



2025 Climate Solutions from Chinese Enterprises

应对气候变化的中国企业解决方案 (2025)

Creating a Flagship Zero-Carbon Industrial Park to Accelerate Action on Carbon Peaking and Neutrality Goals

打造零碳园区优质样本
为“双碳”目标实现提质加速



国家电网
STATE GRID

国网无锡供电公司

STATE GRID WUXI ELECTRIC POWER SUPPLY COMPANY

Creating a Flagship Zero-Carbon Industrial Park to Accelerate Action on Carbon Peaking and Neutrality Goals

Challenges

Industrial parks are the main front of industrial clusters. Over the past decades, China's industrial parks have evolved into a key carrier of the national economy. What surges in parallel with their growing contribution to the GDP is their energy-use density and carbon emission intensity. As a hub for emerging industries, Wuxi National Hi-Tech District (WND) boasts 179 high-tech industrial parks and generates an annual output of more than US\$35.105 billion. Emerging industries are in dire need of energy conservation and carbon reduction. So in this case, how to run industrial parks at net zero to gradually achieve low-carbon and high-quality development of the zone as a whole has become an important topic.



Rooftop and overhang PV installations

Solution

New demands breed new solutions. State Grid Wuxi Electric Power Supply Company ("State Grid Wuxi" for short) has spearheaded efforts to develop an all-factor decarbonization model that focuses on both the energy supply and demand sides. The model features "green electricity substitution, carbon reduction and efficiency improvement, smart management, and green electricity trading". State Grid Wuxi has offered full-spectrum services for the LongShine Technology Industrial Park (CPU Space), a landmark high-tech industrial park, to explore decarbonization pathways for sci-tech industrial parks.



Supply of clean energy. The radical change of the energy system lies in the supply of clean energy. Based on the sunlight in Wuxi, as well as the construction conditions, roof and land areas of the park, State Grid Wuxi measured the power load of the park, sized the photovoltaic (PV) system, and calculated the solar-to-storage ratio.

The company vigorously promotes the connection of green electricity. It has assisted the park in installing PV panels at rooftops and in curtain walls, with the installed capacity exceeding 1MWp and the annual power generation reaching 1.2 GWh. Meanwhile, the supporting energy storage facilities have been installed with a capacity of 1 MWh. This not only allows the grid-connected PV system to feed surplus power back into the grid, but also ensures the energy use of the park — it can keep the park's core data center running for over 4 hours in extreme conditions.

Efficient energy use. State Grid Wuxi has assisted the park in developing an energy and carbon management platform to conduct integrated management of the major energy-consuming equipment, such as air conditioning, lighting, and fresh air systems. After collecting and quantitatively analyzing the energy use data, the platform can provide energy-saving management strategies to help the park cut carbon emissions and boost efficiency.

(1)End-use electrification. Based on the proportion of new energy vehicles (NEVs) used by the subsidiaries and employees of the park, State Grid Wuxi estimated the charging demand and built 88 charging piles for NEVs with an annual charging capacity of about 744 MWh, which can contribute to zero-carbon mobility. Beyond that, the park's V2G charging piles can turn NEVs into mobile "super power banks," feeding energy back to the park for production and daily-life use during power outages or shortfalls. Moreover, the NEVs are charged with PV energy, realizing net-zero emissions.



(2) Smart energy setup. State Grid Wuxi developed a PV-storage-charger microgrid management platform for the park, which features analytics, scheduling, operation, and command functions. Based on information such as weather, electricity price, and car battery status, the platform can pinpoint the optimal strategy to intelligently schedule the PV generation, energy storage, and the orderly charging and discharging of EVs. This enables a more balanced distribution of the power load and a more efficient accommodation of PV energy within the park. In addition, with flexible and demand-response-ready regulation, the microgrid can act as a point of scheduling to connect to the urban power grid and enable dynamic peak shaving and valley filling for the city and neighborhood, thereby stabilizing the power grid.

(3) Diversified energy services. WND has brought together a flock of export-oriented companies. As the global supply chain races to go low-carbon, demand for green electricity (GE) and green electricity certificate (GEC) services is soaring. In March 2024, State Grid Wuxi unveiled China's first prefecture-level "GE and GEC Service Station". It not only gives local customers insights into policies, announcements, and bills, but also instructs clients about transaction support and staff training. It also carries out GE and GEC trading, which boost the "green" competitiveness of companies.



Multiple Benefits

Environmental

In a single year, the park cut carbon emissions by about 743.84 tons with PV generation, about 14.55 tons via charging piles, and about 353.57 tons through energy efficiency management. The park's total carbon offset ratio hits 49.08%.

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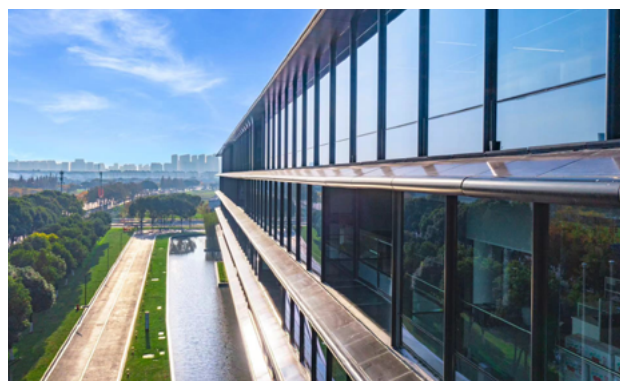
Employees from State Grid Wuxi inspect the power equipment of the park.

Social

In 2024, the park obtained authoritative carbon neutrality certification, and was rated as one of the best "Zero Carbon China" cases by the Investment Association of China. State Grid Wuxi's zero-carbon park solution demonstrates how Wuxi builds the new-type power system, which not only propel the upgrading of low-carbon industries but also drive the low-carbon development of the regional economy.

Economic

The completion of the CPU Space has injected new momentum into the development of LongShine. After the relocation of LongShine's headquarters and its subsidiaries to the park, 15% of energy costs can be saved annually through the above measures.



Rooftop and overhang PV installations



Application Scenarios

Sci-tech industrial parks, R&D-centric companies, and related power supply companies

打造零碳园区优质样本， 为“双碳”目标实现提质加速

问题与挑战

园区是产业集聚的主阵地，我国园区经过数十年的发展，已成为国民经济的重要载体。而与GDP贡献度同步增长的，还有园区的能耗密度、碳排放强度。无锡市高新区是新兴产业高地，拥有179个高新科技产业园，生产总值超2500亿元。新兴产业节能降碳需求迫切，如何实现园区零碳运行，逐步实现区域整体的绿色低碳高质量发展成为重要课题。



建设屋顶和挑檐光伏

解决方案

新要求催生新方案。国网江苏省电力有限公司无锡供电分公司（简称国网无锡供电公司）勇当先锋、示范先行，从能源供给侧和需求侧两侧发力，构建“绿电替代-降碳提效-智慧管理-绿电交易”的全要素绿色降碳模式，针对具有典型代表性的高新园区朗新科技产业园进行了全域服务，探路科技园区降碳之道。



1. 能源供给清洁化。能源体系的根本性变革就是能源供给的清洁化。国网无锡供电公司根据无锡地区日照情况、园区建设条件、屋顶和地面面积，测算出朗新科技产业园的园区用电负荷，规划匹配相应的光伏规模，测算出光储配比。

国网无锡供电公司大力推动绿电接入，协助朗新科技产业园安装屋顶光伏及幕墙光伏，装机容量超1MWp，年发电量达120万千瓦时，同时建设容量为1000千瓦时配套储能，既能实现光伏并网和余电上网，还能确保园区自身能源利用，极端情况下可支持园区核心数据机房连续运行4个小时以上。

2. 能源利用高效化。国网无锡供电公司协助园区开发能碳管理平台，对朗新科技园的主要耗能设备，例如空调、照明、新风系统等进行一体化管理，通过采集园区用能数据进行定量统计分析，提供节能管理策略，助力园区实现降碳增效。

（1）终端用能电气化。根据园区入驻子公司和员工的新能源车辆配比，国网无锡供电公司测算出充电桩的投入量，建设新能源汽车充电桩88个——每年可充电量约74.4万千瓦时，不仅助力零碳交通，而且当园区断电或亏电时，园区配备的V2G充电桩可以让新能源车充当移动的“超级充电宝”，为园区生产生活反向补充能源。此外，给新能源车充光伏绿电，实现零碳排放。



(2) 能源配置智慧化。国网无锡供电公司为园区建设了光储充一体化微电网管理平台，该微能源网具有分析、调度、运行、指挥功能，可以根据天气、电价、汽车电池状态等数据信息，选择最优策略，智能调度光伏、储能和车辆有序充放电，让园区负荷情况更均衡，更高效消纳光伏能源。此外，微能源网具备柔性调节能力，可以基于需求侧响应，作为一个调度节点，参与到城市电网中，实现与城市、园区周边的电力动态削峰填谷，达到维持电网稳定的目的。

(3) 能源服务多元化。无锡高新区集聚了大批外向型企业，随着全球供应链加快向低碳转型，绿电绿证服务需求大。国网无锡供电公司于2024年3月揭牌全国首个地市级“绿电绿证服务站”，积极向无锡高新区客户提供政策解读、信息公告、账单解读，指导客户开展交易辅助、人员培训等工作，开展绿电绿证交易工作，为企业绿色竞争力提升添砖加瓦。

多重价值

环境效益

朗新科技园区一年光伏发电减碳约743.84吨，充电桩减碳约14.55吨，能效管理减碳约353.57吨，园区碳中和贡献率共计可达到49.08%。



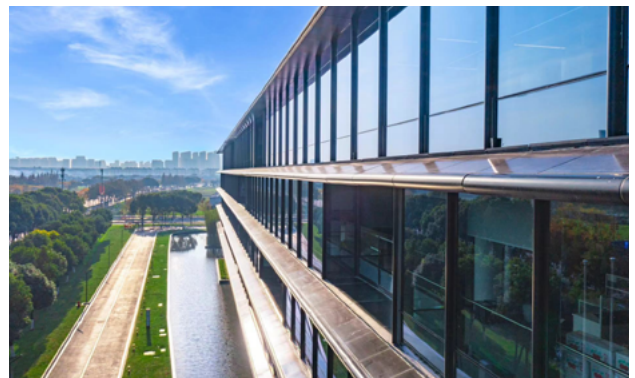
国网无锡供电公司员工检查朗新科技园电力设备情况

社会效益

2024年，朗新科技产业园获得权威碳中和认证，项目被中国投资协会评为“零碳中国”优秀案例。国网无锡供电公司助力零碳园区建设的解决方案，展示了新型电力系统建设中的无锡样本，在促进低碳环保产业升级同时带动区域经济绿色低碳发展。

经济效益

朗新科技产业园的落成为朗新集团发展注入了新动能，随着朗新总部和下属公司搬入后，上述措施一年可节约15%的用电成本。



朗新科技产业园在挑檐处部署分布式光伏板

应用场景

科技产业园区、以科研为主的企业，
相关供电公司

About “GoldenKey – SDG Solutions”

To implement the assertion that sustainable development is the “golden key” to solving current global problems proposed by Chinese President Xi Jinping and to respond to the Decade of Action, “GoldenKey – SDG Solutions” (GoldenKey) was launched by China Sustainability Tribune in October 2020. The initiative aims to identify, shape, and promote outstanding corporate SDG solutions in China, tackle humanity's greatest challenges and drive sustainable development in China and beyond. In 2021, the GoldenKey was selected as the UN Good Practices (#33560).

As one of China's most influential platforms for sustainable development, GoldenKey has been held for six consecutive sessions. A total of 2,365 corporate SDG solutions have been collected, with 1,054 selected as outstanding SDG solutions. These solutions span areas such as climate action, well-being for all, rural vitalization, tech4SDG, quality education, action4nature, and zero waste. They stand out for their clear problem definition, outstanding innovation, strong replicability, and significant integrated value, demonstrating the capability and innovation of Chinese enterprises in advancing the SDGs.

With the growing emphasis on green and low-carbon transformation, the number of climate-related corporate solutions featured on the GoldenKey platform has increased each year. Participating enterprises range from central state-owned enterprises and foreign-invested companies to private enterprises of all sizes and sectors, contributing to China's carbon neutrality goal through efforts in energy transition, low-carbon production and operations, digital empowerment, financial support, as well as low-carbon consumption and living. GoldenKey has become one of China's most influential and internationally recognized platforms for corporate sustainability exchange and evaluation.

From 2022 to 2025, GoldenKey and State Grid Corporation of China (SGCC or State Grid) co-hosted the “GoldenKey · SGCC Special” for four consecutive years. The event collects innovative solutions on topics such as low-carbon transformation and green grids, and has identified and promoted numerous exemplary practices within the power sector. In 2025, GoldenKey launched the “GoldenKey · Power Sector Special” in partnership with the China Electricity Council (CEC) to further collect and showcase breakthroughs by power enterprises in climate change, China's 30·60 Decarbonization Goal, and low-carbon transition of clean energy.

GoldenKey continues to optimize and upgrade China's corporate SDG solutions. Through a series of initiatives, including publications, academic forums, field research, international launches, and demonstration projects, GoldenKey showcases and promotes these solutions on domestic and global platforms such as the China International Import Expo, China International Consumer Products Expo, UN Climate Change Conferences, and IUCN World Conservation Congress. This provides replicable models for more regions worldwide and supports the implementation of the SDGs.

Additionally, GoldenKey and the International School of Low-carbon Studies of Shandong University of Finance and Economics jointly established the GoldenKey Low-Carbon Action Center. Focusing on empowering enterprises in their green and low-carbon transformation, the center provides comprehensive knowledge empowerment and capacity building, covering low-carbon strategy development, carbon management capacity building, green project implementation, application of green financial instruments and climate risk control.



GoldenKey Annual Event

关于“金钥匙——面向SDG 的中国行动”

为落实中国国家主席习近平关于“可持续发展是破解当前全球性问题的‘金钥匙’”论断，响应联合国可持续发展目标“行动十年”计划，《可持续发展经济导刊》于2020年发起“金钥匙——面向SDG 的中国行动”（简称“金钥匙”）。

“金钥匙”旨在寻找、塑造、推广来自中国企业贡献SDG的优秀解决方案，应对人类所面临的重大挑战，为推动中国和全球可持续发展贡献力量。2021年，“金钥匙”获评联合国SDG 优秀实践（编号：SDG Action#33560）。

“金钥匙”是中国可持续发展领域具有重要影响力的平台型活动，目前已成功举办六届，共征集了2365项行动，其中1054项行动脱颖而出，在气候行动、人人惠享、乡村振兴、科技赋能、优质教育、礼遇自然、无废世界等领域涌现出一批问题定义精准、创新性突出、可复制性强、综合价值显著的SDG 解决方案，展现出中国企业贡献SDG 的行动力和破解难题的创新力。

随着企业对绿色低碳转型重视程度的增加，金钥匙平台上关注气候议题的企业行动数量逐年增加，涉及企业包括不同规模、不同行业的央企、在华外企以及民营企业等，这些行动分别从能源转型、低碳生产与运营、数字化赋能、金融支持、低碳消费与生活等方面积极参与全球气候治理，贡献中国碳中和目标。“金钥匙”成为中国最具影响力和国际化的企业可持续发展交流与展示活动。

2022-2025年，金钥匙与国家电网连续四年合作举办“金钥匙·国家电网主题赛”，围绕低碳转型、绿色电网等议题征集创新方案，发掘推广了一批行业示范实践；2025年，金钥匙与中国电力企业联合会启动“金钥匙·电力行业主题赛”，旨在更广泛征集推广电力行业在应对气候变化、服务“双碳”目标、促进能源清洁低碳转型等方面的突破性行动。

“金钥匙”持续对中国企业SDG 解决方案进行优化升级，举办成果出版、学术研讨、走访调研、国际发布、推广示范等一系列活动，在中国国际进口博览会、中国国际消费品博览会、联合国气候变化缔约方大会、世界自然保护大会等国内外平台上展现和推广中国企业SDG 解决方案，为全球更多地区提供可复制的经验，助力联合国2030可持续发展目标落实。

此外，“金钥匙”还联合山东财经大学中国国际低碳学院成立“金钥匙低碳行动中心”，以推动企业绿色低碳转型为核心，提供涵盖低碳战略制定、碳管理能力提升、绿色项目实践、绿色金融工具应用及气候风险管控等全方位的知识赋能和能力建设。



金钥匙年度盛典



Read the full version of 2025 Climate Solutions from
Chinese Enterprises
获取《中国企业应对气候变化解决方案》完整案例集



Learn more about GoldenKey SDG Solutions
了解更多关于
“金钥匙——面向SDG的中国行动”



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Long & Shine