

DRIVING OUR RENEWABLE FUTURE







Overview

For almost a quarter century, Goldwind has been a leader in sustainable development-committed to driving the renewable transformation of the energy system by providing affordable, reliable and clean energy.

Goldwind is the pioneer and witness in the growth and development of wind power industry in China.

Today, with operations in strategic global markets, we are dedicated to leading clean energy development, energy conservation and environmental protection.

Goldwind has been honored on several occasions as one of the "Climate Leader Plants", "Most Honored Company in Asia", "Best Investor Relations Company", and has been named as the "Top 50 Most Innovative Companies in the World", "Carbon Clean 200 List", "Global Top 500 New Energy Enterprises", "New Fortune Best Listed Companies", and "Fortune China 500".



As a pioneer in China wind power industry, Goldwind has 22 years of experience

As of year-end 2019, Goldwind has more than 60GW of installed capacity of wind power, with more than 35,000 wind turbines operating worldwide, over 31,000 of which are Goldwind's signature permanent magnet direct-drive machines

Goldwind operates on six continents, in 27 countries, with close to 9,000 employees globally. Around 3,000 of them are R&D engineers and technicians

Dual-listed in Shenzhen (A-share code: 002202) and Hong Kong (H-share code: 2208), Goldwind has got investment grade credit ratings from both S&P and Moody's, and we are the first enterprise in China who issued green bonds both in domestic and international markets



Years of Experience



60GW⁺
Global Installed
Wind Power Capacity



35,000 Wind Turbine Generators



8,000⁺

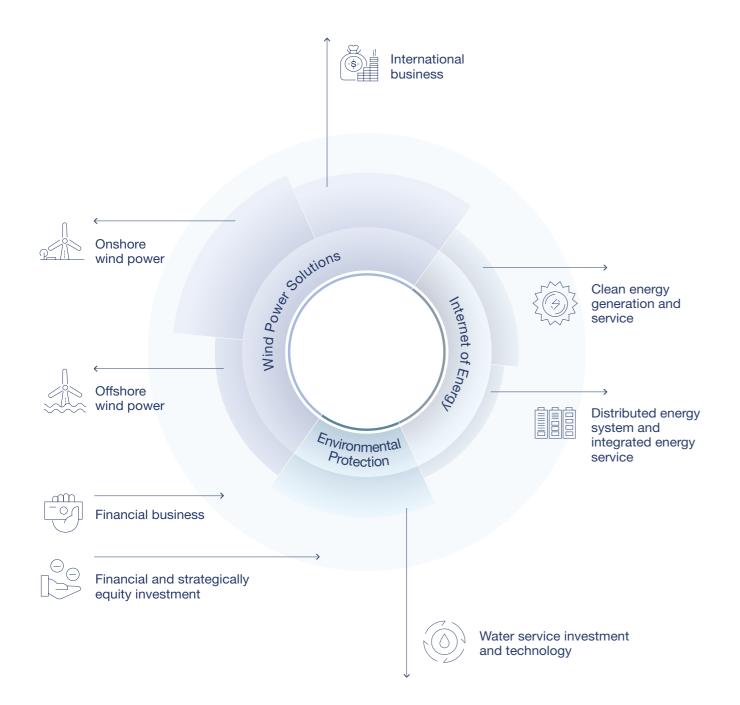


2 IPOs Shenzhen A-share: 002202 Hong Kong H-share: 2208



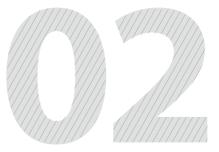
 $\underset{\text{Engineers}}{2,000^{+}}$

Goldwind's core business resides in three areas with eight brand units – wind power solutions, internet of energy, and environmental protection.









Wind Power
Business
and Digital
Transformation

Permanent Magnet Direct

of our smart wind turbines

Drive technology is at the core

The application of smart sensors provides comprehensive data of the turbine's environment and conditions. Our suite of smart turbines allows for precise positioning and siting, accurate and efficient data for turbine management and control, which enables exceptional performance in a variety of operating conditions.

the foundation for digital

wind farms

Smart wind turbines are

High Efficiency

turbines

High Reliability

> 98% machine availability

 $\sim 5\%$ more efficient than traditional gearbox wind

Excellent performance in high and low voltage ride-through capability enables flexible control of power

Based on machine learning, our wind turbines can assess and make decisions based on the data of the surrounding environment, self-conditions and behavioral characteristics. They are able to self-adjust, self-adapt and self-control—enabling maximum efficiency and availability.

With a good command of breakthrough technology trends and development road maps, we strive to cover wider application scenarios.

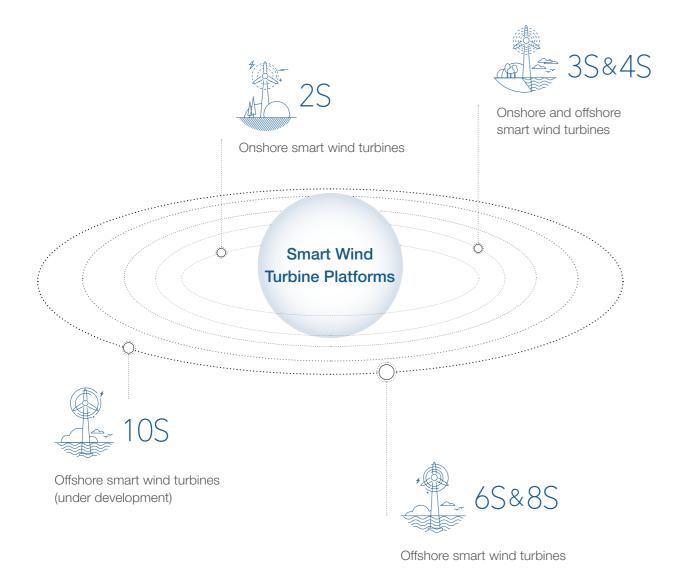
All of our product platforms hold typecertifications issued by leading certification bodies, including TÜV NORD, Intertek, DNV.GL and China General Certification.











We go where our customers go. Goldwind's wind turbines are suitable for a wide range of operating environments and designed to provide business case certainty for our customers. Our value-added services focus on four key points: maximum resource utilization, highest turbine efficiency, the lowest LCoE, and full-life-cycle asset management.





Sichuan China
High altitude area

3,800 - 4,000 meters





Heilongjiang · China Extreme cold with temperatures as low as

-30 °c





Guizhou-China Extreme weather areas with freezing rains





Hubei-China
Ultra-low wind speed regions

5.04 meters per second





Ecuador Earthquake zones 8.0 magnitude





Pakistan
Extreme hot with
temperatures as high as

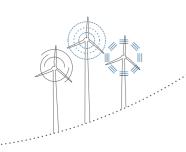
45 ℃

Goldwind Digital Wind Farms

Our digital wind farms utilize Internet of Things and sensor technology, internet and communication technology, as well as information technology applications and big data analytics to achieve deeper insights, more comprehensive interfacing and more intelligent operations.

Value of digital wind farms yield growth ranging from

 $\sim 1\%$ to 3%



Power generation increase

Construction period ~5%- 10% reduction

reduction

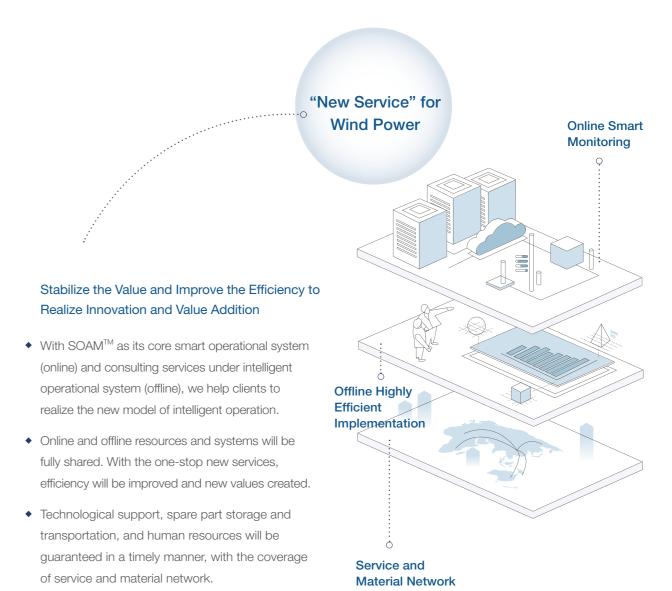
→ Cost reduction

~5%- 10%

Business Scenario	Digital Plan and Design	Digital Engineering Construction	Digital Operation	Digital Wind Farm Full Life Cycle Solution
	Plan/ Viability Research/ Design	Tendering/ Construction/ Grid Connection	Full Life Cycle Operation and Maintenance	Digital products FreeMeso BIM⁺ Goldfarm SOAM™ iDO iGO
Onshore wind farms Offshore wind farms Distributed	Detailed wind measurement Wind resource assessment Wind turbine selection	3D modeling Process management Cost management Quality and safety management EPC	Maintenance and repairs Spare parts Operations management Asset management Life extension optimization	Digital platform Al Big data loT Cloud computing
wind farms	Wind farm design Investment C			Smart equipment Smart wind turbine

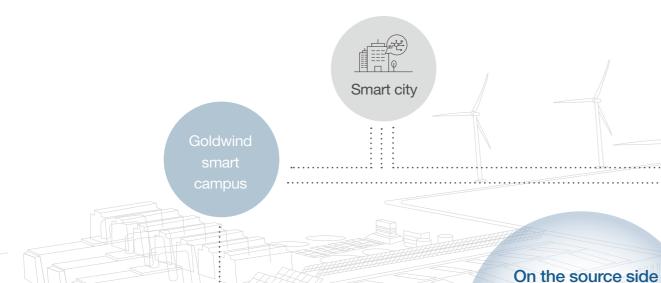
Goldwind's New Wind Power Service

By harnessing the power of data, we have redefined wind power services. We conduct deep integration of online intelligent monitoring, offline highly efficient implementation, and service and material networks to upgrade the operation, maintenance, material management and efficiency improvement. We are reshaping the industrial ecosystem to create a new service model for wind power—safe intelligent and more efficient than ever before.





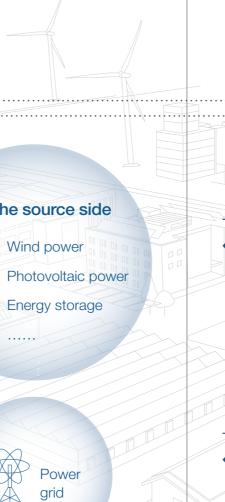
Business
Innovation and
Incubation



Starting from our roots in wind power, we have expanded our capabilities into more renewable energy applications including Internet of Things, environmental protection and water treatment. We incubate value-added business models in an innovative way, spanning businesses like smart agriculture and smart health, widening a new energy landscape in the future.

Goldwind Internet of Energy

The deep integration of energy systems and the internet, the Internet of Energy, is key to the future of energy. Goldwind is building the future smart city driven by smart energy-connecting power generation, power grids, and customers. We are engaged in power processes optimization and restructuring to realize the opportunities provided by the Internet of Energy. Innovative energy management model makes way for a more intelligent, reliable, affordable and sustainable energy system.



Accurate prediction Big data Cloud computing Energy transmission

On the demand side People Things Smart office Smart life Smart manufacturing Smart health Smart management Smart culture Cooling, heating, power, air, wate

Integrated energy services

Clean Energy nvestment 8 lanagement

Wind power

Power

Energy Microarid & Efficiency Distribution *l*lanagement **Network**

Green Energy Application



Goldwind Smart Environmental Protection and Water Service Business

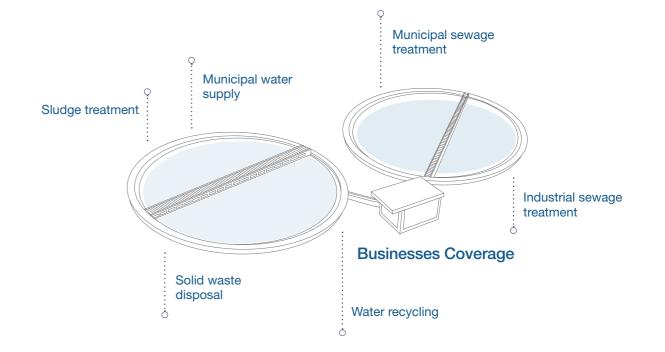
Goldwind's environmental protection and water treatment business focuses on investment and development, construction and operation, and technological innovation in the water treatment industry. We are committed to becoming an industry leader in smart water affairs and an advanced comprehensive solution provider in environment protection. Our businesses cover municipal water supply, municipal sewage treatment, industrial sewage treatment, and water recycling. We are also experienced in the areas of solid waste disposal and sludge treatment. As of the end of 2019, Goldwind had more than 50 water treatment projects, covering a population of 10 million spread in 13 provinces with daily water treatment capacities of over 3 million tons/day and a total asset scale over RMB 6 billion.

50+

Water Treatment Projects

3+ million tons

Daily Capacity of Water Treatment





Corporate Social Responsibility In 2016, under the leadership of Chairman Wu Gang, Goldwind launched the Wind for Future CSR campaign to target five societal areas: poverty alleviation efforts for industries/communities, poverty alleviation through education/culture, employee and client care, and ecology and environment protection. Wind for Future projects have provided support to 10 ethnic minority groups in 20 Chinese provinces, municipalities and autonomous regions. We have supported over 780 teachers and 40,000 students from rural schools across China. Ultimately, our goal is to expand this program and its efforts on a global scale.



Provinces, Municipalities and Autonomous Regions



10+ Ethnic Minority Groups





 780^+ Rural Teachers $40,000^+$ Rural Students















Based on our strong research capabilities, we rely on an international strategy of integrating technology, human resources, market, capital and management. We help clients around the world to utilize renewable energy solutions that are affordable, reliable and sustainable.

Our global footprint

Overseas subsidiaries and global sales offices

Beijing, China Chicago, USA Istanbul, Turkey Johannesburg, South Africa Neunkirchen, Germany Sao Paulo, Brazil Sydney, Australia

Global R&D centers

Beijing, China Wuxi, China Urumqi, China Yancheng, China Neunkirchen, Germany Hinnerup, Denmark Chicago, USA

Goldwind international business regions

Goldwind North America

Goldwind South America

Goldwind Europe

Goldwind MENA

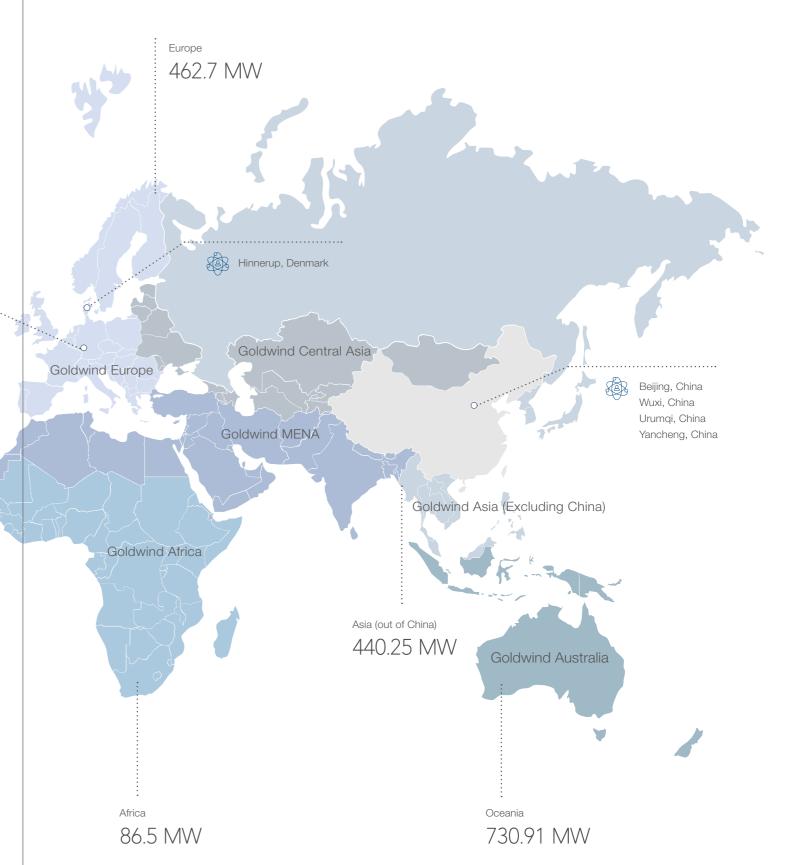
Goldwind Africa

Goldwind Asia

Goldwind Australia

Goldwind Central Asia





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