



把绿色能源带进生活  
BRINGING GREEN POWER TO LIFE



协鑫集团官方微信

协鑫集团有限公司

上海  
地址：上海市浦东新区世纪大道100号环球金融中心68楼  
电话：86-21-6857 9688  
传真：86-21-6877 8699

苏州  
地址：苏州市工业园区新庆路28号协鑫能源中心  
电话：86-512-6853 6666  
传真：86-512-6983 2396

香港  
地址：香港九龙柯士甸道西一号环球贸易广场17楼  
电话：852-2526 8368  
传真：852-2526 7638

www.gcl-power.com

Golden Concord Group Limited

SHANGHAI  
Address: 68/F Shanghai World Financial Center, No. 100 Century Avenue, Pudong New Area, Shanghai, China  
Tel: 86-21-6857 9688  
Fax: 86-21-6877 8699

SUZHOU  
Address: GCL Energy Center, No.28, Xinqing Road, SIP Suzhou, Jiangsu, China  
Tel: 86-512-6853 6666  
Fax: 86-512-6983 2396

HONG KONG  
Address: 17/F, International Commerce Centre, 1 Austin Road West, Kowloon, Hong Kong  
Tel: 852-2526 8368  
Fax: 852-2526 7638



本品使用环保纸张印刷  
版本号：201710



2017哈萨克斯坦阿斯塔纳世博会中国馆  
指定用品（服务）供应商  
CHINA PAVILION EXPO 2017 ASTANA KAZAKHSTAN  
DESIGNATED PRODUCT (SERVICE) SUPPLIER

把绿色能源带进生活  
BRINGING GREEN POWER TO LIFE

协鑫集团有限公司

Golden Concord Group Limited

## 把绿色能源带进生活 BRINGING GREEN POWER TO LIFE

协鑫集团借势而为，紧抓机遇，在清洁能源和新能源的全产业链领域不断创新，永远创业，用科技引领企业发展，以产融结合、产网结合、产学研一体化协同共进，构建一个由大数据、互联网、云平台、智慧微电网交织起的能源新世界，通过多元创能、高效节能和储能，通过“六位一体”的实践提高能源使用效率，让绿色能源进入千家万户。

—— 协鑫集团董事长 朱共山

GCL Group rides the tide and seizes the opportunities, keeps innovating and ever pioneering in the whole industrial chain of clean energy and new energy fields. Technology guides the corporate development. With the industry-finance and industry-network combinations, as well as the industry-academy-research integration, GCL is constructing a world of new energy that incorporates with big data, the Internet, cloud platform and smart micro-grid. The energy efficiency is improved by utilizing diversified energy creations, efficient energy saving and storage, and “six-in-one” practices. GCL brings new energy to millions of homes.

—— Zhu Gongshan, Chairman of GCL



<b>目录</b> CONTENTS	<b>03</b> 集团概况 About GCL	<b>09</b> 产业介绍 Industry Overview	<b>31</b> 科技创新 Technology & Innovation
<b>37</b> 人才发展 Talent Development	<b>41</b> 社会责任 Corporate Social Responsibility	<b>49</b> 未来能源馆 Future Energy Pavilion	<b>51</b> 交流合作 荣誉奖项 Events & Awards

# 集团概况 About GCL

协鑫集团有限公司是以新能源、清洁能源产业为主，相关产业多元化发展的综合能源服务商，业务类型涵盖电力、光伏、油气、智慧城市、金融等五大领域；同时，协鑫集团积极拓展半导体材料、动力电池、新能源汽车、能源互联网等产业，旗下拥有保利协鑫、协鑫集成、协鑫新能源等多家上市公司，资产分布于中国内地 31 个省（市、自治区）和香港、台湾地区，以及非洲、北美、东南亚、欧洲等地，是全球领先的光伏材料制造商、中国领先的非公电力企业，光伏总装机规模位居全球第二位。位居2016年全球新能源500强排名第二，2017年中国企业500强新能源行业排名第一。

Golden Concord Group Limited ("GCL") is an integrated energy service provider that specializes in clean energy, new energy, with diversified development of related industries. The businesses of GCL cover Power, PV, Oil & Gas, Green Smart City, and Finance. Meantime, it proactively deploys semiconductor material, power battery, new energy vehicle and Energy Internet. Holding several listed companies including GCL-Poly, GCL System Integration and GCL New Energy, etc., GCL's footprints have been across 31 provinces (cities and autonomous regions), Hong Kong, and Taiwan in China, as well as Africa, North America, Southeast Asia and Europe. As the world-leading PV material manufacturer and the prominent domestic non-public electric power enterprise, GCL has achieved the second position of installed capacity of PV power station in the world. Being the leading new energy enterprise among Top 500 Chinese enterprises in 2017, GCL has been ranking the second among Top 500 global new energy enterprises in 2016.

- 全球太阳能理事会主席单位  
Chairman Member of Global Solar Council
- 亚洲光伏产业协会主席单位  
Chairman Member of Asian Photovoltaic Industry Association
- 中国光伏行业协会副理事长单位  
Vice President Member of China Photovoltaic Industry Association
- 中国标准化协会副理事长单位  
Vice President Member of China Association for Standardization
- 中国产业海外发展与规划协会副会长单位  
Vice Chairman of China Overseas Development & Planning Association

- 综合能源服务商  
Integrated energy service provider
- 全球领先的光伏材料制造商  
World leading manufacturer of photovoltaic materials
- 全球拥有知识产权最多、最为完善的光伏一体化产业链  
Most integrated PV industrial chain globally with largest collection of intellectual property
- 天然气一体化产业链  
Natural gas industrial chain
- 光伏电站总装机容量位列全球第二  
Total installed capacity of PV power stations ranks the second in the world
- "一带一路" 国家战略储备项目  
The national strategic reserve project of the "Belt and Road" Initiatives

## 核心价值观 CORE VALUES

价值引领、创新驱动、奋斗为本、协同一家  
Value oriented, Innovation driven, Striving based, Collaboration grounded

## 使命 MISSION

专注绿色发展，持续改善人类生存环境  
Focus on green growth for a sustainable improvement of living environments.

## 愿景 VISION

成为受人尊重的全球化新能源和清洁能源企业  
To be a respectable leading global new and clean energy enterprise

## 文化氛围 CULTURAL ATMOSPHERE

简单、高效、纪律、活力  
Simplicity, Efficiency, Discipline, Proactiveness

## 企业精神 CORPORATE SPIRIT

创业、创新、争先、领先  
Entrepreneurship, Innovation, Competition, Transcendence

# 集团概况 About GCL

## 发展大事记 Milestones

协成电器设备成套公司成立  
GCL Power Equipment Company was founded

太仓保利协鑫热电有限公司投产  
Taicang GCL-Poly Thermolectric Co., Ltd. began its operation

协鑫第一家独资热电厂——沛县坑口环保热电有限公司投产  
GCL's first wholly owned power plant - Kengkou Environmental Thermal Power Co., Ltd. in Peixian County began its operation

太仓保利协鑫热电有限公司奠基（太仓新海康协鑫热电有限公司成立）  
Taicang GCL-Poly Thermolectric Co., Ltd. was founded (Taicang Xinhaikang GCL Thermolectric Co., Ltd.)

太仓港环保发电有限公司筹建处挂牌  
Taicang GCL Power Co., Ltd. as listed.

收购东台苏中环保热电有限公司  
Dongtai Suzhong Environmental Thermal Power Co., Ltd. was acquired by GCL.

太仓港协鑫发电有限公司一期2×135MW#1机组并网发电，创下135MW机组国内最短工期记录  
2×135MW#1 unit of Taicang GCL Power Co., Ltd. in Phase 1 was grid-connected for power generation, setting the domestic record of shortest construction period for 135MW unit

昆山鑫源、海门鑫源、丰县鑫源生物质环保热电有限公司投产  
Kunshan GCL, Haimen GCL, and Fengxian GCL Biomass Environmental Thermal Power Co., Ltd. began operation

南京协鑫生活污水、宝应协鑫生物质发电、连云港协鑫生物质发电以及嘉兴协鑫环保热电、苏州工业园区蓝天然气热电有限公司投产  
Nanjing GCL Sludge Generation Co., Ltd., Baoying GCL Biomass Generation Co., Ltd., Lianyungang GCL Biomass Generation Co., Ltd., Jiaying Environmental Thermolectric Co., Ltd., and Blue Sky Fuel Gas Thermolectric Co., Ltd. in Suzhou Industrial Park began operation

湖州协鑫环保热电、如东协鑫环保热电、扬州港口污泥发电有限公司投产  
Huzhou GCL Environmental Thermolectric Co., Ltd., Rudong GCL Environmental Thermolectric Co., Ltd., and Yangzhou Port Sludge Generation Co., Ltd. began operation

太仓港电厂三期并网发电，创下一厂一年投产4台300MW 机组记录  
Taicang Power Plant Phase III was grid-connected for generation, setting a record for placing four 300 MW units into operation in one year

协鑫硅业科技控股有限公司成立，协鑫开始进入光伏材料领域  
GCL Silicon Industry Technology Holdings Co., Ltd. was founded, marking GCL's foray into the photovoltaic materials industry

华润协鑫(北京)热电、保利协鑫能源控股成立  
CR-GCL (Beijing) Thermolectric Co., Ltd. and GCL-Poly Energy Holdings Co., Ltd. were founded

连云港鑫能污泥发电、太仓协鑫垃圾焚烧发电有限公司投产  
Lianyungang GCL Sludge Generation Co., Ltd. and Taicang GCL Waste Incineration Co., Ltd. began operation

保利协鑫能源控股有限公司成功于香港联合交易所上市  
GCL-Poly Energy Holdings Co., Ltd. was listed in the Hong Kong Stock Exchange.

年产1,500吨多晶硅项目的二期工程破土动工  
The Phase II project with an annual output of 1,500 tons of polysilicon began production

成功生产和出售第一批多晶硅  
The first batch of polysilicon was successfully produced and sold

锡林郭勒风电场实现全部机组并网发电  
All units on the Xilingol wind farm were grid-connected for power generation

徐州20MW太阳能光伏电站竣工投产  
The 20MW solar photovoltaic power plant in Xuzhou was completed and began operation

江苏中能二期多晶硅项目试产成功  
The Phase II of Jiangsu Zhongneng polysilicon project was successfully put into trial production

江苏中能三期开始正式营运生产  
Phase III of Jiangsu Zhongneng began formal production and operation

保利协鑫正式进军太阳能系统集成领域  
GCL-Poly officially announced its entry into the solar system integration business

硅片产能达8GW，多晶硅产能6.5万吨  
Wafer production capacity reached 8GW and polysilicon production capacity reached 65,000 tons

保利协鑫(3800.HK)入选香港恒生综合指数成份股  
GCL-Poly (3800.HK) was listed as a constituent in the Hang Seng Hong Kong Composite Index

常州光伏300兆瓦硅片项目成功投产  
Changzhou 300MW silicon wafer project successfully began operation

3.5GW硅片产能全面达产  
Silicon wafer production capacity reached 3.5GW

保利协鑫获批于山西大同建设310MW地面光伏电站及30MW兆瓦屋顶光伏电站项目  
GCL-Poly obtained approval to construct a 310MW ground-based photovoltaic power plant and a 30MW rooftop photovoltaic power plant project in Datong, Shanxi Province

保利协鑫成功研发高效多晶硅片“鑫多晶S1+”，平均转化率高达17.6%，创行业最佳水平  
GCL-Poly successfully researched and developed the high-efficiency "GCL Multi-Crystalline S1+" polycrystalline silicon panel, boasting an industry-leading average conversion rate of 17.6%

保利协鑫多晶硅硅烷气首期装置成功投产并顺利产出高纯度硅烷气  
GCL-Poly successfully installed the first phases of its polycrystalline silane gas facility, successfully began the production of high purity silane gas

协鑫并购超日太阳能并更名为协鑫集成(002506.SZ)，在深交所复牌  
GCL acquired Chaori Solar and renamed it as GCL system Integration (002506.SZ), which resumed trading at the Shenzhen Stock Exchange.

协鑫集团亮相国际能源变革论坛获盛誉  
GCL attended the International Energy Forum, earning critical acclaim

保利协鑫S系列高效多晶硅片产品成为全球市场占有率第一的硅片产品  
GCL-Poly's S Series Multi-Wafer products held the world's top market occupancy

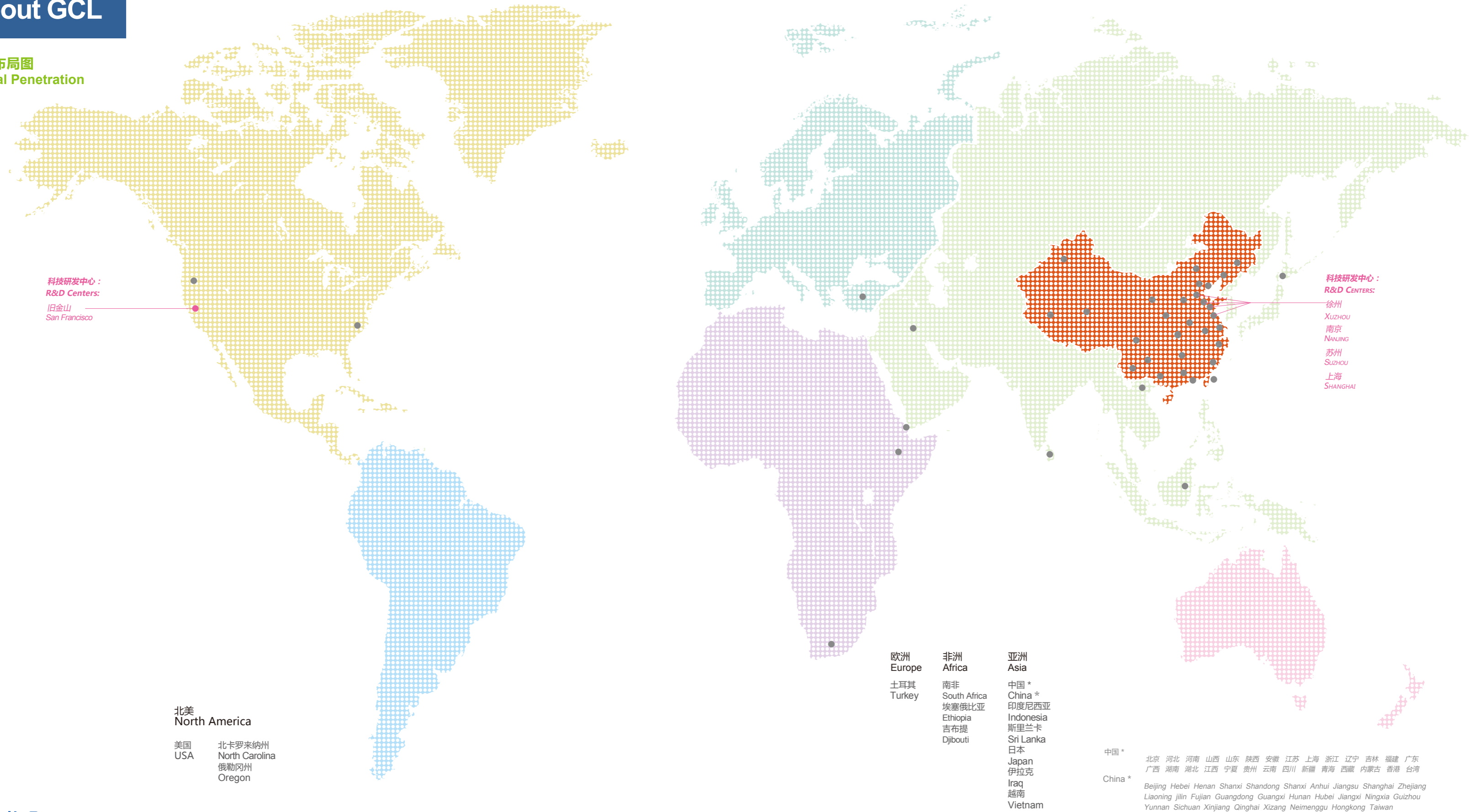
保利协鑫第三代高效多晶硅片产品“鑫多晶S3”发布  
The third generation of GCL-Poly's highly efficient multi-wafer product "GCL Multi-Crystalline S3" was released

保利协鑫成功并购森泰(0451.HK)，更名为协鑫新能源  
GCL-Poly successfully acquired Sen Tai (0451.HK) and renamed it GCL New Energy

协鑫集团董事长朱共山荣膺“2015十大经济年度人物”及“2016中国能源年度人物”  
Chairman of GCL Group, Zhu Gongshan was named "China's Top Businessperson of the year 2015" and "China Energy Figure of the Year 2016"

# 集团概况 About GCL

## 全球布局图 Global Penetration



# 产业介绍 Industry Overview

## 保利协鑫 GCL - POLY



保利协鑫能源控股有限公司（下称保利协鑫）2006年10月在香港成立，2007年11月在香港上市，股票代码3800.HK，2010年入选恒生综合指数成份股及恒生中国内地100指数成份股，2012年5月入选福布斯全球上市公司2000强。公司总部位于香港，分别在徐州、苏州等地设有管理中心，在北京、台北设有代表处或子公司，在美国旧金山、中国苏州、徐州等地设有研发中心。

公司肩负着“把绿色能源带进生活”的使命，在光伏材料制造、光伏电站开发等清洁能源领域始终处于行业的领先地位。保利协鑫是中国首家突破年产万吨级以上多晶硅产能和产量的企业，是全球最大多晶硅生产企业之一，也是全球硅片产能最大的企业。2016年，多晶硅年产量达7万吨，硅片年销量达17吉瓦。

保利协鑫始终坚持以高效、优质的产品为下游客户创造价值，从而推动行业进步，促进光伏发电平价上网的实现。同时保利协鑫注重科技进步，关注光伏前沿科技。采用不同的技术路线，研发出“鑫多晶”、“鑫单晶”、“N型单晶”等系列多种高效硅片产品，为不同客户的高效需求提供多种解决方案。

公司在规模、品质、成本、能耗、技术、市场占有率等方面均处于全球领先水平。

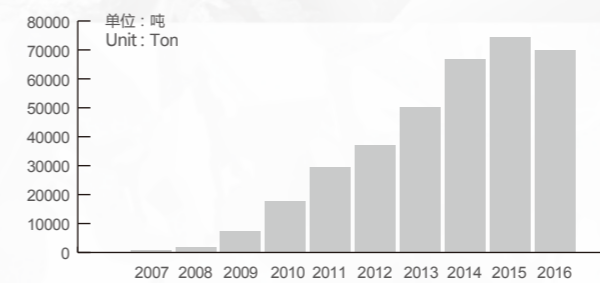
GCL-Poly Energy Holdings Limited (hereinafter referred to as "GCL-Poly") was founded in October 2006 in Hong Kong. It was listed in November 2007 in Hong Kong (3800.HK), named as a constituent in Hang Seng Hong Kong Composite Index and Hang Seng Mainland China 100 Index in 2010, and ranked among the Forbes Global 2000 in May 2012. Headquartered in Hong Kong, the company has established management centers in Xuzhou and Suzhou, representative offices or subsidiaries in Beijing and Taipei, as well as R&D centers in San Francisco, Suzhou and Xuzhou, China.

With its mission of Bringing Green Power to Life, the company has been leading in the manufacture of photovoltaic materials, development of photovoltaic power plants and other areas in clean energy sector. GCL-Poly is the first enterprise in China that produces over 10,000 tons of polysilicon annually, making it one of the largest producers of polysilicon and silicon wafers in the world. In 2016, its annual output of polysilicon was 70,000 tons and annual wafer production capacity was 17GW.

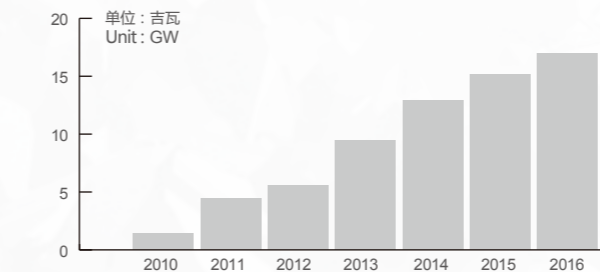
GCL-Poly is committed to creating value for downstream customers with efficient and high-quality products, thereby promoting industrial progress and grid parity of PV generation. GCL-Poly emphasizes scientific and technological progress and focuses on cutting-edge PV technologies. It has developed a series of efficient silicon wafer products, including the GCL Multi-Crystalline, GCL Quasi-mono Crystalline, N-type CZ-Mono Crystalline, using different technology roadmaps to provide a variety of solutions that meet the efficiency needs of different customers.

GCL-Poly enjoys a leading position in the world in terms of scale, quality, cost, energy efficiency, technology and market share.

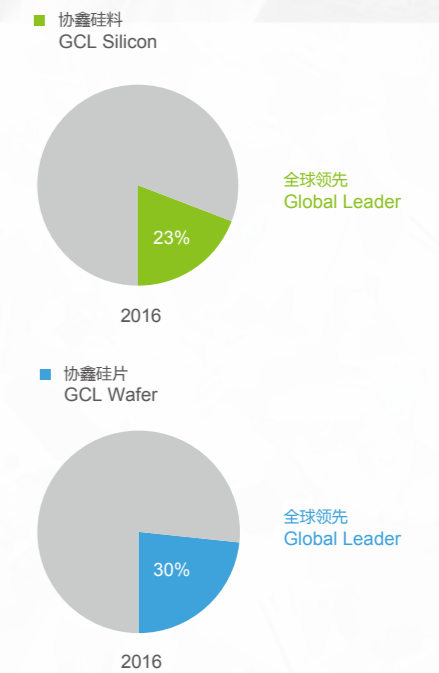
### 硅料产量 SILICON PRODUCTION



### 硅片销量 WAFER SALES VOLUME



### 全球市场占有率 GLOBAL MARKET SHARE



保利协鑫  
通过不断自主创新，  
研发最新技术，  
致力于更绿色、高效的硅料制造。

Through continuous innovation and R&D in the latest technology, GCL-Poly is committed to greener and more efficient silicon manufacture.



**N型单晶系列硅片 N-type CZ-Mono Crystalline Wafer**



行业领先的单晶生长技术，结合热场模拟、优化和一流的切片技术  
自产多晶硅原料，品质稳定  
高少子寿命  
低碳、氧浓度

Industry leading pulling technology, integrating hot zone simulation, optimization and top-ranking slicing technology  
GCL-produced polycrystalline silicon with more stable quality  
Long minority carrier lifetime  
Low carbon and oxygen concentration

**鑫单晶G系列硅片 GCL Quasi-mono Crystalline G Series Wafer**



平均转化效率接近直拉单晶  
业界领先的铸锭工艺，有效控制结构缺陷  
投料量大，操作简单，低成本  
280W/335W ( 60/72pcs )  
以上组件有效技术方案

Average efficiency approaching CZ mono  
Industry leading ingot casting process, effectively controlling structural defects  
Advantages in larger loading, simpler operation and lower cost  
Effective technical solutions for 280W/335W (60/72pcs) or higher power modules

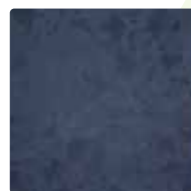
**鑫多晶S系列硅片 GCL Multi-Crystalline S Series Wafer**



先进、独特的热场，持续提升的铸锭工艺  
自产多晶硅原料，品质稳定  
效率分布集中度高，持续提升  
金刚线切割+黑硅组合技术，GCL Quasi-mono Crystalline S Series Wafer  
进一步提升产业链价值

Advanced and special hot zone design, continuously ingot casting process improvement  
GCL-produced polycrystalline silicon with more stable quality  
More and more narrow efficiency distribution  
Combining diamond wire slicing with black silicon technology, increasing industry chain's value

**鑫多晶TS系列高效黑硅片 GCL Textured High Efficiency mc-Si Wafer**



采用金刚线切割，更具成本优势，更环保  
更低反射率，更优陷光性能，THK、TTV、表面形貌等表现更优  
硅片尺寸156.75±0.25mm，与单晶M2规格相同

Sliced by diamond wire lower cost and more environment-friendly  
Lower reflectivity, higher light-trapping performance  
Better THK, TTV and surface-look character  
The wafer size is 156.75±0.25mm, the same width as M2 mono-Si wafer



**多晶硅生产实现全闭环  
LEADING POLYSILICON PRODUCTION TECHNOLOGY**

GCL法多晶硅超大规模清洁生产技术，实现了具有自主知识产权的“绿色”制造。将多晶硅生产过程中产生的副产物—四氯化硅全部转化为多晶硅生产中的原料—三氯氢硅，实现物料循环利用及“零排放”。主要优势：全闭环多晶硅还原技术；流程短、电耗低、副产物少；纯度达到电子级水平。

GCL-Poly has invented the GCL super-scale polysilicon clean production technology, which is an IPR-protected green manufacturing technology. By using this technology, silicon tetrachloride, the byproduct of the polysilicon production process, can be completely converted to trichlorosilane, a raw material for polysilicon production, achieving material recycling and zero emissions. The main advantages of the closed-loop polysilicon conversion technology are represented by short process, low power consumption, less byproducts and electronic-grade purity.



**硅烷流化床新技术  
SILANE FLUIDIZED BED REACTOR TECHNOLOGY**

自主研发的硅烷流化床法多晶硅生产技术，将三氯氢硅原料歧化反应生成二氯二氢硅，再歧化反应生成硅烷，硅烷通过流化床反应炉分解沉积出高纯度颗粒状多晶硅。

The independently developed polysilicon production method using silane fluidized bed technology, which converts trichlorosilane into dichlorosilane and further into silane through disproportionation reaction. The silane will then decompose and deposit into high-purity granular polysilicon through a fluidized bed reactor.





# 产业介绍 Industry Overview

## 协鑫集成 GCL SYSTEM INTEGRATION

# 4.0



协鑫集成科技股份有限公司 (002506.SZ) 致力于成为全球领先的一站式智慧综合能源系统集成商, 打造以光伏产业和动力电池及储能产业为主线, 基于大数据云平台的“两线一云”双主营业务发展目标, 构建差异化的领先商业模式。

在光伏产业, 加快转型升级, 夯实高端制造。高效电池、高效组件产品能够满足高效化市场 (如领跑者项目及分布式) 的需求。在系统集成、EPC业务实现快速发展。以“鑫阳光”为平台, 推出“鑫阳光+”系统集成产品系列。针对扶贫项目、农光/渔光互补、定制化大中型项目、综合能源示范项目、产业园区多能互补及海外合作项目提供EPC服务。科技引领, 布局全球。

在动力电池及储能产业, 充分发挥协鑫在能源行业的主导优势, 整合国际知名的动力电池品牌, 采用国际领先的动力电池技术, 联合世界一流的制造型企业, 实现强强联合, 生产动力电池电芯及电池系统 (PACK)。开展动力电池租赁、充电运营、梯级利用储能、产业链金融等业务, 构建动力电池全生命周期的价值链。推动新型商业模式, 降低运营商、消费者使用成本, 实现电动汽车产业可持续发展。

依托大数据云平台, 促进光伏及动力电池业务发展。基于云监控平台, 整合国际一流BMS技术, 实现电池全寿命周期控制, 通过数据优化算法, 分步、梯级利用锂离子电池, 降低新能源汽车成本和光伏发电储能成本, 促进新能源产业发展。



GCL System Integration Technology Co., Ltd. (002506.SZ) is committed to becoming a world-leading, one-stop intelligent comprehensive energy system integrator, realizing the development goal of "two business lines +cloud," i.e. the photovoltaic industry and the power battery & stored energy industry as main business lines based on big data cloud platforms, thereby building a different leading business model.

In the photovoltaic industry, we've streamlined the processes of transformation and upgrading, and we've consolidated high-end manufacturing. Our batteries and components can meet the high-efficiency market demand (such as the Pacemaker and Distributed System programs). We've achieved rapid development in system integration and EPC. With "G-Sunshine" as our platform, we've launched the "G-Sunshine +" system-integration product series. We provide EPC services for poverty-relief projects, complementary projects in agriculture & photovoltaics as well as fishery & photovoltaics, customized large- and medium-scale projects, comprehensive energy-demonstration projects, complementary multi-energy projects for industrial parks, and overseas collaborative projects. We're leading the way in science and technology, which are developing all over the world.

In the field of power batteries and stored energy, we give full play to the dominant advantage of GCL in the energy industry. Thus, we integrate world-famous power-battery brands and associated technologies. We also join hands with world first-rate manufacturers; form alliances with giant corporations; produce power batteries and battery systems (PACK); conduct power-battery rental, charging and replacement operations; develop the hierarchical utilization of stored energy and industry chain finance; build a value chain covering the entire lifecycle of power batteries; promote new business models; and cut costs for operators and users. All this helps us ensure the sustainable development of the electric-vehicle industry.

Regarding the big-data cloud platform, we promote the development of our business in photovoltaics and power batteries. Based on cloud monitoring platforms, we integrate world-leading BMS technologies to achieve battery control over the product's entire life cycle. Through our data-optimization algorithm, we use lithium-ion batteries in steps and echelons to cut the cost of new-energy cars and photovoltaic power storage, thereby promoting the development of the new energy industry.

# 产业介绍 Industry Overview

## 协鑫新能源 GCL NEW ENERGY

协鑫新能源控股有限公司 (0451.HK) 于2014年在香港联交所上市,是全球领先的以太阳能发电为主,集开发、建设、运营于一体的新能源企业。公司以“科技引领、金融协同、高效运作”为经营理念,集中式光伏电站和分布式光伏电站两大业务并重发展,持续为社会提供清洁、安全、高效的绿色能源。

协鑫新能源致力于打造“科技+产业+服务+金融”四位一体的业务模式,省级分公司遍布全国,在设计研究、资金融集、供应采购、农业、国际业务、分布式业务等方面具有显著优势。截至2017年6月底,协鑫新能源总装机容量达5079MW,位列全球第二。

Listed in HK Exchange in 2014, GCL New Energy Holdings Ltd (0451.HK) is a world leading new energy company. Its primary business is in solar power generation, covering development, construction and operation. The business philosophy of the company is 'led by technology, finance for synergy and operation with productivity'. It focuses on both centralised and distributed PV power stations, to provide sustainable Green Energy that is clean, safe and efficient.

GCL New Energy has developed the business model that integrates technology, industry, service and finance into one solution. It has nationwide presence with its provincial subsidiaries which show significant strength in design and research, financing, sourcing, agriculture, international projects and distributed business. By the end of June, 2017, GCL New Energy has reached total installed capacity of 5079 MW, ranked top two in the industry.

- 创新商业模式大奖  
The Award of Innovative Business Model
- 2016年最具社会责任感和影响力的光伏电站运营商  
The PV Power Plant Operation with Most Social Responsibility and Influence Award 2016
- 2016年最具综合实力光伏投资企业奖  
The PV Investment Company of Most Comprehensive Strength Award 2016
- 2016“光能杯”优秀电站开发投资商大奖  
“Guang Neng Cup” Innovative Business Model Award 2016
- 2016年中国能源环保创新企业奖  
The Environmental Innovation Company of Chinese Energy Award 2016
- 2015年度中国光伏电站商业模式电站  
The Best Business Model of China PV Power Stations of Year 2015
- 2015年度优秀品牌企业  
Excellent Branded Corporation of the Year 2015

### 光伏电站指标类型 RANGE OF PV STATION MODELS

01	02	03	04
领跑者项目 The lead Runner Project	光伏扶贫项目 PV Poverty Alleviation Project	分布式项目 Distributed Projects	普通电站项目 General Power Station Projects

从领跑者项目、光伏扶贫项目、到分布式项目及普通电站项目,协鑫新能源的电站开发已涵盖光伏电站的全部指标类型。

GCL New Energy has the entire range of PV station development models. It has worked with the Lead Runner Scheme and the PV Poverty Alleviation Project, as well as distributed and general power station projects.

## 领跑者项目 TOP RUNNER PROJECT

“光伏领跑者计划”是国家能源局2015年推出的一种促进先进光伏技术产品应用和产业升级的光伏扶持专项计划，旨在鼓励高效光伏“领跑者”产品的技术研发和推广。协鑫新能源积极参与国家“光伏领跑者计划”，在实现企业自身技术领先、成本领先的同时，已成功中标山西阳泉、山西芮城、山东济宁、安徽两淮、内蒙乌海等5个“领跑者”项目。

In 2015, the National Energy Department launched a tendering scheme call the Lead Runner Scheme, aiming to promote the application of advanced PV technology and products as a featured PV supporting scheme for industrial upgrading, in order to encourage the 'lead runners' of the PV industry to develop and promote their leading energy efficient products. GCL New Energy has been an active part of the scheme. With its leading technology and superior costs, the company has successfully won the bids for 5 'Lead Runner' projects, including Shanxi Yangquan, Shanxi Ruicheng, Shandong Jinan, Anhui Lianghuai and Inner Mongolia Wuhai.

## 光伏扶贫项目 PV POVERTY PROJECT

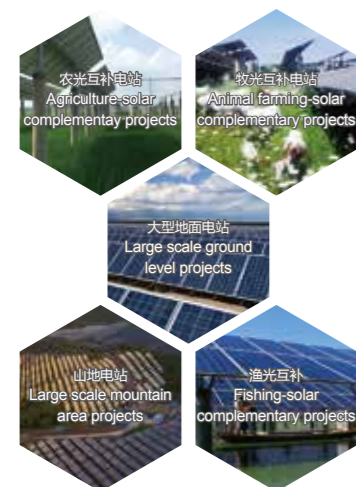
光伏扶贫是国家确定的“十大精准扶贫工程”之一。协鑫新能源积极响应号召，充分调动省/区域分公司，投身到这一兼具社会效益与经济效益的扶贫事业中。在国家能源局、国务院扶贫办下达的第一批光伏扶贫项目中，公司以250MW的容量，规模居全行业第一位，涵盖山西、山东、安徽、吉林、江西等多个省份，受益贫困户超过18000户。此前，公司已在安徽阜南自主开发并成功并网首个政府类光伏扶贫PPP (Public-Private-Partnership) 项目，建成了“户+村+地面电站”的综合模式，总容量117MW，使5000户受益家庭每户年均增收3000元。

PV poverty alleviation is among the '10 national poverty alleviation projects with targeted measures'. GCL New Energy has given positive response to it by mobilizing provincial/regional subsidiaries. Taking part in the course of poverty alleviation has lead to both social and economic benefits. So far the company has obtained initial approval for projects of around 367 MW installed capacity, with locations in Shanxi, Shandong, Anhui, Gansu, Hebei, Yunnan and Ningxia provinces. Anhui Funan project is the first PPP (Public-Private-Partnership) PV poverty alleviation project in China that was developed independently by the GCL New Energy and was successfully connected to the grid. It created a mixed model of 'household + village + ground level power station' format, benefiting over 5000 households with additional RMB 3000 income per household every year.

## 分布式项目 DISTRIBUTED PROJECT

协鑫新能源紧扣光伏行业发展脉搏，积极布局分布式光伏发电项目。一方面重点鼓励利用公共事业、工商业、设施农业等建筑物的屋顶，以及这些建筑物的附属场所建设该类发电项目，另一方面在新农村建设、城镇化建设、光伏扶贫项目中，开发集中连片的住宅屋顶发电项目。公司构建起“项目融资—投资开发—施工建设—运营管理—金融服务”的分布式能源互联网平台，整合多种资源，加快分布式光伏的普及。至2020年，分布式光伏电站将占公司光伏装机总量的30%。

GCL New Energy keeps up with the development trends of PV industry, and actively expands its distributed PV power station projects. It has used rooftop spaces of public facilities, industrial and agricultural buildings, and their auxiliary spaces of these properties to construct power generation projects. It also focuses on the new building projects in rural villages, urban expansion projects and PV poverty alleviation projects to develop residential rooftop PV with scale. The company has set up an internet platform for the distributed PV business, integrating 'project financing, investment and developing, construction, operation management, and financial service' to accelerate the penetration of distributed PV facilities. By 2020, distributed PV power stations will account for 30% of total installed capacity of the company.



## 普通电站项目 ORDINARY PROJECT

协鑫新能源自主开发的普通电站项目遍布全国，涵盖各种电站形态。公司在普通电站项目的开发中，坚持因地制宜的原则，结合当地光照条件、生态条件及已有经济形态，使光伏电站成为环境改善、经济发展的有机组成部分。在西部重点利用荒漠化土地发展大型地面电站，在中东部重点发展农光互补、渔光互补、水面漂浮等“光伏+”电站。

GCL New Energy has the entire range of PV station development models. It has worked with the Lead Runner Scheme and the PV Poverty Alleviation Project, as well as distributed and general power station projects. General power station projects are developed independently by GCL New Energy, covering all types of power station formats. Considering the local environment and resources, when develop general power stations, we consider sunlight, ecological condition and existing economics, to make PV stations an organic part of local environment preservation and economic development efforts. In West China, we have built large scale ground-level power stations using the desertified land. In Middle and Eastern China, we are developing 'PV+' power stations such as agriculture-solar and fishing-solar complementary projects and water floating PV stations.



## 科技创新 TECHNOLOGICAL INNOVATION

协鑫新能源以组织创新、制度创新驱动科技创新，设有协鑫集团设计总院新能源分院，完善研发管理制度及研发创新奖惩制度，有效调动员工的热情及积极性，形成全员创新氛围，已拥有多项发明及实用新型专利。公司已研发或应用智能追日系统（平单轴、斜单轴等）、智能清扫系统（智能运维机器人、摆渡车、轨道系统）、智能远程管理、增透型自洁纳米涂层等多项核心技术及装备。

GCL New Energy is continuously investing in technological innovation. It has set up a new energy branch under the GCL Group Design Institute, which has improved its R&D management to effectively mobilize staff to engage in a more innovative environment. It has delivered multiple inventions and utility model patents up to this date. The company has developed and applied multiple core technologies including the intelligent tracking system (flat single-axis, oblique single axis and so on), intelligent cleaning system (intelligent O&M robotics, ferry carts and track systems), smart distance management, antireflection and self-cleaning systems.

10-20%

平单轴系统提升发电效率10-20%  
The Intelligent Sunward System Improves Power Generation Productivity By 10-20%

3%-5%

智能运维机器人提升发电效率3%-5%。  
Intelligent O&M Robotics Also Improves Productivity By 3-5%



太阳角测量  
Solar Angle Testing  
单片电机驱动  
Monolithic Motor Driving  
自动化控制  
Automation Controlling  
精确定位  
Accurate Positioning

无水化清洗  
Water-Free Cleaning  
智能化运行  
Intelligent Operation  
组件健康状况扫描  
Module Condition Scanning  
问题定位及信息回传  
Trouble Location And Message Passing Back



协鑫新能源持续优化运营管控模式，通过“总部-省级公司-区域中心-独立电站”的“四级一体”模式，建立生产实时管理平台，全面实现光伏电站远程集控、数据自动采集分析、设备故障诊断与计划检修，从而达到“区域管理、集中管控、运检分离、少人值班、无人值守”。协鑫新能源的“区域运营中心”以150公里-200公里为管理半径，容量达到500兆瓦—1吉瓦。

GCL New Energy optimizes its management and control model continually. Through a four-in-one model incorporating 'HQ - provincial companies - regional centers - independent power stations', it has set up a real time management platform to enable centralized distance control of PV power stations, automatic data collection and analysis, equipment troubleshooting and scheduled maintenance. It achieved the results of 'regional management, centralized control, non-human operation.' The Regional Operations Center of GCL New Energy can manage the PV power stations with the capacity of 500MW- 1000MW in a 150-200 KM radius.

## 金融创新 FINANCIAL INNOVATION

协鑫新能源深化产融结合，采取多种金融创新方式，提升综合融资能力。公司被纳入MSCI指数，并获得香港最杰出投资控股公司奖、《国际并购杂志》2014年度最佳交易奖、PVBL电站投资商品品牌第二名等国内外奖项。

GCL New Energy strongly promotes the integration between industry and finance by adopting multiple financial innovation approaches to improve its overall financing abilities. The company has been selected by MSCI, and has collected multiple awards including the Most Outstanding Investment Holding Company of Hong Kong, the Deal of the Year Award 2014 by Acquisition International Magazine and 2nd place in PVBL power station investor brand award.

# 产业介绍 Industry Overview

## 协鑫智慧能源 GCL INTELLIGENT ENERGY

协鑫智慧能源股份有限公司（筹）系协鑫集团有限公司旗下企业，公司为用户提供清洁能源生产的电、热、冷等能源产品，同时稳步开展能源服务，开拓能源互联网市场，为用户提供能源智能控制、需求侧管理、能源交易、能源金融等服务，独创“源-网-售-用-云”能源互联新模式，致力于为用户提供一体化综合“互联网+”智慧能源服务。

作为能源互联网业务的探索者，协鑫智慧能源以“绿色、高效、科技、国际化”为宗旨，通过不断的技术创新和商业模式变革，在能源开发、利用、生产、消费的各环节及全过程融汇协鑫人的智慧，完善符合生态文明和可持续发展需求的能源技术，将绿色能源融入人们的衣食住行。

GCL Intelligent Energy is a subsidiary enterprise of Golden Concord Group Limited. We use clean energy to produce electric power, heat, and cooling products, engage in energy services and expand the energy internet market to offer smart energy control, demand side management, energy transactions, energy finance, and other services. Our exclusive “Supply-Network-Sales-Customer-Cloud” energy internet model strives to provide a comprehensively integrated “internet+” smart energy service.

As a pioneer in the energy internet business, GCL Intelligent Energy is dedicated to environmentally friendly, highly efficient, scientific, and internationalized services as it constantly innovates technology and commercial models. Through energy development, usage, production and consumption, GCL integrates wisdom into optimizing energy technologies that meet the demand for ecological and sustainable development and incorporating green energy into people's everyday life.

### 业务构成 OUR BUSINESS

#### 清洁能“源” Clean Energy

-  大型燃机  
Large Gas Turbine
-  燃机热电  
Cogeneration
-  分布式能源  
Distributed Energy
-  风力发电  
Wind Power Generation
-  生物质能发电  
Biomass Generation
-  海外电力  
Overseas Power

#### 能源“网”络 Energy Networks

-  热冷汽网  
Heat Cold Air Network
-  微能源网  
Micro Energy Network
-  综合能源网  
Integrated Energy Networks

#### 能源销“售” Energy Sales

-  售电业务  
Energy Financial Services

#### 能源“用”户 Energy Users

-  能源金融服务  
Energy Financial Services
-  多能DSM服务  
DSM Services

#### “云”平台 Cloud Platform

-  云  
Cloud

协鑫基于“互联网+”思维模式，通过产业垂直整合和跨产业价值链重构，打造“终端+服务系统+平台”开放的完整生态系统。在新能源生产、输配和消费领域进行全面产业布局，打破产业边界，实现科技、产业和互联网的深度融合，构成GCL能源互联网生态系统，给用户带来全新的价值和体验。

Based on the model of “Internet +”, GCL has achieved an open and complete eco-system of “end + service system + platform” through vertical industry integration and cross-industry value chain restructuring. It has overturned the industrial boundaries and strived to achieve well-around product layout in energy manufacture, transport and consumption. With a deep integration of technology, industry and Internet, GCL has constructed an energy Internet eco-system, which brings brand new values and experiences to customers.

国内首个“六位一体”微能源网  
项目：苏州协鑫能源中心  
The First “Six-in-One”  
Micro Energy Network in  
China:  
Suzhou GCL Energy Center



苏州协鑫能源中心一期项目建筑面积19515m<sup>2</sup>，采用协鑫“六位一体”微能源网技术实现综合供能。该项目试验办公楼总用能需求（电力、空调用冷用热、卫生热水）计算负荷约3000KW左右，比常规能源配置节约2000KW左右。屋顶光伏可提供350KW的电能；天然气内燃机可提供400KW电能、400KW热（冷）能，并配套100KW储能、风光互补、电动汽车、微电网、LED等多项能源技术，具有创能、储能、节能、绿能、微能、多能的突出特点，自供能率超过50%，整个建筑节能达到30%以上。

GCL Energy Center Phase I in Suzhou covers a construction area of 19,515m<sup>2</sup>, achieving comprehensive energy supply via GCL “Six-in-One” micro energy network technology. The total energy demand of the test building (electricity, air conditioning for cooling/heating, sanitary hot water) is calculated as approximately 3,000KW, which saves about 2,000KW compared with conventional energy configuration. The rooftop photovoltaic system delivers 350KW capacity of electricity and natural gas internal combustion engine provides 400KW power and 400KW thermal (cold) energy. The center is additionally supported by 100KW energy storage technology, wind-solar hybrid, electric cars, micro grid, LED and many other energy technologies. It is characterized by energy creation, storage, saving, environmental protection, micro energy, and multi-energies, with a self-energizing rate of over 50% and an energy saving rate of over 30% in the entire building.

清洁能源综合服务企业 **40** 余家  
Over 40 companies providing integrated clean energy services

运营及在建的总装机容量近 **4,000** MW  
Total installed capacity of nearly 4,000MW under operation and construction

需求侧管理负荷近 **700** 万千瓦安  
The Capacity of Demandside Management reaching nearly 7 million KVA

能源供给网络近 **1,000** 平方公里  
Energy supply networks covering nearly 1,000 square kilometers



## “六位一体”微能源网 SIX-IN-ONE MICRO ENERGY NETWORK

协鑫集团创新性提出“六位一体”能源发展战略，利用能源站集成、智能化控制和云计算技术将天然气、太阳能、风能、地热能和储能等清洁能源集成构建“六位一体”的分布式能源网，倡导供需互动、有序配置、节约高效的智能用能方式实现能效最大化。

GCL has creatively proposed the “Six-in-One” energy development strategy. Through energy station integration, smart controls and cloud computing technology, the company has created a “Six-in-One” distributed energy grid that consolidates clean energy such as solar, wind, geothermal and energy storage to achieve maximum performance by promoting the interaction between supply and demand, orderly configuration and high savings and efficiency.



天然气热、电、冷系统  
Natural Gas Thermal, Electrical  
and Cooling Systems

通过利用多联产技术，为商业区、工厂区、住宅区等不同用户提供蒸汽、热水、交流电、空调制冷、直流电等能源。  
Through the use of poly-generation technology, GCL provides energy forms such as steam, hot water, AC, air conditioning, and DC to different users in commercial, industrial and residential areas.

低位热能  
Low-level Heat Energy

利用地源热泵、光热技术及地球表面浅层地热资源和屋顶的热资源作为冷热源，进行能量转换的供暖空调系统和热水系统。  
Ground source heat pumps, photo thermal technology, shallow geothermal resources in the Earth's surface and roof geothermal resources are used as heat sources for energy conversion of heating/air conditioning systems and hot water systems.

节能技术  
Energy-saving Technology

广泛运用于各种清洁能源消费环节中，通过使用节能设备和LED等高效低耗光源来提高客户的能源使用效率，降低用户的单位能耗。  
Energy-saving technology is widely used in various aspects of clean energy consumption. The energy efficiency is increased by using energy-saving equipment, LED and other light sources with high efficiency and low consumption to reduce unit energy consumption.

储能技术  
Energy Storage Technology

储能技术的广泛应用，改变了能源在时间、空间传输使用上的局限，并将绿色能源系统建设与新能源汽车充电网络相结合，使清洁能源更广泛地应用于交通、人居、通讯等各个领域。  
Energy storage technology is widely used to change the limitation of energy transportation in time and space. It combines the construction of green energy systems and the charging network of new energy vehicles so that clean energy can be used more widely in transportation, residential environments, and communications.

光伏发电  
PV Generation

把取之不尽的太阳能资源，通过硅材料的应用开发进行光电转化，转变成电能。  
The application and development of silicon materials can convert inexhaustible solar energy resources to electricity through photoelectric conversion.

风能发电  
Wind Power

充分利用蕴含巨大动力的风能，把风的动能转化成电能。  
Massive wind power is fully exploited to convert the kinetic energy of wind into electrical energy.

# 产业介绍 Industry Overview

## 协鑫环保电力 GCL GREEN POWER




协鑫电力(集团)有限公司系协鑫集团有限公司旗下企业,业务范围涵盖高效环保火电、抽水蓄能及水电、核电等发电业务(运营、管理及在建装机容量8400MW),并大力发展配售电及碳资产管理业务,系国际化综合性能源集团、中国领先的非公有制电力控股企业及绿色能源解决方案供应商。


公司始终秉承“把绿色能源带进生活”的理念,为社会提供高效的清洁能源,持续改善人类生存环境。创新驱动、追求卓越,心怀“成为最受尊重的国际化清洁能源企业”的宏伟愿景,协鑫电力以成为国际最具影响力、最具竞争力的清洁能源开发商和运营商为己任,倾力实现利益相关方价值最大化。

GCL Power (Group) Co., Ltd. is affiliated to Golden Concord Group Limited. Its business scope covers high-efficiency green thermoelectric power, pumped storage and hydropower, and nuclear power (8,400 MW of installed capacity under operation, management and construction). It is also successfully advancing its power distribution and carbon asset management. It is an international integrated energy group, as well as a leading private electric power holding enterprise and green energy solutions provider.

With its mission to Bringing Green Power to Life, GCL continues to improve humankind's environment by providing efficient clean energy. Innovation-driven, committed to excellence, and striving to be internationally recognized as an environmentally responsible clean energy enterprise, GCL Power strives to be the most influential, competitive clean energy developer and operator in the world, to maximize the value for stakeholders.


### 业务构成 OUR BUSINESS

 环保电力  
large-scale green power

 高效环保火电  
High-efficiency green thermoelectric power

在建及投运电厂8家  
8 power plants under construction and put into operation

管理装机容量840万千瓦  
Installed capacity of 8,400MW managed

 抽水蓄能及水电  
Pumped storage and hydropower

 核电  
Nuclear power

### 2020年目标 TARGET BY 2020

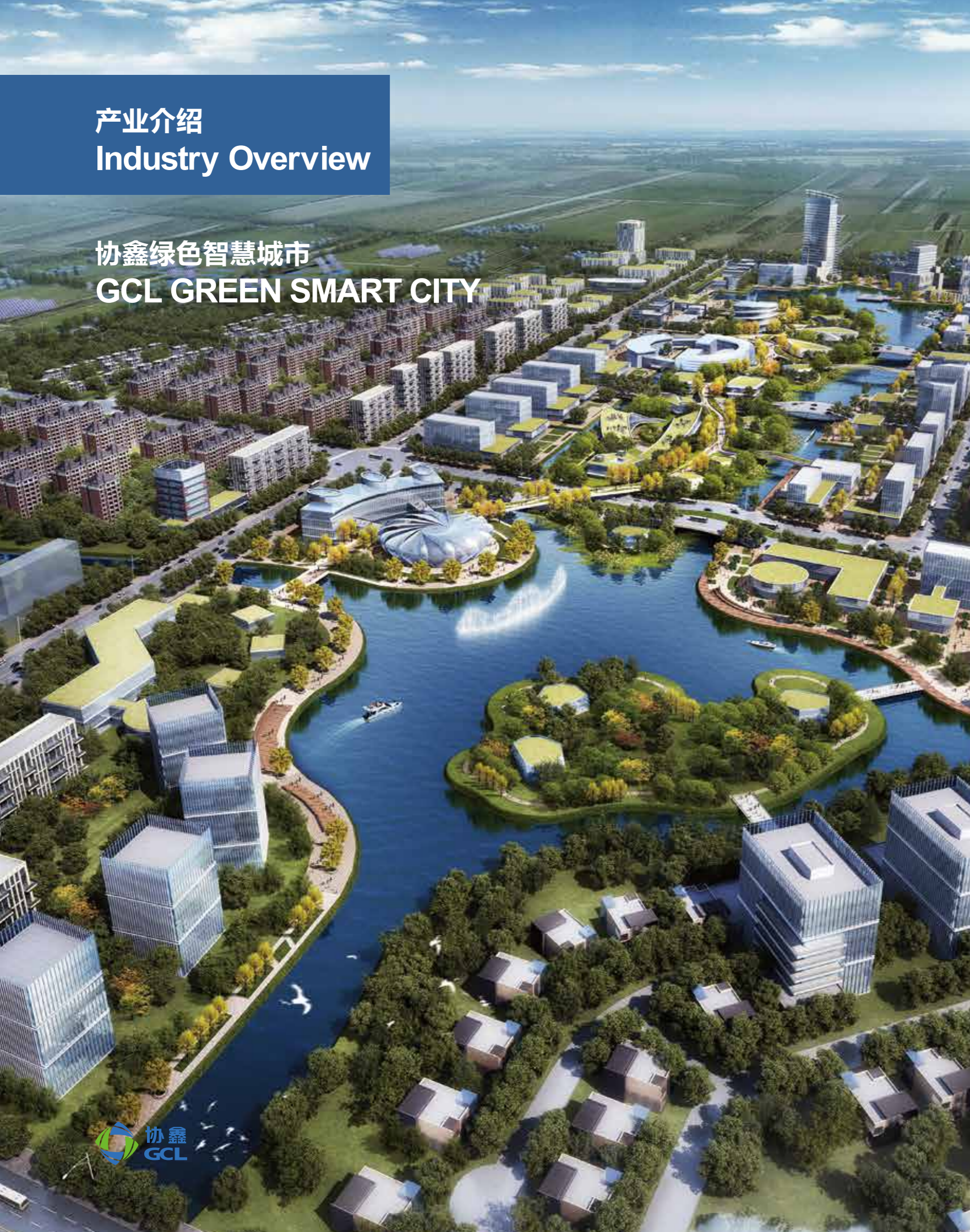
高效环保火电 - 投运规模 **1,500** 万千瓦  
High-efficiency green thermoelectric power - Targeted installed capacity of 15,000MW

抽水蓄能及水电 - 在建规模 **240** 万千瓦  
Pumped storage and hydropower - Targeted installed capacity of 2,400MW

核电 - 参股装机规模 **400** 万千瓦  
Nuclear power - Targeted installed capacity of 4,000MW

# 产业介绍 Industry Overview

## 协鑫绿色智慧城市 GCL GREEN SMART CITY

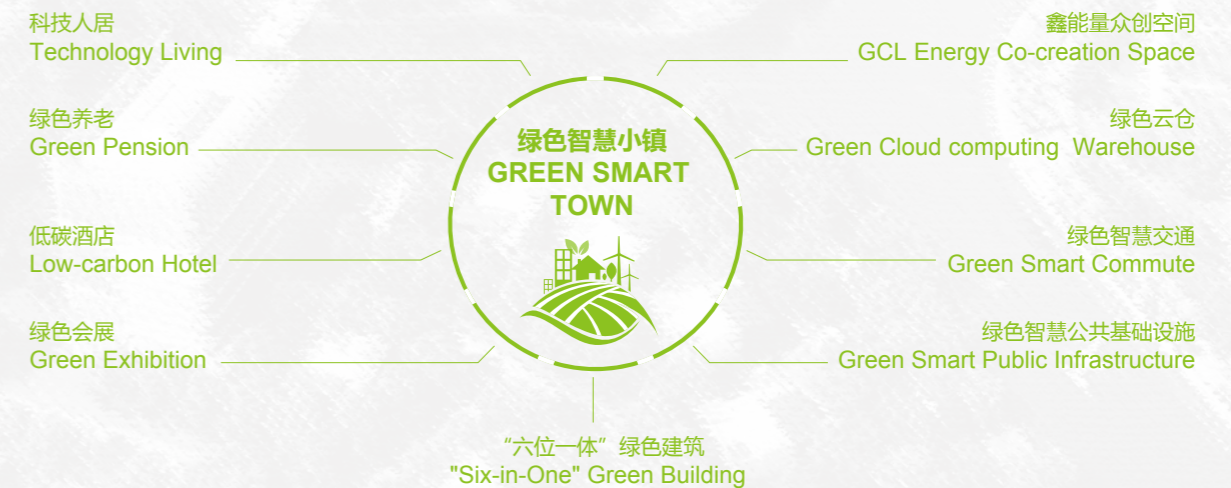


协鑫绿色智慧城市业务布局以长三角为核心，辐射京津冀和珠三角等国内有经济基础、城镇化发展潜力大和创新创业集聚的区域。依托协鑫科技制造板块的产业支持和协鑫中央研究院、协鑫设计总院的技术研发协同，以绿色科技为优势，产城融合为发展方向，绿色科技建筑为主导产品，绿色置地、双创产业园、绿色智慧小镇和教育文旅为主要业务，通过绿色能源交通服务体系与“六位一体”（太阳能、天然气、风能、低位热能、LED及节能技术、储能技术）的绿色能源技术、绿色建筑科技相结合，融合优质的文旅教育资源，建设绿色智慧的示范社区、产业园区和特色小镇。

协鑫智慧城市承担着协鑫集团从传统电力、清洁能源和新能源制造领域向智慧城市服务、文化传媒、旅游和大健康等现代服务领域转型发展的使命。将聚焦城市绿色发展，协同集团资源和技术优势，均衡五项主要业务，携手战略合作伙伴，通过多元化的开发运营模式，把绿色能源带进生活。

The business blueprint of Golden Concord Green Smart City Development Holdings Co., Ltd will take the Yangtze River Delta as the core area with exposure covering developed areas or areas with great urbanization potential or assembly of innovation and entrepreneurship, such as Beijing-Tianjin-Hebei Region and Pearl River Delta. Relying on the support from GCL high-tech manufacturing industry and technology research of GCL Central Research Institute and GCL Design Institute, the company develops its major businesses in fields of green real estate, innovation industrial park, green smart town, education and cultural tourism, meanwhile with the advantage of green technology, integration of city and production as development orientation and green technology building as the leading product. The company builds green and smart demonstration community, industrial park and characteristic town, by comprehensively applying green energy transport service system, green energy technology named "Six-in-One" (solar, natural gas, wind, geothermal energy, LED, energy saving technology and energy storage), green building technology and high-qualified cultural tourism and education resources.

Golden Concord Green Smart City undertakes the mission to accomplish the expansion of GCL's business from traditional power, clean energy and new energy manufacturing to modern services such as smart city service, cultural media, tourism and healthy industry. The company will focus on the development of smart city and balance the integrated development of the above-mentioned five major business through synergy of GCL's resources and technological advantages. It cooperating with strategic partners to bring green power into life in diversified operation modes.



# 产业介绍 Industry Overview

## 协鑫天然气 GCL NATURAL GAS



协鑫以全球视角，积极布局天然气一体化产业链，从天然气开发、储运向终端服务延伸，业务涵盖勘探开发、能源化工、LNG物流、车船装备、电商平台以及产业基金等。协鑫在埃塞俄比亚拥有远景可采储量达5万亿立方米的天然气和4亿吨的原油，项目一期天然气可开采每年40亿立方米（合300万吨/年），第三期年产LNG将达1000万吨，通过在吉布提建设大型港口实现海运中转。

With its global perspective, GCL is actively expanding its presence in the natural gas integrated industry chain by extending natural gas development, storage and transportation to terminal services. Its business scope covers exploration and development, energy and chemical, LNG logistics, vehicle and vessel equipment, electronic commerce platform and industry funds. GCL has prospected reserves of 5 trillion cubic meters of gas and 400 million tons of crude oil in Ethiopia. The first phase of the project will harvest 4 billion cubic meters with the annual LNG output to reach 10 million tons at the third phase. A large harbor will be built in Djibouti for transportation purposes.

签订石油产品生产分成协议，总合同面积 **11.7** 万平方公里  
A petroleum production sharing agreement that covered a total contract area of 117,000 square kilometers was signed

**50,000** 亿立方米远景天然气可开采储量  
Prospective recoverable natural gas reserves total 5,000 billion cubic meters

远景石油储量 **40,000** 万吨  
prospective oil reserves total 400 million tons

### 上游 UPSTREAM

低成本油气资源  
Low-cost oil and gas resources

- 上游资源开发  
Upstream resources development production
- 管道  
Pipeline
- 液化工厂  
Liquefaction plants

### 中游 MIDSTREAM

储运  
Storage and transportation

- LNG运输船  
LNG tankers
- LNG接收站/中转站  
LNG terminals/transfer stations
- LNG集装箱运输  
LNG container transport

### 下游 DOWNSTREAM

提供中国交通及行业清洁能源整体解决方案  
China transportation and industry clean energy solutions

- 加气站  
Gas stations
- 车船油改气  
Oil to gas conversion



# 产业介绍 Industry Overview

协鑫金控  
GCL FINANCE

协鑫金融（集团）控股有限公司（简称“协鑫金控”）总部位于上海陆家嘴环球金融中心，是协鑫集团旗下专注于绿色金融领域的专业化控股集团。

作为协鑫集团旗下的战略新兴板块，协鑫金控着眼协鑫集团产业发展壮大需求，力求通过提供金融服务，以金融租赁、保险、产业基金等金融工具优化集团资产质量，推动实现产业稳健转型发展。

依托集团在绿色产业领域的领先优势，协鑫金控矢志于为环境改善、资源节约和高效利用提供金融支撑，聚合社会资本、整合产融资源，为清洁能源、绿色交通、绿色建筑等领域的项目投融资、项目运营、风险管理等提供全方位服务，争做中国绿色金融事业的“领跑者”。

GCL Financial (Group) Holding Co., Ltd (“GCL Financial Holding”), headquartered in Shanghai Lujiazui World Financial Centre, is a subsidiary of GCL Group and a professional holding corporation specializing in green finance.

As a strategic emerging segment of GCL Group, GCL Financial Holding is committed to the development needs of GCL Group's industries and aims to optimize the quality of GCL Group's assets through financial services and financial tools, including financial leasing, insurance, industry funds in an effort to promote the stable transformation and development of GCL Group's industries.

Leveraging GCL Group's leading position in the green industry, GCL Financial Holding strives to provide financial support for environmental improvement as well as the conservation and efficient use of resources. It aims to aggregate social capital and integrate industrial and financial resources to provide a full range of services for project investment and financing, project operations and risk management in clean energy, green transportation and green buildings, in an effort to become a pioneer in China's green financial cause.

## 业务构成 OUR BUSINESS

投资  
Investment

保险  
Insurance

金融租赁  
Financial  
Leasing

产业基金  
Industrial Fund

# 科技创新 Technology & Innovation

超越，永不停息  
创新，是企业实现内增长的动力。  
创新，是推动着世界前进的力量。  
不断寻求自我超越，攀向世界级的高地；  
突破平庸，拥抱创新，坚持非凡的创想！

Going beyond never ceases.  
Innovation drives internal business growth.  
Innovation moves the world forward.  
Always push the limit and aim at world highlands.  
Break the mundane, embrace the new, and think extraordinary!



**2,361**名

海内外最优秀的科研人员  
2,361 most talented researchers globally



**20**家

科研机构遍布世界各地  
20 research facilities around the world



**1133**项

专利总数1133项，其中已授权771项  
1133 patent applications and 771 accepted



**3%**

集团每年将销售收入的3%投入研发  
3% annual sales revenue into R&D

# 科技创新 Technology & Innovation

协鑫不仅专注于对现有产业和技术的创新，更致力于不断开拓新的产业链及研发新技术。2016年，为实施创新驱动战略，协鑫集团正式成立中央研究院和设计研究总院，以健全的科研管理体系，践行“创业创新”的企业精神。正是凭借永不停息的创新精神，协鑫才能在激烈的市场竞争中立于不败之地。

Never complacent with the existing industrial and technological innovations, GCL is committed to continuously opening up new industry chains to developing new technologies. In 2016, in order to execute the innovation-driven strategy, GCL Group officially establishes its Central Research Institute and GCL Design & Research Institute. By adopting a complete science & technology management system, the Institute is set to be a practical paradigm of innovative entrepreneurship. It is this spirit of restless innovation that has propelled GCL to unyielding heights amongst fierce market competition.



## 协鑫集团中央研究院 CRIG (Central Research Institute of GCL Group)

协鑫集团有限公司中央研究院是协鑫集团技术创新主体和科技合作共享平台，秉承“把绿色能源带进生活”的集团愿景，承担协鑫集团新产品、新技术、新工艺的研究与开发。

协鑫中央研究院着力于创新能力培育与建设，历经多年发展，技术专业领域已经覆盖晶硅提纯制备、光伏新型纳米复合材料制备、光伏高效电池组件技术、高效新能源系统集成设备设计开发、智能多能源微网策略技术、大数据分析并结合工业应用技术、高效储能纳米材料、储能和动力电池总成电力技术、电子电力性能仿真技术等新能源领域，拥有了重大项目自主集成创新的支撑能力和高效绿色能源综合解决方案为主要研究对象的可持续发展技术研发能力。

As innovative organization and platform of technology cooperation and sharing, the Central Research Institute has carried the vision and developed new product, technology and processes.

CRIG has devoted itself to the cultivation and construction of innovating abilities. After years of effort, we have expanded field of research to cover purification and production of crystalline silicon, production of PV composite nano-materials, efficient PV cells and modules process, efficient BOS and integrated equipment for renewable power, technologies for smart micro-grid with multiple energy source, big data and its applications in industrial engineering, efficient energy storage and its nano materials, BMS and energy PACK process, electrical simulation and validation process, and etc. With independent capabilities to support major projects and provide efficient turn-key solutions for renewable energies, the institute has built sustainable development blueprint to make a better energy planet.



## 实验中心 Experimental Center

协鑫中央研究院实验中心，（以下简称“实验中心”），是中央研究院为提高运作效率，适应新常态下科技体制创新要求，统筹协调各研究分院和具体项目公司的实验需求，落实推进各项目的实验而成立的专业机构。主要负责国家新能源发电系统质量检测和国家新能源汽车充电系统质量检测的委托运营、微电网产品系统检测、储能产品及材料检测与试验、软件仿真试验等业务工作。实验中心下设电力电子实验室、微电网产品系统测试中心、纳米复合材料测试中心、软件仿真实验平台、储能产品及材料实验室，为各研究分院所承担的研究课题和孵化项目提供协同支撑服务。

Experimental Center of GCL Central Research Institute (GEC) is a professional institution which is founded by the Central Research Institute to improve the operation efficiency, meet the innovation requirements of the science and technology system in the new normal, co-ordinate all the experimental requirements of every research branch and specific project companies, and promote the experiments of every project. It is primarily responsible for the entrusted operation of the national quality inspection of new energy power generation system and the national quality inspection of new energy vehicle charging system, system test of micro-grid products, detection and test of energy storage products and materials, software simulation test, etc. Experimental Center is consists of power and electronic laboratory, system test center of micro-grid products, test center of nanocomposite materials, software simulation experimental platform, energy storage products and materials laboratory. It can provide cooperative supporting services for the research subjects of every research branch and incubation projects.



## 专家团队 Experts and Scientists

协鑫中央研究院是协鑫集团内的科技人才高地，聚集了一批高素质技术人才。目前，专职研发人员约占全院职工总数的60%，硕、博占比超过60%；2人入选“千人计划”。

GCL Central Research Institute has gathered a group of highly qualified and talented technical workforce. So far the R&D teams, taking 60% share of full staff, are consisted of more than 60% share of masters and doctors. 2 of them were selected Vladimir Nikiforov member.

## 科研机构 and 平台 Research branches and Scientific platforms

自成立以来，已建立起省市及以上科研平台57个，其中工程技术中心35个，包括国家先进硅材料制备技术联合工程中心。获批建设院士科研工作站2个、博士后工作站3个，硕士站2个。同时，中央研究院实验中心分析检测能力分别获得了“国际目击认可实验室”资质和国家实验室体系认证。已构建起对内高效协同的研发创新模式，对外聚焦国内外优秀科技资源，密切合作，形成了开放式自主创新体系。目前已经与国内外50多家高校、科研院所、用户和供应商等建立了不同类型的战略合作关系，加快了从需求辨识、研发过程到成果产业化的步伐。

Since its establishment, GCL Central Research Institute has built 57 research platform verified as Provincial and municipal level or above. Out of which, 35 Engineering and Technical Centers were established, including the National Advanced Silicon Technology Joint Engineering Center. Two Academician workstations, three Post-doctoral workstations, and also 2 Master workstations were approved to be set up. Some divisions of experimental center have been accredited as IEC TMP program testing lab and passed ISO 17025 Laboratory System. With internal highly efficient collaborative innovation system and external close cooperations with more than 50 global colleges and institutes, the pace of energy needs identifying and R&D achievement industrializing has been accelerated.

## 国际技术合作 International Cooperation

国际技术合作部主要负责中央研究院与国际科研机构组织的洽谈与合作、国际技术对接与引进、科研发展方向和规划、国际科研课题的初评、参与选择国际科技组织合作方等业务工作。

GCL的国际研究院已设立于美国旧金山和新泽西普林斯顿，目前正在以色列和日本设立分院。

GCL的科学家和工程师是在能源行业中产品生产及改进创新中最出色、最有成就的杰出人才。研究人员拥有最尖端的开发可持续创新能源技术。

目前美国分院已与美国知名大学（MIT、斯坦福大学、UCLA）、国际科学院（挪威能源研究院）及科研机构（GE）洽谈，所涉及项目领域包括太阳能、新材料、储能、机器人及智慧城市等。有些领域近期将形成战略合作伙伴关系。同时与科研机构合作电池材料及电池领域的相关项目。

International Cooperation Department of GCL Academy are in charge of negotiation and cooperation between the GCL Academy and international scientific research organization, introduction and docking of international technology, preliminary evaluation of scientific research development trends and planning, international scientific research projects, selection of partners of international scientific organization.

GCL's R&D international footprint has expanded in San Francisco and Princeton in NJ, and we are setting up branches in Israel and Japan. Scientists and engineers at GCL are among the most decorated in energy industry for product discoveries, advancements, and lifetime achievements. Researchers collaborate on cutting-edge technology to develop sustainable energy innovations.

US Branch are working with US universities (MIT, Stanford and UCLA), scientific research institutions (Norway Energy) and R&D center of the cooperation (GE) and involved areas such as solar energy, new materials, power storage, robot and smart city, etc. We are close to engage in strategic partnerships with some of those universities soon. We also work on the cooperation project with research institutions in the area of battery material as well as battery itself.

研究院共承担国家、省市重点科技专项 **47** 项  
GCL Central Research Institute has undertaken 47 national and provincial key science and technology projects

获专利授权 **771** 件  
771 patents have been authorized and published

主持制定国际、国家和行业标准 **34** 项  
34 industry standards or above have involved GCL tech teams



## 科研成果 Scientific Achievements

建院以来，研究院共承担国家、省市重点科技专项47项，包括原863国家重点科研项目通过验收；申请专利1133项；主持制定国际、国家和行业标准34项。已有多项产品实现全球首发，为协鑫保持国内第一、全球前列的地位打下了重要基础。

Since established, GCL Central Research Institute has undertaken 47 national and provincial key science and technology projects, including the original 863 national major projects that has been completed and approved; has applied for 1133 patents; and 34 industry standards or above have involved GCL tech teams. Several technologies and new products were first released by GCL all over the world. All those achievements have ensured GCL the No.1 ranking in domestic renewable energy field, and tier 1 member in global green energy industry.



## 协鑫集团设计研究总院 GCL Design & Research Institute

协鑫集团设计研究总院(以下简称:设计研究总院)是中国最具影响力的新能源应用系统设计研究机构之一。设计研究总院以高新技术为依托，顺应能源产业发展趋势，以技术创新、产品研发、EPC总承包为核心，重点开展智慧能源、新能源、系统装备、绿色小镇等新业态新领域的标准制定、产品研发、系统优化设计及EPC总承包业务，统筹集团各业务板块和创新业态的总体设计与创新发展思路，引领集团成员及推动新能源行业的科技进步。

设计研究总院立足苏州，服务全国，面向国际，服务全国31个省市地区及海外区域，目前汇聚各类精英人才150多人，提供从策划、方案、初设到施工图的整体设计服务，具备强有力的整合国内最佳技术资源，为大型工程项目服务的设计组织管理能力。同时积极推进国际化发展，项目涉及亚洲、美洲、非洲等国家地区。设计研究总院密切关注并深刻理解新能源行业的发展趋势，集成并提升各专业和各项技术的高端核心竞争力，根据市场的差异化需求，度身定制综合的智慧能源系统，将新能源系统的应用研究推进到更高层次。

GCL Design & Research Institute (hereinafter referred to as: GDRI) is one of the most influential design and research institutes of new energy application systems in China. GDRI takes high and new technologies as its pillars, rides with the tide of energy industrial development, and takes technological innovations, product R&D and EPC as its core. It focuses on the standards formulation, product R&D, system upgrade designing and EPC of new business structures, such as smart energy, new energy, systematic equipment and green towns. GDRI coordinates the general designs and innovative strategies of different businesses within GCL Group, leads the corporate team and promotes technological advancement of new energy industry.

Based in Suzhou, GDRI serves the nation and orient itself to the globe. It provides services across 31 provinces in China and overseas regions. More than 150 elites with various specialties are gathered here, providing holistic design services ranging from planning, outlining, preliminary design and working drawing. The team is skillful at integrating top technological resources in China and managing design for large-scale engineering projects. GDRI vigorously promotes global development, with projects across regions like Asia, America and Africa. GDRI closely follows and deeply understands the development trend of new energy industry. It integrates and enhances advance core competitiveness of various expertise and special techniques. According to the differentiated demands of the market, it provides comprehensive smart energy system by customization, and pushes application researches of new energy systems to a higher level.

## 研发设计成果 R&D Design Achievements

目前完成及在建的工程设计项目接近8GW,涉及农光、牧光、渔光、禽光、山地、戈壁、沙漠、屋顶、水面、滩涂等多种电站形式，获得多项设计奖、优秀工程奖、科技进步奖、优秀标准设计等奖项。

除电力、光伏、油气等能源主业“全球一盘棋”的创新体系之外，设计研究总院在智慧能源、智慧小镇等多种能源互补等设计领域成绩斐然。

设计研究总院具备持续的创新能力，不断研发新技术，新产品并积极导入实际工程应用，在多地地形电站结构、智能运维清洁系统等研究领域处于国内第一、国际领先的地位，目前申请各类专利31项，发表学术论文4篇，参与修编国家等标准3项。

Its completed and ongoing projects have reached a capacity of around 8GW, involving multiple types of power stations, such as agriculture-PV, fishery-PV, poultry-PV, mountain, gobi, dessert, rooftop, water surface and mud flat stations. Numerous prizes in design, engineering, scientific advancement and standards have been awarded to these projects.

In addition to achieving excellence in major fields, namely power, PV, oil and gas, in the landscape of energy innovation system, GDRI also enjoys fruitful results in designing complementary energy systems like smart energy and smart towns.

GDRI has sustainable innovative capabilities and keeps researching new technologies and products. It actively applies technologies in actual projects. In multi-terrain power station structure and smart maintenance and cleaning system, it holds the top research position domestically and internationally. Now it has 31 pending patents and 4 published papers. GDRI will also participate in drafting several national, industrial and local standards in the future.



# 人才发展 Talent Development



人才是协鑫最宝贵的财富，是事业不断向前发展的推动力。

协鑫坚持以人为本的价值理念，汇聚全球顶尖精英，助力精英加速腾飞，实现员工价值与企业价值的最大化。

着力打造和平有序的良性竞争环境，让协鑫的每一位员工的个体价值均得到充分体现，最终汇聚成坚不可摧的“鑫能量”，成为企业发展的强大动力。

People are the most valuable asset and the driving force for GCL's continued development.

GCL values always put people at the center and bring together world top talents helping them develop, maximizing value for both employees and the employer.

Strives to create a virtuous environment for orderly and healthy competition, in which value of each individual staff can be sufficiently reflected and collectively forge the formidable "GCL energy" that forcefully propels the enterprise.



协鑫重视员工职业发展，建立完善的员工职业发展体系，并根据员工特性定制完整的学习地图，为协鑫集团培养领军型管理人才和专家型专业人才，为协鑫集团未来发展输送人才。

协鑫大学作为协鑫集团人才培养运营平台，担负集团战略实施、文化传承、员工能力提升、组织绩效提高等职能。以员工任职能力模型为基础，重点加强员工管理能力、专业能力、职业素养三方面的能力提升，形成了较为完善的人才培养体系。协鑫高度重视员工的文化生活和企业文化建设，通过不断优化用人机制和细致的人文管理，创造员工与企业共同成长的和谐环境。

GCL cares about the career development of its employees. The company has established an employee development system and designed a series of learning roadmaps based on the characteristics of its employees to nurture leaders and professionals that will promote the company's future development.

As a platform dedicated to cultivating talents, GCL University is focused on strategy implementation, cultural heritage, staff competence building, and organizational performance improvement. Based on the employees' competence model, GCL University emphasizes strengthening of management capability, professional competence and occupation ethics and has formulated a comprehensive system of talent training. GCL understands the importance of employees' cultural life, and works to create a balanced environment by continuing to optimize its recruitment systems and humanity-based management.

2016年协鑫大学人才培养累计：  
2016 GCL University - "GCL Series" Statistics

**5,491** 人次  
**2,325** 课时  
**140,822** 人学时



朱共山董事长在协鑫大学授课  
Chairman Zhu Gongshan gave lessons in GCL University

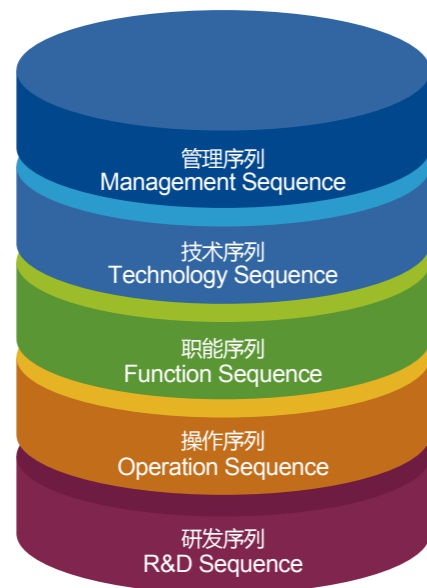
协鑫大学  
GCL University

人才发展路线图  
TALENT ROADMAP

基于人才发展战略的培训需求分析  
Training Needs Analysis based on Talent Development Strategy

基于岗位胜任力的培训需求分析  
Training Needs Analysis based on Competency

基于员工绩效的培训需求分析  
Training Needs Analysis based on Performance



首届协鑫杯足球赛  
First GCL Cup

有一个充满能量的名字,在世界的东方响起。  
从太阳初升的地方走来,焕发着阳光火热的魅力。  
你用智慧和汗水,谱写着华夏能源的篇章,你用青春和无悔缔造了璀璨夺目的传奇。  
清洁能源,文明的使者,卓越制胜科技是动力。  
绿色梦想神圣的使命,让我们骄傲地,把协鑫绿色的能源,带给世界!  
协鑫你是太阳的骄子,协鑫你结晶着中国的奇迹,你铸就了能源互联的梦想,  
你让世界的目光聚焦在这里。



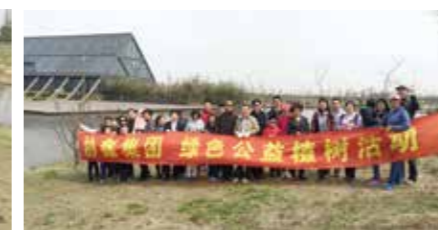
岗位技能比赛  
Position Skills Competition



献礼25周年协鑫好声音合唱大赛  
A tribute to the 25th anniversary of GCL good voice chorus contest



集团本部庆生会  
Group headquarters birthday party



集团本部植树活动  
Group headquarters planting activities

# 社会责任 Corporate Social Responsibility



企业之于社会，如同鱼之于水。  
成人达己，一心为社会奉献更好的生活。

协鑫集团二十余年的发展得益于中国经济的快速增长，随着中国经济被推向世界舞台中央，协鑫在全球能源产业发展坐标系中渐渐成为翘楚。协鑫回报社会的最好方式。

Enterprise to community is what fish to water.  
Grow with the community, GCL is dedicated to better life for all.

For over twenty years, GCL Group has benefited from the rapid development of the Chinese economy. With China coming to the fore environmental responsibilities and enhancing added value by transforming and innovating business model are the best ways to give

承担更多的社会责任和环境责任，转变发展方式，创新经营模式，提升附加价值，助力“天更蓝、水更清、居更佳”的中国梦早日实现，是

of the world economy, GCL has become a global leader in the coordinates of energy industry. Taking on greater social and back to the community. GCL will continue to contribute to realizing the Chinese Dream of blue sky, clean water and good life.



# 社会责任 Corporate Social Responsibility

## 低碳环保 LOW CARBON AND ENVIRONMENTAL PROTECTION

协鑫深知肩上所承载的可持续发展重任与企业公民责任，始终秉承“把绿色能源带进生活”的理念，并与日常商业实践、运作和政策相结合，将低碳、减排、节能、安全作为企业的基本行为方式。

Deeply aware of its missions in sustainable development and corporate citizenship, GCL has always believed in Bringing Green Power to Life. The faith is combined on a daily basis with business practices, operations and policies and treating low carbon, emission reduction, energy saving and security as corporate fundamentals.



“GCL法多晶硅生产工艺”的密封式处理效果达 **100%**  
100% sealing treatment in “100% polysilicon production technique”

2011~2015年，协鑫发生重伤、火灾、职业病、环保事故为 **0** 次  
Zero occurrences of injury, fire, occupational disease, or environmental incidents at GCL from 2011 to 2015

2016年煤渣排放 **0** 吨  
No coal slag discharge in 2016



多晶硅年产能

**7.5** 万吨

Polysilicon annual production capacity of 75,000 tons

硅片年产能

**20** GW

Silicon Wafer annual production capacity of 20GW

其发电量可减少燃料

**14,749** 万吨

Generating capacity equals reduction of fire coal by 147.49million tons

减排CO<sub>2</sub>

**54,574** 万吨

CO<sub>2</sub> reduction by 545.74 million tons



运营中电厂总装机容量达

**4,613** MW

Total installed capacity of power plants in operation is 4,613MW

年发电量

**2,467,000** 万kwh

Energy power generation of 24,670 million kwh in 2016

年供热量

**2011** 万吨

20.11 million tons of heat generation

相当于减排CO<sub>2</sub>

**718** 万吨

Equivalent to CO<sub>2</sub> reduction of 7.18 million tons



可再生能源近三年发电量达

**219,378** 万kwh

Renewable energy power generation of 2193.78 million kwh in past three years

可节约标煤

**70.53** 万吨

Saving of 705,300 tons standard coal

相当于减排CO<sub>2</sub>

**172** 万吨

Equivalent to CO<sub>2</sub> reduction of 1,720,000 tons



运营中光伏电站每天发电

**1280** 万度

PV power plants in operation generate 12.8 million kwh per day

约可调足居民生活用电需求

**272** 万户

Meeting the electricity demand of 2,720,000 households

每年可减少燃煤

**192** 万吨

Annual coal saving of 1,920,000 tons

相当于减排CO<sub>2</sub>

**350** 万吨

Equivalent to CO<sub>2</sub> reduction of 3,500,000 tons



# 社会责任 Corporate Social Responsibility

## 慈善公益 CHARITY

深耕公益慈善，将作为GCL的一项重要事业长久传承。GCL始终心怀感恩，尽己所能回馈社会。经过多年探索与发展，GCL创造了以环保公益、扶持教育与灾难救助三位一体化的慈善公益模式，设立了“协鑫阳光慈善基金会”，开展和参与各项公益慈善项目逾百个。

Dedicated to public welfare and charity, GCL sees philanthropy as a significant cause and lasting heritage. GCL always holds gratitude to the society and tries its best to give back. After years of exploration and development, GCL has established the 3-in-1 charity model that contains environmental protection, education support and disaster relief. GCL has also set up "GCL Sun Charity Foundation", which has organized and participated in more than 100 charity and public welfare projects.



**慈善愿景  
VISION** 成为广受认可与尊重的慈善基金会  
To become a widely recognized and respected charity foundation

**我们的精神  
SPIRIT** 感恩奉献博爱人道  
Gratitude, sharing, love, humanity

**我们的口号  
SLOGAN** 汇聚爱分享爱  
Gather love, share love

**阳光“四心”  
COMMITMENT** 秉持仁心  
Committed to mercy  
奉献爱心  
Committed to love  
关怀暖心  
Committed to empathy  
工程放心  
Committed to trust



我是把工作当快乐，实现了自我。  
人生这么几年，轰轰烈烈为国家为社会做点事，  
这就是最大的回报，这也是最好的价值体现。  
一个人常怀感恩之心，去帮助需要帮助的人，  
那么人生会更有意义。

—— 协鑫阳光慈善基金会名誉主席 朱共山

I take work as the source of happiness and have realized my own value in it.  
With limited life span, making a few yet important differences for my motherland would  
be the biggest return to community and the best actualization of my values.  
One should be grateful, willing to help those in need,  
and his life would be more meaningful.

—— Zhu Gongshan, Honorary President of GCL Sun Charity Foundation



玉树小学太阳能系统捐助  
Solar system donation in Yushu Primary School



贵州台江小学  
Guizhou Taijiang Primary School



广东信宜石硖小学  
Guangdong Xinyi Shishai Primary School

### 阳光关爱行动 SUN CARE CAMPAIGN

协鑫阳光慈善基金会始终把对受助者的关爱作为回馈社会的方式，为此，基金会发起了“阳光关爱行动”，并作为基金会一项长远公益计划长久坚持下去。

基金会启动的“20所阳光小学计划”，本着雪中送炭的理念，在贫困山区、偏远地区寻找最需要帮助的学生和学校，把爱心献给更多充满求知欲望、需要帮助的孩子们。帮助更多充满求知欲望的孩子们实现上学梦。

基金会每年定期开展关爱弱势群体的公益活动，号召全体协鑫人一同身体力行、关爱社会，将真诚和爱心送到康复中心、孤儿院和贫困小学。竭尽所能贡献自己的光和热、心与力。

GCL Sun Charity Foundation has always sought to give back to society by caring for those in need. To this end, the Foundation initiated the "Sun Care Campaign" as a long-term charity project.

The Foundation has also started the "Sun Elementary Schools Program" which aims to provide timely assistance for students and schools in impoverished mountainous and remote areas. The program helps children who are earnest to learn go to school.

The Foundation regularly holds charity events every year to care for vulnerable groups, calling on every GCL people to physically engage in giving love and care to rehabilitation centers, orphanages and impoverished schools, giving warmth to the community with their share of heat.

# 社会责任 Corporate Social Responsibility

## 阳光环保行动 SUN ENVIRONMENTAL CAMPAIGN

在“公益性环境保护”方面，协鑫阳光慈善基金会针对减少能耗、应对气候变化、保护生物多样性等环保议题，竭力资助环保活动、资助环保组织、倡导员工增强环保意识并参与环保活动等。未来，“环保”活动依然是基金会资助项目的重要方向之一。

每年，协鑫阳光慈善基金会都会组织协鑫员工志愿者深入社区开展绿色环保能源知识为主题的志愿活动，向市民们普及太阳能发电、光伏应用产品、节约用电以及分布式居民光伏电站的相关知识，倡导社会公众共同参与环保活动。

On environmental protection charity, GCL Sun Charity Foundation is dedicated to reducing energy consumption, responding to climate change, protecting biological diversity, and many other environmental protection issues. The Foundation spares no effort in sponsoring environmental protection events and organizations and in enhancing employees' awareness of and participation in environmental protection. In future, eco-friendly events will continue to be the main driving factor for the foundation's funding projects.

Each year, GCL Sun Charity Foundation arranges for GCL employees to carry out volunteer activities on green energy education in communities, imparting to citizens knowledge about solar power, photovoltaic applications, electricity saving and distributed PV power plants, in an effort to encourage the general public to participate in environmental protection.

## 阳光志愿行动 SUN VOLUNTEER CAMPAIGN

公益项目离不开志愿者的支持，为此，协鑫阳光慈善基金会向协鑫集团全体员工以及社会各界爱心人士发出倡议，成立协鑫阳光志愿者协会，并对志愿者进行管理。

GCL's projects are built on the support of volunteers. To this end, GCL Sun Charity Foundation has called on all GCL Group employees and those from all walks of life to establish the GCL Sun Volunteer Association and manage its volunteer base.

志愿者人数超过 **21,000** 人  
Over 21,000 volunteers

项目累计覆盖受益人数超过 **336,300** 人  
Over 336,300 people benefited from such projects

累计提供志愿服务超过 **11,000** 小时  
Over 11,000 hours of volunteer services provided

累计有 **2,051** 名志愿者参与志愿服务  
A total of 2,051 volunteers have been involved in voluntary services

共开展志愿服务项目 **22** 个  
A total of 20 volunteer service projects



2016年“博爱图书，十年百馆”公益捐赠进驻安徽大别山  
Caring Library entered Anhui Dabie Mountain in 2016



2017年“博爱图书，十年百馆”公益捐赠落地重庆市万州区  
Caring Library donation in Chongqing Wanzhou in 2017

## 大事记 Milestones

2017年5月，协鑫集团副董事长、执行总裁，协鑫阳光慈善基金会主席孙玮女士赴重庆市万州区出席“博爱图书，十年百馆”捐赠仪式并看望当地学校师生。  
In May 2017, Ms. Sun Wei, vice president and CEO of GCL Group, Chairwoman of GCL Sun Charity Foundation, went to Wanzhou District of Chongqing, to attend a donation ceremony titled "Books of love - 100 libraries in 10 years", and visited local teachers and students in the schools.

2016年6月，江苏省阜宁县发生了特大风雹灾害，协鑫集团董事长朱共山以协鑫集团和协鑫阳光慈善基金会的名义，连夜向阜宁县捐款1000万人民币，用于抢险救灾和灾后重建工作。  
In June 2016, a major hailstorm hit Funing county of Jiangsu Province, Mr. Zhu Gongshan, President of GCL, donated 10 million RMB to Funing County immediately, in the name of GCL and GCL Sun Charity Foundation, for disaster rescue and post-disaster reconstruction.

2011年5月，捐资2000万元人民币，在南京大学设立“南京大学工科发展基金”，支持南京大学建立“应高工”学科  
In May 2011, GCL donated 20 million RMB to set up Nanjing University Engineering Development Foundation at Nanjing University to support the establishment of its Applied Advanced Engineering Program.

2010年10月，协鑫集团捐助的贵州省台江县台拱镇“协鑫阳光登交小学”正式建成。  
In October 2010, a GCL donation, GCL Suns Dengjiao Elementary School in Taigong Town, Taijiang County of Guizhou Province was officially established.

2010年4月，协鑫集团捐款1000万元人民币用于青海玉树地震抗震救灾。  
In April 2010, GCL Group donated 10 million RMB for Yushu Earthquake relief and rescue in Qinghai.

2010年3月，协鑫阳光慈善基金会在香港正式成立，致力于在“环境保护、捐资助学、灾难援助”等方面开展公益事业。  
In March 2010, GCL Sun Charity Foundation was established in Hong Kong, in the aim of developing charity programs in fields of environmental protection, education, and disaster aid.

2010年3月，协鑫集团所属企业中能硅业开展第三届“地球一小时”环保宣传活动。  
In March 2010, Zhongneng Polysilicon, a GCL subsidiary, carried out the third session of Earth Hour environmental protection campaign.

2009年12月，向南京大学捐资2000万元建设“朱共山楼”，为培养地球科学、资源、能源和环境领域专业人才提供良好的学习科研环境。  
In December 2009, GCL donated 20 million RMB to Nanjing University for the construction of Zhu Gongshan Building, providing excellent learning and research facility for professional training in geoscience, resource, energy and environment.

2008年9月，协鑫商学院在南京大学揭牌，EMBA、MBA 相继开班，校企共建，培养工商管理精英。  
In September 2008, GCL Business School was inaugurated in Nanjing University. EMBA and MBA classes were launched to cultivate business and management elites through this university-enterprise cooperation.

2006年8月，捐资1000万元设立南京大学协鑫奖助学金；与南京大学合作成立南大协鑫研究院，产研结合促进科技创新。  
In August 2006, GCL donated 10 million RMB to set up NJU-GCL Scholarship Fund. The establishment of NJU-GCL Research Institute with Nanjing University is to promote scientific and technological innovation through industry-research cooperation.

## 赈灾救灾 DISASTER RELIEF

一方有难，八方支援。危难面前，协鑫大家庭强大的向心力和凝聚力更加凸显。  
Misfortune of one receives assistance from all. In the face of disasters, GCL family unites closer and firmer than ever.



2016年协鑫捐助江苏阜宁风灾区  
In 2016, GCL donated for Jiangsu Funing tornado disaster



2016年协鑫捐建上海奉贤区农村综合服务中心项目  
In 2016, GCL donated to the construction of village service center project in Shanghai Fengxian District



2010年协鑫捐助玉树地震灾区  
In 2010, GCL donated for Yushu Earthquake disaster

## 助力教育事业 CONTRIBUTING TO EDUCATION

秉承“以人为本、人才优先”的发展理念，协鑫积极支持教育事业。  
With a development philosophy that centers around people and focuses on talents, GCL has actively supported educational courses

2015年，协鑫捐资清华大学6000万元，专项用于清华大学电机系的基础建设和学科发展。  
In 2015, GCL donated RMB 60 million to Tsinghua University for infrastructure and academic development of Electrical Engineering Department.



2006年8月，协鑫捐资1000万元设立南京大学协鑫奖助学金  
In August 2006, GCL donated RMB 10 million to establish the GCL Scholarship at Nanjing University



2009年12月，协鑫再次捐资南京大学2000万元建设朱共山楼  
In December 2009, GCL donated RMB 20 million to the construction of Zhu Gongshan Building in Nanjing University

# 未来能源馆 Future Energy Pavilion

能源变革，推动人类文明永续发展  
期待未来，人人享有可持续能源

能源，万物的本源。宇宙世间一切活动乃至生命本身都离不开能源。人类文明的每一步，都与能源的利用息息相关。

当今世界，过去的能源利用方式能否持续，未来将向何处去？成为全人类共同关心的问题。走能源变革之路，为人类可持续发展提供基础支撑，是文明迈向新纪元的第一个台阶。

Energy Revolution, Promoting Human Civilization's Sustainable Development  
Future Expectation, Everyone Enjoying Sustainable Energy

Energy is the source of everything in the world. Any activity even life in the universe cannot go on without energy. Every progress of human civilization is closely linked with the utilization of energy.

Today, all human beings concern that if the old way of energy utilization can continue and where our future is. To have energy revolution and provide basis support for mankind sustainable development is the first step of civilization walking towards new era.

这里有什么？  
What may you explore with us ?

世界唯一未来能源专题展馆  
The unique future energy subject pavilion world widely  
三次能源革命  
Three energy revolutions  
十大能源形式解析能源  
Ten energy condition analysis energy  
新能源科技真实产品  
New energy technology real products  
融源网储售云为一体的能源互联网信息控制中心  
Energy internet information collecting and controlling center integrated with source, internet, storage, finance and cloud controlling  
绿色智能未来生活体验  
Green intelligent future life experience

我们在这里  
We are here with you

和您共同感受能源革命带给人类文明的进步  
To feel the progress of human civilization driven by energy revolution  
共同见证绿色能源的可持续发展  
To witness the sustainable development of green energy  
共同践行把绿色能源带进生活的理念  
To perform the idea of bringing green energy into life

为配合国际能源变革论坛，协鑫集团在国家能源局和江苏省、苏州市政府的大力支持和指导下，建设“未来能源馆”作为论坛的配套常设展馆。历经多轮专家论证，在国内外行业相关企业的共同支持下，未来能源馆将为来宾带来融知识性、专业性、艺术性、互动性、趣味性于一体的全新体验。

To match with International Forum of Energy Transition (IFET), under the supporting and guiding of National Energy Administration, Jiangsu Province Government and Suzhou City Government, Golden Concord Holdings Limited ("GCL") establishes the permanent matched pavilion--"Future Energy Pavilion" to serve the forum. With many rounds of experts' research and discussion, supported by corporations of related industries in China and abroad, "Future Energy Pavilion" will bring new integrated experiences of knowledge, profession, artistry, interactivity and fun to visitors.

# 交流合作 Events

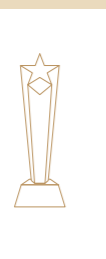
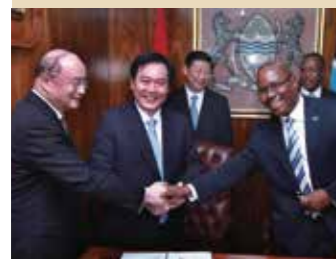
2016  
中国企业500强144位  
Ranked 144 among Top 500 Chinese Enterprises  
中国制造业500强77位  
Ranked 77 among Top 500 Chinese Manufacturing Enterprises  
国际清洁能源年度人物大奖 (朱共山)  
The Figure of International Clean Energy of the Year (Zhu Gongshan)  
全球新能源企业500强  
Global New Energy Top 500  
协鑫集团荣获年度光伏领袖  
GCL Awarded with PV Leader of the Year  
最佳能源互联网领袖  
The Best Internet Energy Leader of the Year

2015  
全球新能源500强奖，并居国内企业榜首  
Global New Energy Top 500, ranking at the top among domestic enterprises  
亚洲最佳投资者关系管理团队  
Best Investor Relations Management Team in Asia  
亚洲最佳雇主  
Best Employer in Asia  
中国并购·金梧桐奖  
China M&A · Gold Parasol Award  
安全生产标准化一级企业  
Grade-A Enterprise of Safe Production Standardization

2014  
中国证券金紫荆奖-最佳上市公司  
Golden Bauhinia Award of China Securities – Best Listed Company  
最具行业影响力奖  
Business of Most Industry Influence  
电站投资商品品牌榜单第二名  
Ranking No.2 in the Power Plant Investment Brands

2013  
第七届资本中国杰出企业成就奖  
Enterprise of Outstanding Achievement at the 7th Capital China  
亚洲周刊环保新能源企业大奖  
Green Energy Business by Aisa Weekly  
Asia's Most Promising Company on Corporate Governance  
2013年标杆机组  
2013 Benchmark Unit  
全球新能源企业卓越贡献奖  
Global New Energy Business of Outstanding Contribution

# 荣誉奖项 Awards



2012年6月，协鑫集团董事长朱共山与博茨瓦纳国家电力公司首席执行官Raleru共同签署博茨瓦纳煤电一体化项目合作框架协议，国家主席习近平与博茨瓦纳国家副总统蒙帕蒂·梅拉费出席签字仪式  
June 2012, Chairman Zhu Gongshan and Mr. Jacob Raleru, CEO of Botswana Power Corporation, signed the Partnership Agreement Framework on a coal power integration project in Botswana. Chairman Xi Jinping and Mompoti Merafhe, Vice President of Botswana, attended the signing ceremony

2014年5月，协鑫集团董事长朱共山受到李克强总理亲切接见  
May 2014, Chairman Zhu Gongshan received by Premier Li Keqiang

2014年6月，协鑫集团董事长朱共山受到全国政协主席俞正声接见  
June 2014, Chairman Zhu Gongshan received by Yu Zhengsheng, Chairman of CPPCC

2016年5月，国际可再生能源署总干事阿德南·阿明参访协鑫能源中心，朱共山董事长陪同讲解  
May 2016, the International Renewable Energy Agency Director-General Adnan Amin visited GCL Energy Center accompanied by Chairman Zhu Gongshan

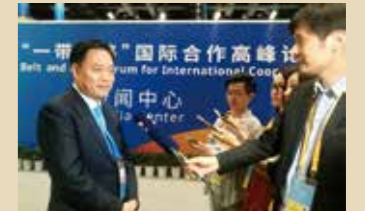
2016年4月，协鑫集团董事长朱共山在京拜访上海合作组织秘书长阿利莫夫  
April 2016, Chairman Zhu Gongshan met Rashid Alimov, Secretary-General of Shanghai Cooperation Organization in Beijing

2016年3月，朱共山董事长在京会见全球太阳能理事会秘书长John Smimow  
March 2016, Chairman Zhu Gongshan met John Smimow, Secretary-General of Global Solar Council in Beijing

2017年5月，协鑫集团董事长朱共山出席“一带一路”国际合作高峰论坛并接受中外媒体专访  
May 2017, Chairman Zhu Gongshan attended The Belt and Road Forum for International Cooperation and accepted interviews

2015年11月，协鑫集团朱共山董事长在能源互联互通研讨会前受到联合国副秘书长沙姆沙德·阿赫塔尔的接见  
November 2015, Chairman Zhu Gongshan received by Sharmshad Akhtar, Deputy Secretary-General of the United Nations, at the Energy Inter-connectivity Seminar

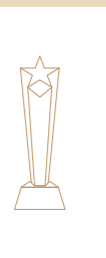
2015年11月，国家能源局努尔局长视察协鑫能源中心朱共山董事长陪同讲解  
November 2015, Nu'er Baikeli, Director of National Energy Administration, visited GCL Energy Center accompanied by Chairman Zhu Gongshan



2016年10月，协鑫集团董事长朱共山与国际能源署副署长保罗西蒙斯在日内瓦亲切交流  
2016 October, Chairman Zhu Gongshan met with Paul Simons, Deputy Administrator of IEA

2016年8月，协鑫集团董事长朱共山与吉布提共和国能源部部长 Yassin Houssein Bouh  
2016 August, Chairman Zhu Gongshan with Yassin Houssein Bouh, Energy Minister of the Republic of Djibouti

2014年5月，协鑫集团董事长朱共山和埃塞俄比亚总统穆拉图  
May 2014, Chairman Zhu Gongshan with Mulatu Teshome, President of Ethiopia



2006  
太仓港协鑫发电有限公司3、5、6号机组2007年度获得全国火电大机组(300MW级)竞赛国产机组一等奖(3号机组)  
No. 3, No. 5, and No. 6 power units of GCL Taicang won the First Prize of the domestic category in the 2007 National Large-scale Thermal Power units (300MW) competition (No. 3 Unit)

2008  
中国最具成长力能源企业奖  
Most Promising Energy Enterprise in China

2009  
进取上市公司奖  
Progressive Listed Company  
全国节能减排环保承诺示范单位  
National Exemplary Enterprise for Energy Saving and Emission Reduction

2010  
环球慈善企业奖  
Global Charity Enterprise Award  
中国最佳低碳企业  
Best Low-Carbon Enterprise of China  
中国光伏行业十大品牌企业  
Top 10 Brands of PV Industry

2010年度中国新能源企业30强  
2010 Top 30 New Energy Enterprises of China  
世界低碳环境中国推动力100强  
Top 100 World Low-Carbon China Promoters

2011  
中国证券金紫荆奖-十二五期间最具投资价值上市公司  
Golden Bauhinia Awards of China Securities – Most Valuable Listed Company during the "12th Five-Year Plan"  
SNEC十大亮点太瓦级钻石奖  
SNEC Top Ten Terawatt Diamond Award  
全国电力行业优秀企业  
Enterprise of Excellence in the Electricity Industry

2012  
最佳企业品牌形象奖  
Enterprise of Best Brand Image  
中国信誉企业认证奖  
Credit Enterprise in China  
3号机组可靠性金牌机组  
Unit of Gold in Reliability for No. 3 Unit

中国把应对气候变化融入国家经济社会发展中长期规划，坚持减缓和适应气候变化并重，通过法律、行政、技术、市场等多种手段，全力推进各项工作。中国可再生能源装机容量占全球总量的24%，新增装机占全球增量的42%。中国是世界节能和利用新能源、可再生能源第一大国。

China has incorporated tackling climate change into its mid-to-long term national economic and social planning. We attach equal importance to climate change mitigation and adaptation. By using legal, administrative, technological and marketing measures, all tasks are strongly promoted. The installed capacity of renewable energy in China accounts for 24% of the world's total, and its new installations take up to 42% of the global increment. China ranks the top in energy saving, new and renewable energy utilization in the world.

——中国国家主席 习近平  
By Xi Jinping, President of China

环境污染是民生之患、民心之痛，要铁腕治理推动。推动能源生产和消费革命，大力发展风电、光伏发电、生物质能，积极发展水电，安全发展核电，控制能源消费总量，加强工业、交通、建筑等重点领域节能。积极发展循环经济。

Environmental pollution is the worry of people's livelihood and the pain of people's hearts. Dealing with this issue requires iron governance. We shall promote energy production and revolutionize consumption by vigorously developing wind power, PV power generation, biomass energy and hydropower, as well as safely developing nuclear power, and controlling the total of energy consumption. Industrial, transportation and architectural fields are the key areas of energy saving. We shall actively develop recyclable economy.

——中国国务院总理 李克强  
By Li Keqiang, Premier of China

加快使用清洁可再生能源代替传统能源将成为实现众多世界可持续发展目标的催化剂。

Rapidly scaling up the use of clean renewable energy to substitute traditional energy will become the catalyst to meet many sustainable development goals in the world.

——联合国秘书长 潘基文  
By Ban Ki-Moon, Secretary-General of UN

通过全球能源互联网，可在满足世界能源需求、提供充足可持续能源的情况下，实现可再生能源的充分利用，使人人平等地享受现代能源服务，最终实现“人人享有可持续能源”的目标。

Through the global Internet of Energy, we can deliver the full utilization of renewable energy on the basis of satisfying world energy demands and providing sufficient sustainable energy, make modern energy services equally available to all, and finally realize the target of "sustainable energy to all".

——联合国副秘书长 吴红波  
By Wu Hongbo, Deputy Secretary General of UN

可再生能源是最经济的能源，对于未来气候变化政策的走向，我认为中国会成为该领域的领袖，而能源转型的过程向我们展现出中国具有良好的投资环境以及乐观的低碳发展远景。

Renewable energy is the most economical energy. In terms of the future directions of climate change policies, I think China will be the leader in this field. The energy transform process has demonstrated that China has a good investment environment and an optimistic low-carbon prospect.

——国际可再生能源署总干事 阿德南·阿明  
By Adnan Z. Amin, Director-General of IRENA

应对新常态，能源改革势在必行、刻不容缓。破解新常态下能源发展面临的传统能源产能过剩、可再生能源发展瓶颈制约、能源系统整体运行效率不高等突出问题，必须创新能源体制机制，大力推进能源供给侧结构性改革。

In order to cope with the New Normal, energy reform is imperative and pressing. To resolve the typical issues of energy development in the New Normal, such as the over capacity in traditional energy, the bottleneck in renewable energy and the overall inefficiency in energy system, we must innovate in the new energy system and mechanisms, and push forward the structural reform from the energy supply side.

——中国国家能源局局长 努尔·白克力  
By Nur Bekri, General Director of China National Energy Administration

我们的目标是使太阳能成为我们生活不可或缺的一部分，并且使其到达最无法并网的村庄和社区。

Our goal is to make solar energy an integral part of our life and reach it to the most unconnected villages and communities.

——印度总理 莫迪  
By Narendra Modi, Indian Prime Minister

从现在开始，精明投资者的资金将不再流向化石能源，而是更为清洁的能源、更为智能的城市，以及更为可持续的土地利用。

From now on, smart investors will no longer invest their money in fossil energy, but in cleaner energy, smarter city and more sustainable land utilization.

——墨西哥前总统 费利佩·卡尔德龙  
By Felipe Calderon, the former President of Mexico

未来十年针对巴黎气候协议的行动方向非常重要——因为如果我们不能大力推进清洁能源发展，削减经济增长过程中的碳污染，那么我们将无法避免最终的灾难性后果。

The next decade of action is critical—because if we do not press forward with driving clean energy growth and cutting carbon pollution across the economy, we will not be able to avoid catastrophic consequences.

——美国前国务卿 希拉里·克林顿  
By Hilary Clinton, Former U.S Secretary of State

现在中国的信息互联网已经建立起来，能源互联网也已具雏形，随着物流业不断的发展，智能交通网的构建也指日可待。中国政府正积极推动新丝绸之路，能源互联网将成为最好的载体。

Now China has constructed the communications Internet. The renewable energy Internet is fledgling, and the smart transport network is also well in sight with the development of logistics. China is promoting the New Silk Road, and Energy Internet will be the best carrier.

——美国经济学家 杰里米·里夫金  
By Jeremy Rifkin, American Economist

