with substantial results.

责任规划

CSR planning

在“均衡增长战略”的指导下，研究制定集团公司社会责任专项规划，纳入集团公司规划体系。

Guided by the “balanced growth strategy”, SPIC has made a special CSR plan and included it in the overall planning system.

责任议题

CSR topics

根据国家标准规定，确定国家电投集团社会责任核心议题，并鼓励各部门、各二级单位在践行核心议题的基础上，结合实际创新细化年度履责重点。

SPIC has identified the core CSR topics according to applicable national standards, and encouraged all departments, subsidiaries, and affiliates to pinpoint their own CSR priorities based on their respective actual conditions while executing the core topics.

ESG 管理

ESG management

将 ESG 工作纳入社会责任工作统筹管理，积极应对 ESG 发展带来的机遇和挑战，推动控股上市公司提高 ESG 治理能力，2024 年，控股的 6 家上市公司均发布了 ESG 报告，发布覆盖率达 100%；海外经营机构在海外经营管理、重大项目实施中应将 ESG 工作作为重要内容；积极探索数字化赋能建设，设计开发公司 ESG 管理跟踪系统（1.0 版），初步实现了 ESG 指标（含社会责任指标）数据、报告、案例等内容的录入、审批、检索功能全覆盖，为进一步提升 ESG 管治效能奠定基础。

SPIC has incorporated ESG into its holistic CSR management as an effort to address ESG-related opportunities and challenges, and pushed SPIC-controlled listed companies to step up their ESG management capabilities. In 2024, all our six controlled listed companies released their own ESG reports. Besides, our overseas operating branches took ESG as a priority in their operations and major projects. Actively exploring digital development, we designed and developed the ESG management tracking system (Version 1.0). This initial version covers the entry, approval, and retrieval functions of ESG indicators (including CSR indicators), reports and cases, laying the foundation for enhancing ESG management in the future.

责任培训

CSR training

加强社会责任及 ESG 专业人才培养，将社会责任及 ESG 培训纳入年度培训计划及相关班次，提升全员履责的自觉性和主动性。

SPIC has redoubled efforts to develop and expand CSR and ESG talent teams, and has integrated CSR and ESG training in the annual training plan and schedule in order to enhance the awareness and initiative of all employees in this field.

责任考核

CSR assessment

加强监督考评，将社会责任考核作为约束性指标纳入各二级单位负责人经营业绩考核范畴。

SPIC has tightened CSR supervision and assessment, regarding it as a mandatory indicator in the business performance appraisal of top executives of subsidiaries and affiliates.

国家电力投资集团有限
公司社会责任管理原则
SPIC CSR management
principles

围绕中心、服务大局。坚持党对社会责任工作的全面领导，围绕集团公司使命责任和中心任务开展社会责任工作，助力集团公司“均衡增长战略”落地。

全面融入、有机融合。把社会责任理念全面融入企业战略、重大决策和企业文化建设，将履行社会责任贯穿经营管理全过程，与现有管理体系有机融合。

彰显特色、遵循规律。在履行社会责任中立足实际、发挥优势，主动谋划开展特色履责实践，培育责任品牌，遵循社会责任工作的普遍规律和通用规则。

Stay focused on the core mission and serve the broader interests. SPIC exercises overall leadership over CSR efforts, and launches CSR initiatives aligning with its core mission and tasks to support the implementation of the “balanced growth strategy.”

Integrate CSR across all aspects of corporate governance. SPIC embeds CSR in corporate strategies, key decisions, and culture development, and fulfills its social responsibility as an integral part of operation, integrating it with the current management system.

Demonstrate unique strengths while following established principles. SPIC is grounded in its actual conditions and competitive strengths while performing its social responsibility. We strive to engage in SPIC-featured CSR practices and build a recognizable CSR brand while adhering to the universal CSR principles and commonly-accepted standards.

国家电投集团中国电力瓜州风电 70MW 项目并网
SPIC China Power Guazhou 70MW Wind Power Project Connected to the Grid

责任能力
CSR capability

作为央企 ESG 联盟的理事长单位，国家电投集团以支撑服务国家战略为己任，致力于全面提升 ESG 能力、加强 ESG 建设，2024 年，国家电投集团聚焦 ESG 管理水平提升，积极开展“集团公司 ESG 管理体系研究”课题研究，对 ESG 组织架构、指标体系、管理现状等进行分析研究；编制《ESG 指标体系》和《ESG 工作指引》；研究集团公司社会责任管理模型。承担“中国 ESG 研究十大课题（2024）”《中国特色 ESG 评价体系优化研究》，研究成果获中国企业改革与发展研究会高度评价；参与编制中国企业改革与发展研究会《企业 ESG 报告鉴证指南》《企业 ESG 管理人员能力要求》、中国电力企业联合会《电力企业 ESG 信息披露指南》《电力企业 ESG 评价指南》、中国电力建设企业协会《电力工程项目 ESG 评价》等团体标准，参加中国能源研究会《能源企业 ESG 披露指标体系与评价导则》研讨会，夯实社会责任（ESG）理论研究基础，进一步提高行业话语权及影响力。

As the chair of the SOEs ESG Alliance, SPIC is committed to supporting and serving national strategies. To this end, SPIC strives to strengthen its ESG capabilities and management on all fronts. In 2024, focusing on ESG management improvement, we launched the “SPIC ESG Management System” research program to analyze our ESG organizational structure, indicator system, and current management practices. We formulated the *ESG Indicator System* and the *ESG Work Guide*, and developed a tailored CSR model. We undertook the “Research on Optimizing a China-specific ESG Evaluation System”, one of the Top Ten ESG Research Programs in China (2024), with the research outcomes being highly praised by the China Enterprise Reform and Development Society. Moreover, we participated in drafting multiple group standards, including the *Guide for ESG Report Assurance* and the *Competency Requirements for ESG Managers in Enterprises* led by China Enterprise Reform and Development Society; the *Guide for ESG Information Disclosure of Power Enterprises* and the *Guide for ESG Evaluation of Power Enterprises* organized by China Electricity Council; and the *Guide for ESG Evaluation of Power Engineering Projects* led by China Electric Power Construction Association. Besides, we shared insights at the seminar centered on the “ESG Disclosure Indicator System and Evaluation Guidelines of Energy Enterprises” held by China Energy Research Society. All these efforts have laid a solid theoretical foundation for our ESG/CSR work, and enhanced our discourse power and influence within the industry.

2024 年 9 月 23 日至 25 日，国家电投集团 ESG 管理培训班举办，来自国家电投集团系统江苏公司、浙江公司等 32 家二级单位共计 76 名学员参加培训。

From September 23 to 25, 2024, SPIC organized ESG management training for 76 trainees from 32 subsidiaries and affiliates including SPIC Jiangsu Electric Power and SPIC Zhejiang Electric Power.

2024 年，中央广播电视总台、中国企业改革与发展研究会授予国家电投集团“ESG 榜样示范基地”和“ESG 卓越实践基地”称号。
In 2024, China Media Group and China Enterprise Reform and Development Society titled SPIC as the “ESG Demonstration Base” and the “ESG Excellence Practice Base”.



2024 年，国家电投集团党校挂牌成为中国企业改革与发展研究会首个“ESG 人才培养基地”。

In 2024, SPIC Leadership Academy was selected as the first “ESG Talent Training Base” by China Enterprise Reform and Development Society.

责任品牌
CSR brand

国家电投集团坚持以创建责任品牌为重要抓手，强化社会责任与公司品牌形象相结合，加快推进公司社会责任品牌体系建设，成立集团公司品牌管理委员会，借助中国品牌日、国家电投集团品牌商店等渠道，宣传展示公司品牌形象，传递品牌建设好声音，聚焦价值创造，打造“映山红”首个公益品牌，努力成为知责于心、担责于身、履责于行的典范企业，树立“负责任的能源央企”品牌形象。

In creating a responsible brand, SPIC strengthens the integration of CSR with brand image, and accelerates the establishment of a CSR brand system. It has established a Brand Management Committee, leveraging channels such as the China Brand Day and the SPIC Brand store to promote and showcase the Group's brand image and convey positive messages about brand development. Focusing on value creation, SPIC has launched its first public welfare program “Yingshanhong,” striving to become an exemplary enterprise in CSR commitment and fulfillment, thereby establishing itself as a responsible SOE in the energy sector.

国家电投集团位列“央企责任管理·先锋 30 指数（2024）”第 9 位
SPIC ranks 9th in “SOE CSR Management • Pioneer 30 Index (2024).”

国家电投集团控股上市公司中国电力、电投产融入选“中央企业上市公司 ESG·先锋 100 指数（2024）”，排名分别为第 45 位、第 91 位
SPIC China Power International Development and SPIC IFH (SPIC-controlled listed companies) rank 45th and 91th in “ESG Pioneer 100 Index of Listed SOEs (2024)”

国家电投集团位列“中国企业 300 强社会责任发展指数（2024）”第 15 位
SPIC ranks 15th in “CSR Development Index of Top 300 Enterprises in China (2024).”



国家电投集团获评“2024 重点行业社会责任发展指数电力行业优秀企业代表”
SPIC is honored as Excellent Power Enterprise—2024 CSR Development Index in Major Industries.



国家电投集团荣获 2024 年责任鲸牛奖“责任品牌奖”
SPIC is granted the CSR Brand Award—2024 Responsible Top Bull Awards.



国家电投集团《光明与希望——缅甸“无电村”通电减贫的“国家电投集团方案”》案例入选《中央企业海外环境、社会及治理（ESG）蓝皮书》，并获评中央企业海外 ESG 十佳案例。
“Light and Hope—SPIC Solution to Power Supply and Poverty Alleviation for Villages without Electricity Utilities in Myanmar” was included in the Blue Book on Overseas ESG for Central SOEs, and in the Top 10 Overseas ESG Cases of Central SOEs.



《国家电力投资集团有限公司 2023 社会责任报告》首次获得中国企业社会责任报告评级专家委员会“五星佳级”评价。
2023 Corporate Social Responsibility Report of State Power Investment Corporation Limited was rated “Five-star Excellence” by the Chinese Expert Committee on CSR Report Rating for the first time.

利益相关方沟通
Communicating with stakeholders

国家电投集团健全信息公开管理制度体系，提供广泛了解公司履责的渠道和途径，官网设置“社会责任”专栏，定期更新公司履行社会责任相关报告，通过官方微信平台以及媒体网站等及时公开披露企业社会责任相关工作信息或活动资讯；积极组织 and 参与行业论坛及会议，举办多样活动，不断拓展多元沟通渠道，增进利益相关方参与，2024 年，集团公司首个全国性公众沟通品牌“国和行”之“核冠军同行 零碳中国”在海阳核电举行，推动打造公众沟通品牌；承办京沪鲁核能公众沟通科普行活动，组织“国和一号”进社区、进学校，积极宣传核电知识，赢得利益相关方理解与支持。

SPIC has upgraded its information disclosure management system, and put in place an increasing number of communication channels and means. To be specific, the dedicated “Social Responsibility” section at our official website regularly updates reports related to our fulfillment of social responsibilities. Through the official WeChat platform and media websites, we timely disclose information on CSR efforts or activities. We actively organize and participate in industry forums and conferences, and host a wide range of events to enhance stakeholder engagement. In 2024, SPIC’s inaugural nationwide public engagement brand initiative, “Guohe Tour—Zero-Carbon China with Champions,” was held at Haiyang Nuclear Power Plant, advancing the development of a public communication brand. We also hosted the Beijing-Shanghai-Shandong Nuclear Energy Public Outreach and Science Popularization Tour, communicating information about “Guohe One” in communities and schools and spreading nuclear power knowledge. These efforts have gained understanding and support from stakeholders.



国家电投集团将提升社会公众对核能安全性和重要性的认知作为义不容辞的责任，2024 年 10 月 26 日，由中国核能行业协会主办、国家电投集团国家核电承办的“核能一起向未来”京沪鲁核能公众沟通科普行活动在山东、上海两地联合举行。

SPIC considers it a due responsibility to enhance public understanding of the safety and significance of nuclear energy. On October 26, 2024, the “Nuclear Energy for A Common Future” Nuclear Energy Public Outreach and Science Popularization Tour was carried out in Shandong and Shanghai by SPIC under the lead of China Nuclear Energy Association.

国家电投集团举办“绿动未来”媒体日活动暨社会责任报告、ESG 报告发布会
SPIC holds the “Green Future” Media Day and the Release Conference of CSR and ESG Reports

2024 年 7 月 9 日，国家电投集团“绿动未来”媒体日活动暨社会责任报告、ESG 报告发布会在北京举办，集中发布了“1+6+7”社会责任报告、ESG 报告（即《国家电投集团 2023 年度社会责任报告》和系统 6 家上市公司 ESG 报告、7 家二级单位社会责任报告）；会上还发布了国家电投集团 2023 年度社会责任（ESG）“十佳案例”，取得良好的社会反响。同时，组织相关单位将社会责任报告翻译成俄语、阿拉伯语、土耳其语、法语、孟加拉语及缅甸语等 6 种外语，推动涉外单位深化与利益相关方交流沟通。

On July 9, 2024, SPIC “Green Future” Media Day and the Release Conference of SCR and ESG Reports was held in Beijing. At the event, we released the “1+6+7” report suite, including SPIC 2023 CSR Report, ESG reports of six controlled listed companies, and CSR reports of seven subsidiaries and affiliates. The Conference also featured the release of SPIC Top 10 ESG/CSR Cases of 2023, winning a positive response from the public. Besides, SPIC organized the translation of its CSR Report into six foreign languages, including Arabic, Turkish, French, Bengali, and Burmese, supporting its overseas entities to strengthen communication with stakeholders.



Stakeholders 利益相关方	 政府 Governments	 股东 Shareholders	 伙伴 Partners	 客户 Customers	 员工 Employees	 社区 Communities	 环境 Environment	 社会组织 Social organizations
Expectations and Concerns 期望与诉求	合规经营、依法纳税 反腐倡廉、吸纳就业 贯彻国家政策 促进经济发展 保障能源供应 Operational compliance and law-based tax payment Anti-corruption and integrity, and job creation Implementing national policies Boosting economic development Ensuring energy supply	国有资产保值增值 降低经营风险 公开透明信息 维护合法利益 Value preservation and appreciation of state-owned assets Reduction of operational risks Transparent information disclosure Protection of legitimate rights and interests	诚实守信 合作共赢 Integrity and good faith Win-win cooperation	价格合理、服务优质 稳定能源供应 保护隐私数据 Reasonable prices and high-quality services Stable energy supply Private data protection	保障权益 薪酬福利 职业健康 职业发展 员工关爱 Protection of rights and interests Remuneration and benefits Occupational health Career development Employee care	确保核电安全 支持社区发展 Ensuring nuclear power safety Supporting community development	节能减排 保护生态 Energy conservation and emission reduction Ecological conservation	保持良好关系 建立良性互动 Maintaining good relationships Establishing positive interactions
Communication and Response 沟通与回应	建立政府间合作机制 合规经营管理 足额纳税 多元业务提供就业机会 接受监管部门监督 Cooperation mechanisms with governments Operational compliance Tax payment in full More employment opportunities through diverse business areas Supervision by regulators	稳健经营 资本运营性投资 保障股东知情权 规范董事会制度 Prudent operation Capital operational investment Protection of shareholders' right to know Standardizing the functioning of the Board of Directors	阳光采购 战略合作 反商业贿赂 Transparent procurement Strategic cooperation Anti-commercial bribery	保障电热供应 控制发电成本 奉献真心服务 反不正当竞争 举办品牌活动 Reliable electricity and heating supply Power generation cost control Sincere services Anti-unfair competition Branding activities	签订劳动合同 参与民主管理 人才培养体系 关注员工健康发展 发挥工会职能 Signing of labor contracts Participation in democratic management Talent cultivation system Employee health and development Functions of the labor union	确保生产安全 乡村振兴 开展志愿者服务 支持公益慈善 Ensuring work safety Promoting rural revitalization Conducting volunteering services Supporting public welfare activities	发展清洁能源 发展循环经济 确保绿色生产 节能减排技术升级 保护生物多样性 保护植被 Developing clean energy Developing circular economy Ensuring green production Upgrading technologies of energy conservation and emission reduction Biodiversity conservation Vegetation protection	举办公众开放日 提供宣传资料 建立交流机制 建立信息公开平台 Organizing Public Open Day Providing promotional materials Creating communication mechanisms Establishing information disclosure platform

03

科技赋能产业 加快发展新质生产力

Sci-tech Innovation Accelerates Development of New Quality Productive Forces

党的二十届三中全会明确提出“推进高水平科技自立自强”。国家电投集团以服务国家重大战略为己任，以增强核心功能、提升核心竞争力为目标，全力推动国家重大科技任务实施，加快关键核心技术攻关，着力提升自主创新能力，科技创新持续迸发澎湃动能、释放强劲活力，增强高质量科技供给能力。

The third plenary session of the 20th CPC Central Committee explicitly called for "greater self-reliance and strength in science and technology." Committed to supporting major national strategies and strengthening its own core functions and competence, SPIC has made all-out efforts to implement major national scientific and technological tasks, moved faster to push for breakthroughs in core technologies in key fields, and enhanced its capability of independent innovation. The Group's S&T innovations have consistently unleashed robust momentum and vitality, making it increasingly capable of offering high-quality technologies.

国家电投集团积极响应联合国可持续发展目标（SDGs）：

SPIC actively responds to the UN's SDGs:



坚持绿色科技赋能，大力培育发展新质生产力

It commits to empowerment by green technologies and strongly cultivates new quality productive forces.

打造科技创新高地

Fostering sci-tech innovation capabilities

国家电投集团创新搭建起“三层六类”架构体系，加快构建一流创新生态，完善创新体系、增强创新能力、激发创新活力，形成有利于科技创新的良好氛围。国家电投集团历经多年努力，消化吸收、全面掌握 AP1000 核电技术，坚定地扛起国家科技重大专项“大型先进压水堆核电站”的重任，形成了自主批量化建造能力。

SPIC has established a three-layered, six-category architecture to expedite the formation of a first-class innovation ecosystem. By improving the system, strengthening capability, and stimulating dynamics, we have fostered a sound atmosphere conducive to S&T innovation. Based on long years of efforts, SPIC has comprehensively grasped the AP1000 nuclear power technology, becoming fully capable of building and operating the "large advanced PWR nuclear power plant," a major national sci-tech project, and fostering robust capabilities of independent, extensive construction.

通过创建“电化学能源消防安全联合创新”应急管理部重点实验室和海洋工程全国重点实验室阳江基地，布局战略科技创新平台，充分发挥中央研究院科技创新先导作用，聚焦能源科技前沿深化前瞻攻关，强化集团应用基础研究能力，推动原始创新和关键核心技术攻关，为后续高效完成国家重大科技任务和国家部委科技任务打下坚实基础。2024 年，组建电投综能，推动综合智慧能源产业的创新发展；组建能研院，推动非核产业数字化智能化绿色化转型升级；组建经研院，作为建设中央企业国家高端智库的主要平台。

We have built the Key Laboratory for Fire Safety in Electrochemical Energy for the Ministry of Emergency Management and the Yangjiang Base of State Key Laboratory of Ocean Engineering as platforms for strategic S&T innovation. Fully tapping the leading role of the SPIC Central Research Institute, we have redoubled efforts in frontier areas of energy technology to intensify our applied and basic research capabilities and drive original innovation and breakthroughs in core technologies in key fields, thereby laying a solid foundation for effectively implementing major national/ministerial-level S&T tasks in the future. In 2024, we established the SPIC Integrated Smart Energy to promote the innovation and development of the integrated smart energy industry; the SPIC Energy Science and Technology Research Institute to promote the digital, intelligent, and green transformation and upgrading of non-nuclear industries; and the SPIC ETRC as a crucial platform for building a national high-end think tank for central SOEs.

充分发挥在产学研深度融合中的主体支撑与融通带动作用，围绕产业发展和面向未来产业的战略性前瞻性技术开展联合攻关，形成科技创新的良好氛围，加速产出优质创新成果，在“国和一号”研发过程中，形成知识产权成果 1.4 万余项，形成新产品、新材料、新工艺、新装置、新软件等 2000 余项。

We have consistently supported and promoted the deep integration of industry, universities, and research institutes, fostering collaborations aimed at breakthroughs in strategic and forward-looking technologies to drive the development of both current and future-oriented industries. A sound atmosphere for S&T innovation has been created that accelerates the delivery of quality innovations. The R&D process of Guohe One has yielded more than 14,000 IPR outcomes and over 2,000 items of new products, materials, processes, devices and software.

大力开展职工创新创效工作，举办创新成果擂台赛、推介大会，推动相同专业、相关产业领域创新工作室联盟，命名表彰示范创新工作室 133 个；广泛开展群众性创新创效活动，评选表彰优秀创新成果 480 余项，获得中国电力企业联合会、能化工会优秀创新成果 180 多项。

We encourage innovation and efficiency improvement among employees by organizing innovation competitions and promotion conferences, and facilitating the formation of innovation studio alliances within the same discipline or among related industries. A total of 133 exemplary innovation studios have been recognized and commended. We also carry out public innovation and efficiency enhancement activities, selecting and commending over 480 outstanding innovations, more than 180 of which have received awards from China Electricity Council and the Energy and Chemical Industry Labor Union.

• 专利 Patent

加强知识产权管理 Strengthening IP management

截至 2024 年底 As of the end of 2024

申请专利	其中发明专利申请	共获得专利授权	其中发明专利授权
4470 件	3148 件 (占比 70.4%)	2244 件	1058 件 (占比 47.1%)
4,470 patent applications	3,148 invention patent applications (70.4%)	2,244 patents granted	1,058 invention patents granted (47.1%)

2024 年 In 2024

新增国际专利申请	新增国际专利授权
7 件	21 件 (其中新增美日欧专利授权 12 件)
7 new international patent applications	21 new international patents granted (12 from the US, Japan and Europe)

• 技术标准 Technical standards

截至 2024 年底 As of the end of 2024

参与形成的国际、国家或行业标准	其中国家或行业标准	国际标准
337 项	328 项	9 项
Participated in compiling 337 international, national and industrial standards	328 national and industrial standards	9 international standards

升级现代产业引领

Upgrading modern industries

国家电投集团聚焦保障国家能源安全和绿色低碳发展，不断优化调整产业布局结构，深入推进传统产业转型升级，布局发展氢能、综合智慧能源等新兴产业，构建现代化产业体系。2025 年 1 月 7 日，国家能源局公布第四批能源领域首台（套）重大技术装备（项目）名单，全国共有 77 项技术装备入选，国家电投集团申报的 9 个项目榜上有名。从 2020 年开始，国家电投集团累计有 22 个项目入选。

Committed to safeguarding national energy security and green and low-carbon development, SPIC has continuously optimized its industrial portfolio. By driving the transformation and upgrading of traditional industries and making deployments in emerging industries such as hydrogen energy and integrated smart energy, we aim to establish a modern industrial system. On January 7, 2025, the National Energy Administration announced the fourth list of first-of-a-kind major technology and equipment in the energy sector. Of the 77 technologies and pieces of equipment selected nationwide, nine came from SPIC, driving the total number of selections from the Group to 22 since 2020.

国和一号 Guohe One

“国和一号”是我国三代核电自主化的标志性成果，由国家电投集团依托“大型先进压水堆核电站”国家科技重大专项研发，具有完全自主知识产权。“国和一号”单机组发电功率达 153.4 万千瓦，年发电量可达 125 亿千瓦时，每年可减少超 900 万吨温室气体排放。凭借其显著的安全性、经济性和环境友好性，“国和一号”在优化我国能源结构和推动绿色低碳发展进程中发挥着关键作用。

Guohe One is a landmark achievement in China's third-generation nuclear power technology self-reliance project. It is developed by SPIC, leveraging the major national S&T project of "large advanced PWR nuclear power plant," with complete IPR. Each unit of the Guohe One project has a generating power of 1534 MW, with an annual output of up to 12.5 TWh of electricity while reducing over 9 million tons of GHG emissions per year. Boasting exceptional safety, economic, and environmental performance, Guohe One plays a critical role in optimizing China's power structure and advancing green and low-carbon development.



项目“大型先进压水堆非能动安全关键技术及应用”科技成果获 2023 年度国家科学技术进步奖二等奖。

The “key technologies for passive safety of large advanced PWR and their applications” generated from the Guohe One project won the second prize of the National Science and Technology Progress Award in 2023.

锻造绿色增长硬核实力

Fostering capabilities of green growth

国家电投集团忠诚践行国家使命，矢志锻造“大国重器”，负责的“国和一号”“重型燃机”两个国家科技重大专项捷报频传，全面完成国家相关部委专项攻关年度任务。

We are committed to fulfilling our missions and delivering “vital projects and technologies” for the country. The two major national S&T projects we undertake—the Guohe One and the heavy-duty gas turbine—delivered continual progress, helping us achieve our annual technological tasks assigned by relevant state authorities.

重型燃机 Heavy-duty gas turbine

300 兆瓦级 F 级重型燃气轮机是国内首次自主研发的最大功率、最高技术等级的重型燃气轮机产品，是能源领域的核心设备，广泛应用于地面发电和电网调峰，具备重要的战略地位和广阔的市场前景。所采用的新技术、新材料、新工艺对我国燃气轮机基础学科进步、产业技术发展有显著的带动辐射作用，对保障我国能源安全和绿色发展具有重要意义。

国家电投集团作为重型燃气轮机项目实施主体单位，充分发挥新型举国体制优势，实施有组织创新，推进设计、制造、材料一体化协同，集聚国内相关企业、科研院所、高校等参与研制。

The 300 MW F-class heavy-duty gas turbine, China's first independently developed model of its kind, boasts the highest power output and technological sophistication in its category. As critical equipment in the energy sector, it is widely utilized for ground-mounted power generation and power grid peak shaving, holding significant strategic importance and promising market potential. The innovative technologies, materials, and processes incorporated into this turbine significantly advance foundational disciplines and industrial technologies, playing a pivotal role in ensuring China's energy security and promoting green development.

Leading the heavy-duty gas turbine project, SPIC orchestrated nationwide resources to drive collaborative innovation, coordinating design, manufacturing, and material development. Numerous enterprises, research institutes, and academic institutions contributed to the research and development of this cutting-edge turbine.



国家电投集团北京重燃牵头实施的国内首台兆瓦级纯氢燃气轮机 2024 年 6 月 27 日完成整机试验验证。
On June 27, 2024, the first domestic megawatt - class pure hydrogen gas turbine led by SPIC Beijing Heavy - duty Gas Turbine Energy Technology Development Co., Ltd. successfully completed the whole - machine test verification.

聚力激活产业创新势能
Activating potential for industrial innovation

光伏 PV

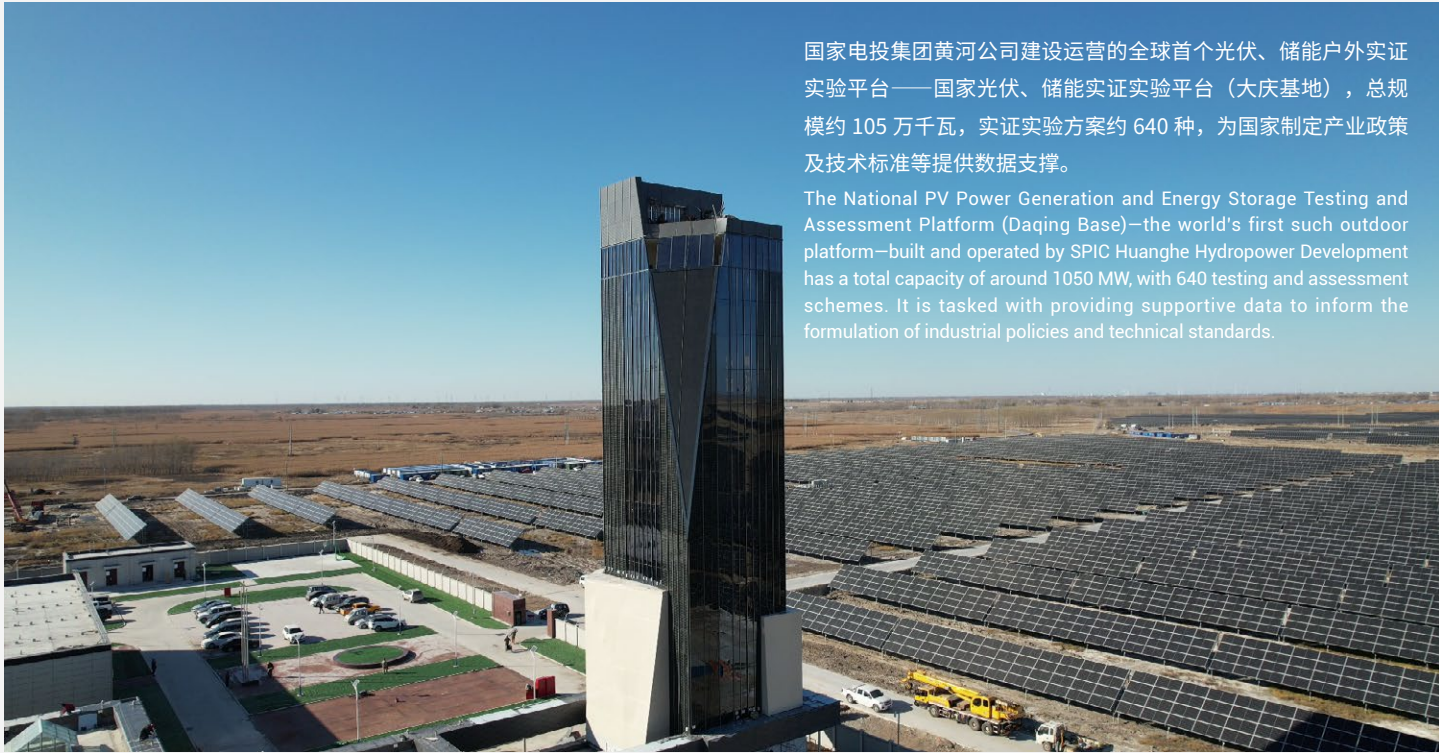
全球首个光伏、储能户外实证实验平台——国家光伏、储能实证实验平台（大庆基地）已连续 3 年发布数据采集与分析成果，先后发布了 8 次高寒高纬度地区实证实验数据成果，承担 8 项前沿课题研究，一批新技术、新产品在大庆基地广泛应用，2024 年，国家光伏、储能实证实验平台（大庆基地）成功入选中央企业科技成果应用拓展工程首批项目清单；在 2024 光伏行业年度大会上发布《国家电投集团光储实证蓝皮书（2024）》，多角度展现黑龙江大庆、青海共和两个实证实验平台数据分析成果；自主研发的 TBC 电池光电转换效率达到 26.08%，钙钛矿叠层电池实验室效率达到 32.33%；攻克新能源 + 储能协调稳定运行等关键技术，光伏电站系统效率和多能互补利用效率达到国际先进水平。

The National PV Power Generation and Energy Storage Testing and Assessment Platform (Daqing Base)—the world's first such outdoor platform—has released its data collection and analysis results for three consecutive years and the demonstration and experimental data for alpine, high-altitude regions eight times. It undertakes eight frontier research projects and has already applied a large number of new technologies and products. In 2024, it was selected as one of the first projects for the expanded application of SOEs' S&T achievements. At the 2024 Annual Conference of PV Industry, SPIC issued the *SPIC Bluebook on PV Energy Storage Demonstration 2024*, disclosing the data analysis results from its two testing and assessment platforms in Heilongjiang's Daqing and Qinghai's Gonghe. Our independently developed TBC cell has reached a photoelectric conversion rate of 26.08%, and the perovskite tandem solar cell has reached the lab efficiency of 32.33%. We have successfully grasped key technologies such as the coordinated and stable operation of new energy + energy storage, improving PV station system efficiency and multi-energy utilization efficiency to world-leading levels.



“码”上了解光储实证成果

Scan the QR code and learn about solar power storage demonstration results.



国家电投集团黄河公司建设运营的全球首个光伏、储能户外实证实验平台——国家光伏、储能实证实验平台（大庆基地），总规模约 105 万千瓦，实证实验方案约 640 种，为国家制定产业政策及技术标准等提供数据支撑。
The National PV Power Generation and Energy Storage Testing and Assessment Platform (Daqing Base)—the world's first such outdoor platform—built and operated by SPIC Huanghe Hydropower Development has a total capacity of around 1050 MW, with 640 testing and assessment schemes. It is tasked with providing supportive data to inform the formulation of industrial policies and technical standards.

风电 Wind power

在风功率预测、智慧运维等新技术应用方面持续迭代升级，实现多方面突破性进展。牵头启动国家重点研发计划《超大型深远海漂浮式风电机组基础关键技术及应用》项目，课题的研究成果和示范项目将推动我国深远海漂浮式风电从样机示范阶段向商业应用阶段转变，助力我国深远海风电资源规模化开发，引领海上风电高质量发展，2024 年 1 月 15 日，项目获批立项，实现了国家电投集团风电领域在科技部国家重大科技项目方面的首次突破。

We continuously iterate and upgrade new technologies such as wind power prediction and intelligent operation and maintenance, achieving breakthroughs in multiple areas. We took the lead in implementing a key national R&D program—"Key Technologies and Applications for Ultra-Large Deep-Sea Floating Wind Turbine Foundations." The research results and demonstration project of this program will drive China's deep-sea floating wind power from the prototype demonstration phase to the commercial application phase, promoting the large-scale development of this sector and leading the high-quality development of offshore wind power. On January 15, 2024, the project was approved, marking SPIC's first wind power project listed as a major national science and technology project in the Ministry of Science and Technology.

水电 Hydropower

研发包含“远程巡检、设备诊断、状态检修支持、优化运行、知识中心”五大技术体系的水电智能远程运维系统，实现水电数字化、智能化；西宁水电集控中心的建成投运使得水电站远程集控率由 73% 上升至 80%，装机容量集控率由 34% 上升至 74%，公司主力大中型水电站基本全部纳入远程集控管理；发布集团公司“存量水电站智慧化改造典型设计方案”，试点实施五强溪、重庆江口等电站智慧化建设。

We developed an intelligent remote operation and maintenance system comprising five major components—remote inspection, equipment diagnosis, condition maintenance support, operation optimization, and knowledge center, achieving digitalized and intelligent hydropower development. The completion and operation of the Xining Hydropower Centralized Control Center increased the remote centralized control rate of hydropower stations from 73% to 80%, and that of installed capacity from 34% to 74%. SPIC's main medium- and large-scale hydropower stations are almost all put under remote centralized control. We also released the "Typical Designs for Intelligent Retrofit of Existing Hydropower Stations," piloting intelligent retrofit at Wuqiangxi and Chongqing Jiangkou hydropower stations.

新型储能 New types of energy storage



推进新型储能高质量发展，自主研发掌握压缩空气储能关键技术，攻关光储同步发电、液态空气储能、热泵储能（CASE）、飞轮等前沿技术。致力于提高系统灵活性调节能力，增强能源供应可靠性。

We have advanced the high-quality development of new-type energy storage and independently developed key technologies for compressed air energy storage, making breakthroughs in cutting-edge technologies such as solar power generation with synchronous storage, liquid air energy storage, CASE, and flywheel storage. SPIC is committed to improving the system's flexible adjustment capability to enhance energy supply reliability.

国家电投集团新型储能项目投产应用
SPIC's new-type energy storage project is put into operation.



2024 年 6 月 6 日，江苏省内规模最大的独立储能电站——国家电投集团江苏公司滨海 200 兆瓦 /400 兆瓦时独立新型储能项目并网成功，投产首月充放电 57 次，累计充电 2741 万千瓦时，顶峰放电 2284 万千瓦时，实现 2000 万元售电利润。

On June 6, 2024, SPIC Jiangsu Electric Power's 200 MWh/400 MWh independent new-type energy storage project in Binhai—the largest independent energy storage power station in Jiangsu Province—was successfully connected to the grid. In its first month of operation, the power station underwent 57 charge-discharge cycles, with a cumulative charging volume of 27.41 GWh and peak discharging volume of 22.84 GWh, achieving 20 million yuan in profits from electricity sales.



国家电投集团江苏公司滨海 200 兆瓦 /400 兆瓦时独立新型储能项目
SPIC 200 MW/400 MWh independent new-type energy storage project in Binhai

综合智慧能源 Integrated smart energy



较早发力用户侧首创综合智慧能源模式，加强综合智慧能源集约化、可复制的突破。打造形成“一样板村镇+三模式”业务形态，第一批试点县建设取得系列成效。2024 年 4 月 19 日，第 49 届日内瓦国际发明展大奖名单揭晓，国家电投集团“城市级虚拟电厂边缘控制装置及聚合平台”项目获“沙特阿拉伯代表团奖”“杰出创新奖”和“特别嘉许金奖”。

SPIC was one of the first to develop the user-side integrated smart energy model, working hard to make breakthroughs in its intensive and replicable development. We have established a model town/village and three models, achieving a series of results in the first batch of pilot counties. On April 19, 2024, the winners of the 49th International Exhibition of Inventions Geneva were announced. SPIC's "Edge Control Devices and Aggregation Platform for Urban-Level Virtual Power Plant" project won the Prize of the Saudi Arabian Delegation, the Outstanding Invention Award and the Gold with Congratulations of the Jury.



国家电投集团中国电力新源智储青海格尔木共享储能电站项目 100MW/200MWh
SPIC China Power XYZ Storage Qinghai Golmud Shared Energy Storage Power Station Project 100MW/200MWh

深化数智融合建设
Deepening digital intelligence

国家电投集团积极学习贯彻习近平总书记关于发展新质生产力、建设数字中国的重要论述，坚定不移建设“数字国家电投集团”。进一步优化数字化转型顶层设计，着力打造业务驱动的数字化体系，培育数字技术与能源产业融合发展的新优势。加大力度推进 ERP 系统建设，推进已有信息系统整合优化和升级替代，充分发挥数字技术在集团创新发展中的作用，为打造世界一流清洁能源企业奠定坚实基础。

Bearing in mind President Xi Jinping's important remarks on developing new quality productive forces and building a digital China, SPIC has steadfastly pursued its own digitalization. We refined the top-level design for digital transformation, focused on developing business-driven digital systems and fostering new strengths in the integration of digital technologies and energy industry. We worked harder to develop the ERP system, pushing the integration and upgrading of existing information systems and strengthening the role of digital technology in driving the Group's innovative development, in a bid to lay a solid digital foundation for building a world-class clean energy enterprise.

培育数智司库新生态 Fostering a new ecosystem of digital treasury

国家电投集团财务公司构建云计算运行模式，融合 AI 全新数字能力，发展高效协同的数智化司库管理体系，实现对司库风险专业高效的线上化管理，以数字技术服务金融监管转型创新。全面降低资金管理风险，涉及支付类的预警数量逐月下降，从最高 8000 余笔预警减少至 3000 余笔，减少约 62%。在资金监督相关场景成功实现智慧化转型升级，为各央企单位司库建设提供了可借鉴、可参考的实践案例。

2024 年 7 月 23 日，财务公司“数智化司库管理系统开发及应用”项目获得中国电力企业联合会颁发的科学技术成果鉴定证书，获评国际领先水平。

SPIC Finance has developed a cloud computing operation model that incorporates AI's new digital capabilities to develop an efficient and coordinated digital treasury management system. This system realizes professional and efficient online management of treasury risks and supports the transformation and innovation of financial regulation with digital technologies. The company has comprehensively reduced fund management risks, with the number of payment-related alerts decreasing month by month from a peak of over 8,000 to around 3,000, down by about 62%. It has succeeded in the intelligent transformation and upgrading of fund supervision-related scenarios, providing reference-worthy practices for the treasury development of other central SOEs.

On July 23, 2024, SPIC Finance's "Digital Treasury Management System Development and Application" project won the S&T achievement certification granted by China Electricity Council for its world-class performance.

国家电投集团“电投云”平台荣获 IDC 未来企业大奖
SPIC Cloud won the IDC Future Enterprise Awards.



9 月 11 日，国家电投集团“电投云”平台荣获“2024IDC 中国未来企业大奖”优秀奖。电投云作为国家电投集团数字化转型重要的基础平台，是公司实现云化、服务化、开放式 IT 架构的重要支撑。电投云采用成熟开放的云服务架构，覆盖全集团 1000 多家单位 13 万名员工，总算力达到每秒 3000 万亿次，云主机数量达到 6030 台，承载产业数据中台、电投壹平台等 231 个业务系统，全面实现“上云、用数、赋智、低碳”。

On September 11, the SPIC Cloud platform won the 2024 IDC Future Enterprise Awards—Certificate of Excellence. As a vital and fundamental platform for SPIC's digital transformation, SPIC Cloud is a cornerstone bolstering the Group's well-proven and open cloud service architecture. With 6,030 cloud hosts, the platform has a total computing capacity of 3PFlops, covering 130,000 employees of SPIC's over 1,000 subsidiaries and carrying 231 business systems including the industrial data center and the Dian Tou Yi. It fully realizes "cloud, data, intelligent empowerment, and low carbon."

坚守战略使命 彰显央企责任担当

Commitment to Strategic Mission Demonstrates Sense of Responsibility

国家电投集团积极响应联合国可持续发展目标（SDGs）：

SPIC actively responds to the UN's SDGs:



构建和谐劳动关系，提升服务人民美好生活水平

It develops harmonious labor relations and improves its capability of improving people's lives.

国家电投集团坚持负责任经营，聚焦员工成长，建设高素质专业化人才队伍；积极搭建合作交流对接平台，助力现代产业链建设；扎实推动共同富裕，助力全球繁荣发展，不断提升服务人民美好生活水平，打造可信赖的企业公民品牌。

Committed to responsible operation, SPIC highlights employee growth and has fostered a high-caliber, professional team. We have actively set up cooperation and exchange platforms to establish a modern industry chain, and played our part in pursuing common prosperity and global development. While enhancing our capability of improving people's lives, we are trying to create a trustworthy corporate citizen brand.

国家电投集团黄河公司龙羊峡水电站入选电力工业遗产名录。

Longyangxia Hydropower Station of SPIC Huanghe Hydropower Development Co., Ltd. was included in the List of Electric Power Industry Heritages.

健全员工权益保障

Improving employee rights and interests

国家电投集团坚持“人才强企”理念打造人才高地，遵循人才成长规律，全面推进经营管理、专业技术、操作技能三支队伍建设，现有经营管理人才 1.4 万人，占比 11.2%；专业技术人才 5.2 万人，占比 41.5%；操作技能人才 5.9 万人，占比 47.3%。

Recognizing talent as the cornerstone of corporate growth, SPIC has cultivated a robust talent ecosystem aligned with the principles of professional development. We comprehensively advanced three teams, respectively specializing in operational management, specific technologies, and hands-on skills. The Group currently employs 14,000 managerial personnel, 52,000 technological professionals, and 59,000 skilled technicians, accounting for 11.2%, 41.5%, and 47.3% of the total workforce, respectively.

保障员工权益

Protecting the rights and interests of employees

国家电投集团全面构建和谐劳动关系，模范遵守招聘录用、收入分配、社会保障、福利待遇等方面的法律法规，切实保障职工合法权益。

SPIC has comprehensively established harmonious labor relations. We are a model enterprise in complying with laws and regulations regarding recruitment, income distribution, social security, and benefits, effectively ensuring the legitimate rights and interests of our employees.

平等雇佣

Equal employment

严格遵守《中华人民共和国劳动法》等法律法规，明确招聘录用规范要求，公平公正公开引才育才；反强迫劳动和骚扰虐待，杜绝非法用工；平等对待不同民族、性别和文化背景的员工，严禁各类歧视；尊重员工隐私；持续做好稳就业保就业促就业，制定《高校毕业生招聘改进优化方案》，开展校企合作；着力引进跨背景跨领域顶尖人才，助推企业战略多维布局与长效增长，共招聘 2024 届高校毕业生 3805 人，较上年增长 4%，其中理工科高校毕业生占比达 85%；依托产业链发展，带动 10 余万个社会岗位创造。

We strictly abide by the *Labor Law of the People's Republic of China* and other relevant laws and regulations, and clarify recruitment standards and requirements to ensure fair, just, and open talent recruitment and utilization. We oppose forced labor, harassment and abuse, eliminate illegal practices in employment, and treat employees of different ethnicities, genders, and cultural backgrounds equally, prohibiting discrimination of any kind and respecting employees' privacy. To stabilize and promote employment, we formulated the *Improvement and Optimization Plan for Graduates Recruitment*, and collaborated with other enterprises, with a special focus on top talent with crossover backgrounds, so as to boost our multi-dimensional strategic arrangements and sustainable growth. SPIC recruited 3,805 graduates in 2024, a 4% increase from the previous year, with those from technological and engineering universities accounting for 85%. We have also created more than 100,000 job opportunities throughout our industry chain.

薪资福利

Remuneration and benefits

坚持以“均衡增长战略”为引领，建立规范有序的收入分配体系、覆盖全面的社保体系和精准多样的福利保障体系，保障全员年均带薪休假 10 天，积极落实军人安置政策，切实保障农民工权益，实现农民工欠薪零发生。切实维护和保障员工权益，有力提升员工满意度与归属感，实现员工与企业携行致远。2024 年，国家电投集团有 36 家二级单位接收安置退役士兵 56 人。

Upholding the “balanced growth strategy,” we have established a standardized income distribution system, a comprehensive social insurance system, and a targeted and diverse benefits system. All employees enjoy an annual ten-day paid leave on average, and resettlement policies for ex-service members are implemented. We ensured migrant workers' rights and interests by always paying them in full and on time. By effectively protecting employees' rights and interests, we have enhanced their satisfaction and sense of belonging, determined to achieve common development with them. In 2024, 36 of SPIC's subsidiaries recruited 56 ex-service members.

民主管理

Democratic management

构建以职工代表大会为基本形式的民主管理体系，加强职代会建设，建立合理化建议长效机制，坚持开展提案征集办理，着力为职工群众办实事，2024 年，通过“SPIC—家园”传递集团公司党组声音和重要决策、新兴产业资讯、先进典型事迹等各类信息共 1204 件，收到诉求意见 126 条，全部办理落实。

SPIC has established a democratic governance system with the Employees' Congress playing a dominant role, and continuously strengthened this mechanism. We set up a long-term mechanism for collecting suggestions and implementing rational ones to address employees' concerns. In 2024, the “SPIC-Employee Community” delivered 1,204 pieces of information, including messages from and important decisions by SPIC leadership, information on emerging industries, and typical cases. It also received 126 requests and suggestions, all of which were addressed.

助力员工成长

Promoting employee growth

国家电投集团制定《一流人才队伍建设规划（2025—2027 年）及中长期展望》，持续深化“3+1+N”人才体系，不断加强重点领域人才和专业人才培育，持续提升人才队伍的价值创造能力，系统推进人才队伍建设。积极推进工程硕博培养改革专项试点，截至 2024 年底，与清华大学等 11 所高校，在核科学与技术等 3 个领域联合培养工程硕博士 229 人。

We formulated the *Top-grade Talent Development Plan (2025-2027) and Medium-to-long-term Outlook*, and continued to enhance the “3+1+N” talent system, focused on the cultivation of talent in key fields and specialized areas. We have consistently enhanced our employees' value-creating capabilities and advanced their development in a systematic manner. SPIC launched a pilot reform in the cultivation of engineering masters and doctors. As of the end of 2024, we, in partnership with 11 universities including the Tsinghua University, have cultivated 229 engineering masters and doctors in three areas of nuclear science and technology.

贯通发展路径

Creating unblocked growth path

修订发布《领导人员选拔任用管理规定》《领导人员退出管理办法》《员工职业发展管理办法》等规章制度，建立科学规范的领导人员选拔任用制度，加快推进一流队伍建设，创新人才发展机制，推进员工职业生涯发展，培养造就适应集团战略发展要求的经营管理、专业技术、操作技能人才队伍。

We revised a series of rules and regulations such as the *Regulations on the Selection and Appointment of Leading Executives, Methods for the Management of the Exit of Leading Executives, and Methods for the Management of Employees' Career Development*. With these, we established a sound and standardized system for the selection and appointment of leading executives, accelerated the development of a first-class team, created new talent development mechanisms, and facilitated employees' career growth. As a result, we have cultivated a team of diversified talent specializing in business management, particular technologies, and hands-on techniques who meet the Group's requirements for strategic development.

提升专业素养
Improving professional competence

建立广泛的科技人才培养平台，搭建一流的企业教育培训平台和产教融合平台，各党校分校和培训基地辅助落实的“1+2+1+N”教育培训管理体系。编制发布集团公司《教育培训规划（2023—2027 年）》和年度培训计划；组织全系统 4.4 万余名学员按时完成“国资 e 学”学习任务，实现应训尽训；强化“一把手”培训，以“弘扬延安精神，提高政治能力”为主题举办 3 期“一把手”政治能力提升培训班；抓好技术技能培训，深入开展安全生产、工程建设、电力交易等各类专业培训和战新、基础、核能产业等系列专业培训；加强全国“工匠学院”建设，打造国家电投集团“工匠学院”、2 个省级“工匠学院”，26 个培训基地，国家电投集团“工匠学院”和黄河公司“黄河工匠学院”成功入选全总首批 100 家工匠学院建设点。

SPIC has established a “1+2+1+N” training framework, comprising technological talent cultivation platforms, top-grade educational and training platforms, and integrated industry-education platforms, implemented by sub-schools of the SPIC Leadership Academy and numerous training bases. We released the *SPIC Education and Training Plan (2023–2027)* and annual training plans. We organized over 44,000 trainees across the SPIC system to complete their learning tasks on the “SASAC e-Learning” platform on time. We intensified the training for “top executives” by conducting three “political capability enhancement” sessions for them with the theme of “Promoting the Yan'an Spirit and Enhancing Political Capabilities.” Stressing technical and skills training, we carried out specialized training in a variety of areas including work safety, engineering and construction, and power trading, as well as serial training in strategic emerging, basic, and nuclear energy industries. We have built “Craftsman Colleges” nationwide, including one of the Group level and two of provincial level, along with 26 training bases. The SPIC “Craftsman College” and SPIC Huanghe Hydropower Development’s “Yellow River Craftsman College” were selected among the first 100 national “Craftsman Colleges” by the All-China Federation of Trade Unions.

绿色引领转型，共建可持续美好未来
Green Transition Towards a Sustainable Future

9 月 26 日，国务院国资委召开中央企业先进集体和劳动模范表彰大会，隆重表彰中央企业先进集体和劳动模范代表。国家电投集团 5 个集体、9 名个人获表彰。

On September 26, the SASAC of the State Council held a grand conference to commend outstanding collectives and model workers from central SOEs. Five collectives and nine individuals from SPIC were awarded.



国家电投集团山东核电有限公司运行一处 2 号机运行二值——坚守前沿，精研创新，引领核电供热双轮驱动。
Operation Team 2 for Unit 2 under Operation Division 1 of SPIC Shandong Nuclear Power: devoted to operation and innovation, powering the dual drives of nuclear power and heat supply.



国家电投集团上海电力土耳其 EMBA 发电有限公司——丝路筑能，产业共兴，打造中国能源海外名片。
EMBA Electricity Production (Türkiye) of SPIC Shanghai Electric Power: prospering the Silk Road through industrial development, creating a model Chinese energy enterprise overseas.

合规稳健经营，筑牢责任治理根基
Sound Operation Ensures Responsible Governance

中央企业先进集体
Advanced collectives of central SOEs



国家电投集团上海核工程研究设计院股份有限公司国和一号示范工程项目部——攻坚创优，勇担重任，助推核电技术自立自强。
Guohe One Demonstration Project Department of SPIC Shanghai Nuclear Engineering Research and Design Institute: making breakthroughs, shouldering responsibilities, pursuing national self-reliance and strengths in nuclear power technology.



国家电投集团内蒙古霍煤鸿骏铝电有限责任公司——安全筑基，产业升级，建设清洁智慧铝电企业。
Huomei Hongjun Aluminum Power Company of SPIC Inner Mongolia Electric Power: ensuring safety, upgrading technologies, building a clear and intelligent aluminum power company.

科技赋能产业，加快发展新质生产力
Sci-tech Innovation Accelerates Development of New Quality Productive Forces

坚守战略使命，彰显央企责任担当
Commitment to Strategic Mission Demonstrates Sense of Responsibility



国家电投集团揭阳前詹风电有限公司——地企同频，旗帜指引，担当海上风电先行部队。
SPIC Jieyang Qianzhan Wind Power: collaborating with local government, pioneering offshore wind power.

中央企业劳动模范代表
Model employees of central SOEs



国家电投集团铝电公司青鑫炭素王维祥——创新研发，改造升级，筑牢产品质量发展根基。
Wang Weixiang from Qingxin Carbon of SPIC Aluminum and Power Investment: consolidating the foundation for product quality with innovative R&D.



国家电投集团国核示范工程管理处岳凯——深耕核电，创新攻坚，突破国和一号工程难题。
Yue Kai from Engineering Management Department of SPIC State Nuclear Power Demonstration Plant: tackling bottlenecks in Guohe One project through dedication and innovation.



国家电投集团西藏公司山南公司旦增曲扎——恪守职责，踏实严谨，长期坚守能源保供前线。
Dan Zeng Qu Zha from Shannan Company of SPIC Xizang Electric Power: dedicated to the frontline position of energy supply with diligence and commitment.



国家电投集团中国电力芜湖发电丁程剑——思想进步，技术扎实，主动转型能源一线阵地。
Ding Chengjian from Wuhu Power Company of SPIC China Power International Development: a dedicated technical professional voluntarily shifting to frontline position.



国家电投集团中央研究院核能与核技术研究所余慧——创新引领，匠心钻研，打通核电自主发展路径。
Yu Hui from the Department of Nuclear Energy and Technology of SPIC Central Research Institute: blazing the path for independent nuclear power development with innovation and dedication.



国家电投集团黄河公司格尔木分公司余建昌——坚毅笃行，钻技奉公，不断筑牢安全生产之基。
Yu Jianchang from the Golmud Branch of SPIC Huanghe Hydropower Development: consolidating the foundation for safe production with dedication and assiduous study.



国家电投集团吉电股份四平第一热电公司张玉忠——攻坚克难，勇于求变，技术创新驱动提质增效。
Zhang Yuzhong from Siping No.1 Co-generation Company of SPIC Jilin Electric Power: enhancing quality and efficiency by overcoming difficulties and making technological innovations.



国家电投集团江苏公司江苏海上风电公司葛双义——深耕细作，党建铸魂，矢志不渝谋新能源发展。
Ge Shuangyi from Jiangsu Offshore Wind Power Company of SPIC Jiangsu Electric Power: pursuing new energy development through meticulous efforts.



国家电投集团中国重燃设计研究中心吴宏——扎根专项，带队攻关，打破重燃关键技术难题。
Wu Hong from the Design & Research Center of SPIC UGTC: overcoming vital technical chokepoints in heavy-duty gas turbine through unremitting, concerted efforts.

首届国家电投大工匠
First SPIC Masters of Craftsmanship



上海电力漕泾热电生产技术部副主任——唐彬
Tang Bin, deputy director of Production Technology Department, Caojing Co-generation Plant, SPIC Shanghai Electric Power

唐彬攻克高温合金焊接技术难题，突破发电设备极限工况耐磨层现场修复工艺瓶颈，带领团队获 10 件发明专利，为发电设备安全运行保驾护航。

Tang Bin overcame technical difficulties in high-temperature alloy welding, and broke the bottleneck on on-site recovery of wearing layer of power generation equipment in extreme conditions. He and his team have been granted ten invention patents, safeguarding the safe operation of power generation equipment.



中国电力常熟发电热工检修部热控一班班长——孙建栋
Sun Jiandong, team leader of thermal control from the Thermal Repair & Maintenance Department, Changshu Power Plant, SPIC China Power International Development

孙建栋革新热工技术研发路径，获 1 项发明专利、5 项实用新型专利，打造 PLC（可编程逻辑控制器）培训体系，QC 成果领跑全国电力行业。

Sun Jiandong's revolutionary thermal technology R&D approach was granted one invention patent and five utility model patents. He developed the PLC (programmable logic controller) training system, with its QC results leading the national power industry.



国核示范调试管理处副处长——段琰璞
Duan Yanpu, deputy chief of Commissioning Division, SPIC State Nuclear Power Demonstration Plant

段琰璞领衔国家重大工程“国和一号”首堆调试，攻难关、解难题，助力示范工程按计划有序推进，摘得“全国五一劳动奖章”殊荣。

Duan Yanpu led the commissioning of the first unit of the Guohe One project, a major national project, overcoming numerous challenges and contributing significantly to the project's implementation as planned. He was awarded the "National May 1st Labor Medal."



国核锆业制造中心无损检测组组长——卢辉
Lu Hui, NDT team leader from the Manufacturing Center, State Nuclear Bao Ti Zirconium Industry

卢辉专精核级锆材无损检测，解决了十余项重点项目中的无损检测难题，主编 4 项国家标准，匠心守护核级锆材质量生命线。

Lu Hui, specializing in NDT of nuclear-grade zirconium, has resolved bottlenecks in over ten key projects. He has led the development of four national standards, ensuring the quality of nuclear-grade zirconium with diligence and dedication.



五凌电力发电集控中心运行技能大师——曹德勤
Cao Deqin, master of operating skills from the Centralized Control Center, SPIC Wuling Power

曹德勤致力研发梯级水电智能监控系统，优化报警智能化技术，培养骨干数十人，获电力科技创新一等奖，守护流域高效发电。

Cao Deqin is dedicated to developing the intelligent monitoring system for cascade hydropower stations, improving the smart alarming technology and cultivating tens of backbone technicians. He won the first prize of Electric Power Technology Innovation for his contributions to efficient power generation.



黄河公司新能源集控中心技能大师——李翠婷
Li Cuiting, master of skills at New Energy Centralized Control Center, SPIC Huanghe Hydropower Development

李翠婷开拓新能源光伏集控运维新模式，主导 25 座电站动态试验，编制国家级职业技能鉴定教材，获得全国光伏竞赛双料冠军。

Li Cuiting pioneered an innovative model for centralized PV control, operation, and maintenance, spearheaded dynamic testing for 25 power stations, and led the development of a national textbook for occupational skill appraisal. She is a "dual champion" in the national PV contest.



国核运行检测技术业务部技术二室副经理——张乐
Zhang Le, deputy manager of No.2 Division of the Inspection Technology Department, State Nuclear Power Plant Service

张乐扎根核能现场设备检测一线，精通相控阵超声焊缝检验技术，包揽全国技能竞赛三项大奖，以“全国技术能手”树行业技术标杆。

Zhang Le is dedicated to on-site inspection of nuclear equipment, specializing in PAUT (phased array ultrasonic testing). He swept all three awards at the national skills competition, being recognized as a "national technical master" and setting a new benchmark in the industry.



河南公司工程运维检修事业部汽机技术专工——王树立
Wang Shuli, gas turbine specialist from the Engineering, Operation and Maintenance Department, SPIC Henan Electric Power

王树立破解汽轮机检修疑难杂症千余例，编制行业标准手册，获集团竞赛榜首，被誉为火电检修领域的“技术百科全书”。

Wang Shuli has resolved over 1,000 difficulties in gas turbine inspection. He developed industrial standards and won first prize in SPIC's group-wide competition, being recognized as a "walking encyclopedia" of thermal power inspection.



五凌电力科技公司运营诊断事业部主任——莫凡
Mo Fan, director of Operating Diagnosis Department, SPIC Wuling Power Science and Technology Company

莫凡精研继电保护专业，驱动智能运维技术革新，2 项成果达国际领先水平，斩获 18 件发明专利，以“全国技术能手”领跑电力科技前沿。

Mo Fan specializes in relay protection and has revolutionized intelligent operation and maintenance technology. He is granted 18 invention patents, with two reaching world-leading levels, being recognized as a "national technical master."



国核设备生产技术部焊接技术科高级技师——豆存印
Dou Cunyin, senior welding technician from the Production Technology Department, Shandong Nuclear Power Equipment Manufacturing

豆存印锻造核电焊接“零缺陷”标杆，AP1000 核心部件焊接合格率 100%，摘得“全国五一劳动奖章”，铸就国家重大工程安全基石。

Dou Cunyin has set the record of "zero flaw" in nuclear welding and a 100% pass rate in welding core components of AP1000, firmly safeguarding the safety of major national projects. He was awarded the "National May 1st Labor Medal."

落实员工关爱

Caring for employees

国家电投集团坚持以生活、职业、健康 3 项常态化关心、特困职工和重点人群 2 个特殊群体关爱、“SPIC- 家园”和“心能源”心理关爱 2 个平台为抓手，实施精准帮扶和关爱，不断增强职工的获得感、幸福感、安全感。

SPIC has offered targeted assistance and care for employees, focusing on three key dimensions (life, job, and health), two main groups (employees in exceptional difficulties and priority groups), and two platforms (“SPIC-Employee Community” and “Energy for Heart”), continuously increasing employees' sense of gain, happiness, and security.

身心健康

Physical and mental health

国家电投集团严格遵循《中华人民共和国职业病防治法》等法律法规，出台《职业健康和劳动保护管理办法》，建立职业健康风险数据库，推行生产区域风险可视化公告，系统实施职业病防护方案，开展职业危害动态监测与风险评估，组织全员职业健康专项培训，实施全员职业健康体检，配发标准化劳动防护装备，建立政府监管部门定期汇报机制，2024 年，员工健康体检全覆盖，职业健康档案完整率达 100%；面向系统内全体职工开展“5·25”心理关爱线上活动，开展心理健康科普讲座，累计约 9.4 万人次通过线上直播方式观看。

SPIC strictly abides by applicable laws and regulations, such as the *Law of the People's Republic of China on Prevention and Control of Occupational Diseases*, and has formulated the *Management Measures for Occupational Health and Labor Protection*. We established the occupational health risk database, promoted visualized bulletin on risks in production areas, and systematically implemented occupational disease prevention programs with dynamic monitoring and evaluation of occupational hazards. We organized occupational health training sessions and check-ups for all employees, equipped them with qualified labor protection supplies, and regularly reported our occupational health work to competent local regulators. In 2024, all employees received physical examinations and had occupational health archives. We also launched the “May 25” online mental health care lectures for all employees, registering 94,000 views cumulatively.

文体活动

Cultural & sports activities

国家电投集团致力于打造舒适舒心的工作环境，常态化开展职工书法绘画摄影活动、集团羽毛球比赛等职工喜闻乐见的文化体育活动，帮助员工平衡工作与生活。

Committed to creating a pleasant working environment, SPIC regularly organizes calligraphy, painting and photography activities, badminton competitions, and other cultural and sports activities popular with the employees to help them balance work and life.



倾情关怀

Targeted and thoughtful care

多年来，国家电投集团坚持慰问一线职工、困难职工；为基层困难职工发放补助金；拨付资金助力偏远艰苦地区持续开展职工小家建设；加强女职工关爱、持续评选“巾帼标兵”。2024 年，合计发放系统内特困职工、特困劳模补助 129.3 万元。

Over the years, SPIC has provided consistent care and assistance for employees in frontline positions and those in difficulty. It provides subsidies for straitened grassroots-level employees, allocates funds to develop “Workers' Small Homes” in remote areas with harsh conditions, and strengthens care for female employees, consistently selecting “Model Female Employees.” In 2024, we distributed 1.293 million yuan in subsidies to employees and model workers in extreme difficulties.

守护员工健康

Protecting employee safety

国家电投集团深入贯彻落实习近平总书记关于安全生产的重要指示批示精神，“坚持人民至上、生命至上”，把保护人民生命安全摆在首位，不断提升安全管控能力和本质安全水平，防范遏制各类生产安全事故，2024 年，集团公司安全生产绩效持续改善，连续安全运行 365 天；中国电力承接应急管理部“电化能源消防安全联合创新”重点实验室建设。

Implementing President Xi Jinping's important instructions on work safety, we always put the people's life and safety first and have continuously improved our safety management capabilities and raised the level of intrinsic safety to prevent safety accidents of all kinds. In 2024, we continued to improve our work safety performance, achieving 365 consecutive days of safe operation. SPIC China Power International Development undertook the project of building a Key Laboratory for Fire Safety in Electrochemical Energy for the Ministry of Emergency Management.

落实安全管理

Strengthening safety management

国家电投集团坚持贯彻落实《中华人民共和国安全生产法》《中央企业安全生产监督管理办法》等法律法规，强化产业管控能力，着力构建安全生产管理制度体系，深化全流程安全生产责任体系，夯实企业发展安全屏障。

SPIC abides by the *Work Safety Law of the People's Republic of China* and the *Supervision and Administration Measures for Work Safety of Central SOEs*. We have enhanced our industrial management capabilities, with special efforts to establish a work safety management system, and strengthened the whole-process work safety responsibility system, so as to reinforce the safety foundation for corporate development.



修订完善《安全生产工作规定》等 18 项制度，打造系统科学、运行规范的制度体系。
We revised 18 regulations, including the *Regulations on Work Safety*, aiming to put in place a framework of systematic, sound, and well-functioning systems.



扎实推进本质安全型企业建设、治本攻坚三年行动、安全环保评估、工业互联网+安全生产平台建设等重点工作，压实全链条安全生产责任，持续筑牢企业高质量发展根基和安全防线。
We worked hard on key safety initiatives, including building intrinsically safe enterprises, the three-year action to tackle root causes of safety problems, safety and environmental impact assessment, and industrial internet + work safety platforms. We strengthened work safety responsibility across the entire chain, consistently consolidating the foundation and safety defense line for high-quality corporate development.



持续完善“零非停”和“等效可用系数”等关键指标考核激励机制，组织对各场站等效利用小时、综合厂用电率等指标开展月度考核评比。2024 年，国家电投集团 7 台机组获评中国电力企业联合会发布 2023 年度全国发电机组可靠性对标标杆机组称号。
We continued to refine the assessment and incentive mechanism on key indicators such as “zero non-scheduled downtime” and “equivalent availability factor,” and organized monthly assessment and comparison on indicators such as equivalent utilization hours and comprehensive station service power consumption rate for each power station. In 2024, seven units of SPIC were titled as “2023 National Benchmark Units in Reliability” by China Electricity Council.



国家电投集团高质量推进智慧场站建设工作，狠抓本质安全型企业建设，全力推进安全生产治本攻坚三年行动落地见效，智慧化场站改造后，五凌电力维检中心运维人员实现了集中管理、集中培训，“三基”建设水平大大提升。图为运维人员通过直驱仿真平台的 VR 操作台和网页端模拟器进行培训学习。

We advanced the construction of smart plants with high quality, highlighting efforts to build intrinsically safe enterprises and implementing the three-year action for tackling root causes of safety problems for tangible effects. Having completed the smart station retrofit, SPIC Wuling Power realized centralized management and training of its operation and maintenance personnel, largely enhancing their fundamental abilities. The picture shows operation and maintenance personnel in training using VR simulated operating platform and webpage simulator.

防范安全风险 Preventing safety risks

国家电投集团修订发布《安全风险分级管控和隐患排查治理管理办法》，明确隐患分级、分类及排查治理要求；编制电力行业首个较大隐患判定标准，建立生产运行阶段典型较大隐患和工程建设阶段典型较大隐患判定情形；制定发布年度安全风险 TopN 清单，每周动态跟踪所属较大以上风险作业管控情况，加强典型作业面（超 3 人、超 9 人）风险识别和管控，落实风险提级管控措施，建立重点隐患清单跟踪督办机制，健全隐患自查自改常态化机制。

SPIC revised and released the *Management Methods for Graded Safety Risk Control and Hidden Hazard Identification and Rectification*, clarifying the grading, classification, identification and rectification requirements for hidden hazards. We compiled the first power industry standard for identifying major hidden hazards, establishing scenarios for identifying typical major hidden hazards both during the operation phase and the construction phase. We also formulated and released the annual Top N safety risk list, dynamically tracking the control of operations of major and higher-level risks on a weekly basis. We strengthened risk identification and control in typical working conditions (involving more than 3 or 9 people), implemented measures against escalated risks, established a tracking mechanism for the list of key hidden hazards, and improved the routine mechanism for self-inspection and self-rectification concerning hidden hazards.

提升全员安全能力水平 Enhancing overall safety competence

国家电投集团贯彻安全文化理念，着力推进安全文化培训，严格落实培训—考核—授权—上岗机制，组织开展 9 期安全监督人员线下培训、6 期环保管理人员认证培训班、4 期注册安全工程师线下考前培训和注册安全工程师再教育；开展基层一线应知应会知识培训考试，举办青安杯安全知识竞赛，组织全系统参加全国“2024 年电力安全生产管理知识网络竞赛活动”。

Rigorously implementing a safety culture concept, SPIC strengthens safety culture training and strictly enforces the training—examination—authorization—assignment mechanism. We organized nine offline training sessions for safety supervisors, six certification training sessions for environmental management personnel, and four offline pre-exam training sessions as well as continued education for Certified Safety Engineers. We also conducted training and examinations on essential knowledge for frontline and grassroots-level employees, held the Youth Safety Cup safety knowledge competition, and mobilized the entire system to participate in the national “2024 Online Competition on Knowledge about Power Safety Management.”



健全应急机制 Refining emergency response mechanism

国家电投集团健全安全应急管理机制，开展总部应急管理体系优化，编制《防台安全工作手册》，指导做好重点产业典型事件应对处置；强化地震地质灾害防范应对能力，组织对地震灾害多发区域二级单位开展应急能力评估工作，堵塞管理漏洞；持续开展各类突发事件应急演练；组织召开地震灾害风险防范专题会和防汛防台专题会，研究部署地震等地质灾害防范工作。新疆能源化工快速响应、高效应对阿克苏乌什县 7.1 级地震，海南公司积极部署、迎“风”而上，为防范超强台风“摩羯”登陆筑牢应急准备防线，有力保障了电站设备安全 and 人员无恙。2024 年，各单位累计组织开展地震地质灾害、火灾、防汛等应急演练 10486 次。

SPIC has improved the safety emergency response mechanism, optimized the emergency management system at the Head Office, and compiled the *Typhoon Safety Work Manual* to guide the response to typical situations in key industries. We strengthened our capability of preventing and responding to earthquake and geological disasters, and assessed the emergency response capabilities of subsidiaries in regions prone to earthquakes to plug management loopholes. We consistently carried out drills in response to various emergencies, organized special meetings on earthquake, flood and typhoon response, and made studied arrangements to address earthquake and other geological disasters. SPIC Xinjiang Energy Chemical Industry swiftly responded to the magnitude-7.1 earthquake in Wushi County, Aksu. SPIC Hainan Electric Power made thorough preparations against Typhoon Yagi, safeguarding the safety of both equipment and personnel at power plants. In 2024, our subsidiaries at all levels cumulatively conducted 10,486 drills related to earthquake and geological disasters, fire, flood, and other emergencies.

保障核电安全 Ensuring nuclear power safety

核安全对国家安全以及核电发展具有极端重要性。国家电投集团持续推动“上下贯通、六位一体”的核安全责任体系与监督体系落地，建设与发展形势相匹配的监督体系能力，提升内部独立监督有效性，确保各层级体系有效运转，筑牢安全质量底线。

国家电投集团制定《国家电力投资集团有限公司核能产业辐射安全与辐射环境监测管理办法》等管理办法，明确放射性废物处理要求；构建严密的核安全责任体系与多层级监督体系，同步成立辐射环境监测中心，统筹核电厂辐射监测工作；筹建监测中心实验室，打造国内领先的技术平台，组建专业化队伍强化监测支撑。在设备与项目安全管控上，实施海阳核电主泵变频器可靠性提升、SPV 设备优化、DCS 系统升级、主控室降噪等重大技改，持续提升核电厂设备可靠性；“暖核一号”核能供热项目安全稳定运行，供暖面积达 1300 万平方米，彰显核能民生应用的安全韧性。

同时，国家电投集团持续开展核安全文化建设，通过专项行动推进问题整改并形成长效机制，全面提升全员安全意识；完善核应急体系，强化培训演练与技术支持能力，铸牢核安全最后一道屏障。此外，以“国和行”系列活动为载体，打造核能公众沟通与科普宣传品牌，为核能事业发展营造良好社会氛围。

Nuclear safety is of extreme importance for national security and the development of nuclear power. SPIC consistently reinforces a system-wide, six-faceted nuclear safety responsibility system and supervisory system to foster oversight capabilities commensurate with its development status. This aims to enhance the effectiveness of internal independent supervision and ensure the sound operation of the multi-level system, cementing the defense line for safety and quality.

SPIC has developed a number of management methods, including the SPIC Management Methods for Radiological Safety and Environmental Radiation Monitoring in the Nuclear Energy Industry, specifying the requirements for the disposal of radioactive waste. We have developed a rigorous nuclear safety responsibility system and a multi-level supervision system, and established a radiation and environmental monitoring center to manage radiation monitoring work at nuclear power plants in a centralized manner. We took steps to establish a laboratory for the monitoring center, aiming to develop a leading platform in China and a professional team to support our radiation monitoring work. Regarding equipment and project safety management, we carried out a series of major technological retrofits to improve equipment reliability at the Haiyang NPP, concerning the frequency converter, SPV equipment, DCS system, and noise reduction in the main control room. The "Warm-U-Clear 1" nuclear heating project has achieved safe and stable operation, providing heating services to an area of 13 million square meters, demonstrating the resilient safety performance of nuclear energy in civil applications.

SPIC makes consistent efforts to develop a nuclear safety culture, taking special as well as routine actions to identify and address problems and raise safety awareness of all employees. We have improved the nuclear emergency response system and intensified training, drills, and technical support capabilities to ensure a firm nuclear safety barrier. The "Guohe Tour" serial activities have helped establish a brand of public communication about nuclear energy and increased public acceptance of nuclear development.

服务民生公共事业 Supporting livelihood and public undertakings

国家电投集团贯彻落实“坚持合作共赢，共建人类命运共同体”。深化践行负责任采购理念，构建可持续发展型供应链网络，系统构筑卓越效能、风险可控、韧性十足的供应生态；全面强化产业链战略协同效能，开展国际合作，携手伙伴共创共赢生态。

Upholding the vision of "building a community with a shared future for mankind through win-win cooperation," SPIC has earnestly acted on the concept of responsible procurement and established a sustainable supply chain network, systematically fostering a supply ecosystem featuring high efficiency, controlled risks, and great resilience. We comprehensively strengthened strategic synergy across the industrial chain, working with international partners for win-win results.

打造责任供应链 Creating responsible supply chains

致力于营造公平竞争营商环境，国家电投集团严格遵守相关法律法规、商业道德、社会公德和行业规则，坚持绿色采购、阳光采购，建立健全绿色供应链管理体系，建立绿色供应链评价体系，将绿色低碳指标纳入供应商评价体系中。2024 年，进一步深化采购与供应链管理，编发《关于深化集团公司采购与供应链管理的意见》，推动采购价值理念从“全寿命成本最低”向“全寿命效益最优”转变，构建产业全周期管理和采购绩效评价模型，全面提升价值创造能力，引导供应商规范履职。2024 年，国家电投集团供应链管理获评国务院国资委对标 A 级。

国家电投集团加快推进现代产业链建设，充分发挥主体支撑与融通带动作用，勇当“国和一号”产业链链长，产业联盟单位已达 131 家，获国务院国资委 2023 年度第一档 A 级评价，获批工业和信息化部“核电装备关键共性技术”链主企业。积极搭建合作交流对接平台，带动产业链上下游企业融通发展，2024 年 7 月 28 日，“国和一号”现代产业链共链行动（第三届联盟大会）暨山东省核能未来产业集群招商推进会召开，会上，国家电投集团所属 4 家二级单位与 6 家山东省产业链单位代表签署供需对接协议，与“国和一号”现代产业链上下游单位共签署供需合同约 57.6 亿元，覆盖工程装备研制与采购、建安材料供货、生产服务等领域。

Committed to creating an environment of fair competition, SPIC strictly abides by relevant laws and regulations, business ethics, social morality, and industry rules. Upholding green and transparent procurement, we have established a sound green supply chain management system along with an evaluation system, incorporating green and low carbon indicators in supplier evaluation. In 2024, we further strengthened procurement and supply chain management, issuing the *Opinions on Deepening the Group's Procurement and Supply Chain Management* and shifting the procurement value concept from "minimal full-life-cycle cost" to "optimal full-life-cycle benefits." We also developed an industry-based full-life-cycle management and procurement performance evaluation model to comprehensively enhance our value-creating capability and guide suppliers to perform their duties in a standardized manner. In 2024, SPIC's supply chain management was rated Class A in the benchmarking assessment conducted by the SASAC of the State Council.

SPIC accelerated the fostering of a modern industrial chain. Leveraging our mainstay role and driving force, we have stood up to lead the "Guohe One" industry chain, with 131 companies joining the alliance. In 2023, we were A-rated on the top level by the SASAC, and was designated as a leading enterprise for "critical common technologies for nuclear equipment" by the MIIT. We also took active steps to set up cooperation, communication and connection platforms, driving the coordinated development of enterprises in both the upstream and downstream of the industrial chain. On July 28, 2024, at the "Guohe One" Modern Industrial Chain Joint Action (3rd Alliance Conference) & Shandong Nuclear Energy Future Industry Cluster Investment Promotion Conference, four SPIC subsidiaries signed supply-demand agreements with six Shandong-based companies engaged in the nuclear industry chain. They also signed supply contracts worth approximately 5.76 billion yuan with both upstream and downstream companies on the Guohe One modern industrial chain, covering a range of fields including equipment R&D and procurement, construction and installation materials, and production services.



“码”上了解国家电投集团“国和一号”现代产业链共链行动推进会。Scan the QR code to learn more about SPIC's "Guohe One" Modern Industrial Chain Joint Action.

书写共赢新篇章
Writing a new chapter of win-win cooperation

着力强化产业引领，国家电投集团坚持互信互利、合作共赢，积极开展战略合作，搭建沟通交流平台，重视与政府、企业、科研院校等的战略合作，共促行业高质量发展。

To enhance our industrial leadership, SPIC has actively engaged in strategic partnership and built communication and exchange platforms in the spirit of mutual trust, mutual benefit, and win-win cooperation. We value the strategic cooperation with governments, other enterprises, research institutions, and universities, aiming to jointly promote the high-quality development of the energy industry.

国家电投集团亮相第七届中国国际进口博览会，深化国际合作推动能源转型
SPIC participated in the 7th China International Import Expo with a view to driving energy transformation via closer international cooperation

2024 年 11 月 5 日至 10 日，第七届中国国际进口博览会在上海举办。展会期间，国家电投集团所属内蒙古公司、五凌电力、山东核电、中国电能等 4 家二级单位分别与来自美国、日本、德国、瑞典等国家的 8 家国际知名企业签署核电、火电、煤炭等行业重大设备、材料合同，展现了国家电投集团在全球能源供应链中的强大整合能力和市场竞争力。自 2018 年首届进博会举办，七年来，国家电投集团积极响应进博会“越办越好”的要求和号召，高度重视整合全球优质资源，与国际知名供应商开展全球化的战略合作，在绿色低碳方面用好全球资源进行补链强链，累计签约 50.81 亿美元。

From November 5 to 10, 2024, the 7th China International Import Expo was held in Shanghai. During the expo, four SPIC subsidiaries, namely Inner Mongolia Electric Power, Wuling Power, Shandong Nuclear Power, and China Power Complete Equipment, separately signed contracts with eight prestigious multinational corporations from the US, Japan, Germany, and Sweden. The contracts were about the supply of equipment and materials across nuclear power, thermal power, coal and other industries, showcasing SPIC's strong integration capability and market competitiveness in the global energy supply chain. Since the first China International Import Expo in 2018, SPIC has actively answered to the call for making the expo "better and better" over the past seven years. We have placed great emphasis on integrating quality resources worldwide and engaged in global strategic cooperation with internationally renowned suppliers. In the field of green and low-carbon development, we have effectively utilized global resources to shore up our supply chain, signing contract worth US\$5.081 billion cumulatively.

助力乡村振兴
Supporting Rural Revitalization

国家电投集团坚决贯彻落实党中央、国务院国资委关于乡村振兴工作的各项决策部署，坚决扛牢中央企业政治责任和社会责任，突出央企助力乡村振兴功能价值，聚焦“五大振兴”开展优化提升行动，全面推进乡村振兴。截至目前，国家电投集团已连续 6 年获中央企业定点帮扶工作成效考核评价最高等次。

Upholding the vision of "building a community with a shared future for mankind through win-win cooperation," SPIC has earnestly acted on the concept of responsible procurement and established a sustainable supply chain network, systematically fostering a supply ecosystem featuring high efficiency, controlled risks, and great resilience. We comprehensively strengthened strategic synergy across the industrial chain, working with international partners for win-win results.

国家电投集团在陕西延川县、河南商城县、四川美姑县投入无偿帮扶资金

9200 万元

SPIC has invested **92** million yuan in gratuitous assistance fund in Shaanxi's Yanchuan County, Henan's Shangcheng County, and Sichuan's Meigu County:

培训乡镇干部、乡村振兴带头人、技术带头人

16277 人次

Training town/township officials, pioneers in rural revitalization, and technical leaders: **16,277** man-times

产业振兴 Promoting industrial development

国家电投探索破解绿色能源发展瓶颈的系列创新政策机制，创造性提出“乡村振兴绿能项目”，开辟降低收益率要求的“绿色通道”，积极探索实施“绿能项目收益反哺”；依托能源央企资源优势，探索产业融合发展新业态，创新帮扶路径。

投资 5668 万元在河南商城落地 12 万千瓦户用光伏项目，让 676 户群众坐享每年 196 万元的“阳光收益”，促进农村能源革命和乡村社会经济发展。

发挥行业影响力创新帮扶路径，持续帮扶延川地方国企铁业社转型发展，无偿投入 5000 万元支持铁业社与集团公司重点供应商建立合资企业，推动发展新模式新业态。

SPIC creatively introduced a series of policy mechanisms, such as the “Green Energy for Rural Revitalization” initiative, to address barriers to green energy development. While establishing a “green channel” with relaxed return-on-equity requirements, it also sought to use the proceeds from green energy projects to support rural communities. Leveraging its position as a leading central SOE in the energy sector, the Group has pioneered a new model of rural assistance through integrated industrial development.

In Shangcheng County, Henan Province, SPIC invested 56.68 million yuan to construct a 120 MW household PV project, generating an annual collective income of 1.96 million yuan for 676 households. This significantly advanced the energy revolution and socioeconomic progress in rural areas.

Harnessing its industrial influence, SPIC provided 50 million yuan in non-repayable funding to support the Yanchuan Iron Industry Society, a local SOE, in forming joint ventures with our key suppliers, supporting its transformation endeavor while fostering new business formats and models.

人才振兴 Cultivating talent

国家电投始终聚焦基层所需，充分用好北师大、集团党校等教育资源，组织举办乡镇长培训班、校长培训班、乡村振兴带头人培训班和全球人才培训班等，为 3 个定点帮扶县精准培育基层干部、技能技术人才 1.63 万人。

在中国乡长学院举办定点帮扶县乡镇长培训班，帮助 50 个乡 / 镇约 3200 名基层干部提升基层治理能力。

组织 50 名定点帮扶县“新农人”到“两山”理念和“千万工程”经验策源地实地领悟“生态 + 农业”发展模式。

邀请中国农业科学院顶级农学专家“送教下乡”，培训农技人才 1658 人次。

在“一带一路”学院举办全球人才培训班，覆盖集团公司分布在 16 个国家和地区、17 家境外机构的 31 名属地化员工。

Focused on what is needed on the grassroots level, SPIC utilized the educational resources of Beijing Normal University and SPIC Leadership Academy to offer training courses for town/township chiefs, headmasters, rural revitalization pioneers, and international talent. We have helped train 16,300 grassroots-level officials and technical personnel for three targeted assistance counties.

We organized training courses for town/township chiefs at Beijing Normal University, training about 3,200 community officials from 50 towns/townships.

We organized 50 farmers from the targeted assistance counties to visit cradles that gave birth to the “green is gold” theory and the “Thousand Villages Demonstration and Ten Thousand Villages Renovation” project. The visits gave them first-hand information about the “ecology+agriculture” development model.

We invited eminent agricultural experts from the Chinese Academy of Agricultural Sciences to the countryside, training 1,658 local farmers and technical personnel.

We organized training courses for international talent at the Belt and Road School of Beijing Normal University, benefiting 31 localized employees distributed in 17 overseas offices across 16 countries and regions.

消费振兴 Buying agricultural products

创新构建“1+2”联队帮扶机制，组织参加“一起来购”“Let's 购”“央企消费帮扶兴农周”等消费帮扶活动，合计购买脱贫地区农产品 7632 万元，帮销脱贫地区农产品 4746 万元，均创历史新高。

We created the “1+2” joint assistance mechanism, and participated in poverty relief activities such as “Let’s Shop Together,” “Let’s Shop,” and “Central SOEs Assist Rural Revitalization with Consumption Week.” Through these activities, we bought 76.32 million yuan worth of agricultural products from poverty-stricken areas, and helped them sell another 47.46 million yuan worth of agricultural products, both a historical new high.

国家电投集团在四川省美姑县巴普镇初级中学建设“光储+”现代化综合楼，每年能为学校减少 15 万元左右电费支出，还能避免临时断电，惠及 3000 余名师生。

SPIC has built a “solar energy storage +” modern comprehensive building at the junior middle school of Bapu Town, Meigu County, Sichuan Province, saving the school about 150,000 yuan in electricity bills per year and preventing temporary power outages, benefiting more than 3,000 teachers and students.



国家电投集团在河南商城投资 5668 万元，建成落地 12 万千瓦户用光伏电站，让 676 户群众坐享“阳光收益”。

SPIC has invested 56.68 million yuan in Shangcheng County, Henan Province to build the 120 MW household PV power station, benefiting 676 households.

国家电投集团投入帮扶资金 700 万元用于路遥的母校延川县延川中学（路遥中学）基础设施建设。

We invested 7 million yuan in assistance funds to build basic facilities at Yanchuan High School (or Luyao High School) in Yanchuan County, Shaanxi Province, the alma mater of Lu Yao, a renowned Chinese writer.



架“连心桥”，走“致富路”
Bridging a river, bringing prosperity

国家电投集团象鼻岭水电站库区的牛栏江峡谷深、江流曲折，贵州省威宁县玉龙镇与云南省会泽县马路乡隔江相望，江上的溜索是牛栏江两岸两省群众出行的主要交通工具，车辆绕行需要近 2 小时。随着国家电投集团象鼻岭水电站在此落成，考虑到两岸群众的出行困难，国家电投集团象鼻岭水电站积极履行“建设一座电站、造福一方百姓、共建一方和谐”的社会责任与担当，投资建成了这座长 350 米、宽 2 米、荷载 224 吨的跨江“连心桥”，投入使用后贵州到云南的路程步行仅需 2 分钟。现如今，该桥还成为当地热门网红打卡地，游客蜂拥而至，带火了“连心桥”两端的贵州凉粉和云南炸洋芋。近年来，“连心桥”旁修起了 2000 多米的景观栈道，逐渐发展成为“江畔风光 + 红玛瑙樱桃 + 云贵连心桥”的农旅融合振兴项目。

The Njulan River in the reservoir area of SPIC's Xiangbiling Hydropower Station, which features a deep valley and meandering river flow, separates the Yulong Town in Weining County of Guizhou Province from the Malu Township in Huize County of Yunnan Province. People living on the two sides of the river relied on the cables spanning over the river for daily commute, while a car drive across the two sides would take nearly two hours. With the completion of the Xiangbiling Hydropower Station, SPIC, considering the difficulties in travelling across the river, invested in the construction of a 350-meter-long, 2-meter-wide cross-river bridge with a load capacity of 224 tons, shortening the walking distance from Guizhou to Yunnan to merely two minutes. This was a solid demonstration of SPIC's commitment to social responsibility—building a power station to benefit the local people and contribute to social harmony. Today, the bridge has become an internet-famous spot, and the large number of tourists have boosted the popularity of Guizhou cold rice noodles and Yunnan fried potatoes sold at both ends of the bridge. In recent years, a 2,000-meter-long scenic boardwalk has been built next to the bridge, gradually giving rise to an agro-tourism project for rural revitalization combining riverside scenery, red agate cherries, and the Guizhou-Yunnan Bridge.



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落实全球发展倡议
Implementing Global Development Initiative

国家电投集团积极服务民生事业，全力提升服务人民美好生活水平。

SPIC is dedicated to improving people's livelihood and enhancing its capabilities of creating a better life for the people.

落实能源保供
Ensuring energy supply

国家电投集团深入学习贯彻习近平总书记关于能源电力的重要讲话和重要指示批示精神，全面发挥能源央企“顶梁柱”和“压舱石”作用，提前谋划、精心组织迎峰度冬能源保供各项工作。2024 年，全年发电量 7244 亿千瓦时，同比增长 6.3%，超过全国发电量增幅。圆满完成重要时段、重点地区保供任务，年累计非停次数等主要保供指标同比持续向好，存煤创历史新高。

Following President Xi Jinping's important speeches and instructions regarding energy and electric power, SPIC, fully exerting its role as a mainstay central energy SOE, has made well-planned arrangements to ensure energy supply during peak periods in winter. Our all-year power generation in 2024 amounted to 724.4 TWh, a year-on-year increase of 6.3%, higher than the national growth rate in power generation. We successfully fulfilled energy supply tasks during significant periods and in significant regions, with all-year key indicators such as nonscheduled down times better than the previous year, and coal storage marking a historical new high.



国家电投集团贵州金元威宁县么站农业光伏电站种植万寿菊
Marigolds are planted at the Yaozhan Agricultural Photovoltaic Power Station of SPIC Guizhou Jinyuan in Weining County



2023—2024 年供暖季，国家电投集团经受了全国大范围多轮次极端严寒天气、甘肃新疆地震等考验，圆满完成元旦、春节和全国两会等重点时段能源保供工作任务，累计完成发电量 2967 亿千瓦时。

During the 2023-2024 heating season, SPIC, despite a series of challenges including extensive and several rounds of extreme cold weather across the country and earthquakes in Gansu and Xinjiang, successfully fulfilled its energy supply tasks during key periods such as the New Year, Spring Festival, and the national “Two Sessions” with a cumulative power output of 296.7 TWh.



2024 年 6 月至 9 月迎峰度夏期间，国家电投集团累计发电量 1997.10 亿千瓦时，同比增加 6.12%；平均电煤库存 1739 万吨，平均可用天数 39 天，同比增加 10 天。保供关键指标持续创优，均优于国家部委要求值。在党的二十届三中全会、川渝地区持续高温等特殊时段，所在区域机组应开尽开，能发满发，为重要区域、关键时段电力稳定供应作出了突出贡献。

During the peak summer period from June to September 2024, SPIC generated 199.71 TWh of electricity cumulatively, a year-on-year increase of 6.12%. The average coal inventory was 17.39 million tons, which could last 39 days, a year-on-year increase of 10 days. Key supply indicators continued to improve and exceeded the requirements set by relevant national authorities. During special periods, such as the 3rd Plenary Session of the 20th CPC Central Committee and the prolonged stretch of high temperature in the Sichuan-Chongqing region, our power units in the relevant areas operated at full capacity wherever possible, making a significant contribution to the stable power supply in important regions and critical periods.



2024 年 11 月进入迎峰度冬以来，国家电投集团对燃料管理、机组检修、开栓供热等重点工作进行全面安排，制定出台有 33 项具体措施的“2024—2025 年供暖季能源保供方案”，以确保保供责任落实落细，为全国 38 个城市 5.05 亿平方米超千万人口送去源源不断的“国家电投”温度。

When the peak winter period began in November 2024, SPIC made comprehensive arrangements for key tasks including fuel management, unit maintenance, and heat supply startup. It formulated the “Energy Supply Plan for the 2024-2025 Heating Season,” which included 33 specific measures, ensuring stable heating for over 10 million people living in 38 cities across an area of 505 million square meters.

2024 年 11 月 15 日，我国首个核能供热商用工程——“暖核一号”正式启动第六个供暖季。同时，世界首个具备供热调节能力的汽轮机再热调节阀投入使用，使单台机组供热能力跃升 3 倍，填补了国内大规模核能供热关键设备研发制造的空白。

On November 15, 2024, China’s first commercial nuclear heating project – “Warm-U-Clear 1”—officially began its sixth heating season. Concurrently, the world’s first turbine reheat regulating valve capable of heating regulation was put into use, quadrupling the heating capacity of a single unit and filling a blank in China’s key equipment R&D and manufacturing for large-scale nuclear-based heating.



献身公共事业

Contributing to public welfare

国家电投集团关心、支持老龄、科教、文卫等公共事业发展，连续 21 年开展“映山红”青年志愿服务及公益活动，在国内及海外 10 余个国家和地区，围绕爱心助学、“双碳”科普、爱老敬老、助农助残、中国优秀文化传播等开展 1000 余次活动，出色完成进博会等重要赛会志愿服务工作。2024 年，开展“映山红·听风沐光”公益行动，为 6 名重度听障儿童植入人工耳蜗，组织专业康复老师为孩子们进行言语训练，目前孩子们恢复状态良好；江西公司“可爱园丁爱心支教社”志愿服务项目在第七届中国青年志愿服务项目大赛中获得银奖；公益性捐赠共完成 2807.5 万元。

SPIC cares about and supports public welfare undertakings, including elderly care, science popularization and education, and culture and sanitation. We have implemented the “Yingshanhong” young volunteer program for 21 years in a row, conducting over 1,000 activities in all Chinese provinces as well as about ten countries and regions overseas to help students, farmers, and people with disabilities, disseminate the “dual carbon” concept, care for the elderly, and promote fine Chinese culture. We provided excellent volunteer services at numerous significant events like the CIIE. In 2024, our “Yingshanhong-Hearing Aid” public welfare program helped six severely hearing-impaired children receive cochlear implants, and we also hired teachers to provide professional language training for them, who are now in good recovery. SPIC Jiangxi Electric Power’s “Volunteer Teachers Program” won the silver award in the 7th Chinese Youth Volunteer Service Project Competition. Our public welfare donations reached 28.075 million yuan.



国家电投集团内蒙古公司南露天煤矿一线工人正在顶风踏雪检查电铲设备的走车结构，保障能源保供工作稳定运行。

Frontline workers at the Southern Open-pit Coal Mine of SPIC Inner Mongolia Company are braving the wind and snow to inspect the traveling mechanism of electric shovel equipment, ensuring the stable operation of energy supply guarantee work.

抢险救灾，共渡难关 Providing disaster relief through tough times

2025 年 1 月 7 日上午 9 时 5 分，西藏日喀则市定日县发生 6.8 级地震。地震发生后，国家电投集团迅速贯彻落实习近平总书记关于抗震救灾的重要指示精神，第一时间启动救援预案，成立抢险救灾临时指挥部，采购帐篷、发电机、棉被等 2000 余件价值 30 余万元的应急救援物资，组织 40 余人及挖掘机、随车吊等 10 余台紧急救援机具火速奔赴灾区展开抢险救灾；组织生产人员赴日喀则辖区光伏电站开展设施设备安全隐患排查，保障电力供应；组织在藏干部员工向灾区自愿捐款 16.94 万元。1 月 16 日，国家电投集团向西藏日喀则市定日县灾区捐款 1500 万元，用于支持西藏抗震救灾和灾后重建工作。

At 9:05 a.m. on January 7, 2025, a magnitude-6.8 earthquake struck Dingri County in Shigatse, Xizang. Following President Xi Jinping’s the important instructions on earthquake relief and rescue, SPIC immediately activated the emergency rescue plan, and formed a temporary disaster relief command center, not only procuring more than 2,000 items of emergency rescue supplies worth over 300,000 yuan, including tents, generators, and cotton quilts, but organizing more than 40 people to rush to the quake-hit area with over 10 rescue machines, such as excavators and cranes. It also dispatched operational staff to check the equipment and facilities at our PV stations in Shigatse to remove any potential safety hazards and ensure power supply. Additionally, SPIC organized a voluntary donation among its employees in Xizang, collecting 169,400 yuan for the disaster-hit area. On January 16, SPIC donated 15 million yuan to Dingri County to support its earthquake relief efforts and post-disaster reconstruction.



践行全球公民责任

Fulfilling a corporate citizen's responsibility

国家电投集团坚持国际化发展，加强境外合规与风险管理，注重属地化经营，持续推进共建“一带一路”高质量发展走深走实，打造全球清洁能源领先品牌。截至 2024 年底，国家电投集团境外业务涵盖 47 个国家和地区，其中共建“一带一路”国家 38 个，投资涉及 22 个国家和地区。境外权益发电装机 1192 万千瓦，较 2023 年度增加 15.3%，清洁能源权益装机 878.5 万千瓦（占比 73.7%）；共建“一带一路”国家权益装机 671.8 万千瓦（占比 56.4%）；境外资产总额 1253 亿元。

SPIC adheres to the path of internationalization, strengthening compliance and risk management overseas and emphasizing localized operation, in the consistent efforts to strive for solid progress in pursuing high-quality Belt and Road cooperation and creating a world-leading clean energy brand. As of the end of 2024, we had businesses in 47 countries and regions, including 38 BRI countries, with investments in 22 countries and regions. Our equity installed capacity overseas reached 11.92 GW, up 15.3% from 2023; equity clean energy capacity reached 8.785 GW, a share of 73.7%; and equity installed capacity in BRI countries reached 6.718 GW, a share of 56.4%. Our total overseas assets stood at 125.3 billion yuan.

胡努特鲁混合电站助力土耳其低碳转型

Hunutlu Hybrid Power Plant Supports Low-carbon Transformation in Türkiye

国家电投集团胡努特鲁混合电厂是目前土耳其获批建设的最大混合电站项目，已投产 4 万千瓦光伏。2024 年是并网后的首个完整年度，混合电站光伏项目全年发电量 7646 万千瓦时，相当于减少二氧化碳排放约 7.66 万吨，降低厂用电率 0.7 个百分点，为推动上海电力在土耳其能源结构低碳转型和绿色发展起到良好的示范效应。

The SPIC Hunutlu Hybrid Power Plant is currently the largest hybrid power program approved for construction in Türkiye, which has already commissioned 40 MW of photovoltaic capacity. In 2024, the first full year after its connection to the grid, its photovoltaic segment generated a total of 76.46 GWh of electricity, equivalent to reducing carbon dioxide emission by approximately 76,600 tons, and lowering the plant's power consumption rate by 0.7%. It well illustrates SPIC Shanghai Electric Power's efforts to support the low-carbon transformation and green development of Türkiye's energy structure.



“清水行动、绿色发展” 缅甸昂达村惠民项目落地缅甸内比都昂达村，为解决当地无可靠供水水源、饮用水水质安全等难题，项目组通过建深水井、水塔、反渗透净水系统、人畜分离饮水池等设施，保障当地饮水、用水。获中缅多方肯定，成为 “政府 — 公司 — 民众” 合作典范。

Access to Clean Drinking Water for Green Development SPIC implemented a livelihood project in Aung Tha Village, Nay Pyi Taw, Myanmar, to provide local residents with a reliable water supply and safe drinking water. Through the construction of deep wells, water towers, reverse osmosis purification systems, and separate watering facilities for people and livestock, the project has ensured consistent access to clean water for both drinking and domestic use. The initiative has been highly recognized by various stakeholders in China and Myanmar, serving as a model of effective “government–enterprise–community” cooperation.

几内亚铝业开发项目

Bauxite development project in Guinea



国家电投几内亚铝业开发项目一期项目用时 13 个月实现了铝土矿发运，创造了几内亚同类铝土矿项目建设速度最快、装船设备调试时间最短的纪录，有效推进中几在勘探、开发、加工、贸易全产业链合作并助力几内亚铝产业实现跨越式发展。

Phase I of the SPIC bauxite development project in Guinea was shipped just 13 months later. The project setting a benchmark for construction speed and equipment commissioning among similar projects in Guinea. Through comprehensive bilateral cooperation across the entire industry chain—including prospecting, development, processing, and trading, the project has also driven significant progress in Guinea's bauxite industry.

哈萨克斯坦·札纳塔斯 200 兆瓦风电项目

200 MW Zhanatas wind power project, Kazakhstan



札纳塔斯风电项目作为哈萨克斯坦首个百兆瓦级风电项目，是中哈能源领域重点合作项目，该项目也是亚投行支持的第一个中国企业对外投资项目和在中亚区域的第一个电力融资项目。投产后，项目可以为哈萨克斯坦南部地区带来年均 6.9 亿千瓦时的清洁电力能源，与同容量燃煤电厂相比，每年可节约标准煤 21.9 万吨，减少二氧化硫排放量 2032.54 吨、二氧化碳排放量 56.97 万吨、烟尘排放量 634.8 吨，为哈萨克斯坦经济社会发展作出积极贡献。

The Zhanatas Wind Power Project, Kazakhstan's first 100 MW-class wind power initiative, represents a landmark energy collaboration between China and Kazakhstan, marking a significant breakthrough for SPIC in Central Asia. It is the first overseas investment by a Chinese enterprise backed by the Asian Infrastructure Investment Bank (AIIB) and the AIIB's inaugural power financing project in the region. Once operational, the project will generate 690 GWh of clean electricity annually for southern Kazakhstan. Compared to coal-fired power plants of equivalent capacity, it will conserve 219,000 tons of standard coal and reduce emissions by 2,032.54 tons of SO₂, 569,700 tons of CO₂, and 634.8 tons of dust each year, significantly contributing to Kazakhstan's economic and social development.

匈牙利 Tokaj 光伏项目
Tokaj PV Project in Hungary



该项目是国家电投集团第一个境外战略性项目，也是匈牙利最大的安装跟踪支架光伏场站，项目整体投运后，预计每年减碳量可达 22.2 万吨。

Undertaken by Shanghai Electric Power, the Tokaj 200 MW PV project is SPIC's first strategic project overseas, and also the largest PV power plant with tracking brackets in Hungary. Upon full operation, it is expected to reduce 222,000 tons of carbon emissions annually.

巴西马兰加图光伏电站
Marangatu Solar Complex in Brazil



项目装机容量达到 446 兆瓦，每年可为近 55 万户家庭供电。2024 年 6 月 7 日，项目举行投产仪式，巴西皮奥伊州州长拉斐尔·丰蒂莱斯表示该电站在给该州带来经济效益的同时，“更留下了珍贵的环境和社会遗产”。

With an installed capacity of 446 MW, the project is able to supply electricity to nearly 550,000 households annually. At the commissioning ceremony held on June 7, 2024, Rafael Fontelles, Governor of Piauí State, hailed the project for bringing economic benefits to the state while also leaving behind valuable environmental and social legacies.

缅甸“小而美”项目
“Small but smart” project in Myanmar



国家电投集团在缅甸首个“无电村”光伏示范项目竣工投运，结束了克钦邦其培县耶觉村的无电历史，让百姓告别了蜡烛照明的生活，为“一带一路”共建国家无电地区提供了“国家电投方案”。该项目被国务院国资委推荐入选全球发展项目库及中央企业新版中国国际发展合作白皮书推荐案例，并在第 28 届联合国气候变化大会上推介。

SPIC's PV demonstration project in Rijo Village, Chipwi County of Kachin State, came into operation, ending the village's history of lighting by candles. This was SPIC's first PV project for a "no electricity village" in Myanmar, offering its solution to no-power regions in the BRI partner countries. With SASAC's recommendation, the project is included in the Global Development Project Pool and in the new-version white paper on China's international development cooperation. It was also promoted at COP28.

智利公司
Pacific Hydro
Chile S.A.

在智利，太平洋水电智利公司在与野生动物专业咨询公司 Bioamérica 紧密合作下，对居住在阿尔托卡查波尔流域的湍水鸭开展研究并实施相关保护计划，以确保运营水电站活动对周围生态系统的影响最小化，保证了野生动物的生命安全，实现了智利公司 20 多年来对保护环境的持续承诺。

In Chile, SPIC Pacific Hydro Chile, in close cooperation with Bioamérica, a wildlife consulting firm, studied and implemented a protection program for the torrent ducks living in the Alto Cachapoal Basin. This has minimized the impact of hydropower operations on the surrounding ecosystems and ensured the life safety of wild animals, honoring the company's environmental commitment for over 20 years.

沙特红海综合智慧能源项目
Integrated smart energy project in the Red Sea, Saudi Arabia

沙特项目污水处理厂种植沙特本土湿地植物，在项目海洋工程施工区域，聘请专业海洋环境公司在施工前勘察珊瑚、海草、海龟、鱼类等海洋生物，将珊瑚迁移至远离施工现场的指定区域，形成海洋生物勘察报告，为区域内环境保护、绿色循环发展提供了可借鉴的优秀范例。

Native wetland plants were grown at the sewage treatment plant of SPIC's smart energy project in Saudi Arabia. In the marine construction area, a specialized marine environmental company was hired to survey corals, seagrass, sea turtles, fishes, and other marine organisms prior to the construction. Corals were transplanted to designated locations far away from the construction area and a marine life survey report was produced, providing an excellent reference for environmental protection and green and circular development in the region.

土耳其胡努特鲁项目
Hunutlu project in Türkiye

在土耳其伊斯肯德伦湾畔，胡努特鲁电厂项目将生物多样性保护作为项目建设优先项，在工程建设阶段，电厂特意设计建造了跨海龟产卵地的桁架桥，为海龟繁衍留出“生命通道”，向世界展示了生物多样性保护的中国力度和中国智慧。

Located by the Gulf of Iskenderun in Türkiye, the Hunutlu Power Plant prioritizes biodiversity protection. During the construction stage, a truss bridge spanning the sea turtles' spawning grounds was particularly built to create a "life corridor" for their multiplication. The project showcased to the world China's philosophy and capability of biodiversity protection.

未来展望 Looking Forward

薪火相传照征程，
勇毅执笔续华章。

Moving forward with resolve to
embark on a new journey

2025 年，正值“十四五”规划收官与“十五五”蓝图擘画交汇之际，我们将坚持以习近平新时代中国特色社会主义思想为指导，推动进一步全面深化改革举措走深走实，系统深化管控改革，建立健全更有利于高质量发展的体制机制；加快规划建设新型能源体系，加力推动“均衡增长战略”落实落地，全面提升发展质量效益；按期完成国家科技重大专项任务，研发投入强度保持行业领先水平，勇当推进高水平科技自立自强的排头兵；着力防范化解重大风险，统筹发展和安全，牢牢守住不发生重大风险底线；全面加强党的领导和党的建设，纵深推进全面从严治党，以高质量党建引领保障高质量发展，行稳致远建设世界一流清洁能源企业，矢志成为绿色能源可持续发展的时代标杆！

The year 2025 marks the conclusion of the 14th Five-Year Plan and the strategic blueprinting of the next five-year plan. In 2025, following the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, we will continue to comprehensively deepen the reform for tangible results with a focus on reforming the management and control system, and establish and improve mechanisms that better support high-quality development. We will accelerate the planning and development of a new energy system, and intensify efforts to implement our “balanced growth strategy” for better development quality and efficiency. We are determined to complete major national science and technology projects on schedule, and maintain industry-leading R&D investment to take the lead in promoting technological self-reliance and strengths at a high level. We will step up efforts to strengthen risk prevention and mitigation, and hold the bottom line against major risks to strike a balance between development and security. With steadfast determination, we will move forward steadily toward building a world-class clean energy enterprise, and stay committed to evolving into a benchmark of sustainable green energy in the new era.



国家电投集团山东公司山东半岛南海上风电基地 U1 场址二期 450 兆瓦项目
The 450-megawatt Phase II project of the U1 Site in the Shandong Peninsula South Offshore Wind Power Base of SPIC Shandong Company

附录Appendix

关键绩效Key Performance

指标	单位	2022	2023	2024
营业收入	亿元	3633.91	3857.10	3,954.68
利润总额	亿元	274.30	406.56	497.40
净资产收益率	%	4.45	6.45	6.65
资产负债率	%	69.91	68.61	68.60
纳税总额	亿元	316.03	360.93	392.43
全员劳动生产率	万元 / 人	116.30	135.34	154.00
科技创新获奖数量	个	110	165	194
新增专利数 ¹	项	4829	5008	4470
有效专利数	项	9081	13227	15471
应用于主营业务的发明专利数量	项	1962	2324	2437
研发投入	亿元	134.87	157.28	161.51
研发投入强度	%	3.71	4.08	4.08
经济合同履约率	%	100	100	100
报告期内审查的供应商数量	个	150684	52772	100800
全年能源消耗总量	万吨标煤	6486.98	6125.08	6087.22
企业单位产值综合能耗	吨标煤 / 万元	2.01	1.63	1.57
环保培训次数	人次	27908	28037	29857
供电煤耗（含供热）	克 / 千瓦时	295.9	293.34	293.28
单位发电油耗	吨 / 亿千瓦时	8.76	8.09	8.32
发电水耗率	千克 / 千瓦时	1.53	1.51	1.44
废水排放量	万吨	1382.97	1804.32	1666.06
火电机组脱硫装备率	%	100	100	100
火电机组脱硝装备率	%	100	100	100
二氧化硫排放率	克 / 千瓦时	0.110	0.106	0.101
氮氧化物排放率	克 / 千瓦时	0.159	0.150	0.147
烟尘排放率	克 / 千瓦时	0.010	0.010	0.011
安全培训次数	次数	10676	11295	13423
安全培训员工人数	人次	356521	377148	409832
安全生产投入	亿元	57.32	69.34	56.40
安全生产事故数 ²	次	1	0	3
员工死亡人数	人	1	0	0
员工工伤人数	人	0	0	0

¹ 为进一步优化专利整体布局，集团考核政策发生变化，引导发明专利申请占比提升，2024 年专利申请量以及实用新型的申请量相应减少，发明专利申请量与授权量占比均有所提升。

² 2022-2023 年不包含发生的承包商安全生产事故，2024 年 3 起事故为承包商发生的安全生产事故。

Indicator	Unit	2022	2023	2024
Operating revenue	RMB 100 million	3633.91	3857.10	3,954.68
Total profit	RMB 100 million	274.30	406.56	497.40
Return on equity	%	4.45	6.45	6.65
Asset-liability ratio	%	69.91	68.61	68.60
Total tax paid	RMB 100 million	316.03	360.93	392.43
Labor productivity of all employees	RMB 10,000/person	116.30	135.34	154.00
Number of scientific and technological innovation awards	/	110	165	194
Number of new patents ¹	/	4829	5008	4470
Number of valid patents	/	9081	13227	15471
Number of invention patents used in main businesses	/	1962	2324	2437
R&D investment	RMB 100 million	134.87	157.28	161.51
R&D investment intensity	%	3.71	4.08	4.08
Performance rate of business contracts	%	100	100	100
Number of suppliers reviewed during the reporting period	/	150684	52772	100800
Total energy consumption	10,000 tons of standard coal	6486.98	6125.08	6087.22
Comprehensive energy consumption per unit of output value	Ton of standard coal/ RMB 10,000	2.01	1.63	1.57
Number of environmental protection training sessions	/	27908	28037	29857
Coal consumption for power supply (including heating)	g/kWh	295.9	293.34	293.28
Oil consumption per unit of power generation	Ton/100GWh	8.76	8.09	8.32
Water consumption rate for power generation	kg/kWh	1.53	1.51	1.44
Wastewater discharge	10,000 tons	1382.97	1804.32	1666.06
Desulfurization rate of thermal power units	%	100	100	100
Denitration rate of thermal power units	%	100	100	100
Sulfur dioxide emission rate	g/kWh	0.110	0.106	0.101
Nitrogen oxide emission ratio	g/kWh	0.159	0.150	0.147
Soot emission ratio	g/kWh	0.010	0.010	0.011
Number of safety training sessions	/	10676	11295	13423
Number of employees receiving safety training	/	356521	377148	409832
Work safety investment	RMB 100 million	57.32	69.34	56.40
Number of work safety accidents ²	/	1	0	3
Number of work-related deaths	Person	1	0	0
Number of work injuries	Person	0	0	0

¹ To further refine the patent portfolio, SPIC adjusted its assessment policy to encourage the application for invention patents. In 2024, the number of applications for patent and utility model decreased, whereas the application for invention patent and the number of patent grant grew in proportion.

² The 2022-2023 figures exclude work safety accidents involving contractors; the 3 accidents in 2024 were contractor-related work safety incidents.

指标	单位	2022	2023	2024
重大设备事故数	次	0	0	0
一般设备事故数	次	0	0	0
机组等效可用系数	%	92.62	93.30	93.27
新建项目执行环境评估的比率	%	100	100	100
研发人员数量	人	6687	8603	8957
研发人员占员工总人数比例	%	5.30	6.70	7.10
科技人才数量	人	10508	12372	15963
员工总人数	人	126500	127514	126893
女性员工数量	人	24477	25004	24629
少数民族员工数量	人	13044	13526	14774
残疾人雇佣数量	人	797	797	797
报告期内吸纳就业人数	人	7359	8701	8179
劳动合同签订率	%	100	100	100
社会保险覆盖率	%	100	100	100
女性管理者比例	%	12.7	12.9	12.8
每年人均带薪年假天数	天	11	9.90	10.60
员工年度体检覆盖率	%	100	100	100
员工职业健康档案覆盖率	%	100	100	100
员工培训总投入	万元	28258	30745	31240
员工培训参与人次	人次	717511	778942	839297
员工人均培训时长	小时	83	92.02	103
员工流失率	%	2.20	2.04	1.50
参加工会员工占比	%	100	100	100
困难员工帮扶总投入	万元	709.08	1072.97	908.41
帮扶困难员工人数	人	1446	2369	2278
员工志愿者活动时长	小时	34882	36112	36934
员工志愿者活动参与人数	人次	19933	24478	25680
公益捐赠总额 ³	万元	4429.13	6291.57	2807.50
液态流出物（除氚碳外其他核素）占国家年限值（仅核电） ⁴	%	1.16	1.18	2.55
气态流出物（惰性气体）占国家年限值（仅核电）	%	2.46	2.36	2.28
放射性固体废物产生量（仅核电）	立方米	54.57	84.63	42.18
二级及以上的核事件次数（仅核电）	次	0	0	0
在运机组非计划停堆次数（仅核电）	次	2	1	1
LOE（执照运行事件）事件次数（仅核电）	次	2	2	2
超剂量照射事件次数（仅核电）	次	0	0	0

³ 由于捐赠计划变更，约合人民币 2190 万元的捐赠额延期至 2025 年进行。

⁴ 海阳核电 2024 年初升版了《放射性流出物监测大纲》，增加了液态流出物（除氚碳外其他核素）的监测和统计范围，排放量占比有所增加，但远低于国家规定限值。

Indicator	Unit	2022	2023	2024
Number of major equipment accidents	/	0	0	0
Number of general equipment accidents	/	0	0	0
Unit equivalent availability coefficient	%	92.62	93.30	93.27
Proportion of new projects that have received environmental impact assessment	%	100	100	100
Number of R&D personnel	Person	6687	8603	8957
Proportion of R&D personnel in total employees	%	5.30	6.70	7.10
Number of scientific and technological talents	Person	10508	12372	15963
Total number of employees	Person	126500	127514	126893
Number of female employees	Person	24477	25004	24629
Number of employees from ethnic minorities	Person	13044	13526	14774
Number of employees with disabilities	Person	797	797	797
Number of new employees during the reporting period	Person	7359	8701	8179
Labor contracts coverage	%	100	100	100
Social insurance coverage	%	100	100	100
Proportion of female managers	%	12.7	12.9	12.8
Number of paid leave days per employee per year	/	11	9.90	10.60
Annual physical examination coverage	%	100	100	100
Occupational health record coverage	%	100	100	100
Total investment in employee training	RMB 10,000	28258	30745	31240
Number of employees participating in training sessions	/	717511	778942	839297
Average length of training session per employee	Hour	83	92.02	103
Employee turnover rate	%	2.20	2.04	1.50
Proportion of employees who join the trade union	%	100	100	100
Total investment in assisting employees in need	RMB 10,000	709.08	1072.97	908.41
Number of employees in need receiving assistance	Person	1446	2369	2278
Hours of volunteer services	Hour	34882	36112	36934
Number of employees engaging in volunteer services	/	19933	24478	25680
Total donation to social welfare causes ³	RMB 10,000	4429.13	6291.57	2807.50
Proportion of liquid effluent (nuclides except tritium carbon) in the national annual limits (nuclear power only) ⁴	%	1.16	1.18	2.55
Proportion of gaseous effluent (inert gases) in the national annual limits (nuclear power only)	%	2.46	2.36	2.28
Amount of radioactive solid waste generated (nuclear power only)	m ³	54.57	84.63	42.18
Number of nuclear events at Level 2 and above (nuclear power only)	/	0	0	0
Number of unplanned shutdowns of operating units (nuclear power only)	/	2	1	1
Number of LOE (license operation events) (nuclear power only)	/	2	2	2
Number of overdose events (nuclear power only)	/	0	0	0

³ Due to changes in the donation plan, about 21.9 million yuan of donations has been postponed to 2025.

⁴ The Haiyang Nuclear Power Project revised the *Outline for the Monitoring of Radioactive Effluent* in early 2024, expanding the monitoring and statistical scope of liquid effluent (nuclides except tritium carbon). This increased the proportion of its effluent in the national annual limits, but still far below the state-designated level.

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评级报告

《国家电力投资集团有限公司 2024 社会责任报告》评级报告

受国家电力投资集团有限公司委托，“中国企业社会责任报告评级专家委员会”抽调专家组成评级小组，对《国家电力投资集团有限公司 2024 社会责任报告》（以下简称《报告》）进行评级。

一、评级依据

中国社会科学院《中国企业社会责任报告指南（CASS-CSR 4.0）》暨“中国企业社会责任报告评级专家委员会”《中国企业可持续发展报告评级标准（2025）》。

二、评级过程

1. 评级小组审核确认《报告》编写组提交的《企业可持续发展报告过程性评估资料确认书》及相关证明材料；
2. 评级小组对《报告》编写过程及内容进行评价，拟定评级报告；
3. 评级专家委员会副主席、评级小组组长、评级小组专家共同签审评级报告。

三、评级结论

过程性 (★★★★★)

集团成立社会责任报告编制领导小组，党组书记、董事长担任组长，把控整体方向及关键节点，并负责报告终审，宣传与群团部牵头组建报告编制工作组，统筹具体编制工作；将报告定位为提高社会责任管理水平、强化利益相关方沟通、提升责任品牌形象、增强可持续发展竞争力的重要工具，功能价值定位明确；根据国家宏观政策、行业对标分析、公司重大事项、利益相关方关切等识别实质性议题；积极推动下属企业编发社会责任报告，并举办全系统社会责任专题培训会，深化责任能力建设；计划召开专项发布会，并将以电子版、印刷品的形式呈现报告，过程性表现卓越。

实质性 (★★★★★)

《报告》系统披露了贯彻宏观政策、保障电力供应、安全生产、发展绿色电力、建设项目的环境评估制度、节约资源能源、减少“三废”排放、生态修复与治理等所在行业关键性议题，叙述详细充分，具有卓越的实质性表现。

完整性 (★★★★★)

《报告》主体内容从“绿色引领转型 共建可持续美好未来”“合规稳健经营 筑牢责任治理根基”“科技赋能产业 加快发展新质生产力”“坚守战略使命 彰显央企责任担当”等角度披露了所在行业核心指标的 90.65%，完整性表现卓越。

平衡性 (★★★★★)

《报告》披露了“员工流失率”“安全生产事故数”“员工死亡人数”“生态环保严重违法违规及突发环境事件”“在运机组非计划停堆次数（仅核电）”等负面数据信息，并简述生态环境保护尽职调查出现的问题、影响及整改措施，平衡性表现卓越。

可比性 (★★★★★)

《报告》披露了“利润总额”“研发投入”“全年能源消耗总量”“环保培训次数”“女性员工数量”“公益捐赠总额”等 67 个关键指标连续 3 年的对比数据，并披露“风电总装机 6044 万千瓦，位居全球第二位”“光伏控股装机 8365 万千瓦，连续 8 年保持世界第一”等横向可比数据，可比性表现卓越。

可读性 (★★★★★)

《报告》采用议题型框架结构，聚焦低碳转型、公司治理、科技创新、数智融合、员工保障、民生事业等议题，系统阐述责任行动及成效，全面回应相关方关切；篇章页采用展现业务特色的精美高清图，恢宏大气，具有行业辨识度；排版设计灵活多样，色块应用凸显重点；积极响应联合国可持续发展目标，双语排版方式，展现企业的国际化视野，具有卓越的可读性表现。

创新性 (★★★★★)

《报告》开篇设置责任专题，聚焦党建及乡村振兴，响应国家号召，彰显央企责任担当；以“中央企业先进集体”“中央企业劳动模范代表”“首届国家电投大工匠”的组图方式，集中呈现优秀集体及员工，展现企业工匠精神及积极向上的责任面貌；多处嵌入二维码链接，延伸报告内容，拓展阅读体验，具有卓越的创新性表现。

综合评级 (★★★★★+)

经评级小组评价，《国家电力投资集团有限公司 2024 社会责任报告》在过程性、实质性、完整性、平衡性、可比性、可读性、创新性方面均达到五星级，综合为“五星佳”级，是企业可持续发展报告中的典范。

四、改进建议

增加行业关键议题的披露，进一步提高报告的实质性。



国家电力投资集团社会责任报告连续三年获得五星级评价、连续第二年获得五星佳级评价

张喜 评级专家委员会副主席
评级小组组长
黄群慧 评级小组专家



扫码查看企业评级档案

出具时间：2025 年 7 月 26 日

Rating Report

Rating Report for the 2024 Social Responsibility Report of State Power Investment Corporation Limited

Commissioned by State Power Investment Corporation Limited (SPIC), the Chinese Expert Committee on CSR Report Rating selected experts to form a rating group to evaluate the *2024 Social Responsibility Report of State Power Investment Corporation Limited* (hereinafter referred to as “the Report”).

I. Rating Basis

The rating is based on the *Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises* (CASS-CSR 4.0) by the Chinese Academy of Social Sciences and the *Chinese Sustainable Development Report Rating Standards (2025)* by the Chinese Expert Committee on CSR Report Rating.

II. Rating Process

1. The rating group reviewed and confirmed the *Corporate Sustainable Development Report Procedural Evaluation Information Confirmation Letter* and relevant supporting materials submitted by the drafting team of the Report.
2. The rating group evaluated the drafting process and content of the Report, and drafted the rating report.
3. The Vice Chairman of the rating expert committee, as well as the head and experts of the rating group jointly signed and reviewed the rating report.

III. Rating Conclusion

Procedurality (★★★★★)

SPIC established a leadership team for drafting the social responsibility report, led by SPIC's Chairman, who oversees the overall direction and key milestones and is responsible for the final review of the Report. The Publicity Department and the Labor Union Affairs Department took the lead in forming the report drafting team to coordinate the specific drafting tasks. The Report is positioned as a crucial tool to improve social responsibility management, strengthen stakeholder communication, enhance the responsible brand image, and increase SPIC's sustainable development competitiveness, with a clear functional value positioning. Material topics were identified based on national macro policies, industry benchmarking analysis, SPIC's significant events, and stakeholder concerns. SPIC promoted the drafting and publication of social responsibility reports by its subsidiaries and held specialized training sessions on social responsibility across the entire system, significantly enhancing social responsibility capabilities. A special release conference is planned, and the Report will be presented in both electronic and printed formats, demonstrating excellent procedural performance.

Materiality (★★★★★)

The Report systematically discloses material industry topics such as implementing macro policies, ensuring power supply, maintaining production safety, developing green energy, environmental assessment of construction projects, conserving resources and energy, reducing emissions of the “three wastes” (waste gas, waste water, and solid waste), and restoring and governing the ecology. The detailed and comprehensive narratives demonstrate excellent materiality performance.

Completeness (★★★★★)

The main content of the Report covers 90.65% of core industry indicators from perspectives such as “Green Transition Towards a Sustainable Future,” “Sound Operation Ensures Responsible Governance,” “Sci-tech Innovation Accelerates Development of New Quality Productive Forces,” “Commitment to Strategic Mission Demonstrates Sense of Responsibility,” demonstrating excellent completeness performance.

Balance (★★★★★)

The Report discloses negative data and information, such as employee turnover, the number of production safety accidents, employee deaths, significant environmental protection violations and emergencies, and the number of unplanned shutdowns of operating units (nuclear power only). It also briefly describes flaws identified in environmental protection due diligence, along with the consequences and corrective measures, demonstrating excellent balance performance.

Comparability (★★★★★)

The Report discloses three years of comparative data for 67 key indicators, including total profit, R&D investment, total energy consumption, the number of environmental protection training sessions, the number of female employees, and the total donation to social welfare causes. It also provides horizontal comparisons, including “the total installed capacity of wind power was 60.44 GW, ranking second in the world” and “consolidated PV installed capacity of 83.65 GW, taking the global top spot for eight consecutive years,” demonstrating excellent comparability performance.

Readability (★★★★★)

The Report applies a thematic framework to systematically elaborate on SPIC's responsibility-fulfilling actions and achievements and comprehensively respond to stakeholder concerns, focused on low-carbon transformation, corporate governance, scientific and technological innovation, digital intelligence, employee rights and interests, and livelihood undertakings. High-definition, magnificent pictures showcasing industrial characteristics are used for each chapter to enhance industrial recognition. Layout design is flexible with key points highlighted in distinct colors. The report echoes with the UN SDGs and adopts a bilingual format, showcasing SPIC's international vision. These all demonstrate excellent readability performance.

Innovativeness (★★★★★)

The Report includes special features on Party building and rural revitalization, showcasing SPIC's commitment to its social responsibilities as a central SOE by actively supporting major national strategies. It presents a series of photos of “Advanced Collectives of Central SOEs,” “Model Employees of Central SOEs,” and “First SPIC Masters of Craftsmanship,” celebrating their dedication, passion, and sense of responsibility. The inclusion of multiple “scan to view” links offers more details and enriches reader experience. These all demonstrate excellent innovative performance.

Overall Rating (★★★★★+)

According to the evaluation by the rating group, the Report achieved a five-star rating in procedurality, materiality, completeness, balance, comparability, readability, and innovativeness, earning an overall rating of “five-star plus.” It stands as a model in corporate sustainable development reporting.

IV. Recommendations on Improvement

It is recommended to increase the disclosure of material industrial topics to further improve the materiality of the report.



SPIC's Social Responsibility Report has received a five star rating for three consecutive years and a five-star plus rating for two consecutive years.

张喜 评级专家委员会副主席
Head of the Rating Group
黄群慧 评级小组专家
Vice Chairman of the Chinese Expert Committee on CSR Report Rating
Expert of the Rating Group

Released on: July 26, 2025



Scan the QR code to view SPIC's rating archives

意见反馈

尊敬的读者：

您好！为不断提高社会责任履行能力和管理水平，持续改进社会责任管理工作及社会责任报告编制工作，我们诚挚希望您能够针对本报告提出相关意见和建议。

请将您的意见填写到如下表格，并邮寄到
地址：北京市西城区北三环中路 29 号院 1 号楼国家电力投资集团有限公司党组宣传部（公共关系部、文化品牌部）
电话：8610-66298000
邮编：100029

选择性问题

1. 您对本报告的总体评价如何？

☐非常好 ☐较好 ☐一般 ☐较差

2. 您认为本报告是否能全面、准确地反映国家电投集团对经济、社会、环境的重大影响？

☐能 ☐一般 ☐不能

3. 您认为本报告是否能对利益相关方所关心的问题进行了回应和披露？

☐能 ☐一般 ☐不能

4. 您认为本报告所披露的信息、指标、数据是否清晰、准确、完整？

☐是 ☐一般 ☐否

开放性问题

1. 您最满意本报告哪一方面？

2. 您希望进一步了解哪些信息？

3. 您对我们今后编制、发布社会责任报告有何建议？

Feedback

Dear readers:

Hello! To enhance our capability and management level in fulfilling social responsibilities, and to improve our CSR management and reporting, we sincerely hope that you can provide relevant comments and suggestions regarding this report.

Please fill in your comments below and send them to:
Address: Publicity Department (Public Relations Department, and Cultural Brand Department) of State Power Investment Corporation, Building 1, Compound 29, North 3rd Ring Road, Xicheng District, Beijing;
Tel: +86 10 6629 8000
Post code:100029

Multiple-choice Questions

1. How do you overall evaluate this report?

☐ Excellent ☐ Good ☐ Fair ☐ Poor

2. Do you think this report comprehensively and accurately reflects SPIC's significant impacts on the economy, society, and environment?

☐ Yes ☐ Average ☐ No

3. Do you believe this report effectively addresses and discloses issues of concern to stakeholders?

☐ Yes ☐ Average ☐ No

4. Are the information, indicators, and data disclosed in this report clear, accurate, and complete?

☐ Yes ☐ Average ☐ No

Open-ended Questions

1. What aspect of this report are you most satisfied with?

2. What information would you like to know more about?

3. Do you have any suggestions for our future preparation and publication of CSR reports?

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