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Wind Turbine Component Supply Chain Strategies: 2010–2025

June 2010

Market Study Excerpt

The attached excerpt represents sample pages from IHS EER's market study released in June 2010. The complete 239-page study is available for purchase and immediate download at www.emerging-energy.com or by filling out the order form on the last page of this excerpt.

Market Study Excerpt – *Wind Turbine Component Supply Chain Strategies: 2010-2025*

Credit scarcity and dwindling turbine order announcements during the past year and a half presaged a major downturn in 2009. However, beating all estimates, the global wind industry installed more capacity in 2009 than in 2008, as most projects had secured financing before the credit crunch.

The rapid shift from a seller's to a buyer's market from September 2008 to June 2009 slowed the scale-up of component supply capacity and forced some component manufacturers to downsize their production capacity, mainly in Europe and the US. Although some capacity investments have been frozen and new market entries postponed, component suppliers recognize the market's steady march toward larger machines in the long term that require the component supply market to extend its manufacturing reach globally, increase the size of its products, and lower its costs for wind energy to remain competitive. Key trends that will impact the global wind turbine component supply market include:

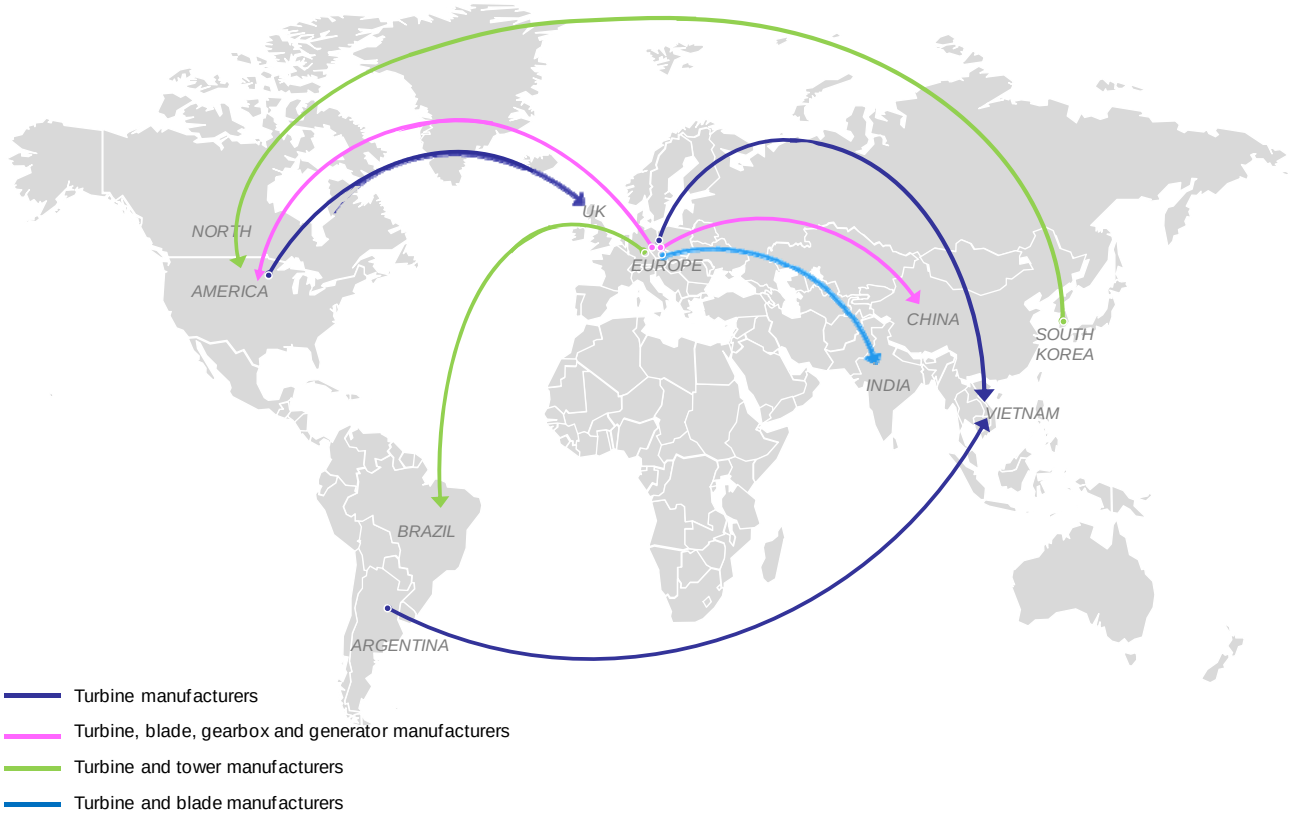
- Despite a drop in the level of installations in the US market, in 2010, global wind capacity will surpass last year's levels thanks to China and, to a lesser extent, European offshore. IHS Emerging Energy Research anticipates annual global megawatts added will see a steady uptick from over 34 GW in 2009 to over 67 GW by 2025.

- Most original equipment manufacturers (OEMs) are currently scaling their products toward 3 MW and larger turbines. As a result, product size is becoming a key strategic differentiator for component suppliers, which have to adapt their products, processes, and logistics to turbine manufacturers' new needs.

- Wind turbine manufacturers continue to seek a balance between in-house manufacturing and outsourcing of components to maximize product quality and minimize cost. Therefore, major opportunities for external suppliers are emerging as the industry is expanding in new markets and offshore.

- The global wind turbine component industry will see a steady increase in investment levels, with the blade, tower, generator, power converter, gearbox, and bearing markets growing from US$19.6 billion to around US$36 billion between 2009 and 2020.

Exhibit 1-1: Global Wind Supply Chain Repositioning



Source: IHS Emerging Energy Research

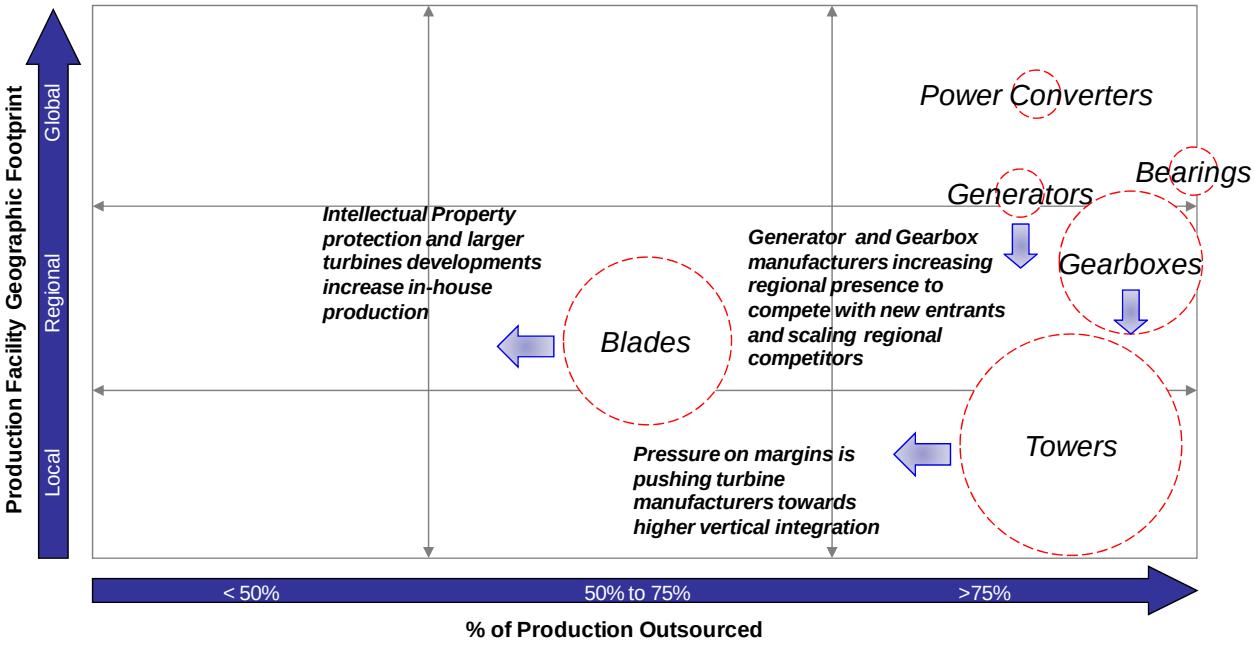
1.1 Global Demand Forecasts: 2009–2025

Beating all estimates, the global wind industry installed 24% more capacity in 2009 than in 2008, reaching 155.4 GW installed worldwide. EER anticipates this figure will rise steadily to nearly 1.1 TW installed by 2025 (**Exhibit 1-2**). The industry is currently facing the challenge of the recession, with low levels of electricity demand. EER anticipates a compound annual growth rate (CAGR) of 12.4% between 2009 and 2025. Key assumptions behind these forecasts include:

1.3 Competitive Trends in Component Supply

Turbine manufacturers are constantly reviewing their component sourcing strategies as they seek to optimize their costs and product quality, balancing in-house and outsourced supply. Shortages in previous years forced vendors to pay closer attention to their supply relationships. As a result, in some cases turbine manufacturers have decided to bring manufacturing in-house, while in other cases they have opted for strengthening their collaboration with key suppliers or increasing the number of firms they source from. The industry's globalization and the move away from Europe to growing centers Asia and North America have encouraged turbine manufacturers to take a broader approach to component supply. Key trends observed in these segments include:

Exhibit 1-4: Competitive Market Structure Overview, Wind Turbine Component Segments



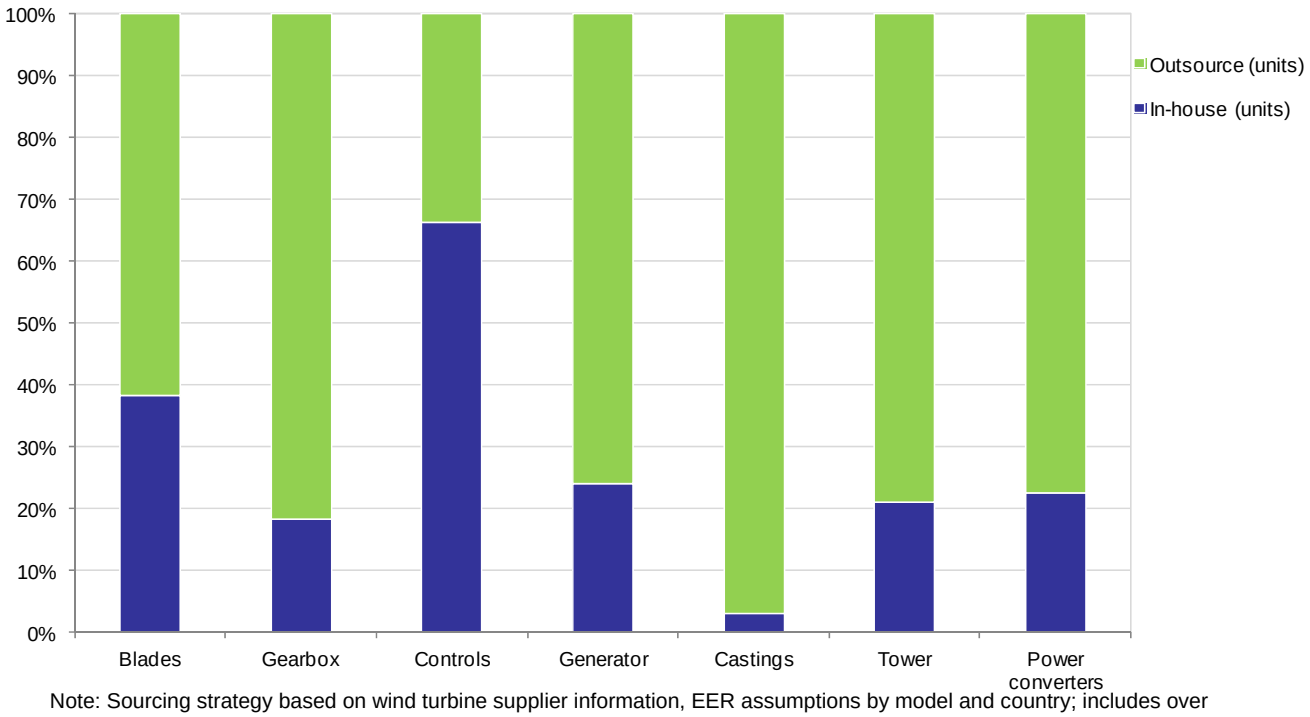
Source: IHS Emerging Energy Research

1.4 Outsourcing Opportunities Redefining as Global Industry Expands

Major opportunities for external suppliers are emerging as the industry expands into new markets and offshore. Last year's wind turbine deliveries split by component and sourcing approach underline the following key trends in players' sourcing approach:

- Global footprint, transport, production quality, and cost make case for blade outsourcing.
- Gearbox specialists are positioned as core supply partners.
- Controls are central to most OEM supply strategies.
- OEMs are using a multi-sourcing strategy for generator supply.
- Local presence is key for castings and towers supply.
- Power converters market is relatively consolidated.

Exhibit 1-5: Global Wind Turbine Sourcing Strategy Trends by Component: 2009 (%)



Note: Sourcing strategy based on wind turbine supplier information, EER assumptions by model and country; includes over 20,000 turbines from 19 suppliers, or roughly 92% of 2009 deliveries
Source: IHS Emerging Energy Research

1.5 Wind Turbine Component Market Investment: 2009–2020

Considering the value of a complete wind turbine system, the market size of wind turbine investment totaled over US$34 billion in 2009 and is anticipated to surpass nearly US$66 billion by 2020. The drop in installations in the US market in 2010 will delay the market rebound to 2011. With around 36% of turbine component investment coming in the form of balance of plant, key components including blades, gearboxes, generators, power converters, bearings, and towers, represent the lion's share of this investment. EER anticipates these six component segments will grow from US$19.6 billion to around US$36 billion between 2009 and 2020. Key assumptions underlying these forecasts include:

Additional wind power market studies available from IHS Emerging Energy Research:

-US Wind Power Markets and Strategies: 2011-2025 *(Released May 2011)*
-Asia Wind Turbine Strategies in the Global Market: 2011-2025 *(Released February 2011)*
-Wind Turbine Component Supply Chain Strategies: 2010-2025 *(Released June 2010)*
-Global Wind Turbine Markets and Strategies: 2010-2025 *(Released June 2010)*
-Latin America Wind Power Markets and Strategies: 2010-2025 *(Released April 2010)*

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