



2025 Climate Solutions from Chinese Enterprises

应对气候变化的中国企业解决方案 (2025)

Green Intelligence Engine Activate New Growth Drivers of the NEV Industry

绿智引擎
激活路桥新能源汽车产业新动能



国家电网
STATE GRID

国网台州市路桥区供电公司

STATE GRID TAIZHOU LUQIAO POWER SUPPLY COMPANY



Green Intelligence Engine Activates New Growth Drivers of the NEV Industry



Staff from State Grid Luqiao communicate with relevant person in charge at the HaoDa workshop.

Challenges

Luqiao District, Taizhou City, Zhejiang Province, boasts a complete new energy vehicle (NEV) industry chain. In recent years, the European Union has introduced a series of policies and regulations related to carbon emissions, imposing stricter carbon management requirements on China's NEV industry chain. The automotive industry in Luqiao District is currently undergoing a low-carbon transition. Local NEV manufacturers generally lack annual energy-use planning, their production equipment is energy-intensive, and there is insufficient coordination between production schedules and energy consumption. Overall, their energy management capability is relatively low, leaving the NEV industry chain with limited means to achieve green and low-carbon development.

Solution

State Grid Taizhou Luqiao Power Supply Company ("State Grid Luqiao" for short) leverages its "green intelligence engine" brand to provide tailored energy conservation and carbon reduction solutions for automakers, offering meticulously designed support measures to strengthen the development potential of NEV manufacturers.

1. Dual-Carbon Brain for smarter carbon accounting. Under the guidance of the Luqiao District Development and Reform Commission, State Grid Luqiao began installing collectors for automotive manufacturers. The collected energy-use data feeds into a one-stop energy management platform, the "Intelligent Dual-Carbon Brain", which consolidates corporate energy profiles and continuously monitors their electricity pricing, consumption, and losses. This enables accurate diagnosis of the real needs of companies in their decarbonization journey.

2. "Electricity Steward" for scientific power management. State Grid Luqiao provides detailed "Electricity Health Report" for major energy consumers to help them fully understand their power consumption. Each report comes with clear and actionable recommendations designed to reduce electricity bills, cut consumption, lower losses, and minimize investment. For example, the "Electricity Health Report" issued for HaoDa helped the company make smart use of low valley electricity without interrupting production, saving over US\$140,911 in electricity bills a year.

► **Staggered cooling** — Lower the temperature of industrial air conditioners between 7:00–9:00 a.m., turn off part of the units during the peak hours of 9:00–11:00 a.m., and restart them during the off-peak period from 11:00 a.m. to 1:00 p.m.

► **Staggered meal times** — Employees are divided into multiple dining groups, each 15 minutes apart. This can not only reduce cafeteria congestion but also keep production lines running efficiently during the off-peak period from 11:00 a.m. to 1:00 p.m.

► **Peak shaving and valley filling** — Energy-intensive operations are rescheduled to nighttime hours, while nonessential equipment during the day was powered down or put on standby reduction mode.



Staff from State Grid Luqiao communicate with relevant person in charge at the HaoDa workshop



3. “One Enterprise, One Strategy” for effective carbon reduction.

Focusing on “enhancing efficiency with new energy and managing energy use with new models,” State Grid Luqiao has been assisting NEV manufacturers in developing rooftop photovoltaic (PV) projects and actively advancing distributed PV, energy storage, and other integrated energy projects. Energy management systems are tailored for each enterprise under a “one enterprise, one strategy” approach. For example, State Grid Luqiao helped Mindal build the largest rooftop PV project in Zhejiang Province, which generates 39.56 GWh of clean electricity annually. Mindal can consume 40% of the power generated on-site, cutting annual electricity costs by over US\$563,000, and is expected to reduce carbon emissions by 986,200 tons over a 25-year lifecycle.

In addition, State Grid Luqiao has developed loss-reduction solutions for enterprises, helping them phase out outdated transformers and replace them with new, energy-efficient distribution equipment. It also provides free layout planning for distribution rooms and optimized wiring schemes, effectively reducing line losses.

4. Green Electricity and GEC for a low-carbon identity. For export-oriented companies, green electricity certificate (GEC) can be used to offset customs duties and facilitate product export. To help these companies gain a competitive edge at this critical juncture, State Grid Luqiao has been actively exploring the potential of green electricity and GEC trading, building a comprehensive green energy service system to provide solid support for their low-carbon global expansion. In July 2025, Zhejiang Province's first county-level Green Electricity Certificate and Green Electricity-Carbon Service Center was inaugurated at the business hall of State Grid Luqiao. Since its establishment, the Center has helped local companies obtain 77,800 GECs.



Multiple Benefits

Over the past three years, State Grid Luqiao engaged over 1,000 companies across the NEV industry chain in its energy management initiative, completing energy monitoring and analysis for 267 NEV manufacturers. It has signed comprehensive energy service agreements with companies above the designated size such as Mindal, Aisin Hongda, and Fulgid. The company has delivered a total of 683 customized service packages, conducted 3,000 on-site service visits, and provided energy-saving diagnostics and efficiency enhancement solutions to 239 companies. These efforts have collectively resulted in the saving of 101,700 tons of standard coal, a reduction of 367,200 tons of CO₂ emissions, and electricity cost savings of US\$2,195,000 for participating companies. In 2024, Luqiao District's automotive product sales rose 8.6%, while NEV sales surged by over 50% year on year.



Application Scenarios

Energy management platforms as well as PV and energy storage development for manufacturing companies with large plant facilities; “Dual Carbon” management for manufacturing industries at the city and county levels; major electricity consumers in the manufacturing sector.

绿智引擎， 激活路桥新能源汽车产业新动能



供电公司人员在豪达公司车间与企业相关负责人交流

问题与挑战

浙江省台州市路桥区拥有完整的新能源汽车产业链。近两年，欧盟出台一系列与碳排放相关的政策法规，对我国新能源汽车产业链提出了更为严格的碳管理要求。路桥区汽车产业链正处于低碳转型升级阶段，本地新能源汽车生产企业普遍缺乏年度用能计划，生产设备能耗较高，未能合理规划生产与用能之间的平衡，综合用能管理水平较低，新能源汽车产业链绿色低碳发展缺乏手段。

解决方案

国网台州市路桥区供电公司（以下简称路桥供电公司）以“绿智引擎”产品品牌为依托，为汽车生产企业节能降碳提供量身定制的解决方案，以精打细算的助企行动，增强新能源汽车生产企业的发展后劲。

1. “双碳大脑”算好减碳账。在路桥区发改委的指导下，路桥供电公司上门为各企业安装采集器，获取企业用能信息，同时打造一站式能耗管理平台——“双碳数智大脑”，通过统一管理企业用能档案，监测车企电价、电量、损耗等数据，从而准确研判企业在降碳进程中所面临的实际需求。

2. “电费管家”科学选好电。路桥供电公司用能大户推送详尽的“电费体检报告”，帮助企业全面了解自身用电情况，并附上易懂且可操作性强的建议，帮助企业降电价、降电量、降损耗、降投资。例如，为豪达公司开出的“电费体检报告”，帮助企业在生产不停顿的前提下巧用低谷电力，一年节省上百万元电费：

► **错峰降温。**早7-9点把工业空调度数调低，9-11点用电高峰关掉部分空调，11-13点用电低谷再重新开启。

► **错峰就餐。**员工分成多批次，每批次间隔15分钟用餐，避免食堂拥堵，同时确保生产线在11-13点用电低谷高效运转。

► **削峰填谷。**尽量将耗电量大的生产活动安排在晚上，白天减少非必要设备的待机或空转。



通过综合能源智慧管理平台，让企业的能耗数据一目了然



3. “一企一策”实现降好碳。路桥区供电公司以“新能源提质增效、新模式用能管控”为抓手，协助新能源汽车生产企业在工厂建设屋顶光伏项目，全力推进分布式光伏、储能等综合能源项目的落地实施，并“一企一策”构建能源管理系统。例如，协助铭岛铝业公司建设了浙江省最大的屋顶光伏项目，每年带来高达3,956万千瓦时的清洁电能，企业可消纳40%年发电量，全年累计节约电费400多万元，预计25年生命周期内将降碳98.62万吨。

此外，路桥供电公司还为企业制定降损方案，帮助企业淘汰老旧变压器，改用新型节能配电设备，免费完成配电房布点、线径优化方案，减少设备线路损耗。

4.绿电绿证打造“碳”名片。对于出口型企业而言，“绿证”，即可再生能源绿色电力证书，可用来抵扣关税，为产品出口提供便利。为帮助企业在关键时期赢得竞争优势，路桥供电公司积极挖掘绿电及绿证交易潜力，构建绿色能源服务体系，为企业绿色出海保驾护航。2025年7月，浙江省首个县级绿证绿电碳业务服务中心在路桥供电公司供电营业厅揭牌成立，已帮助当地企业取得了7.78万个“绿证”单位。

多重价值

三年来，路桥供电公司撬动新能源汽车产业链1,000多家企业参与用能管理活动，已完成267家新能源汽车企业用能监测分析，并与铭岛铝业、爱信宏达、富杰德等规上企业签订综合能源服务协议；“电费管家”累计推出定制化服务套餐683个，开展3,000次现场服务，并为239家企业提供节能诊断及能效提升服务。这一系列举措共促成了10.17万吨标准煤的节约和36.72万吨二氧化碳的减排，协助企业减少1558万元用电成本。2024年，路桥区汽车类商品销售额增长8.6%，新能源汽车销量比上年增长超过50%。

应用场景

有大型厂房的制造型企业开展能源管理平台
和光伏储能建设；市县政府部门对制造业
开展“双碳”管理；制造型企业用电大户

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”



Follow China Sustainability Tribune's WeChat account
关注可持续发展经济导刊微信公众号



Follow sdg-china.net
关注可持续发展网

Authors: Feng Qian, Teng Lingao, Lin Weimin
Editor: Hu Wenjuan
Designer: Guo Zhiyu
Translator: Yang Mingming

作者: 冯谦、滕林高、林卫敏
编辑: 胡文娟
设计: 郭志宇
翻译: 杨明明