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# Wind Turbine Supply Chain Strategies: 2011–2025

July 2011

*Market Study Excerpt*

The attached excerpt represents sample pages from IHS EER's market study released in July 2011.  
The complete 223-page study is available for purchase and immediate download at  
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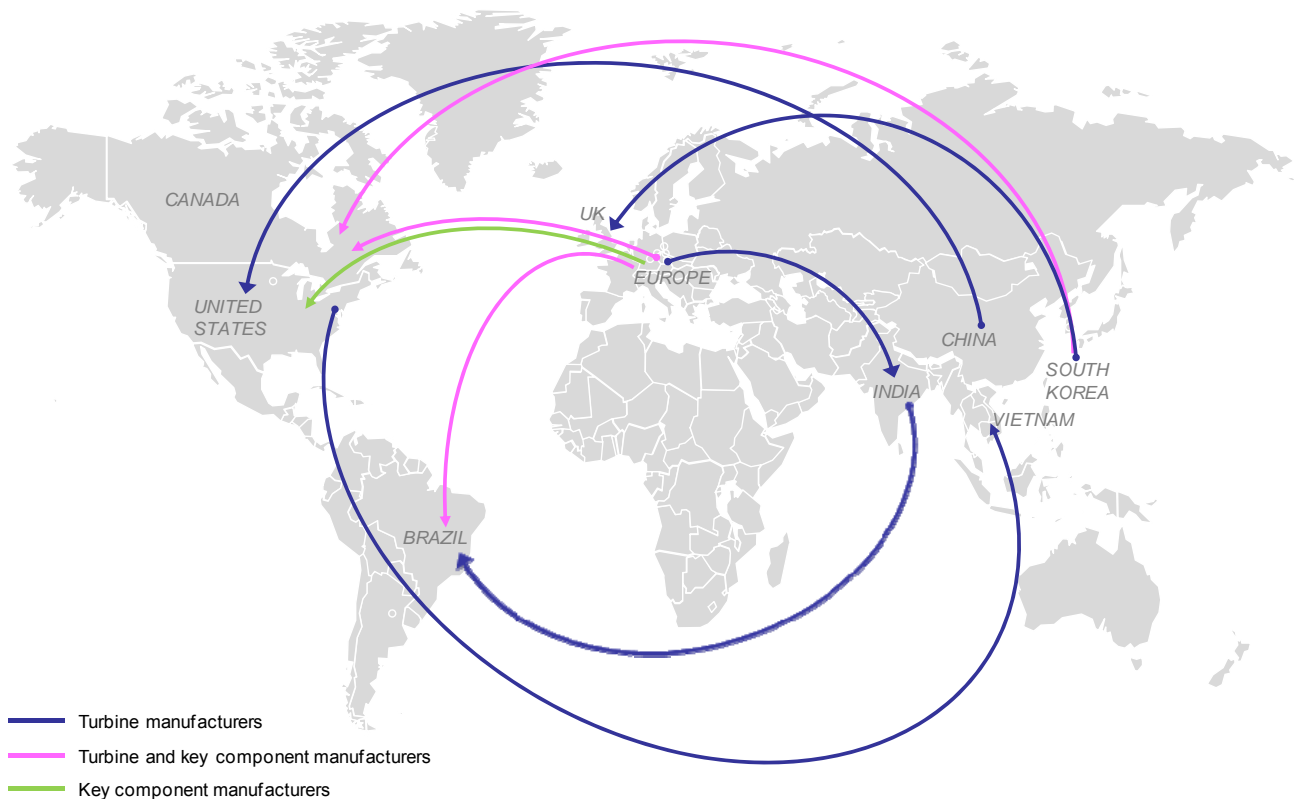
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## Study Excerpt – Wind Turbine Supply Chain Strategies: 2011-2025

While the wind industry continues to face the challenges of the global recession, including credit scarcity, wavering remuneration support, and fewer orders in several key markets, the sector was able to surpass 2009 levels of turbines delivered, with over 39 GW of delivered capacity in 2010. However, the full impact of the global economic downturn has not yet been entirely overcome, as 2011 looks to witness the first drop in deliveries before recovering from 2012 onwards.

Capacity investments and facility expansions continue to remain challenged in some markets due to a drop in orders. However, as some regions are more affected than others, these shifting demand centers across all regions reveal structural changes in the industry that also point to changing growth dynamics across the sector. As component manufacturers follow turbine vendors into emerging and growing markets, the growing significance of regional supply is expected to drive supply chain expansion forward.

### Exhibit 1-1 Global Wind Supply Chain Repositioning



Source: IHS Emerging Energy Research

## 1.1 Global Demand Forecasts: 2010–2025

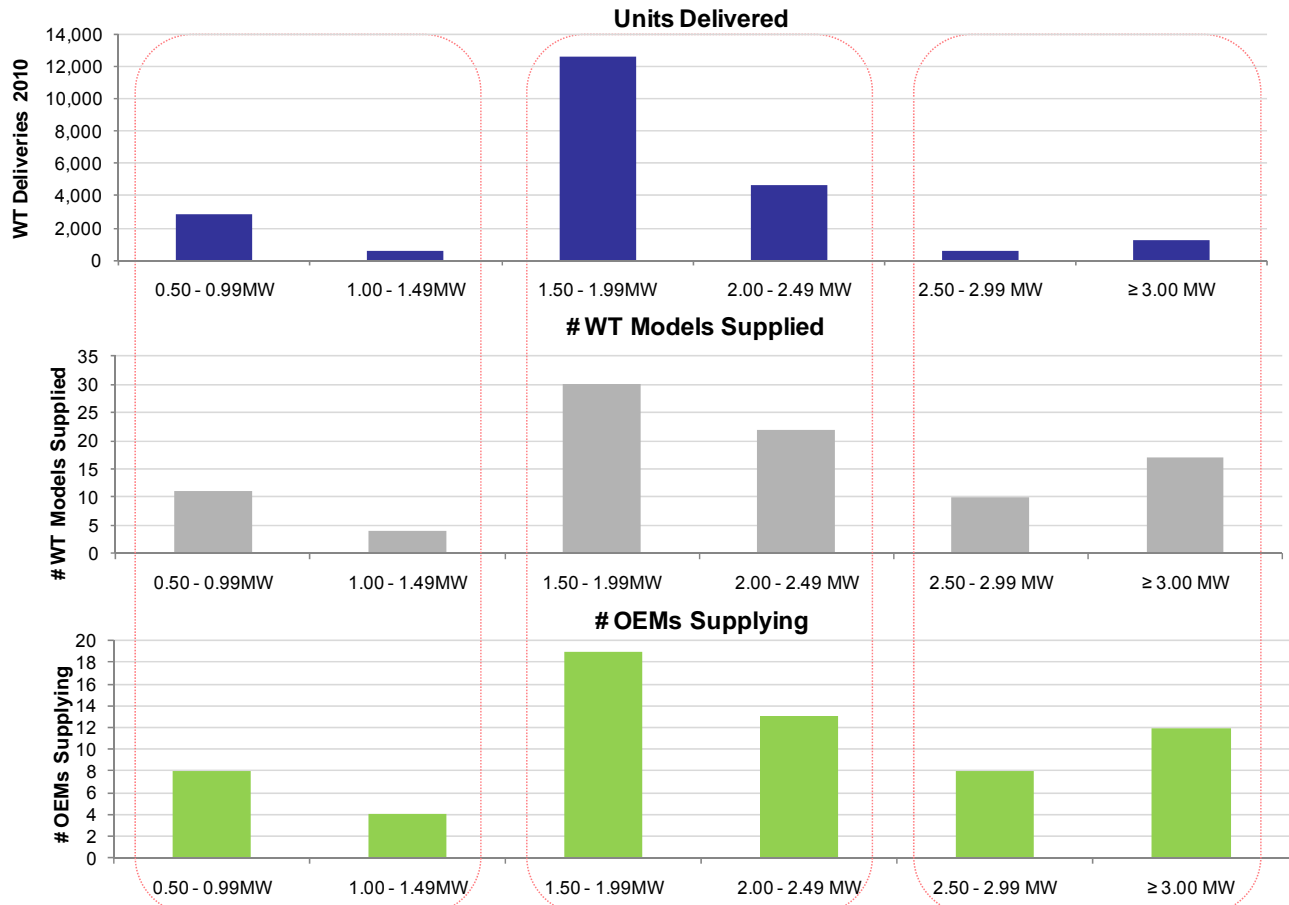
In 2010, despite experiencing the first year-on-year drop in global wind power installations since 2003–2004, the global wind power industry installed an impressive 32.6 GW of capacity, reaching 188.1 GW installed worldwide. IHS EER anticipates this figure will rise steadily, to over 940 GW installed by 2025. The industry is still facing recession challenges, with electricity demand remaining at lower levels and lingering difficult financing conditions. IHS EER anticipates a compound annual growth rate (CAGR) of 11.6% between 2010 and 2025.

## 1.2 1.50 MW to 2.50 MW Products Remain Key to Competitiveness

Turbine size is a key input driving the decision to source internally or externally. The overview of turbine supply opportunities by segment underlines the following trends:

- **Under–1 MW supply opportunities continue to dwindle.** This segment continues to decrease in terms of total numbers of turbines delivered as well as market share, dropping from nearly 3,700 units in 2009 to less than 2,900 in 2010. This represents a drop in market share from almost 16.5% to less than 13% of total deliveries in 2010, which rose only marginally compared to 2009 levels. Key markets in Asia and Europe—in particular China, but also India and Italy—account for over 76% of the sub-megawatt turbine market. Leading suppliers in this segment are Goldwind, Gamesa, Vestas, Enercon, and Suzlon.
- **1.5 MW to 2.49 MW segment key for component suppliers.** Over 20 turbine manufacturers with more than 37 turbine models delivered turbines to the global market in this segment in 2010. This turbine segment accounted for over 76% of the units and megawatts delivered in 2010. In spite of the already intense competition in this segment, vendors such as Siemens and Suzlon have recently launched new models, particularly in the 2 MW to 2.5 MW segment, targeting low-yield sites.
- **Over–2.5 MW suppliers positioned for future growth.** This segment represented a jump in megawatts delivered, from 4,026 MW in 2009 to over 6.3 GW in 2010, capturing more than 16% of the global market in 2010, compared to less than 11% in 2009. Since 2008, almost all of the leading turbine manufacturers, including Enercon, Vestas, Siemens, REpower, Acciona, Gamesa, Alstom Wind, Goldwind, and Sinovel, have presented a 3 MW or larger turbine. Other players in this segment include WinWinD and, in the future, Fuhrländer, who is set to launch a hybrid-drive 3 MW turbine in 2012.

**Exhibit 1-3: Global Wind Turbine Component Demand Overview by Turbine Size: 2010**



*Smaller supply, highly concentrated in Asia and select European markets*

*Core component supply opportunity – nearly 30 players, over 76% of current deliveries*

*Fastest growing sector; capacity delivered globally more than doubled from 2009 to 2010*

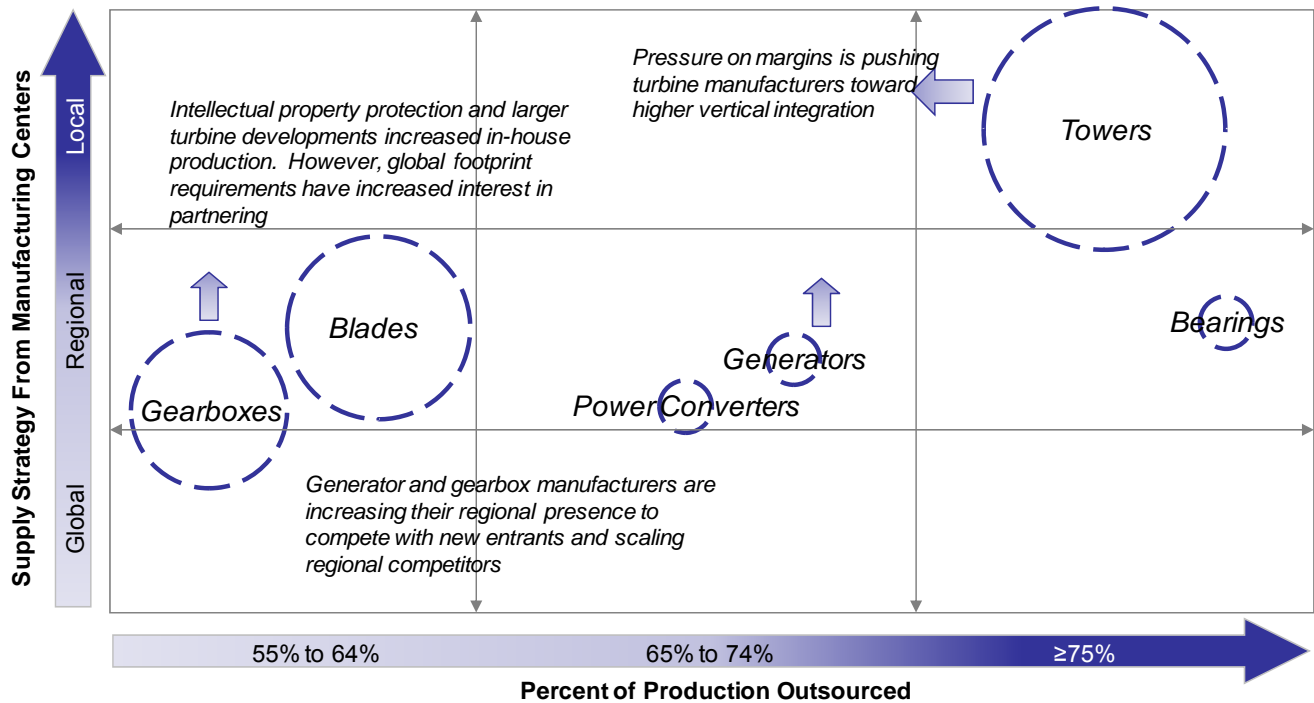
Note: Model refers to SKUs, which may vary by generator size, rotor size, or hub height; data reflect 30 manufacturers with over 200 turbine models

Source: Suppliers, IHS Emerging Energy Research

### 1.3 Outsourcing Opportunities Redefined as Global Industry Expands

Depending on the specific component, outsourcing or in-house manufacturing have shifted upwards as well as downwards, year-on-year, between 2010 and 2009. The specialization required from the offshore segment in particular will open up opportunities for third-party suppliers. Demand alignment with the addressable market in China and the US as well as supply relationships will be key for capturing onshore opportunities.

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



Note: Bubble size indicates relative market value  
 Source: IHS Emerging Energy Research

### 1.4 Accelerated Roll-out of Technically Sophisticated Turbines

Turbine manufacturers have been adapting their products to capture new market opportunities mainly in the 2 MW and larger turbine segment. While some manufacturers have redesigned new machines leveraging their internal engineering skills, others have scaled up existing platforms with incremental innovations.

### 1.5 Wind Turbine Component Market Investment: 2010–2020

Considering the value of a complete wind turbine system, the market size of wind turbine investment totaled over US\$30 billion in 2010, 12% less than in 2009 due to the drop in the deliveries in the US and lower prices. Despite price decreases in 2011, the market is anticipated to recover to 2009 investment levels in 2011, as the growth in the level of installations compensates the price decreases. By 2025, the level of investments in the wind industry will surpass US\$68 billion. With around 36% of turbine component investment coming in the form of balance of plant (BOP), controls, and castings, remaining key components including blades, gearboxes, generators, power converters, bearings, and towers represent the lion’s share of this investment. IHS EER anticipates these six component segments will grow from nearly US\$19.2 billion in 2010 to around US\$27.4 billion in 2025.



**Additional market studies available from IHS Emerging Energy Research:**

- Global Wind Turbine Markets and Strategies: 2011-2025 (Released August 2011)
- US Wind Power Markets and Strategies: 2011-2025 (Released May 2011)
- Asia Wind Turbine Strategies in the Global Market: 2011-2025 (Released February 2011)
- Global Offshore Wind Energy Markets and Strategies: 2010-2025 (Released November 2010)
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