Wind supply chain efficiency

Connecting consolidation, partnerships & standardization
The state of the industry

2022 was the third best year ever for new capacity with 78 GW added globally. This renewable productivity means we’ve achieved a total global wind power capacity of approximately 906 GW. This represents Year-on-Year growth of 9%. GWEC Market Intelligence forecasts 680 GW of new capacity in the next five years (2023-27), representing 136 GW per year to 2027.

Potential beyond forecasts
Although already impressive, we believe it’s highly likely these forecasted stats could increase beyond prognostications.

Voluminous corporate, political, and societal pushes for climate resilience, carbon-neutral energy, and decentralized power structures to offset geopolitical instability have not been considered – yet the whirlwinds of accelerated wind generation are clear from the news and multinational promises.

Global pledges and commitments
Germany, Belgium, the Netherlands and Denmark has pledged to build at least 150 gigawatts (GW) of offshore wind in the North Sea, a tenfold increase in the European Union’s offshore wind capacity. In August 2022, the US Senate approved plans to supply 40% of the country with clean energy by 2030 as part of the Inflation Reduction Act of 2022. And many other international private businesses, NGOs, academia, governments, and citizens are driving toward a shared objective of replacing fossil fuels with low-carbon energy sources. Research by WindEurope, for instance, shows the continent is expecting to establish 116 GW of new wind farms over the period from 2022-2026. This drive for wind power approximates 23 GW a year of new installations on average with three-quarters of these new capacity additions being onshore wind installations.

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78 GW
wind power capacity was added globally in 2022

906 GW
is now the total global wind power capacity

680 GW
new capacity is forecasted to be added in the next five years

150 GW
or more has been pledged build in the North Sea by Germany, Belgium, The Netherlands & Denmark

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1 GWEC’s Global Wind Report 2023
2 REVE. “Germany, Belgium, the Netherlands and Denmark to increase offshore wind power capacity tenfold.” Madrid: REVE, May 2022.
2022 - 2026 new onshore and offshore wind installations in Europe - WindEurope’s scenarios

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DIS/CREADIS: Wind supply chain efficiency

The state of the industry
Response to global events

When Russia invaded Ukraine, it became even clearer that the EU needs alternative ways to secure its energy supply. In response to the challenges and disruptions in the global energy market caused by Russia’s invasion of Ukraine, the European Commission implementing the REPowerEU plan in 2022. REPowerEU was launched in May 2022 and assists the EU in conserving energy, producing clean energy, and diversifying its energy supplies. Since September 2022, Russian gas has only accounted for 8% of all the pipeline gas imported to the EU, which is a significant reduction compared to August 2021, when 41% of the EU’s import came from Russia.

In addition to this market motion, the world’s leading organizations like the United Nations, World Economic Forum, World Bank, and others are sounding the alarm to “Clean the core,” “Accelerate the transition,” and “Extend the frontier” into renewable sources like wind to supply zero-emission energy.

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5 The European Commission
6 The European Commission
Challenges and uncertainties

Europe faces a significant obstacle to achieving REPowerEU’s goals. According to GWEC’s Global Wind Report 2023, an average of 30 GW of new wind energy capacity must be added annually until 2030. However, only 16 GW was added by EU nations last year. Wind turbine orders decreased by 47% YOY, with minimal final investment decisions in offshore wind as a result of higher uncertainty for new wind energy investments in 20228. Inflation caused turbine prices to go up over the past two years and EU governments acted uncoordinated to cope with the energy crisis. Europe’s permitting process remains inadequate, complicating matters further for the region’s supply chain.

The imperative ahead

As leaders in the wind industry, our obligation is to facilitate this transition by ensuring our value proposition, supply chains, and best practices make sense commercially and environmentally for this unique era. Otherwise, our inability to deliver cascades into substantial wind energy shortfalls that fail to achieve ‘Net Zero by 2050’ targets, which are imperative.
Lagging growth in the decade leads to wind energy shortfalls by 2030
in tiny Denmark alone over 1,500 companies supply components and modules for the OEM’s wind turbines.
Multiple-vendor sourcing

- It is common knowledge that many leading wind OEMs often have thousands of different vendors for components, which also means negotiating, synchronizing, and managing numerous different companies causing significant overhead and administration costs.

- It must also be noted that each vendor comes with its own specific business culture, practices, logistics, locations, divisions, bureaucracy, regulations, which convolute the logistics.

- Proof of this glaring disorganization was noted last year by Siemens Gamesa, the world’s second largest wind manufacturer, when they discovered in tiny Denmark alone over 1,500 companies supply components and modules for the OEM’s wind turbines.
Supply chain inefficiencies

- Wind OEMs have been remarkably slow to push some of the responsibilities to the supply chain itself. This sluggishness means—especially in a time of great pressure and necessity—it’s difficult for companies to meet project demands for timely delivery, affordable prices, and speed-to-market.

- For instance, the world’s largest OEM has emphatically remarked on the complicated intricacies of dealing with the current wind supply chain: “The conventional approach to product development offered limited synergies between products, increasing complexity and resource management.”

Non-core technical debt

- Tier 1 suppliers are often build-to-print or build-to-spec suppliers meaning that OEMs own the design and the suppliers build accordingly.

- With this practice, OEMs are wasting innumerable resources on the design of non-core, minor components that hinder industry progression and innovation. i.e. optimization, cost-out, etc.

These obstacles create significant and divergent business conditions that make it tough if not impossible to scale at the pace urgently demanded by world markets.

The practices outlined above are also not fully commensurate with the Environment, Social, and Governance (ESG) objectives of the multinational corporates spearheading wind energy that are requiring greater sustainability performance and climate impact.

This type of noncompliance could affect their market attractiveness to investors and customers now incorporating material risk factors beyond financial metrics.
The wind OEMs have wanted to push some of the responsibility to the supply chain for years and there is substantial evidence that shows it is time to accomplish this goal.

Several ideas rise to the surface when maximizing how to integrate these optimizations in the current market and political conditions. These include:
Global expansion partners

- Wind OEMs should select partners that can function across timezones 24/7 and can take on all kinds of tasks while offering client contact to specialist knowledge and faster processes. These types of specialist organizations exist – and many have over 20 years of experience managing offshore and onshore wind projects, engineering improvements, and supply chain logistics.

- Whether it’s emerging wind markets throughout Europe, Japan, Taiwan, Australia, or the US, relying upon a dependable supplier able to grow alongside the manufacturer or have mobile production facilities established locally is key. In this way, wind OEMs can scale their technology organization nimbly with minimal onboarding and generate a higher ROI.

Supplier consolidation and strategic alliances

- We should advocate and help orchestrate a widespread consolidation of Tier 1 and Tier 2 suppliers to be able to deliver full assemblies, modules and systems. We need a Top 50 list of suppliers rather than the thousands that exist today competing for basic components like ladders, cable trays, and platforms.

- We should promote the standardization of non-core and no-competing sub-systems. And these very Tier1 suppliers need to own the transition of competing on modularity and speed-to-market to ensure all mechanisms are in place for scalability and enable cross OEM synergies.

- We should build robust and active strategic alliances, partnerships, and associations between suppliers forged on complementary strengths for rapid and agile business frameworks, cooperation and information exchange.
Conclusion

Onshore and offshore wind is going to skyrocket in demand due to broad pushes for renewable energy around key markets.

Powerhouse economic regions like Europe and the US are determined and poised to transition to wind power for increased domestic security, climate mitigation, and environmental objectives are given the riskiness of fossil fuels in the 21st century.

Wind OEMs will therefore be asked to produce bigger and greater machines at a tempo never seen in the industry.

It’s again no overstatement to say wind power is on the cusp of one of the biggest financial and innovation opportunities of the century.

But, if and only if, the wind industry can drive successful consolidation and cooperation of globally-capable Tier 1 and Tier 2 wind suppliers to a manageable amount – and we do everything in our power to ensure the standardization and engineering delegation of non-core and no-competing subsystems within these suppliers.

Wind energy can scale to a level of efficiency that ensures sustainable business if we act to remedy these persistent but fixable challenges.

Hundreds upon hundreds of gigawatts demanded by governments and multinationals depend on our expertise and collective action. The opportunity and forward motion of our industry is ours to gain or to lose. It’s our choice to align and act that will make the difference.
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Get in touch to discuss your opportunities to optimise your supply chain.

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