

Contributing Clean Power for a Beautiful World

Road to New Energy of China Longyuan Power



CORPORATE OVERVIEW

- Longyuan, the first professional company on wind power in China, has long been engaged in the research and development on new energy on behalf of the country.
- Founded in 1993, China Longyuan Power was affiliated to China National Department of Energy at first, and later turned to be affiliated to the Ministry of Electric Power and State Power Corporation. In 2002, riding the tide of power system reform, China Longyuan Power was put under China Guodian Corporation, one of the five power groups of the Central Government.



中国国电集团公司
CHINA GUODIAN CORPORATION

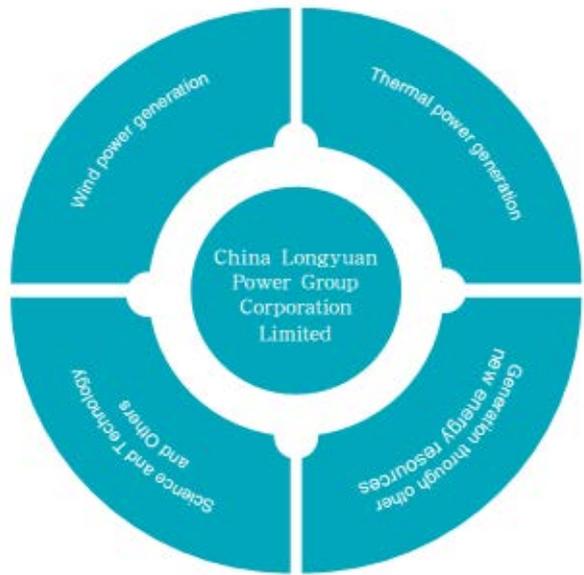


龙源电力集团股份有限公司
CHINA LONGYUAN POWER GROUP CORPORATION LIMITED



CORPORATE OVERVIEW

- In 2009, it succeeded in the main board listing in Hong Kong. Nowadays, China Longyuan Power has become a large comprehensive power group with new energy as its main. Its businesses can be found in 29 provinces, municipalities directly under the Central Government and autonomous regions in China and other countries, such as Canada and South Africa.



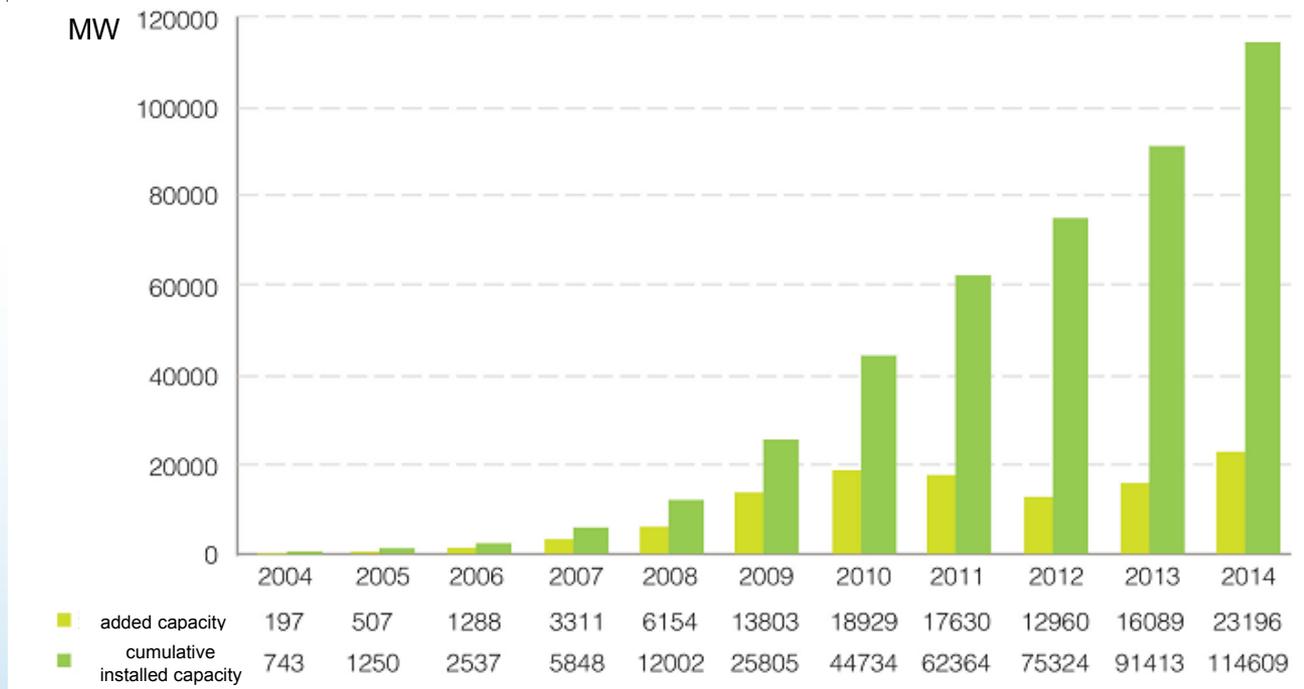
Business Structure

Total Assets (RMB Million)	123,518
Net Assets (RMB Million)	40,849
Installed power holding capacity (MW)	15,698
1. Installed wind power holding capacity (MW)	13,543
2. Installed thermal power holding capacity (MW)	1,875
3. Installed other new energy power holding capacity (Photovoltaic, Biomass power, Geothermal Power, tidal power) (MW)	280

Note: Data by the end of 2014

WIND POWER BUSINESS

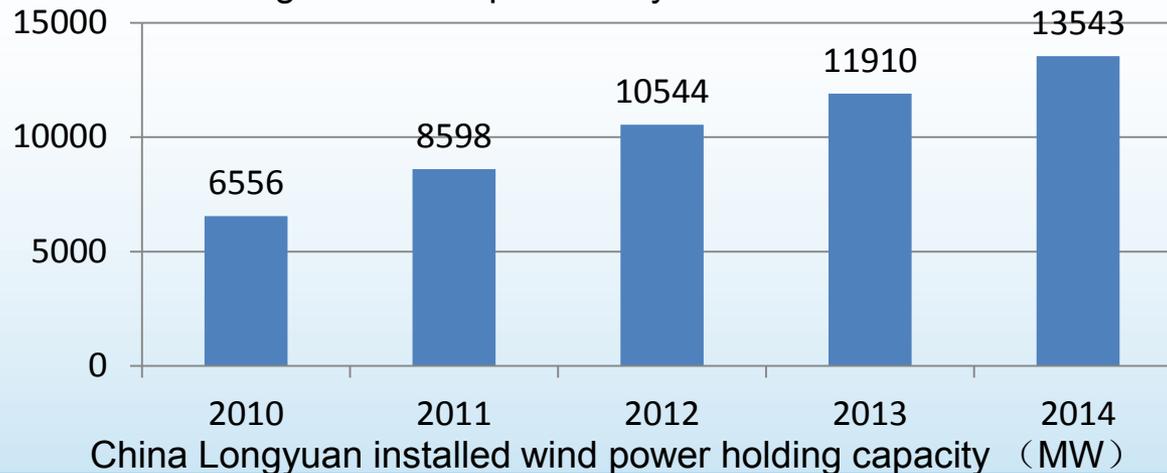
- China is in the leadership position in the global wind power market
- In 2014, China added just over 23 GW of new capacity, the highest annual number for any country ever. This is a significant gain over 2013 figures when China installed 16 GW of new capacity.



Installed wind power capacity of China

WIND POWER BUSINESS

- **China Longyuan has always been a leader of the Chinese wind power industry**
- As of the end of 2014, the installed wind capacity had reached 13,543 MW, which helped China Longyuan lead other parts of China and even across Asia and rank the second across the globe in this regard. It is estimated that, in 2015, it will grow into the largest wind power operating enterprise in the world.
- When accelerating its pace of development, China Longyuan Power pays more attention to the quality and efficiency of development, and holds the absolutely leading position in China in terms of wind power utilization hourage and kw-h profitability.



WIND POWER BUSINESS

- **Building into the largest offshore wind farm in Asia**
- It is the first to develop the intertidal zone and offshore wind farm in Rudong, Jiangsu Province. Nowadays, the installed capacity has reached 346 MW. In particular, in the process of exploration and practice, it has worked out the first professional construction vessel on offshore wind power, held core technologies, such as single-pile and multi-pile foundation construction, and won a host of patents on offshore wind power construction.



WIND POWER BUSINESS

- **Making breakthrough in low speed and high elevation wind power**

- In 2011, a low wind speed project was built in Lai'an, Anhui Province, the first of its kind in China that plays a demonstrative and leading role in promoting the development of wind power in the hinterland of China.

- Since 2013, wind farms have been built at high altitude in Yunnan, Guizhou and Tibet as the pioneer. Their average altitude exceeds 3000 meters with the wind farm in Tibet standing as an altitude of 4700 meters, the highest of its kind in the world.



WIND POWER BUSINESS

● Driving the Wind Power “Going Global”

- In November 2014, the 100 MW wind farm in Dufferin, Canada, went into operation. This is the first of its kind built overseas by China Longyuan Power, and even the state-owned power enterprises in China.
- In September 2013, China Longyuan Power won the bid for 2 wind power projects, totaling 244 MW in South Africa, another breakthrough made in expanding the overseas market.



TECHNICAL CAPACITY

- **Building the wind power sci-tech support system**
- Making full use of the important platform of the “National Energy Research and Development Center for the Technology of Wind Power Operation” built in China Longyuan Power granted by National Energy Administration.
- Holding the development trend of wind power technology, upgrading the professional skills in terms of wind resource evaluation, micro-siting, maintenance and repair, and skill training, and leading the industry on technology upgrading.
- Establishing the National Supervision Center of wind power operation in Beijing, carrying on the real-time supervision on every WTG in the 247 wind farms across the country.



TECHNICAL CAPACITY

- **A full set of offshore wind power construction technology**
- The year 2014 saw the success of the Longyuan Zhenhua No.2 800-tons self-elevating offshore construction vessel and the first professional maintenance vessel. We have completely owned a comprehensive platform on construction and maintenance on intertidal zones and offshore wind power, with the annual construction ability being 350 MW. This is a crucial step towards the wind power development in a large scale.



FUTURE PROSPECT

- China aims to nearly double its wind capacity to 200 GW by the end of 2020. China Longyuan Power will take advantage of this opportunity to continually push forward its exploitation of new energy and devote itself to becoming an excellent international new energy company.
- China Longyuan Power will continue to enhance its core competitiveness, strengthen Science and Technology innovation, construct “Big Data” center of wind power, improve the large-scale and information-based operation and management and boost the efficiency of new energy industry.
- China Longyuan Power is willing to make exchange and cooperation with partners around the world to advance the healthy development of new energy industry and bring benefits to the protection of earth environment and mankind.

Thank you!



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CHINA GUODIAN

龙源电力集团股份有限公司
CHINA LONGYUAN POWER GROUP CORPORATION LIMITED

贡献清洁电力 建设美丽世界

——龙源电力新能源开拓之路



公司概况

- 龙源电力是中国最早开发风电的专业化公司，长期代表国家从事新能源技术与开发。
- 龙源电力成立于1993年，最早隶属于国家能源部，后历经电力部、国家电力公司。2002年，龙源电力在电力体制改革中划归中央五大发电集团之一——中国国电集团公司。



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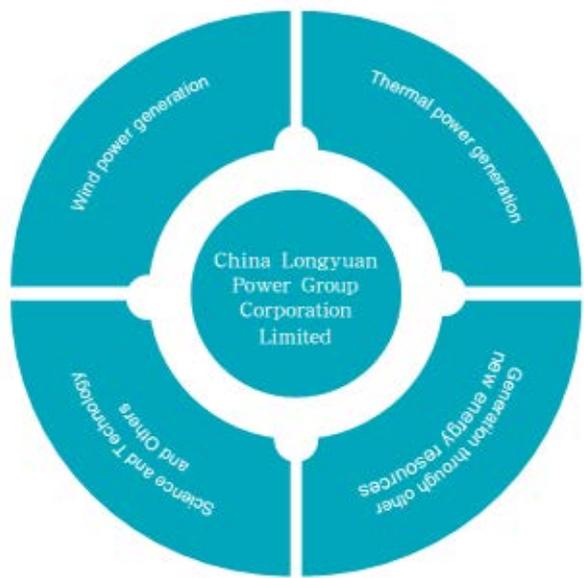


龙源电力集团股份有限公司
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公司概况

- 2009年，龙源电力在香港主板成功上市。如今，龙源电力已发展成为一家以新能源为主的大型综合性发电集团，业务分布于中国29个省市自治区，以及加拿大、南非等国家。



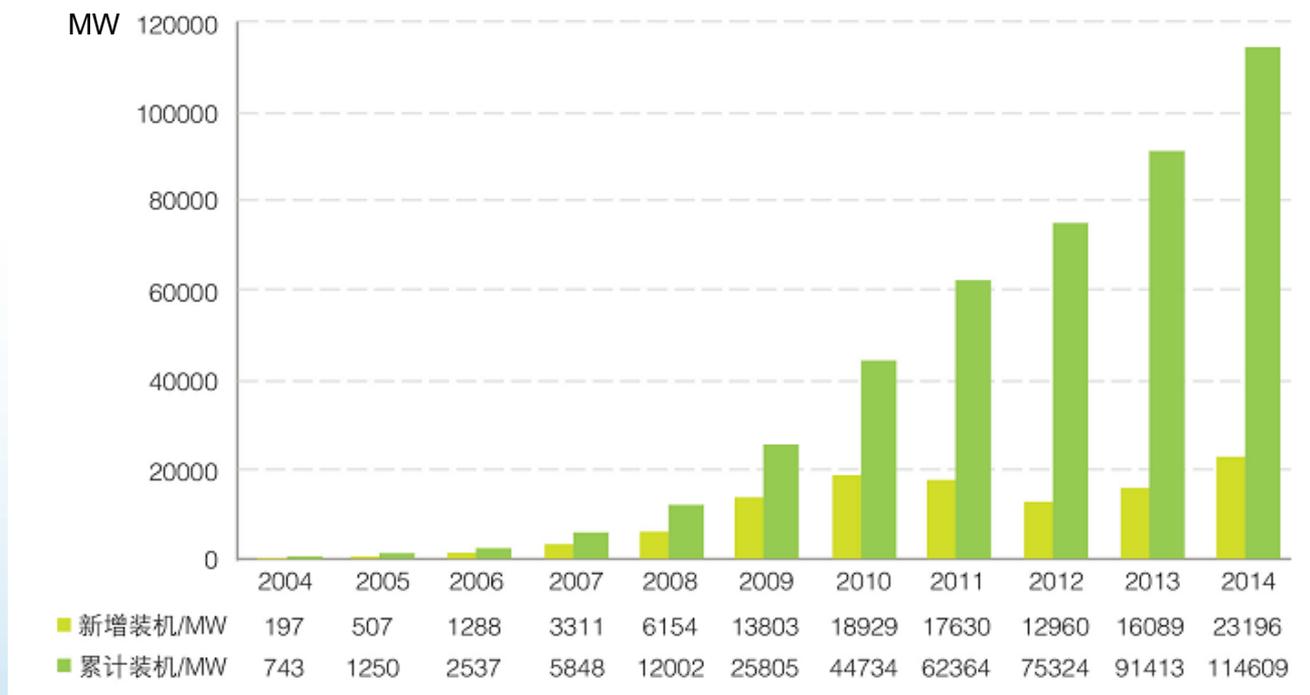
业务构成

总资产(百万元)	123,518
净资产(百万元)	40,849
控股总装机容量(MW)	15,698
1. 控股风电装机容量 (MW)	13,543
2. 控股火电装机容量 (MW)	1,875
3. 控股其他新能源装机容量(光伏发电, 生物质发电, 地热发电, 潮汐发电) (MW)	280

注：数据截至2014年底

风电业务

- 中国是当前世界最大的风电市场
- 2014年，中国新增风电装机23GW，是世界风电新增装机最多的国家，在其2013年新增装机16GW的基础上再次取得了显著增长。



中国风电装机容量

风电业务

● 龙源电力引领中国风电产业

- 截至2014年底，龙源电力风电累计装机容量**13543MW**，稳居中国和亚洲第一位、世界第二位，预计将于**2015年**成为全球最大风电运营商。
- 在规模快速增长的同时，龙源电力更加专注于提升开发质量和效益，风电利用小时、度电盈利能力等关键经营指标长期领跑中国风电行业。



风电业务

- **建成亚洲最大海上风电场**

- 龙源电力在江苏如东建成了世界上第一座潮间带试验风电场，目前江苏如东连片开发的海上风电场总装机容量达到346MW，成为亚洲最大海上风电场。特别是在海上风电开发建设过程中，龙源电力研制出国内第一艘海上风电专业施工船，掌握了单桩、多桩基础施工等核心技术，取得多项海上风电施工专利。



风电业务

- 开创低风速和高海拔风电先河
- 2011年，龙源电力在安徽来安建成国内首个大型低风速风电场，装机容量25万千瓦，对促进我国内陆低风速地区的风能资源开发利用具有积极的示范引领作用。
- 2013年以来，龙源电力在云南、贵州、西藏等地区率先建成了一批平均海拔3000米以上的高海拔风电场，其中，西藏那曲项目海拔4700米，问鼎世界海拔最高风电场。



风电业务

- 积极实施“走出去”战略
- 2014年11月，龙源电力加拿大德芙琳100MW风电场实现投产发电，此项目是龙源电力乃至中国国有发电企业在海外投资建设的第一个风电项目。
- 2013年9月，龙源电力成功中标南非2个风电项目、244MW，取得了拓展海外市场的又一突破。



技术能力

- **建立风电技术服务支持系统**
- 充分利用国家能源局授牌龙源电力成立的“国家能源风电运营研发中心”重要平台优势。
- 把握风电技术发展趋势，着力提升资源测评、设计咨询、运行监控、检修维护、技术研发、技能培训等专业技术水平，引领行业技术升级。
- 在北京建立全国风电运营监控中心，实时监控管理全国247个风电场的每一台风机。



技术能力

- 掌握了一整套海上风电施工技术
- 2014年，龙源振华2号800吨自升式海上风电施工船和首艘专业运维船的成功下水，龙源电力完全拥有了潮间带和近海风电全方位施工、运维平台，年施工能力35万千瓦，迈出了海上风电规模化发展的关键一步。



未来展望

- 中国规划在2020年实现风电装机200GW。龙源电力将充分利用这一契机，加大新能源开发力度，致力于成为世界优秀的新能源企业。
- 龙源电力将不断强化核心竞争力，加大科技创新力度，建设风电“大数据”中心，提高规模化、信息化运营管理能力，提升新能源产业效益。
- 龙源电力愿与全球各界同仁一道，加强合作和交流，推动新能源产业健康可持续发展，为保护环境、造福人类作出贡献。

谢谢！



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