



The rise of Chinese wind turbine generator OEMs in the global renewable energy sector

How did Chinese wind turbine generator (WTG) original equipment manufacturers (OEMs) become increasingly pivotal players on the global renewable energy stage and how can insurers respond?

China has long been recognized as a global powerhouse for its manufacturing base but may be at a turning point where its WTG OEMs become increasingly pivotal players on the global renewable energy stage.

In 2022, Chinese OEM Goldwind emerged as a leader in global market share for the first time with the addition of 12.5 GW¹ of new capacity. This transition consolidated positive perceptions of the OEM, variously driven by Goldwind's innovation, focus on quality, more robust warranties, enhanced performance metrics and a supportive regulatory environment coupled with government incentives.

Yet the integration of Chinese OEMs into the global market introduces complex challenges from an insurance standpoint.

The global market has been dominated by non-Chinese

manufacturers for many years and insurers have been vocal on the challenges around understanding performance when compared to more traditional manufacturers' performance. However, we would argue it's important for the good of increasing competition in the sector that global insurers can achieve a clearer view of Chinese OEMs.

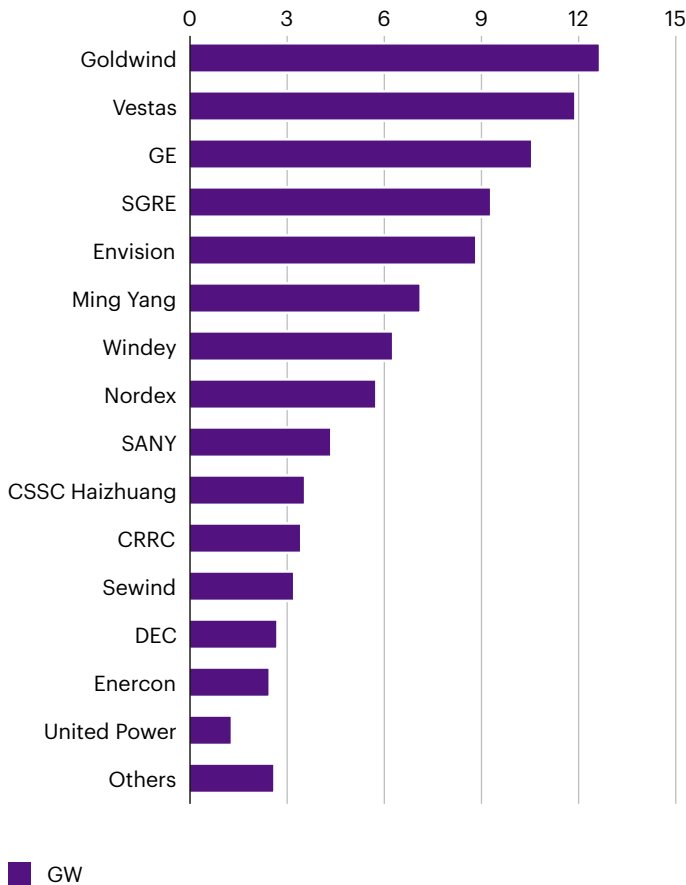
Below, we examine how insurance markets can get a better understanding of Chinese manufacturers' quality assurance and control, validated historical domestic performance, expanding supply chain connections and spares availability.

¹ <https://www.woodmac.com/news/opinion/goldwind-captures-the-top-spot-for-global-wind-turbine-supply/>

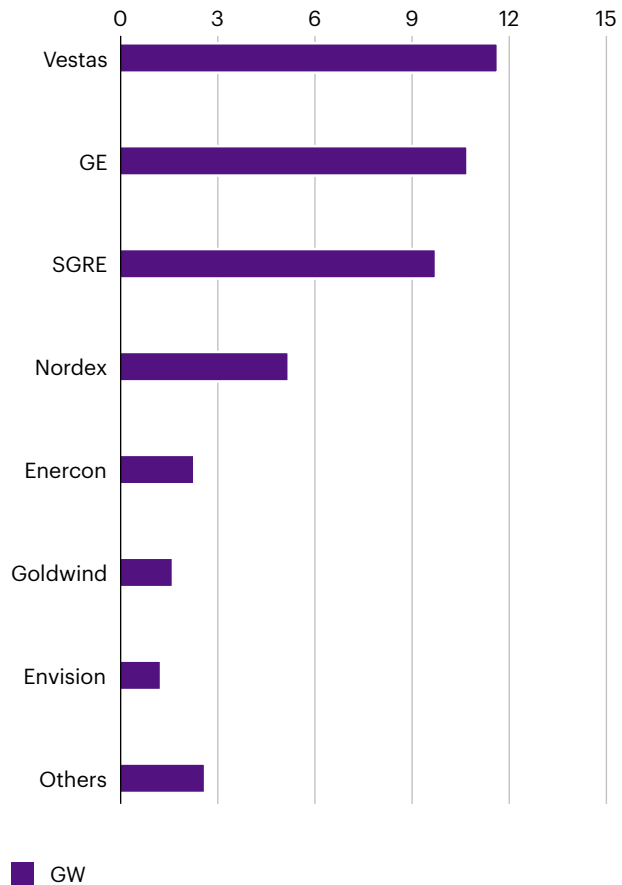
Figure 1:

The top five wind turbine OEMs collectively captured almost 60% of the global market in 2022

Global top 15 OEMs: Market share 2022



Global top 7 OEMs excluding China: Market share 2022



Source: Wood Mackenzie

Note: Wood Mackenzie bases its analysis on grid-connected capacity in all wind markets except for China and Vietnam

Realigning perceptions

In the early 2000s, Chinese government incentives for domestic deployment in China focused on installed capacity with less emphasis on quality or efficiency. This approach fostered a market driven by delivery speed, low cost and volume, inadvertently cultivating a perception of lower quality and higher risk of defects.

During the advent of new onshore and offshore wind projects during this period, Chinese OEMs were not seen as viable competitors or alternatives to their European and U.S. competitors in the global marketplace.

The Chinese government approach changed around 2010 wherein a tariff-based scheme was introduced for domestic deployment with the aim of focusing on accountability, performance efficiency and profitability,

rather than on MW/GW of installed capacity only. A few major Chinese OEMs grasped the vision and opportunity to meet these goals.

Whilst many Chinese manufacturers, or projects with Chinese interests, have historically been insured in the international markets, there remains limited experience with Chinese WTG OEMs, but it is broadly acknowledged that earlier models from companies like Goldwind and Ming Yang experienced quality issues (although this was frequently in common with European manufacturers). However, Goldwind has notably enhanced its competitive international business model and technology performance, leading to a broader acceptance by international developers and operators and consequently within the global insurance markets.

Despite some lingering perception of Chinese WTGs as lower quality and at higher risk of defects, the reality paints a different picture. In fact, quality and reliability issues are proving to be an ongoing problem for WTG OEMs in Europe and U.S., negatively affecting profitability — warranty provisions frequently now negatively accounting for 10% of OEMs, revenues globally.

While counterparts in Europe and North American territories experienced slowed growth in 2022-23, average offshore turbine ratings in China surpassed Europe in 2023 with 9.5 MW and 9.4 MW, respectively. Meanwhile onshore Chinese OEMs leapfrogged peers in these territories by installing 5.4 MW and 5.1 MW, respectively.

We would argue all of these developments indicate global insurers' historical perceptions should require a rethink.

Overcoming performance data and risk management challenges

The integration of Chinese OEMs into the global renewable energy market has highlighted the critical role of data sharing and collaboration, an issue corroborated by a number of experienced renewable energy underwriters in the London and international markets.

Currently, insurers struggle to access reliable performance data to understand how Chinese WTG OEMs' assets operate and how well they are maintained overseas. This suggests all stakeholders would benefit from collaboration and sharing accessibility to comprehensive and detailed performance records of WTGs covering both domestic and international operations. Recommendations from insurers we've heard, in particular at our November 2023 European Renewable Energy conference, include:

- Wind energy companies developing a better understanding of risk management and the positive contribution insurance can make to the industry
- Building awareness of how effective quality assurance can reduce risk for all stakeholders
- Better understanding of the impact of claims
- Encouraging independent third-party technical institutions to work closely with all stakeholders, channelling available data on damages and losses to improve communication and relationships⁴
- Increasing the accessibility of visits to manufacturers' facilities and warehouses, increasing understanding and comfort around standards and quality controls.

This transparency would not only facilitate a deeper understanding of the operational efficiency and maintenance practices of these assets, but also support the development of more robust underwriting to more accurately reflect the risks associated with these WTGs. This approach could serve as a foundation for building trust and overcoming the scepticism that has historically characterized international insurers' perceptions of Chinese WTGs.

By establishing channels for data exchange, international insurers can also monitor the performance and reliability of these turbines over time more closely, further refining their risk models and underwriting processes. This evolving understanding, underpinned by real-world data, would enable insurers to adjust premiums, terms and conditions that more fairly reflect the actual risk posed by these assets.

We'll be sharing further thought leadership on this important area later this year. Follow us on [LinkedIn](#) for in-depth explorations of supply chain dynamics, subrogation of losses and the intricacies of OEM warranties.



Matthew Bailey
Account Executive & Broker, Global Renewable Energy,
Natural Resources Global Line of Business, WTW
matthew.bailey@wtwco.com

² <https://www.woodmac.com/news/opinion/wind-turbine-technology-evolution-is-diverging-quickly-between-china-and-the-rest-of-the-world/>

³ <https://www.woodmac.com/news/opinion/wind-turbine-technology-evolution-is-diverging-quickly-between-china-and-the-rest-of-the-world/>

⁴ https://awsassets.panda.org/downloads/wind_energy_insurance_in_china_opportunities__challenges_english_executive_summary.pdf