



China Hongqiao Group Limited

中國宏橋集團有限公司

From a Black Past to a Green Future: Sustainability in Action

从黑色的过去到绿色的未来：可持续性在行动

Ron Knapp – China Hongqiao Group

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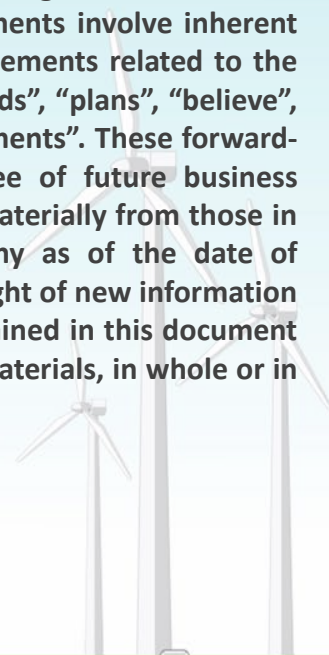
重工业低碳转型合作研究中心 佩思 2025年10月14日



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- Fully integrated upstream, midstream & downstream
上游、中游和下游充分整合
- leading global producer: about 6.46 Mt aluminum; 21 Mt alumina
全球领先生产商：约646万吨电解铝；2100万吨氧化铝
- cluster developments 集群发展
- renewable energy 可再生能源
- growing VAP, lightweight design & development, components, NEVs, recycling
发展增值产品、轻量化设计&开发、部件、商用新能源汽车、铝再生



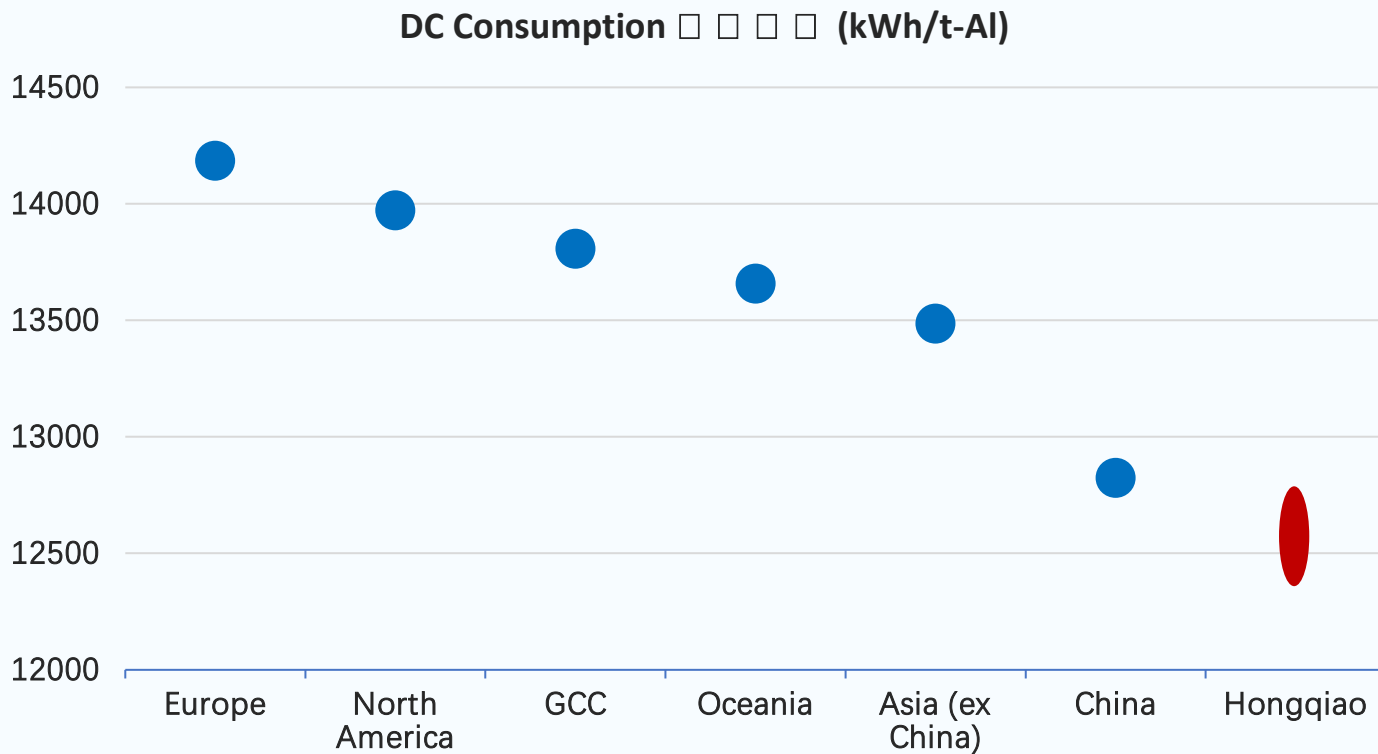


Modern Energy-Efficient Aluminum Smelters 现代化的节能铝厂

- Average age <10 years 平均年龄<十岁
- amperage 400kA+, with 50% capacity from 600kA potlines
电流为400kA以上，50%产能来自600kA系列
- advanced Weiqiao NUEI600kA Plus cell further enhancing performance
先进的魏桥600kA Plus电解槽进一步提高性能



Leading on Aluminum Energy Efficiency 电解铝能效领先



Regional Data Source: International Aluminium Institute

数据来源：国际铝协





China Hongqiao Carbon Roadmap

中国宏桥的碳承诺



“We will strive to peak carbon emissions before 2025 and to achieve net-zero emissions in Scope 1 and 2 before 2055.”
“我们将力争在2025年以前实现碳达峰，2055年以前实现自身运营范围净零排放。”

Chairman Zhang Bo/ 张波董事长

Weiqiao Pioneering Carbon Neutrality Goals and Action Report



Three Decarbonization Phases 三个脱碳阶段



Our roadmap to carbon neutrality



2020-
2030

**Initial
Decarbonization
Phase**

- ➔ Transform the energy structure
- ➔ Enhance operational efficiency
- ➔ Apply cutting-edge technologies
- ➔ Develop circular economy



2030-
2040

**Continuous
Decarbonization
Phase**

- ➔ Increase investments in renewables and green hydrogen, etc.
- ➔ Promote recycled aluminum
- ➔ Deploy advanced technology like inert anode and CCUS



2040-
2055

**Deep
Decarbonization
Phase**

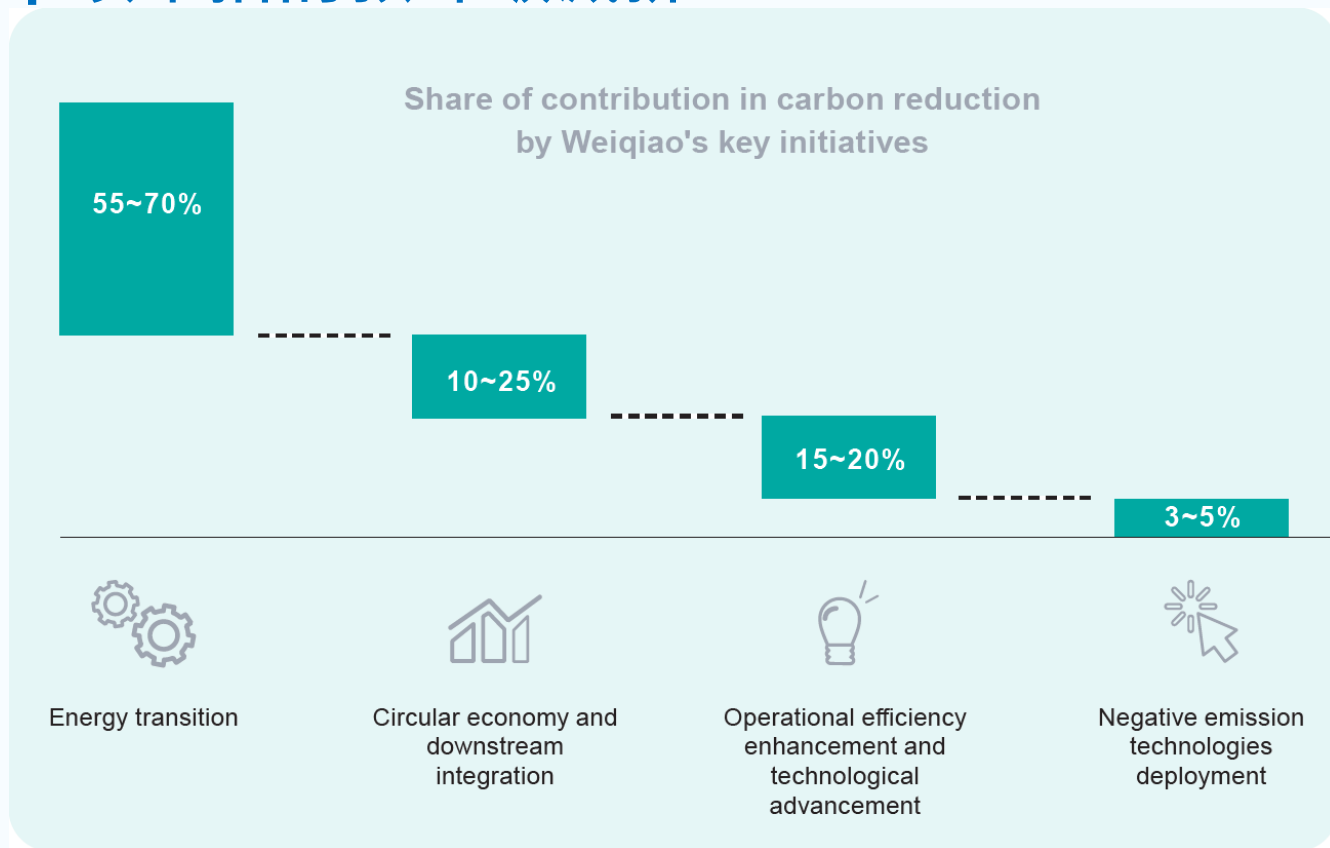
- ➔ Fully utilize renewables and mature technologies
- ➔ Apply negative emission technologies





Projected Carbon Reductions from 10 Initiatives

十项举措的预计碳减排





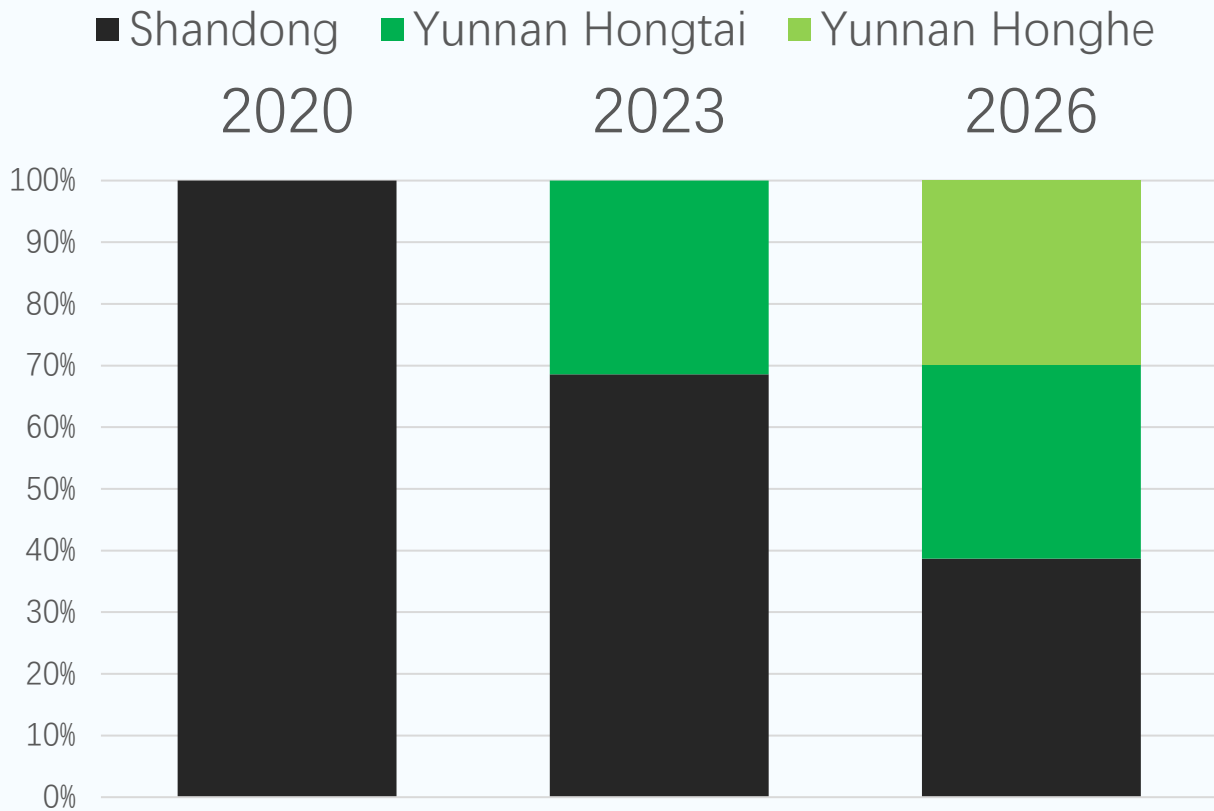
Low and Lower Carbon Aluminum 年的低碳和更低碳铝



- Zero-carbon aluminum still a long way from commercial
零碳铝到商业化还有很长的距离
- alternative anode technology still elusive 替代阳极技术依然难以实现
- removal of “carbon-from-energy” the short-term focus
去除“能源中的碳”是短期重点
- 2022 IAI data: energy 67% of total aluminum sector GHG emissions
2022年国际铝协数据：能源占电解铝总温室气体排放的67%



China Hongqiao Group Aluminum Smelting Capacity 中国宏桥集团电解铝产能



Yunnan Hongtai and Yunnan Honghe Smelters 云南宏泰和云南宏合电解铝厂

- Aligned with government objectives to optimize aluminum industry through supply side management, and to promote green development
符合政府目标，通过供给侧管理优化铝工业，促进绿色发展
- 60% Hongqiao smelter capacity moving from Shandong to Yunnan Province.
正从山东转移宏桥60%电解铝产能到云南省。





Yunnan Green Aluminum Innovation Industrial Park

Yanshan County 砚山县云南绿色铝创新产业园



- Yunnan Hongtai single site 2.03 Mt aluminum smelter
云南宏泰电解铝厂单址203万吨产能
- now around 1.8 Mt annualized rate, hot metal delivery, minimal temperature loss with downstream enterprises in close-proximity
目前年产量约为180万吨，铝水就地转化，下游企业比邻而居让温度损失最小
- reports have estimated up to RMB 600m savings annually in casting, transportation and remelting costs
预估报道每年可节省约6亿元的铸造、运输和重熔成本





**Yunnan
Hongtai
Q3/2021**

**云南宏泰
2021年
第三季度**

魏桥创业

Yunnan Hongtai Smelter Today 如今的云南宏泰电解铝厂





**Yunnan
Hongtai
Q1/2023**

**云南宏泰
2023年
第一季度**



Commitment to Green Energy 致力于绿色能源

- Continue to increase proportion of green energy, through investment in carbon reduction projects and multiple energy sources, and carrying out cutting-edge technology applications such as new energy storage

通过投资减碳项目和多种能源，开展新能源储能的前沿技术应用，不断提高绿色能源的比重

- from “coal-fired aluminum” to “low-carbon aluminum”
从“燃煤铝”到“低碳铝”





Building a green energy chain

构建绿色能源链

- Green power consumption climbing steadily, contributing to a new mixed energy structure 绿色电力消费稳步攀升，形成新型混合能源结构
- capacity relocation, clean energy investment, expansion of green electricity procurement 产能转移、清洁能源投资和绿色电力采购扩大
- reducing share of fossil energy, increasing clean energy - hydro, solar, wind 降低化石能源的比例，增加水电、太阳能和风能等清洁能源
- in 2024, green power consumption reached 17.9 TWh, 4.8 TWh higher compared with 2023, avoiding over 14 million t-CO₂e emissions.
2024年，绿色用电量达到17.9 TWh，比2023年高4.8 TWh，减少了1400多万吨二氧化碳当量的排放。

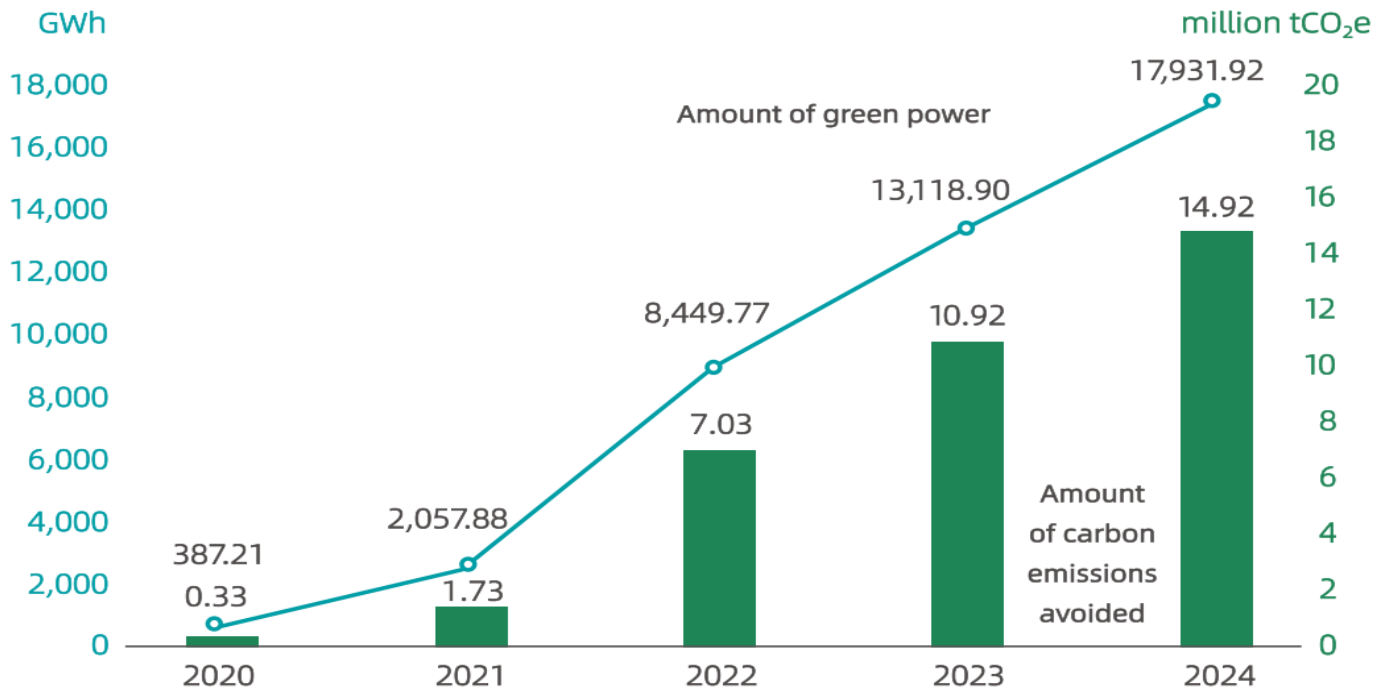




Green Power Reducing Carbon Emissions

绿色能源减少碳排

The Amount of Green Power and Amount of Carbon Emissions Avoided





Transformation of Our Energy Structure

能源结构转型



- 300MW PV project 2020 utilizing 4.52 million m² roof area of our Binzhou plants 利用我们滨州厂房452万平方米的屋顶面积，在2020年建设了300MW的光伏项目
- 2GW PV across 19 projects installed in Yunnan (2024/25), more to come 云南19个项目装机2GW光伏（2024/25），未来还将有更多
- Binzhou coastal area in Shandong 2GW PV project further optimizing our energy structure and enhancing core competitiveness 山东滨州沿海区域2GW光伏项目，进一步优化能源结构，增强核心竞争力







魏桥创业集团高质量发展再添新绿能

WEI QIAO CHUANG YE QI ZHI LIANG FA ZHAN ZAI TIAN XIN LV NENG

滨州沾化区渔光互补光伏发电项目并网发电容量达到650MW

● China Hongqiao 2024 Carbon Reduction Action Report

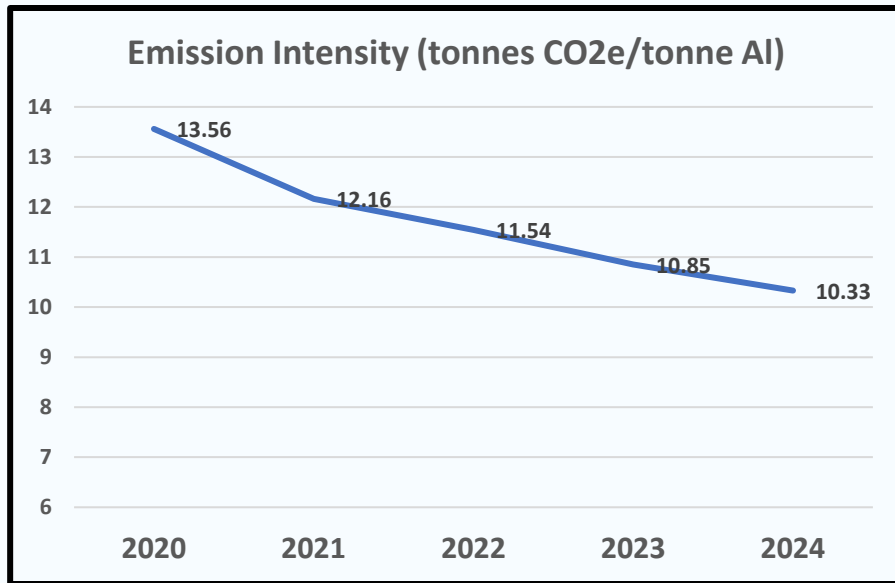
中国宏桥2024减碳行动报告

- Scope 1 & 2 Emissions 2020 101.4 Mt CO₂e
2020年范围1&2排放 1.014亿吨CO₂e
- Scope 1 & 2 Emissions 2024 95.6 Mt CO₂e
2024年范围1&2排放 0.956亿吨CO₂e
- 5.8% reduction, BUT 23.8% emission intensity reduction for electrolytic aluminium 降低了5.8%，但电解铝排放强度降低了23.8%
- with increased production and increased green energy pulling emissions in different directions 产量和绿色能源增加的因素相互作用





Emission Intensity Reduction For Electrolytic Aluminium 电解铝的排放强度降低



- emission intensity falling as energy transformation continues, with capacity relocation and increased renewable energy becoming available

随着能源转型的继续，产能转移和更多可再生能源变得可用，排放强度在下降





Advanced Magnetic Levitation Technology

先进的磁悬浮技术



- For pumps & blowers using a contactless drive system
泵和风机使用非接触式驱动系统
- three key benefits in refinery and smelter applications:
氧化铝厂和电解铝厂应用的三个关键优势：
 - ✓ lower power consumption 更低的能耗
 - ✓ reduced mechanical wear, failure rates and maintenance costs
减少机械磨损、故障率和维护成本
 - ✓ lower operational noise levels 更低的运行噪音水平
- 30% power reduction over existing equipment.
与原有设备相比功率降低了30%。

Shandong Tianrui Heavy Industry Co.
<https://www.tianrui99.com/en/>



Molten Salt Energy Storage Pilot Project 熔盐储能试点项目

- 500MW/2,000MWh energy storage technology project to facilitate and extend renewable energy delivery, consumption, and continuous steam supply
500MW/2,000MWh储能技术项目，旨在促进和扩大可再生能源的输送、消耗和连续蒸汽供应
- leveraging advantages of high-temperature molten salt energy storage with its large heat storage temperature difference, high heat storage density, good heat transfer performance
利用高温熔盐储能的优势：储热温差大、储热密度高、传热性能好
- an optimal emission reduction path to replace carbon energy with green energy
用绿色能源替代碳能源的最优减排路径





Binzhou-Zouping Innovative Industrial Segments

滨州-邹平创新产业板块

- New projects focused on automotive lightweight design and prototype development, component production, circular economy
新的项目集中在汽车轻量化设计和原型开发，零部件生产，循环经济
- vehicle dismantling & aluminum recycling facility, with capacity to dismantle 100,000 motor vehicles annually
汽车拆解和铝再生设施，每年可拆解10万辆机动车
- integrating recycling scrap motor vehicles, power batteries and scrap aluminum activities, with advantage of technology, equipment, location, volume and cost
整合废旧机动车、动力电池和废铝回收活动，具有技术、设备、位置、规模和成本的优势



Investing in Research Projects 投资研究项目

- Strengthening China's research capabilities via co-operative research projects with universities and national research institutions
通过与大学和国家研究机构的合作研究项目，加强中国的研究能力
- Weiqiao & UCAS Research Academy 魏桥国科研究院
 - A platform for integration of science, education, innovation, and production
科教创产融合平台
 - Accelerate high-quality development
加快高质量发展
 - Linking technology and commercial worlds
连接技术和商业世界





How to abate a “hard-to-abate” industry?

如何给“难减碳”的行业减碳？

- Corporate commitment 企业的投入
- ownership structure huge advantage in addressing carbon abatement task
所有制结构是解决碳减排任务的巨大优势
- with strong leadership 有强大的领导力
- and focus on efficiency, industrial clusters, innovation, R&D and collaboration.
专注于效率、产业集群、创新，研发和合作



China Hongqiao Ongoing Agenda 中国宏桥持续的议程

- **Maintain cluster advantages 保持集群优势**
- **expand investments in clean energy, energy efficiency, carbon reduction, circular economy initiatives and accelerate green transformation**
扩大对清洁能源、能效、碳减排和循环经济倡议的投资，加快绿色转型
- **invest in R&D, innovation and accelerate technology adoption**
投资研发和创新，加速科技应用
- **uphold the core value of “serving the country and benefiting the people”.**
坚持“为国创业，为民造福”的核心价值观。





China Hongqiao Group Limited
中國宏橋集團有限公司

We never stop moving.
我们从不停息前进的脚步。