





### **WORLD LEADER**

# IN PMDD TECHNOLOGY



Established in 1998, Goldwind pioneered the Chinese wind market by becoming one of the first companies to explore the potential of wind power. Today, Goldwind is a leader in the global wind industry with mature manfucturing capabilities, innovative permenant magnet direct-drive (PMDD) technology, and a proven track record.

Over **4,000** employees around the world, of which approximately 800 employees dedicated to R&D and technical development



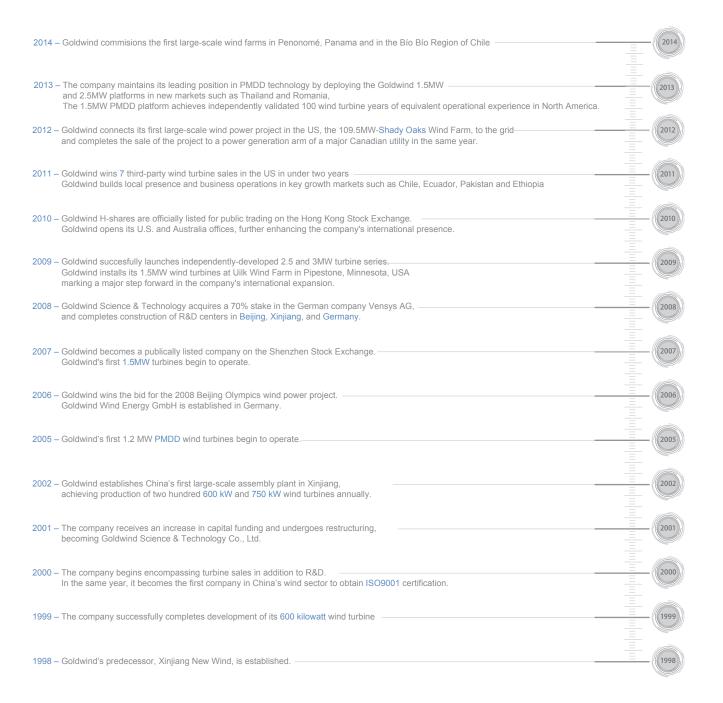
Publically traded on 2 stock exchanges

Shenzhen A share: 002202 Hong Kong H share: 2208

Over **19 GW** of installed wind power capacity



Nearly **15,000** of Goldwind's wind turbines have been installed around the world, with over 10,000 units utilizing PMDD









### **COMPREHENSIVE**

# **CLEAN ENERGY SOLUTIONS**



As a leading worldwide clean energy solutions provider, Goldwind offers a turnkey menu of services to meet customer demands across the entire value chain. The integrated business model begins with strong R&D capabilities and extends through long-term operations and maintenance support.

Goldwind's manufacturing and sourcing model maximizes the flexibility of a global supply chain while focusing on core competitive strengths and quality control.





#### **Research and Development**

In 2008, Goldwind acquired its technology partner VENSYS, a Geman pioneer of direct-drive technology with 20 years of experience built upon the strong engineering backbone of European universities and research institutions. Today, close to 800 R&D and service engineers work together in across three R&D centers in China and Germany to continuously perfect Goldwind's products and find new clean energy solutions.

For two years in a row, Goldwind has been recognized by MIT's Techology Review as one of the 50 most innovative companies in the world.



#### Manufacturing

Goldwind has a dozen mature production facilities to deliver its various wind turbines. The company's subsidiary, Techwin Electric, focuses on R&D, manufacturing, and after-sale service of electrical control systems and components for renewable technologies.

Goldwind is committed to the most rigorous quality assurance programs, compliant with leading international quality standards.



#### Service

With almost a decade of experience in the wind power industry, Goldwind's service organization has an established track record of providing O&M services for over 10,000 wind turbines. Localized O&M teams are committed to responsive service to maximize the energy production of wind projects around the world.

Post-construction services include wind farm operation and maintenance, spare parts support, health and safety training programs, SCADA system software development and optimization, and 24/7 remote monitoring.



#### Investment

The investment arm of Goldwind is dedicated to bringing financing solutions to enable renewable energy projects using Goldwind's technology. In addition, it provides asset management to ensure successful project investments.







With approximately **800** R&D and service engineers working in **3** global R&D centers. Goldwind continues to drive the energy revolution through innovation that accelerates the competitiveness of clean and sustainable energy solutions.



# **Advantages of Permanent Magnet Direct-Drive Technology:**

### High power-generating efficiency

Permanent magnet generator operates more efficiently at partial load than other generator types while the absence of gearbox eliminates ancillary energy losses.

#### Reduced operating cost over lifetime of asset

Absence of a gearbox in the drive train and an innovative pitch-drive belt system reduce crane mobilization and downtime

#### High reliability:

Simple topology featuring a single rotating element without high-power slip-rings offers improved reliability

#### Enhanced grid compatibility:

Zero grid impact and superior low-voltage ride-through capability allows fine control over power output.





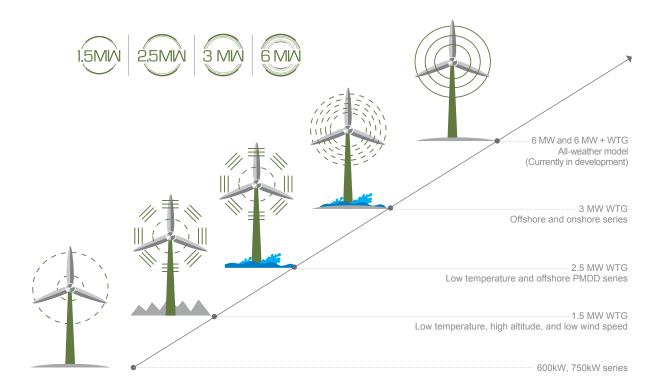




# **ADAPTABLE PLATFORMS**

# DESIGNED FOR ALL ENVIRONMENTS

Goldwind's products cover a wide range of specifications to meet the demands of wind projects across the globe



Goldwind designs and manufactures its products for diverse operating conditions, including low temperature, high altitude, low wind speed, high humidity, and offshore.

# **QUALITY, SAFETY, AND PROTECTION OF THE ENVIRONMENT**

serve as the **cornerstones** for all of Goldwind's operations.



#### **Process-wide Quality Management System:**

Recognizing quality to be the foundation of its products and services, Goldwind obtained ISO certification in quality management (9001) as one of its first steps in manufacturing. The company's commitment to quality translates into a total quality management system which includes a rigorous supplier validation process, on-site quality management for projects, and certified in-house testing and measurement capabilities.

#### **Full Environmental Compliance:**

Goldwind's contribution to sustainability extends beyond providing clean energy. The company is committed to conducting its operations with minimial impact on the natural environment and surrounding communities. Goldwind has received ISO 14001 cerfication for environmental management and continues to raise its standards.

#### **Rigorous Health and Safety Programs:**

Nothing is more valuable than the health, safety and welfare of Goldwind's employees. No activity is so urgent or important that standards for safety and health may be compromised. Compliance with international guidelines such as OHSAS 18001 ensures sound occupational health and safety performance. Goldwind continues to build its health and safety programs through internal and external training programs that promote best-practices in the industry.







# **GLOBAL PARTNERSHIPS**

# FOR SUSTAINABLE GROWTH



Goldwind has partnered with over **25** Fortune 500 companies around the world, working together to explore innovative, efficient wind power solutions.

Goldwind's relationships with customers and suppliers along the value chain place the company at a pivotal position in the industry. Close collaboration with power producers and grid operators generates criteria for enhancing technology, while long-term partnerships with suppliers ensures quality and knowledge transfer.

Goldwind engages in multinational R&D endeavors with institutions around the world in order to explore the potential of clean energy technology.





Because it is at the forefront of innovation in wind power technology, Goldwind Science & Technology was listed as one of the "50 Disruptive Companies" by MIT's Technology Review in both 2011 and 2012.



Goldwind is ranked **3rd** in the Top 10 Most Innovative Companies in China by Fast Company.



Intellectual Asset Management (IAM) identified Goldwind as one of "China Intellectual Property Champions". The company was chosen for its world-class intellectual property creation, its management and development model, and its role as advocates for intellectual property in China.



Goldwind won the "African Energy Award" for "African Wind Project of the Year 2011".









# **PIONEERING**

# THE GLOBAL WIND INDUSTRY LOCALLY



Goldwind's international strategy has solidified its operational capabilities in the world's most competitive markets. Localization of technology, human resources, capital, sales and supply chain results in tailored solutions as well as long-term returns and benefits for local communities.

Goldwind's business spans **14** countries, with over **4000** employees working across **6** continents.

Goldwind has **5** wholly-owned international subsidiaries and **7** international sales offices to grow organically within each of its target markets.

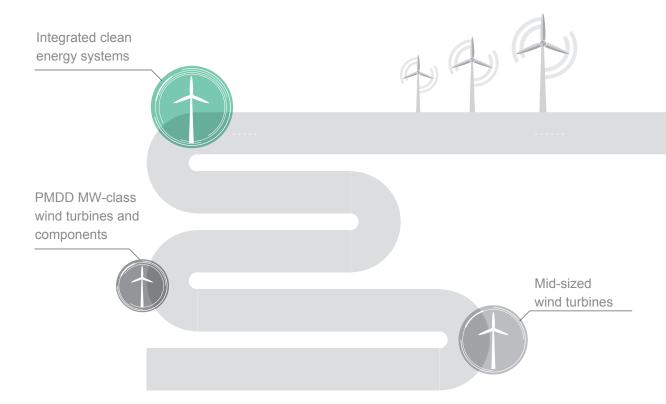


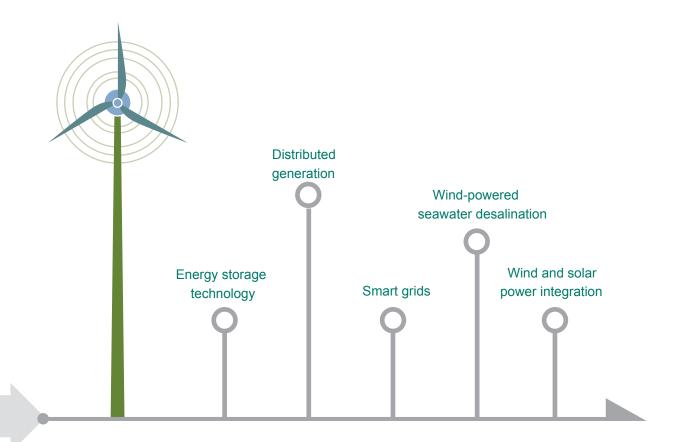
### **DRIVING THE**

# **CLEAN ENERGY REVOLUTION**



Goldwind began its transition from the doubly-fed induction generator (DFIG) to the megawatt-class **PMDD** technology in 2003 when the company partnered with VENSYS to co-develop the GW 1.2MW direct-drive wind turbine. Goldwind has since led the wind industry in PMDD technology and developed wind turbine platforms ranging from **1.5 MW** to **6 MW** for on-shore and offshore applications.





A pioneer in the clean energy revolution, Goldwind maintains the long-term outlook of being an energy systems solutions provider.

While focusing on its core competency in wind power technology, Goldwind is exploring ways to expand the potential of renewables in the energy system, including energy storage technology, smart grids, distributed generation, wind-powered seawater desalination, wind and solar power integration, and other advanced application technologies in the energy sector.







### **COMMITMENT TO**

# **CORPORATE RESPONSIBILITY**



Passion for innovative energy solutions and commitment to the urgent imperative of global sustainable development drive the success of Goldwind's operations and people. Goldwind strives to adhere to the highest standards of coporate citizenship through open collaboration with its stakeholders and employees.

Goldwind realizes the importance of growing talent organically within each of its markets. Its goal is to ensure future generations are integrated into the wind industry. To that end, Goldwind has established engineering partnerships globally to promote research and career programs. In 2011, Goldwind University was founded to provide educational and career development opportunities to Goldwind employees.

Goldwind establishes collaborative relationships with each of the communities in which it operates in.

In Panama, for example, Goldwind had built sports and educational facilities for communities surrounding the Penonomé wind Farm in Coclé Province. During construction of the wind farm, Goldwind held public meetings to closely incorporate local public opinion into the development process.

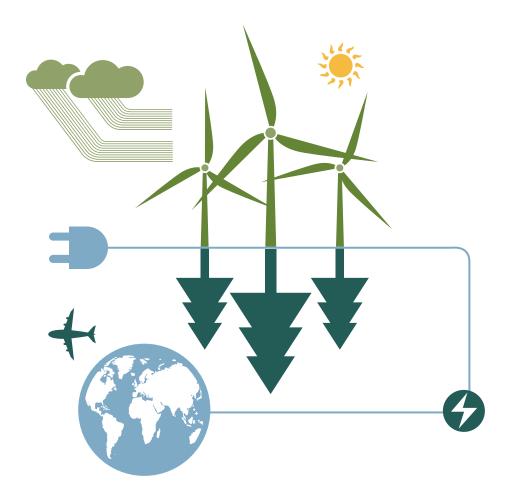




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Goldwind engages local schools to learn about the first wind farm in Panama and sustainability at the Coclé Province and sponsors local sports facilities

Goldwind has over **19 GW** of installed wind power capacity worldwide. The power generated from these turbines directly offset approximately **13 million tons** of standard coal per year, which is equivalent to reducing **39 million tons** of CO<sub>2</sub> emissions per year, or to planting **32 million acres** of forest.







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