BDA PARTNERS

Onshore tailwinds

A global perspective on wind and key industry trends that drive the upcoming market growth

Topics covered

- Comparative analysis of energy costs
- Why "onshore vs offshore" matters
- The onshore wind value chain and China’s changing role
- Sector regional trends and growth rates
- Global Wind Energy Council – exclusive interview

GWEC
GLOBAL WIND ENERGY COUNCIL

Executive summary

The global wind industry is entering a new era of growth. The need to triple annual installations by 2030 to achieve net-zero goals and minimize divergence from a global 1.5 C temperature increase, remains. There is also now a broader momentum behind wind – and renewable energy more generally, given an increased focus on deployment of proven, genuinely market-competitive technologies. Onshore wind is the most cost-effective source of energy available today and has a pivotal role in achieving emission targets, with solar photovoltaic (PV) close behind. Compared to hydropower, natural gas, nuclear, coal, oil – and even offshore wind - onshore wind offers a unique combination of cost efficiency, scalability, and geographic applicability.

Geopolitical factors are also impacting the wind industry, including a need for energy security. The industry has recovered well from recent global inflationary shocks and supply chain challenges. Onshore wind is bolstered by technological advancements, policy incentives, and improving market conditions. Moreover, the trend is widespread. Europe, the Middle East, Americas, and Asia are all driving adoption of onshore wind through ambitious policy frameworks and investments. Countries like Germany, the United Kingdom, China, India and South Korea all positioning onshore wind as a cornerstone of their energy transition strategies. In the United States by contrast, the Trump Administration halted wind development upon taking office. However, industry experts expect onshore wind projects to restart & thrive in Republican *inland* states, whilst Democratic typically *coastal* states will see offshore projects get postponed or cancelled. Trade barriers – notably tariffs - are also now coming into effect. Whilst much of the value chain still sits in China, tariffs and geopolitical uncertainties are driving further diversification of wind supply chains, with certain countries such as India benefiting from the shift.

In this piece, we present BDA's insights into onshore wind's economic attractiveness; the key variables of onshore vs offshore; regional trends that drive investment; and supply chain dynamics, where China - but increasingly India too - play a key role. We also interview Janice Cheong, Director of Asia Policy at the Global Wind Energy Council ("GWEC") to supplement our views from an independent expert perspective.

We would appreciate your thoughts after reading this piece. BDA is currently in the market with a number of energy transition assets – including wind – and we would look forward to sharing our views with you.

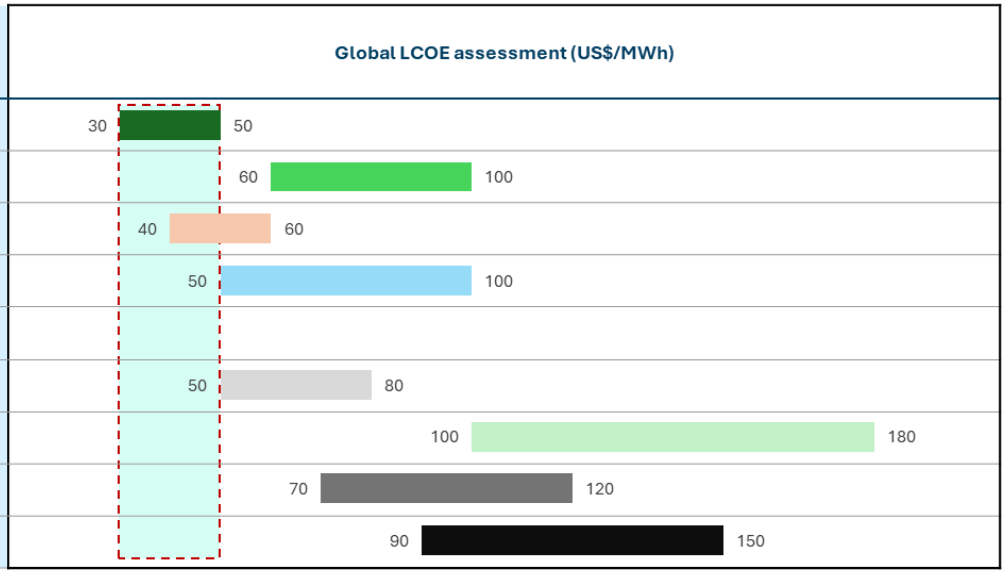
Comparative analysis of energy costs – onshore wind takes pole position

The Levelized Cost of Energy ("LCOE") is the critical metric to evaluate competitiveness of energy sources, analysing factors such as construction costs, raw material/feedstock requirements, capacity factors, operation & maintenance expenses, and operational lifespans. This enables holistic comparisons across different energy technologies & projects.

Onshore wind consistently ranks among the most affordable energy sources, with LCOE figures ranging from $30 to $50 per megawatt-hour ("MWh"), depending on location and scale. This places onshore wind well ahead of other energy solutions. Onshore wind's core cost advantages stem from relatively low construction and operational expenses. The only energy source overlapping onshore LCOE range is solar PV , though just at the higher end. All baseload solutions from Natural Gas ($50-80/MWh), Nuclear ($100-180/MWh), Coal ($70-120/MWh) and Oil ($90-150/MWh), compare unfavourably to onshore wind solutions.

The trend change of LCOE over time is also a key metric of viability. In 2010, the global weighted average LCOE of onshore wind was $0.111/kWh. This was 23% higher than the weighted average cost of new capacity additions for fossil fuels, which stood at $0.090/kWh. **Between 2010 and**

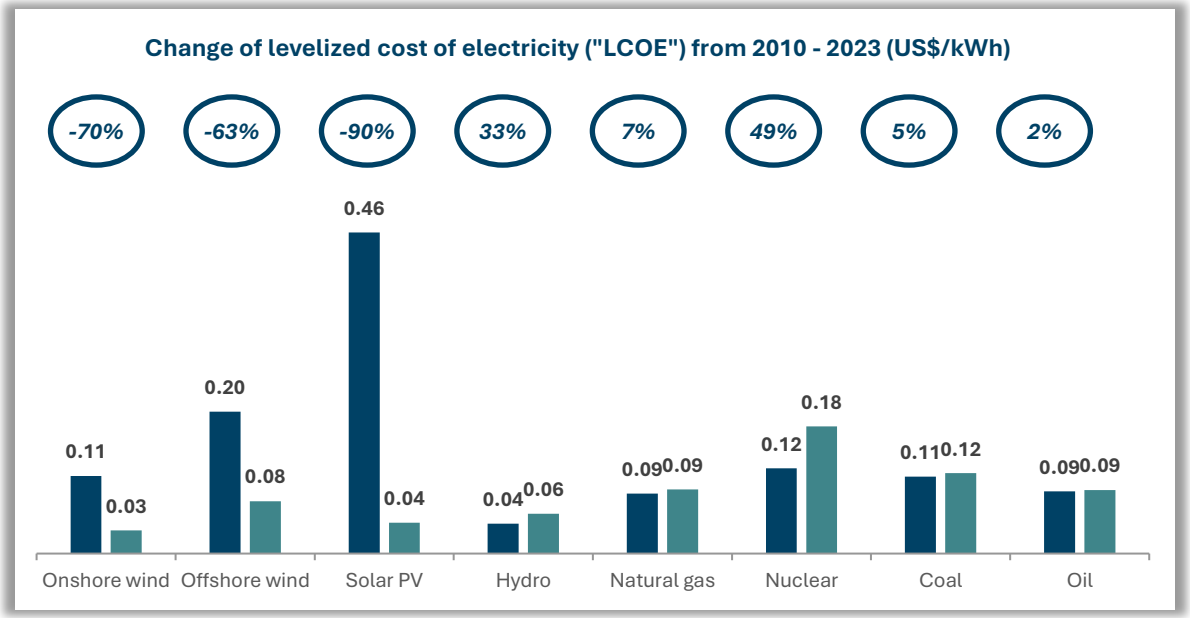
		Raw Material Costs	Deployment Speed	Environmental Impact
Other Renewable	**Onshore wind**	Moderate	High	Low
	Offshore wind	High	Moderate	Low to Moderate
	Solar PV	Low	High	Low
	Hydro	High	Low	Moderate
Baseload	**Natural Gas**	Moderate	High	High
	Nuclear	Very High	Low	Low
	Coal	High	High	Very High
	Oil	High	High	Very High



Sources: BDA research, IRENA, BCG

Comparative analysis of energy costs – onshore wind takes pole position (continued)

and 2023, onshore winds LCOE dropped by -70%, a fall only beaten by solar (-90%). Offshore wind also saw a large decrease (-63%). By 2023, the global weighted average LCOE of new onshore wind projects was 67% lower than the weighted average fossil fuel-fired cost, which had risen to $0.100/kWh. This drop of LCOE for these renewables is largely testament to improved low-cost supply chains (predominantly in China), no volatile feedstocks, increased competition and significant technological advancements. Its LCOE characteristics are duly making onshore wind the solution of choice for the energy



transition, alongside solar & hydropower as the top three. It is worthwhile noting that one conventional wind turbine can generate the same electricity as 48,704 solar panels.

Looking forward, onshore LCOE will continue to decrease, driving further adoption. Operation & Maintenance ("O&M") costs for onshore wind often make up 10-30% of the LCOE. Offshore O&M is more susceptible to extreme weather conditions, increasing maintenance complexity and costs. That said, on-going improvements in technology and materials, greater competition among service providers, and increased efforts of turbine OEMs to secure service contracts, should continue to drive down O&M costs for both wind solutions. Overall, Wood Mackenzie estimates onshore wind's LCOE to drop 42% by 2060 – with offshore wind also seeing a significant reduction of up to 67%.

Sources: BDA research, IRENA, BCG, Wood Mackenzie, Euronews

Why "onshore vs offshore" matters

Whilst onshore and offshore wind share similar structural components, many other factors differ. Onshore benefits from more established supply chains and simpler logistics due to geographic flexibility with installations across a wide range of terrains, from rural farmlands to industrial zones – typically enabling quicker project deployment. Offshore wind, while producing higher energy yields due to larger blades and stronger / more consistent winds, faces more hurdles due to being confined to coastal areas that require complex subsea cables and specialized vessels for installation. The comparative ease of integrating onshore wind into existing energy grids further enhances its appeal, making it a more practical and scalable solution for meeting immediate renewable energy needs. This helps explain why, i**n 2023, 93% of installed wind capacity came from onshore across 115 countries globally, with just 7% in offshore in 21 countries.**

Offshore wind also has different regulatory dynamics to consider, due to regional frameworks being in their infancy compared to tried-and-tested onshore models. For example, uncertainty around the South Korean government's offshore policies has resulted in a "wait and see" approach for many large local offshore wind component manufacturers; also seen in other global jurisdictions. Similar uncertainty exists elsewhere, e.g. in Europe and the United States, resulting in several offshore wind project cancellations. Long before Trump's January 2025 executive order to pause and review wind project permitting on federal lands, many industry experts told BDA that under the Trump Administration, they still expect strong growth in onshore wind given Republican states are typically inland and enthusiastic about adoption, whereas offshore will struggle to get approval given Democratic states are typically coastal.

Another onshore vs offshore differentiator is order book visibility. Whilst the leading Western OEMs, such as Vestas, GE and Enercon, provide suppliers with predictable and expanding volume guidance for onshore wind demand over a multi-year period, the

Comparison onshore vs. offshore

	 Onshore wind	 Offshore wind
LCOE (/MWh)	US$30-50	US$60-100
LCOE change (2010-2023)	-70%	-63%
Installation complexity	Low	High
Deployment speed	High	Moderate
Project risk profile	Low	Moderate
Total installed capacity 2023	947 GW	75 GW
Industry growth (2015-2023, CAGR)	11%	26%
Growth forecast (2024-2030, CAGR)	10%	22%

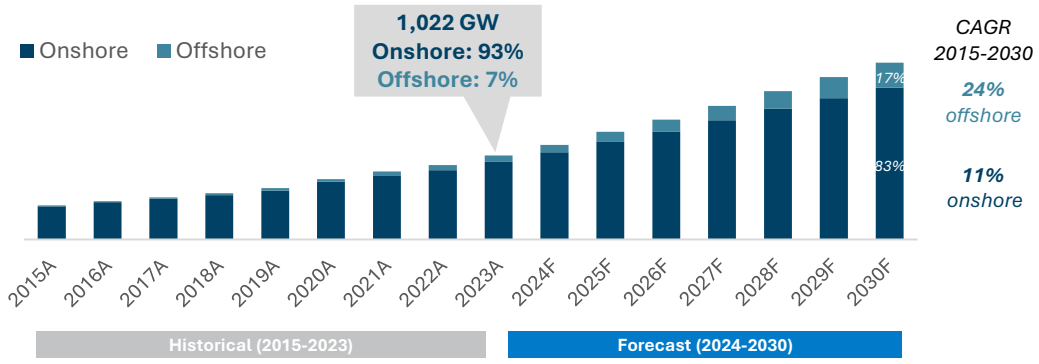
Sources: BDA research, IRENA, IEA, Wood Mackenzie

Why "onshore vs offshore" matters (continued)

growth horizon for offshore often falls beyond the guidance period. This deferral is supported by other industry experts, who expect a major jump in offshore installed capacity growth only from 2028. Such limited short-term visibility makes component manufacturers across the value chain more reluctant to invest into short-term offshore capacities, despite the strong long-term growth forecast at 22% CAGR (2024-2030). We have spoken with many executives regarding plans for additional capex into offshore – but they are holding off until there is more clarity from the leading OEMs to justify the business case.

These differences highlight the economic, logistical and regulatory hurdles that the offshore wind industry has yet to overcome – and reinforces the case for onshore wind. It is worth highlighting that the global offshore industry is still in at a comparatively early stage. The potential upside in offshore wind is significant if on-going large projects are replicated successfully at scale. Regardless, our assessment clearly shows why onshore and offshore, despite frequently being considered under one "wind" category, should be evaluated separately.

Onshore vs. offshore - Installed wind capacity (GW)



Sources: BDA research, IRENA, BCG, IEA, Wood Mackenzie

Comparison onshore vs. offshore

	Onshore wind	Offshore wind
LCOE (/MWh)	US$30-50	US$60-100
LCOE change (2010-2023)	-70%	-63%
Installation complexity	Low	High
Deployment speed	High	Moderate
Project risk profile	Low	Moderate
Total installed capacity 2023	947 GW	75 GW
Industry growth (2015-2023, CAGR)	11%	26%
Growth forecast (2024-2030, CAGR)	10%	22%

Dissecting the onshore wind value chain – Overview of value chain trends

The onshore wind industry is both complex and global. Much of the manufacturing value chain is dominated by China, but due to the sheer size of the components, assembly is typically done locally. However, a paradigm shift is appearing. Years of significant local wind investment in China gives way to slowing domestic demand. This means that Chinese suppliers are now looking internationally, bringing their best-in-cost supply chain with them. Geopolitical tensions are causing both suppliers and OEMs to rethink the geographic location of value chains, looking at diversifying manufacturing footprints from China to ensure continuity. Examples include Western OEMs such as GE and Vestas shifting volumes to India. **We expect India to benefit significantly, expanding its wind component manufacturing capacity, driven by more favourable export regimens** (e.g. sidestepping the worst of US tariff measures). **Geographical diversification is now viewed as core to wind supplier strategies** – and players with a global presence are reaping the benefits.

In terms of raw material input, steel makes up roughly a quarter of total material per MW in the onshore wind industry, the second largest constituent after concrete. In offshore, steel makes up 90%. Carbon fibre is increasingly displacing fibreglass for the blades, due to favourable stiffness and weight characteristics as longer blades can be used without increasing rotor loads. However, it is more expensive, so conventional fibreglass remains more prevalent – for now. GWEC estimates that **up to 70% of blades may be carbon fibre by 2027**. Rare earth metals, of which 70% are mined and 90% processed in China, are critical for Rare Earth Permanent Magnets (“REPM”) for gearboxes. Whilst conventional turbines have respective gearboxes, **technological advancements in direct drive train technology may remove gearboxes outright** and REPM demand in the wind industry could drop to a mere tenth.

Sources: BDA research, IRENA, BCG, GWEC

Dissecting the onshore wind value chain – Overview of OEM market dynamics

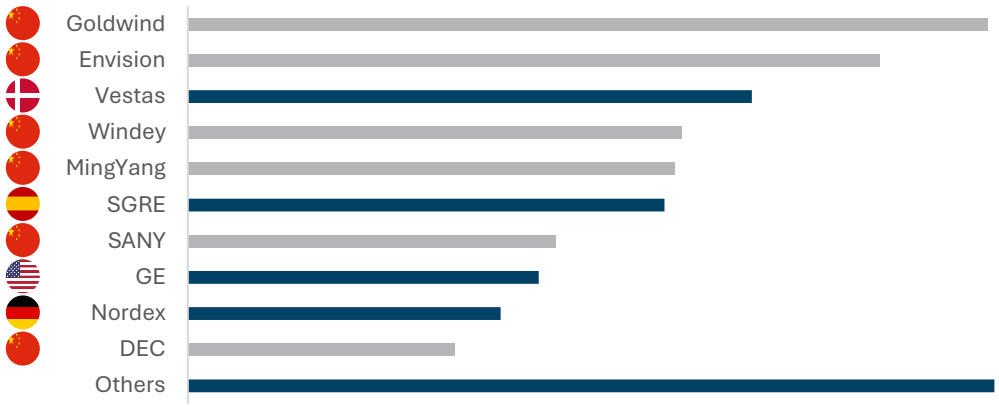
Chinese local wind turbine demand is fulfilled entirely by local Chinese OEMs; Western OEMs manufacture in China purely for export. Differentiating between China and Global excl. China drastically changes the Top 10 in terms of OEM market shares

Looking at OEM market shares from a global perspective, it is important to differentiate between Chinese and global players. The reason is that Chinese OEMs are almost exclusively focused on the local Chinese market which has historically made up a significant portion of global installed capacity (40%+ in 2023). Whilst Western OEMs do manufacture in China, this is purely for the export market, and they have limited to no local market share. As a result, when excluding China-based installations from the market share analysis, the Top 5 becomes dominated by Western players, making up 90%+ of the global market. When including China, the top 5 only sees Vestas make the list with 10%.

However, Chinese OEMs are increasingly exploring international expansion, e.g. strategic partnerships between India's Adani Wind and China's CRRC. Latin America, particularly Brazil, has also seen increasing involvement by Chinese OEMs and there have been selective, but largely unsuccessful attempts to penetrate Europe.

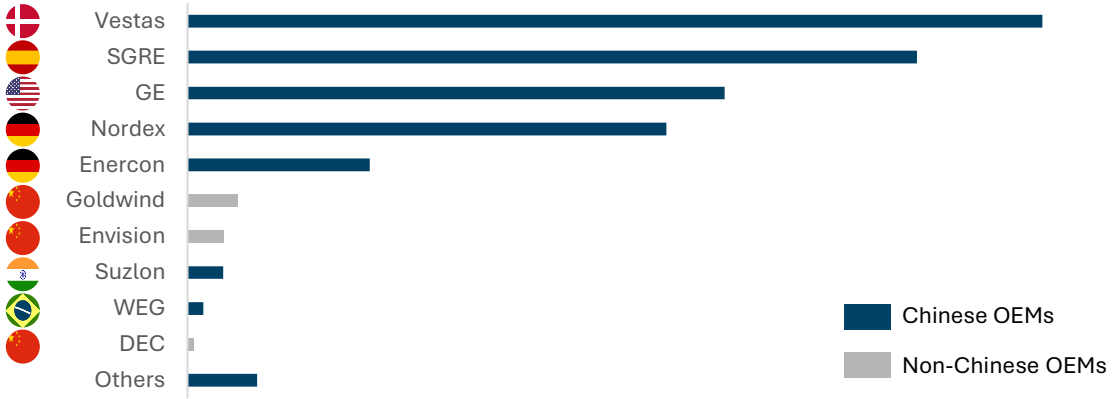
Top 10 OEM market shares (global *including* China-based installations)

Onshore *and* offshore, MW % market share, 2023



Top 10 OEM market shares (global *excluding* China-based installations)

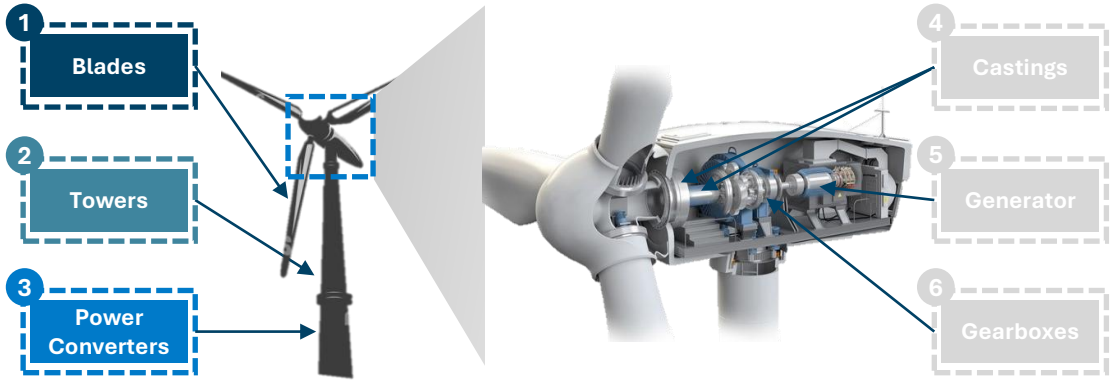
Onshore *and* offshore, MW % market share, 2023



Sources: BDA research, IRENA, BCG, Company websites, Wood Mackenzie

Dissecting the onshore wind value chain – Overview by component

For onshore wind turbines we can simplify the value chain into six primary core components. Historically many of these parts were manufactured directly by the turbine OEMs – but today this is increasingly outsourced to third parties (e.g. divested)



1 Blades

- Blades are attached to the rotor hub, which connects to the drivetrain through the main shaft
- Most wind turbines use three blades, **accounting for c. 15% of the total turbine cost**

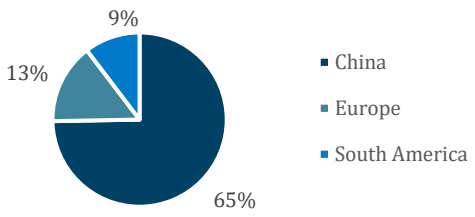
2 Towers

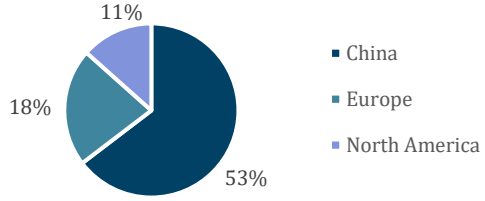
- As the base of a wind turbine, **it accounts for c. 20% of the total cost,** making it one of the most expensive components
- Since its technical requirements are comparatively low, it is typically the first component sourced locally by OEMs

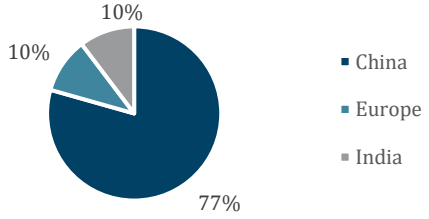
3 Power Converters

- The power converter stabilizes the turbine's variable frequency and voltage, converting AC to DC or DC to AC for grid integration
- Represents c. 4-5% of a conventional wind turbine's total cost

Manufacturing by region (not end market)







Key Players

30 rotor blade manufacturers, including 14 wind turbine OEMs, as design of blades is critical for the turbine, and thus many OEMs develop them in-house:

Sinoma, TITAN WIND ENERGY, tpi COMPOSITES

Globally, over 50 wind tower suppliers produce nearly 38,000 towers annually; often regionally, players include:

ARCOSA, CS WIND, MARMEN

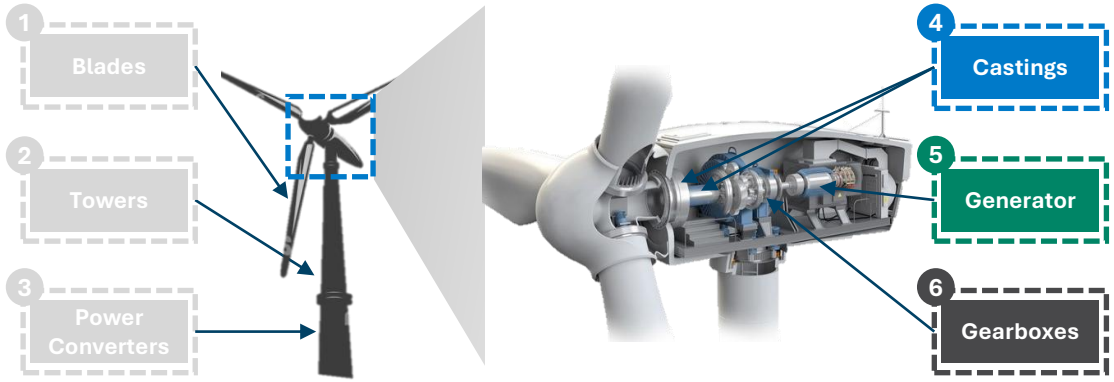
Globally, 18 major wind turbine power converter manufacturers are active, of which 14 are independent producers and 4 are OEMs, players include:

ABB, SUNGROW Clean power for all, Techsun, Wind Solutions

Sources: BDA research, IRENA, BCG, Company websites

Dissecting the onshore wind value chain – Overview by component (continued)

For onshore wind turbines we can simplify the value chain into six primary core components. Historically many of these parts were manufactured directly by the turbine OEMs – but today this is increasingly outsourced to third parties (e.g. divested)



4 Castings

- Castings are critical in assembling and operating a wind turbine, e.g. the rotor hub, main frame, housing and shafts
- Largely immune to changes in technologies and will always remain critical in the value chain

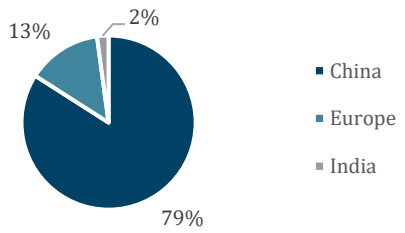
5 Generator

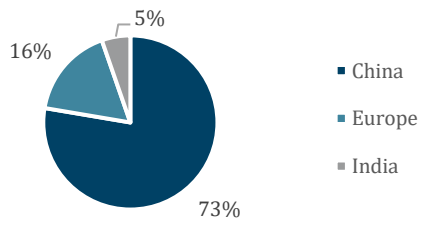
- Used to convert mechanical power to electricity
- Makes up 4-6% of the cost of a conventional turbine, **but 40% of a direct drive turbine**, as these do not require a gearbox

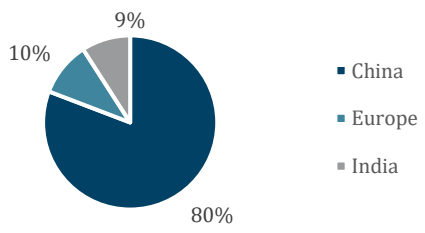
6 Gearboxes

- Converts rotational energy into electrical power; one of the most important and expensive components of a wind turbine
- Technological advancements (e.g. move to direct drive) may ultimately result in gearboxes becoming obsolete

Manufacturing by region (not end market)







Key Players

Approximately 60 casting suppliers worldwide, with an annual production capacity of 2.7 million tonnes

27 turbine generator firms, with 5 wind turbine OEMs having production in-house

18 sizable turbine gearbox manufacturers, including two OEMs (SGRE and Envision)

Sources: BDA research, IRENA, BCG, Company websites

Onshore wind growth & regional dynamics – Selected major countries/regions

Each region differs in terms of policy support, environmental factors and market demand. Regional dynamics thus play a crucial role in shaping the industry's trajectory. By 2030, ***IRENA World Energy Transition Outlook expects wind to make up 20% of global power supply.*** *Wood McKenzie expects a total of 2,200 GW in wind capacity, of which 86% comes from onshore*

Americas

Canada

- Canada's ORER[1] initiative aids in developing offshore renewable energy projects and power lines by establishing modern safety and environmental regulations for offshore areas
- Mark Carney, the recently elected new prime minister of Canada (prev. UN Special Envoy for Climate Action) is a big proponent for wind

United States

- The Trump Administration is reviewing policies, having paused new approvals of projects for both onshore and offshore on federal lands
- However, industry experts still expect strong growth in onshore wind, particularly in Republican *inland* states, whereas offshore wind is expected to struggle given Democratic states are typically coastal

Mexico

Mexico has an installed capacity of 7 GW, with this forecast to double by 2030

Brazil

Over 65 onshore wind projects are planned, with a total investment of US$23bn

Europe

United Kingdom

- The UK is revitalizing its onshore wind sector as part of broader decarbonization efforts, supported by eased planning restrictions
- The new Labour government has publicly committed to doubling onshore wind capacity by 2030

European Union ("EU")

- The European Investment Bank has a €5bn initiative to support manufacturers of wind-energy equipment in Europe, including provision of guarantees
- The EU aims for wind to make up 35% of all electricity consumed by 2030, currently at 16% (2023)

Middle East & Africa

Saudi Arabia

- The country plans to source at least 50% of electricity from renewables by 2030, with 40 GW from wind
- The nation's onshore wind potential is estimated at over 200 GW across seven regions

Morocco

- Recent law implemented in November 2024 doubled wind capacity targets for 2030 to 4.2 GW

Asia Pacific

China

- Dominates onshore wind capacity due to large-scale, government-backed projects and supportive policies
- For example, government restrictions in certain regions have been lifted to increase onshore and offshore wind installations
- The PBOC[2] has introduced low-cost loans to support decarbonization activities
- Continued focus on large scale turbines

India

- Ambitious targets are set under the National Wind-Solar Hybrid Policy and other related initiatives
- Incentives include 80% accelerated depreciation, concessional customs duty on specified items, and a ten-year income tax exemption for wind companies

Australia

- Favourable policy environment and local demand (particularly relating to power-to-x and mining), suggest a 13% CAGR between 2024 to 2030 in local installed capacities

Notes: (1) Offshore Renewable Energy Regulations; (2) People Bank of China
Sources: BDA research, IRENA, Wood Mackenzie, Government sources and policies, Nordex

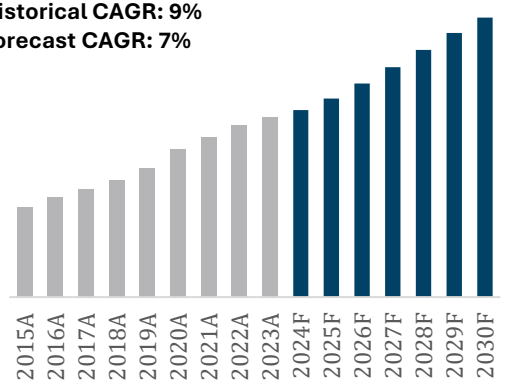
Onshore wind growth & regional dynamics – Growth forecasts

Whilst each region has its own onshore market dynamics, strong growth in installed capacity is expected across the board

North America

GW, Cumulative installed

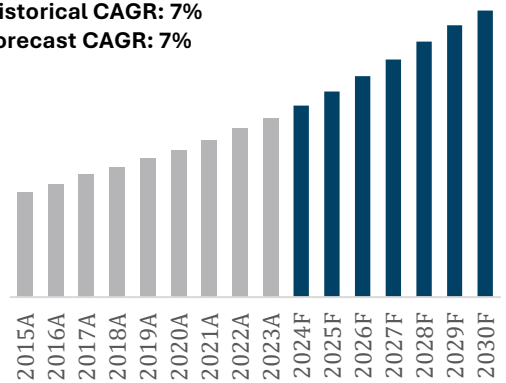
Historical CAGR: 9%
Forecast CAGR: 7%



Europe

GW, Cumulative installed capacity

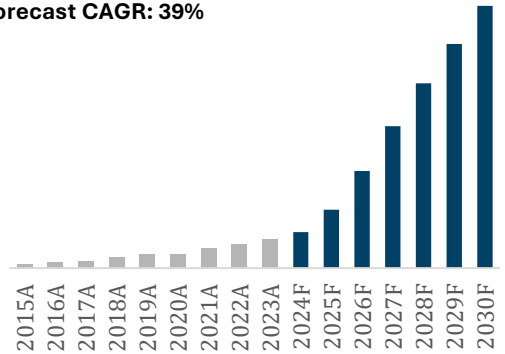
Historical CAGR: 7%
Forecast CAGR: 7%



Middle East

GW, Cumulative installed capacity

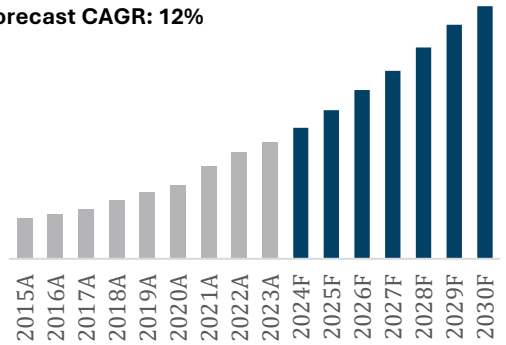
Historical CAGR: 28%
Forecast CAGR: 39%



Asia (excl. India & China)

GW, Cumulative installed capacity

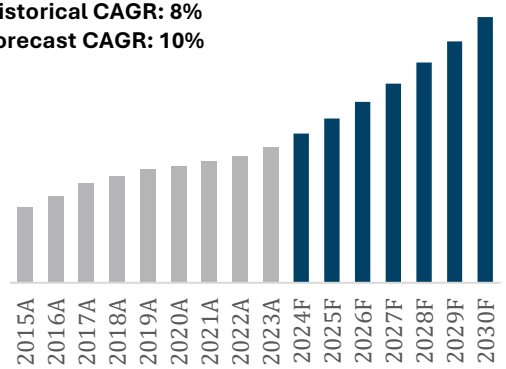
Historical CAGR: 14%
Forecast CAGR: 12%



India

GW, Cumulative installed capacity

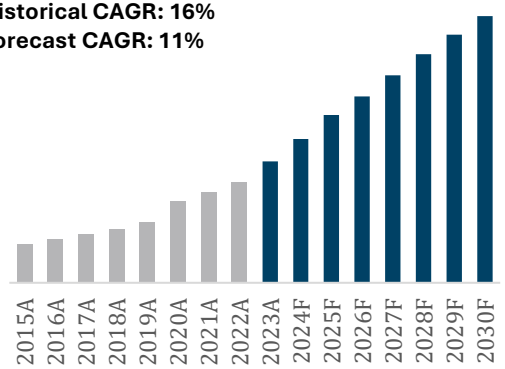
Historical CAGR: 8%
Forecast CAGR: 10%



China

GW, Cumulative installed capacity

Historical CAGR: 16%
Forecast CAGR: 11%



Sources: BDA research, Wood Mackenzie, BCG, IRENA | Notes: Historical CAGRs from 2015-2023, forecast CAGR 2024-2033; Charts not to scale

Onshore wind growth & regional dynamics – Deep dive into Asia with GWEC

The Global Wind Energy Council ("GWEC") is the leading global representative body working with policy makers and corporations to promote and open new wind markets. GWEC has over 1,500 member companies, organisations & institutions across 80 countries. We interviewed Janice Cheong, Director for Asia Advocacy/Policy at GWEC to supplement our insights.

BDA: Ambitious goals were set at COP28 to triple installed wind capacities by 2030. From a macro global perspective in the context of achieving these targets, how has the market developed over the last years and where do you see the trajectory going near term?

GWEC: COP28 saw nearly 200 countries pledge to both triple RE capacity to at least 11,000GW and double energy efficiency improvement rates by 2030. Since then, the wind industry has continued to set records, with 120GW of new installations added globally in 2024. However, growth remains unbalanced and concentrated in certain regions, with China, the US, India, Brazil and Germany accounting for 80% of new capacity.

Although the market has faced ongoing challenges as it adapts to evolving external macroeconomic conditions, there is now a concerted effort focused on ensuring project economics match up, addressing supply chain dynamics through collaboration. When compared to other renewable technologies, wind energy has room to enhance its contribution and accelerate its growth to fully realize its pivotal role, taking into account its higher capacity factors and complementary generation patterns, in the energy transition.

BDA: Where do you see the most technological innovation across the various wind components? Any areas that you think could catalyse making wind more scalable / support in achieving COP28 targets?

GWEC: Wind turbine sizes have experienced rapid scaling thanks to competition and related innovation breakthroughs. As a result, **the market reached a global average of 9.6 MW for offshore wind and 4.8 MW for onshore wind in 2023,** and is expected to continue growing. Whilst this has managed to bring down costs, it is important to balance cost efficiency and reliability, ensuring that quality is not being deprioritised.

Floating wind energy remains a huge opportunity, given higher and more consistent wind speeds in deeper sea areas, and greater interest from both developers and governments globally to expand into this area. Emerging fixed-bottom offshore markets may even see floating wind as a level playing field. In 2024, several floating wind project concessions were successfully awarded in auctions worldwide. Notable examples include the 400MW Green Volt project in the UK and the 750MW Bandibuli (Firefly) project in South Korea, highlighting the growing momentum to commercialise floating wind.

GWEC
GLOBAL WIND ENERGY COUNCIL

Interview with Janice Cheong
Director of Asia Advocacy/Policy
Global Wind Energy Council

Source: Exclusive GWEC interview

Onshore wind growth & regional dynamics – Deep dive into Asia with GWEC (continued)

The Global Wind Energy Council ("GWEC") is the leading global representative body working with policy makers and corporations to promote and open new wind markets. GWEC has over 1,500 member companies, organisations & institutions across 80 countries. We interviewed Janice Cheong, Director for Asia Advocacy/Policy at GWEC to supplement our insights.

Source: Exclusive GWEC interview

BDA: What are the biggest opportunities and challenges currently around investment in both onshore and offshore wind projects across Asia? Outside of China, where do you see the next big wind opportunities?

GWEC: Investment in emerging markets and developing economies ("EMDEs"), which account for a large proportion of countries in APAC, are often hindered by perceived and actual risks which has contributed to EMDEs receiving significantly less investment compared to either China or more advanced economies.

That said, the Philippines market is a big opportunity for both onshore and offshore wind, with the added advantage of being more market ready. They are aiming to install over 2GW of onshore between 2026 and 2029, and its offshore wind development is making strides as well, with over 65GW of service contracts having been awarded and the first offshore wind auction scheduled to take place in Q3 2025. Its recent successes can be attributed to strong government support and collaboration with the private sector.

India's wind development is also positive, with a push to innovate to contribute to the existing supply chain by facilitating the participation and partnerships of Indian manufacturing companies. Onshore wind repowering is also a priority, as the government looks to tap on sites to achieve the most optimal potential.

BDA: A big portion of the wind value chain sits in China – in part of due to historical local demand, but also because of global exports. How do you see this evolution considering possible disruption from tariffs?

GWEC: There is a greater need to diversify the wind value chain more than ever, given there are pressures emerging from politically motivated protectionism. Unfortunately, these pressures will likely expedite expected bottlenecks in supply chains for key components across markets. GWEC strongly supports open and free trade, that facilitates efficient allocation of resources across the value chain, thus reducing production costs.

Onshore wind growth & regional dynamics – Deep dive into Asia with GWEC (continued)

The Global Wind Energy Council ("GWEC") is the leading global representative body working with policy makers and corporations to promote and open new wind markets. GWEC has over 1,500 member companies, organisations & institutions across 80 countries. We interviewed Janice Cheong, Director for Asia Advocacy/Policy at GWEC to supplement our insights.

BDA: What can Asian countries that are in the early stages of their wind journey learn from Western counterparts that have had decade-long wind policies?

GWEC: Many Asian countries are indeed in the process of starting their offshore wind journeys. Key lessons to be learned include: to streamline permitting process through clear and transparent policy frameworks, have flexible market designs and renumeration mechanisms, and to ensure that there are not overly prescriptive local content requirements.

It is also important to note that there is an evolution of cost that corresponds to market maturity. In new markets LCOE is typically higher, where early projects build in-market technical, regulatory, legal and financial capabilities and begin to build the supply chain. As the market develops and gains experience, costs should fall. A phase change often occurs as market confidence builds at the 3-4GW installation mark, full competition occurs, and lower-cost financing is achieved by reduced real and perceived risk perceptions.

BDA: What do you see are the top three solutions required to address lingering concerns in the offshore wind industry, and to potential turn offshore wind into a more powerful growth alley?

GWEC: Predictable pipelines and renumeration mechanisms that correspond to existing market conditions, so project economics make sense. Effective risk-allocation – risk allocated to the stakeholder that is best able to manage it (i.e. governments, developers, financial institutions, off takers), taking into account the stage of development of offshore wind market as well as stage of project development itself.

Reducing regulatory complexity and red tape, or in emerging offshore markets, can be interpreted as the setting of supportive policy and regulatory frameworks to offshore wind development.

Supply chain diversification and strengthening of regional collaboration to plug in to existing gaps and over-dependencies.

Top 3 solutions to accelerate offshore wind

1. **Predictability in pipelines & remuneration mechanisms**
2. **Reducing regulatory complexity & red tape**
3. **Supply chain diversification**

Source: Exclusive GWEC interview

Conclusion & contacts

The onshore wind industry is vital for the global energy transition and 2025 will be pivotal. The stabilisation of raw material prices, following recent inflationary pressures, provides a more favourable economic environment for project development. Government policy is benign or improving for onshore wind, with global markets seeing solid growth. Technological advancements are spurring innovations in turbine design, improving large and lightweight structures, reducing installation costs and enhancing performance. Supply chains are seeing increased diversification.

The International Renewable Energy Agency (IRENA) forecasts a tripling of global wind capacity by 2030 - with onshore wind accounting for the lion's share. Whilst there is debate whether such ambitious targets will be reached, the upcoming growth in wind should be of a scale highly attractive to investors who invest across the value chain.

BDA's dedicated Sustainability team is currently in the market with numerous energy transition assets, including within the wind industry. Whether you would like to discuss our market views on wind, get access to relevant acquisition opportunities or explore support for your own transactions, please feel free to reach out to the below individuals:

Mark Webster
Partner, Head of Sustainability
M: +65 8428 7518
mwebster@bdapartners.com

Jonathan Aiken
Partner, Head of London
M: +44 7950 105 921
jaiken@bdapartners.com

Nils Weng
Vice President, London
M: +44 7506 618 152
nweng@bdapartners.com

Artur Dumont
Vice President, Singapore
M:+65 9085 2141
adumont@bdapartners.com

Xiaokun Li
Vice President, Shanghai
M: +86 18513942772
xli@bdapartners.com

Legal disclaimer

The information contained in this document is for informational purposes only and is not intended to be relied upon in any way. Statements contained in this document are made in good faith and have been derived from information believed to be reliable as of the date of this document. None of BDA Partners or any of its respective directors, officers, corporate partners, affiliates, employees or advisors (collectively, "Associates") makes any representation or warranty as to the fairness, accuracy or completeness of the information or opinions in this document. This document contains certain statements, financial data, projections, forecast, estimates and targets that are based upon assumptions and subjective judgments. There will be differences between such statements, financial data, projections, forecast, estimates and targets and actual results since events and circumstances frequently do not occur as expected, and such differences may be material. The targeted, estimated, forecasted and projected financial results contained in this document should not be considered to be a presentation of actual results. There can be no assurance that any targeted, estimated, forecasted or projected results are obtainable or will be realized.

None of BDA Partners or any of their respective Associates has independently verified, nor will independently verify, any part of this document. BDA Partners and its Associates expressly disclaim any and all liability for any loss or damage (whether foreseeable or not) suffered by any person or entity acting on, or refraining from acting because of, anything contained in or omitted from this document, whether the loss or damage arises in connection with any negligence, default, lack of care or misrepresentation, in contract or in equity, on the part of BDA Partners or its Associates or any other cause. Each recipient of this document agrees that it shall not seek to sue or hold BDA Partners or its Associates so liable in any respect for the provision of this document and the information or opinions contained herein. The receipt of this document by any recipient is not to be taken as constituting the giving of legal, accounting, tax or investment advice by BDA Partners to that recipient, nor to constitute such person a client of BDA Partners.

Neither BDA Partners nor any of its respective Associates accept any responsibility to inform the recipients of this document of any matter arising or coming to any of their notice which may affect any matter referred to in this document (including but not limited to any error or omission which may become apparent after this document has been issued). BDA Partner does not undertake or expect to update or otherwise revise this document.