

BALTIC
WIND.EU



Baltic Sea Offshore Wind OUTLOOK 2024

Special Report

Dear readers,

I am pleased to present special report summarising series of interviews „Baltic Sea Offshore Wind OUTLOOK 2024”.

The year 2023 was full of initiatives that have permanently changed the conditions for the offshore wind industry. We asked key policy-makers and industry leaders for their assessment of what has been achieved in the past year and what the forecasts are for 2024.

In series of interviews we presented opinions of key stakeholders for offshore wind development – including high-level representatives of the European Commission, the European Parliament, WindEurope, IRENA, GWO, wind energy associations and wind industry.

2024 will be an exciting year for offshore wind energy stakeholders. I encourage you to read on!

*Paweł Wróbel
Managing Director,
BalticWind.EU*



Key issues for wind energy in 2023 & 2024

Which issues have been raised most frequently by interviewed leaders?

“MADE IN EUROPE” SUPPLY CHAIN in the context of increased RES targets and growing number of offshore wind farm projects - is the issue no 1. Main objective for the nearest future is clear: in Europe we need more factories, more supporting infrastructure, and additional offshore wind workers.

Next key issues are – the need to ensure faster and more predictable **PERMITTING**, as well as to improve **AUCTION DESIGN**.

Investments in on- and offshore **GRIDS, INTERCONNECTIONS** and enhancing **REGIONAL COOPERATION** remain also very high on the list.

Among the issues of growing importance is security and resilience of our **CRITICAL INFRASTRUCTURES** at sea, including **CYBERSECURITY**.

Apart of this we noticed that – **SKILLS, EDUCATION, EMPLOYMENT** – are more important than it was last year.

Worth flagging are European initiatives of 2023 which are presented very often as a key to unlock the potential of offshore wind in Europe: **Wind Power Package with its European Wind Power Action Plan, European Wind Energy Charter and EU Action Plan on Grids**.



Quotes of the report

We present our selection of quotes that shows where wind industry is now, what are key challenges for the future. These quotes in our opinion greatly summarise offshore wind state of play in the Baltic Sea – for purpose we publish them separately without authors here. We think it can be good to try to imagine who said that. If you are curious read all special interviews in this report.

“Last year the EU built only 3 GW of new offshore wind farms. Permitting has emerged as a major bottleneck.”

“The most important challenge for offshore wind development in 2024 is ramping up Europe’s offshore wind supply chain.”

“...Europe’s position as a worldwide wind technology leader is jeopardized by inflation, supply chain disruptions, exorbitant interest rates, sluggish permitting procedures, and the unjust competition posed by state-subsidized Chinese manufacturers.”

“...while fixed foundations have been the dominant driver for offshore wind development, it is important that focus also be placed on developing the global floating wind sector to allow for greater impact arising from the offshore wind industry.”

“We must ensure effective collaboration between policy makers, industry and public education so ambitious plans like the EC Large Scale Partnerships for Renewable Energy can take shape in the area of workforce development.”

“The production capacities and infrastructure currently available are far from sufficient to achieve the targets.”

“As private investors in the European market, we consider provisions such as the revision of auction criteria and the transparent publication of auction schedules and 10-year wind energy development plans essential for informed business decision-making.”

“Most important challenges for offshore wind development in 2024 are mastering the dynamics of change and uncertainty in the offshore wind market, in particular related to the supply chain, components’ prices variability and cost inflation.”

“... European energy system is undergoing a big shift in order to reduce the dependence on Russia and reach the climate change targets and push forward green transition in general.”



Kadri Simson
European Commissioner for Energy

Source: EC - Audiovisual Service

What is the most significant development for the offshore wind in 2023?

In 2023, the offshore wind sector in the EU surged forward, marking significant capacity expansion^[1] and further diminishing our reliance on Russian fossil fuels.

New projects are taking off and first pipeline of offshore projects have been included under the 1st list of Projects of Common Interests (PCIs) and Projects of Mutual Interests (PMIs), notably the Bornholm energy island and the ELWIND project in the Baltic Sea.

Member States committed to higher ambitions with ground-breaking sea-basin goals: about 111 GW of offshore wind capacity by 2030 and 317 GW by mid-century, with specific Baltic Sea commitments of 22.5 GW by 2030, and 46.8 GW by 2050.

Also in 2023, The European Commission unveiled our own Wind Power Package to protect and bolster the growth of the wind sector, including offshore. The Commission in addition strengthened the existing EU legislative framework to benefit offshore wind in the revised Renewable Energy Directive and the Electricity Market Design for instance. It is also important to note that the EU Action Plan on Grids was brought forward to deliver on a vital element for realizing EU's offshore ambitions.

At regional level, Member States intensified their cooperation and work on implementation. A notable achievement was the launch of the joint tender plannings for the North Sea and Baltic Sea. These initiatives will give more visibility and transparency on how countries will transform their ambitions into tangible projects.

[1] 2.1 GW in the first half of 2023 in Europe, including in the UK and Norway, according to Wind Europe

What are the most important challenges for offshore wind development in 2024?

Even though we have made good progress, we still have challenges on the road ahead. With higher ambitions, the current pace of project deployments will need to speed up significantly. Last year the EU built only 3 GW of new offshore wind farms. Permitting has emerged as a major bottleneck. Therefore, this year the Commission will focus on working closely with Member States on implementing the legislative framework on permitting adopted last year and the commitments made in the Wind Charter to ensure faster and more predictable permitting.

The Commission will also work with Member States on identifying and removing remaining permitting barriers. I am encouraging Member States to ensure digitalisation of the permitting process. This will help not only with the speed but also transparency. Soon, this will also be a legal requirement – as based on the Renewable Energy Directive, in the next two years, Member States will be obliged to ensure the digitalisation of the permitting process.

Maintaining EU's global leadership and competitiveness will also require urgent strengthening of the supply chains, attracting talents, strengthening grids, integrating Maritime Spatial Planning, investing in innovation, and enhancing regional cooperation. To that end, the EU's Wind Power Package with its 15 immediate actions has a potential to be a game-changer. We will work with the Member States on the swift implementation of the Wind Power Package and the Grids Action Plan measures.

Finally, recent geopolitical events have reminded us that we must reinforce the resilience of our critical infrastructures at sea. We will step up cooperation between EU Member States to develop offshore regional surveillance plans and

develop broader cooperation on cybersecurity in the sector.

What matters related to offshore wind energy will you particularly focus on in 2024?

In 2024, our focus remains on supporting faster deployment of renewables, reducing our dependence on Russian fossil fuels, ensuring security of supply, affordability, competitiveness of our economy and continuing with the accelerated energy transition.

Regarding the deployment of renewable energy, including offshore wind, the key emphasis will be on permitting. We will also work with Member States to improve auction design, which can have an impact on renewables deployment and investment signals throughout the supply chain. To this effect, the Commission will adopt a Recommendation to Member States on auction design covering issues like cybersecurity, inflation, supply chain resilience, environmental sustainability, or project execution.

We need to plan our energy system in a more integrated way, also looking at hydrogen infrastructure and electrolyzers in the broader context of offshore energy infrastructure, including in the Baltic Sea.

The Offshore Network Development Plan (ONDP) developed by ENTSO-E under the TEN-E Regulation will be a first step in this direction. Following its publication, the Commission will publish a guidance for a specific cost-benefit analysis and cost sharing to support Member States and promoters in their discussions on new potential cross-border projects.

Lastly, to maintain momentum and strengthen industry certainty, the Commission will support Member States in updating their January 2023 non-binding agreements for offshore wind by December 2024.



Morten Helveg Petersen
Member of the European Parliament
(Denmark, Renew Europe)

What is the most significant development for the offshore wind in 2023?

The Commission introduced a 'European Wind Power Package' in 2023. I am generally content with the initiatives and guidelines laid out by the Commission. New standards for auction design have been introduced, considering biodiversity and human rights, both for ethical considerations and to ensure European competitiveness.

The Chinese industry might be cheaper but does not prioritize the wellbeing of nature and people. Thus, the European industry becomes the sustainable choice for investors.

Moreover, the Commission is now committed to expediting the permitting process in member states. The call for quicker permitting is not novel, as the Commission has often vocalized this need without much success. The permitting process in member states has languished for many years, rendering the market too uncertain for substantial investment, thereby impeding progress toward climate targets and energy independence.

In its presentation, the Commission affirmed its willingness to support member states in expediting permitting through technical assistance and education. In essence, the Commission is reinforcing its call to action, demonstrating a willingness to act instead of merely speaking, and I really hope that member states will follow suit. We really need to work for quicker permitting. For the sake of our green transition and our safety.

What are the most important challenges for offshore wind development in 2024?

I led the negotiations of the EP negotiations Offshore Renewables Energy Strategy, which was unveiled in early 2022. The strategy tackled a multitude of obstacles to the implementation of offshore renewables, charting a path toward European global exports success. However, less than two years later, Europe's position as a worldwide wind technology leader is jeopardized by inflation, supply chain disruptions, exorbitant interest rates, sluggish permitting procedures, and the unjust competition posed by state-subsidized Chinese manufacturers. Media reports are now rife with accounts of major wind projects faltering on a weekly basis.

Undoubtedly, the European wind industry is pivotal to the EU. With our goal of reducing emissions by 55 percent before 2030, a significant increase in renewables is imperative to achieve our climate targets. To put this into perspective, we have committed to elevating the share of renewables in the

bloc's overall energy mix to 42.5 percent by 2030, a substantial leap from the current 17 percent. Such an ambitious endeavor hinges heavily on the wind industry. Thus, the bottlenecks impeding the wind industry's progress are cause for alarm. If we fail to heed these warnings, Europe's position may falter, allowing China to gain a stronghold on the market.

What matters related to offshore wind energy will you particularly focus on in 2024?

As the European Parliament's lead lawmaker on offshore renewables, I have engaged extensively with industry stakeholders, as well as Energy Commissioner Kadri Simson. Our aim is clear: We must ensure that European manufacturers have access to the necessary supplies, establish transparency and predictability for green investors, streamline bureaucratic hurdles, and safeguard the industry from unfair competition. The race in the wind industry is far from over, but we must labor effectively and diligently to uphold Europe's leading position in the field.





Giles Dickson
CEO of WindEurope

What is the most significant development for the offshore wind in 2023?

The European Union has proposed a Wind Power Package with 15 excellent immediate actions to strengthen wind energy “made in Europe”. 26 EU Member States and the European wind industry have endorsed these actions. National Governments across Europe have raised the targets for offshore wind and pledged closer international collaboration both on offshore wind farm

and offshore grid development. The inflation in input costs has started to ease. And many governments are now properly indexing their offshore auction prices which is improving the revenues of the wind farm developers. Europe’s wind turbine manufacturers have begun to return to profit. And in the last months of 2023 several large offshore wind projects reached final investment decision or passed important project milestones. All of this raises the confidence in the offshore wind sector – but 2024 will nevertheless remain a challenging year.



What are the most important challenges for offshore wind development in 2024?

The most important challenge for offshore wind development in 2024 is ramping up Europe's offshore wind supply chain. By 2030 we need to produce 20 GW of offshore wind turbines each year. With today's factories we can only produce 7 GW. We need to build new factories. On top of that it need to hire 140,000. additional offshore wind workers and invest billions of Euros in supporting infrastructure such as ports, vessels, roads and electricity grids. It's a huge task. The Wind Power Package marks an important step on the way. It has opened up new financing channels to drive investment in wind energy manufacturing in Europe. It proposed to double the money available for clean tech manufacturing under the next call of the EU Innovation Fund to €1.4 bn. The European Investment Bank (EIB) is now providing de-risking tools and counter-guarantees to cover the exposure of private banks when they lend money to the wind industry. The EIB has also changed its landing mandate. It is now not only lending money to wind farms but can also finance manufacturing investments. The EIB is now, for example, helping to finance the expansion of the offshore wind port facilities in Esbjerg, Denmark. And things are starting to move on the supply chain. We've seen enough investment to supply the project pipeline up to 2026/27. Sif are expanding their foundation manufacturing plant in Rotterdam. Baltic Structures will build a

new foundation facility in Esbjerg. Together they will produce 400 XXL foundations a year. In Poland Vestas will open a new factory for 15 MW hubs and nacelles and a separate offshore blade factory in Szczecin, and Baltic Towers is building a new tower facility in Gdańsk.

What matters related to offshore wind energy will you particularly focus on in 2024?

In 2024 we will focus in particular on the competitiveness and resilience of Europe's wind industry. Chinese turbine manufacturers have started to win onshore wind orders in parts of Europe. They offer their turbines at a lower price and with deferred payment terms that companies headquartered in OECD countries are not allowed to offer. But buying Chinese turbines means increasing Europe's economic dependency and undermines our energy security. It also reduces the economic benefits of wind energy manufacturing in Europe – 300,000 jobs, €53bn a year contributed to EU GDP. It is not in Europe's collective interest to transfer those benefits outside of Europe. There are cybersecurity aspects at play as well. There are 300 sensors on a modern wind turbine. The data from those sensors should be stored and analysed exclusively in Europe. Auction design can play a role here. Under the European Wind Charter Governments committed to make better use of prequalification criteria in critical areas such as cybersecurity to raise the bar on which turbines can be built in Europe.



Roland Roesch
Director of IRENA Innovation and
Technology Center

What is the most significant development for the offshore wind in 2023?

From my perspective the most significant developments for the offshore wind in 2023 was that many countries have started to increasingly consider offshore wind as a viable solution in their pursuit of their energy transition efforts – as echoed in the COP 28 declaration. According to IRENA's latest World Energy Transition Outlook 63 GW of offshore wind was added in 2022 however, to be compliant with a 1.5 scenario the global capacities need to reach 494 GW and 2465 GW by 2030 and 2050 respectively.[2] The continuing cost competitiveness of offshore wind in

2023 remains a boon moving forward with levelized cost of electricity declining by 59% between 2010 and 2022, from USD 0.197/kilowatt hour (kWh) to USD 0.081/kWh.[3] Innovation within offshore wind continues to be vibrant with over 17000 patents filed between 2022 and 2022.[4] While more action is required, it was positive to see that April 2023 energy ministers from the nine members of the North Seas Energy Cooperation (NSEC) agreed to reach 120 GW by 2030 and 300 GW of offshore wind capacity by 2050.

[2] IRENA (2023), *World Energy Transitions Outlook 2023: 1.5°C Pathway*, Volume 1, International Renewable Energy Agency, Abu Dhabi.

[3] IRENA (2023), *Renewable power generation costs in 2022*, International Renewable Energy Agency, Abu Dhabi.

[4] EPO and IRENA (2023), *Patent insight report: Offshore wind energy*, EPO, Vienna

What are the most important challenges for offshore wind development in 2024?

Most important challenges for offshore wind development in 2024 are as follows: a) it is necessary for governments to reform their permitting structures to allow for faster deployment of offshore wind technologies as well as associated infrastructure such as grid connections [IRENA has published a brief with recommended solutions on this topic^[5]]; b) there will a strong necessity to reinforce and reimagine global offshore wind supply chain developments so as to ensure cost-to-benefit ratio for offshore wind projects are sustainable; and c) while fixed foundations have been the dominant driver for offshore wind development, it is important that focus also be placed on developing the global floating wind sector to allow for greater impact arising from the offshore wind industry.

What matters related to offshore wind energy will you particularly focus on in 2024?

In 2024 IRENA will focus in particular on leveraging its Global Offshore Wind Alliance (in partnership with the Govt. of Denmark and the Global Wind Energy Council) to support leading offshore countries accelerate their offshore wind development ambitions while simultaneously sharing best practices with other countries interested to improve their local capacities. The organization will also utilize its Collaborative Framework for Offshore Renewables to develop informative reports to provide tangible recommendations in addressing the challenges to the offshore industry.

[5] IRENA and GWEC (2023), *Enabling frameworks for offshore wind scaleup: Innovations in permitting*, International Renewable Energy Agency, Abu Dhabi.





Ralph Savage
Director, Global Development & Stakeholder Relations, Global Wind Organisation (GWO)

What is the most significant development for the offshore wind in 2023?

Last year, our industry felt like it woke up to the workforce development challenge. Various initiatives have emerged, and we have been working hard to consult and coordinate with all of the relevant stakeholders. Examples include the European Wind Power Action Plan and its Large-Scale Skills Partnerships for Renewable Energy. The European Commission has promised to facilitate the launch of European net-zero industry skills academies – including one dedicated to the wind sector. This comes in the wake of other more targeted projects such as T-Shore and Flores, both EU funded, which are working to align further education programmes with industry specific training like GWO standards.

What are the most important challenges for offshore wind development in 2024?

We must ensure effective collaboration

between policy makers, industry and public education so ambitious plans like the EC Large Scale Partnerships for Renewable Energy can take shape in the area of workforce development. Building upon the good work our sector has already achieved, standardizing training and defining job roles in construction, installation, operations and maintenance will be a priority.

What matters related to offshore wind energy will you particularly focus on in 2024?

Building deeper ties within industry and governments. Our workforce forecasts produced in collaboration with Global Wind Energy Council have become the go to metric for stakeholders looking for a reliable source of information about the number of people needed for the next five years of construction and installation. This needs to be understood within the context of job roles and pathways to employment so we can facilitate the energy transition safely.



Daniel Badman
CEO of the Swedish Wind Energy
Association

What is the most significant development for the offshore wind in 2023?

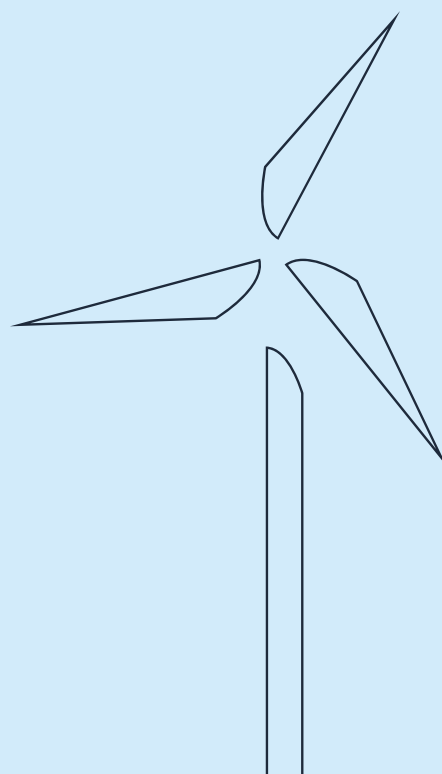
The continued strong developer interest in the Swedish market, that is increasing despite political uncertainties. This development is driven by high demand in electricity.

What are the most important challenges for offshore wind development in 2024?

To get new policy instruments in place, such as new maritime spatial plans and a streamlined regulation for offshore wind, without disturbing the current development. Another challenge is the grid development for offshore wind.

What matters related to offshore wind energy will you particularly focus on in 2024?

Investment conditions and permits will be key for the offshore wind build out in Sweden. We will closely follow the policy development for both offshore wind and grid. For the build out to start in Sweden, the dialogue between the wind industry and defense forces is crucial.





Lasma Livzeniece
Executive Director of the Latvian
Wind Energy Association

What is the most significant development for the offshore wind in 2023?

From my perspective the most significant developments for the offshore wind in 2023 in Latvia were all related to the joint Latvian and Estonian project “Elwind”, led by the Investment and Development Agency of Latvia (IDAL). Based on the decision of the State Environmental Bureau in Latvia the work on EIA was started at the end of 2023. According to IDAL, more than 20 different studies will be conducted within the next two years to prepare the project for a tender in 2026. A large part of studies will be launched in early this year. During the first phase of the studies experts will analyse and assess the wind farm's impact on the migration

routes of birds and bats as well as the impact on fish spawning grounds and seals. All studies will be carried out in close cooperation with the Elwind's counterpart - Estonia.

What are the most important challenges for offshore wind development in 2024?

One of the biggest offshore wind challenges in 2024 in Latvia will be the auction design for the offshore licence areas (areas that exclude the Elwind project). The Ministry of Climate and Energy affirms that the tender regulation is, indeed, on their to do list, however, the industry sees many uncertainties around the process. What has been missing since the offshore talk



stated is a clear idea of what Latvia wants and needs as a state – a strategy. The Ministry is producing several documents (National Energy and Climate plan 2030 and Energy Strategy 2030 and another one for 2050) that shall help the whole energy sector, including wind industry, move forward, however there a lot of questions unanswered. Investors ask about an approximate timeline for offshore wind farm tenders in Latvia to which no answer has been given. And now that Latvia has committed to continue the Life REEF biotope study, how would the results impact the offshore sites, as the research and offshore areas overlap? What about the grid - will the grid be available? As stated before, there are a lot uncertainties that are slowing down the offshore take-off in Latvia.

What matters related to offshore wind energy will you particularly focus on in 2024?

In 2024 we will focus in particular on communicating to the authorities on the benefits of offshore wind and hopefully a joint work to develop the auction design. It's also important to follow the developments in the two closest neighbouring countries – Estonia and Lithuania - to see how the tender winners are progressing with their projects and also to learn from their mistakes. This will also be one the topics we will delve into during the WindWorks conference in Riga on 25 April which is organised with a joint effort of the three wind energy associations in Baltics and the Investment and Development Agency in Latvia.



Dr. Dennis Kruse
Deputy Chairman of the Executive
Board of WAB (Wind Industry and
Hydrogen Association WAB e.V.)

What is the most significant development for the offshore wind in 2023?

In mid-2023, the Baltic Sea Council met again for the first time in nine years with the participation of the foreign ministers involved. At the meeting in Wismar, it was decided to push ahead with the expansion of offshore wind energy in the Baltic Sea in the coming years. In a joint declaration, the participating states committed to ambitious expansion targets for offshore wind in the Baltic Sea. The offshore wind power capacity in the Baltic Sea is to be increased sevenfold by 2030. In order to achieve this goal, all electricity suppliers in the Baltic Sea are to work together across borders in addition to other measures. The agreed measures offer great opportunities for value creation in the participating countries.

What are the most important challenges for offshore wind development in 2024?

The European offshore wind industry must be expanded rapidly in order to achieve the expansion targets. The production capacities and infrastructure currently available are far from sufficient to achieve the targets. Accordingly,

political support is now required to build up and expand production capacities in order to prevent supply bottlenecks. This affects not only the supply chain, but also the European seaports. The expansion of the ports is a key issue in achieving the expansion targets.

What matters related to offshore wind energy will you particularly focus on in 2024?

Hydrogen is an important factor in achieving the targets for decarbonisation of energy-intensive sectors. The necessary expansion of the hydrogen infrastructure offers a high potential for added value. In order to create resilient structures, a remuneration structure for green hydrogen that goes beyond the scope of existing funding programmes is required to create incentives for potential market participants and enable the market ramp-up. Well-trained specialists are also required for the planned ramp-up of hydrogen activities. Suitable training and further education programmes are already required to prevent staff shortages. Hydrogen is rightly described as a key technology for decarbonisation. However, there are still a number of tasks to fulfil in order to enable the development of this technology on the required scale.



Kacper Kostrzewa
BC-Wind Project Director, Ocean
Winds

What is the most significant development for the offshore wind in 2023?

In 2023, significant developments unfolded in the offshore wind sector, marked by a series of announcements and updates on the progress of new and existing wind farms. On the national front, Poland witnessed notable advancements, including changes in regulatory frameworks and the Renewable Energy Sources (RES) development strategy. Key milestones were the parliamentary elections and the establishment of a new government. The resulting shifts in power structures may have implications for industry regulations, particularly in the realms of supply chains and local content development. We regard these changes positively, as they present opportunities for the development of projects in the initial and subsequent phases of offshore wind initiatives in Poland through strategic partnerships.

At the European level, a crucial milestone was the endorsement of the European Wind Energy Charter. This pivotal document underscores a commitment to achieving the goals outlined in the EU Wind Power Package, which includes raising the EU's offshore renewable energy target to 111 GW by 2030. The importance of this charter lies in its introduction of fifteen priority actions aimed at enhancing the competitiveness of the wind energy value chain.

As private investors in the European market, we consider provisions such as the revision of auction criteria and the transparent publication of auction schedules and 10-year wind energy development plans essential for informed business decision-making.

What are the most important challenges for offshore wind development in 2024?

The global industry is currently facing various challenges. These include the rising costs of construction, driven by inflation and material scarcity, delays in obtaining permits, reliance on imported raw materials, capital expenses, and geopolitical uncertainties. Future challenges also include the expected global gap in vessel installation capacity for foundations, wind turbines, and cables, which could potentially impact the speed of offshore wind farm installation.

On a local scale, there is a need to enhance the supply chain and create opportunities for Polish companies to introduce innovative solutions for offshore wind farms. Consequently, as part of the ELBE Eurocluster Challenge, we have submitted a proposal to develop an innovative system of unmanned autonomous vehicles tailored for offshore wind farms, specifically addressing the needs of BC-Wind in Poland. This initiative aligns with our broader Innovation Strategy for BC-Wind.

What matters related to offshore wind energy will you particularly focus on in 2024?

In 2024, we foresee a significant year as we approach key milestones in our BC-Wind farm project. Our plan involves completing the contracting process with key suppliers for offshore wind farm components and making the crucial final investment decision (FID). Among the critical tasks ahead, we will focus on selecting the turbine supplier, concluding the geotechnical campaign, and finalizing the environmental studies necessary for obtaining the environmental decision for the O&M base. Additionally, attention will be devoted to developing the layout of the offshore wind farm and formulating its financing model.

It's important to highlight that a significant aspect involves closing tenders and finalizing contracts with consultants who will support us in securing a construction permit. During the first quarter, our aim is to approve all necessary expert reports crucial for obtaining the construction permit and acquire an environmental decision for the onshore infrastructure, a milestone we anticipate achieving by mid-year.





Ditlev Engel
CEO, Energy Systems at DNV

What is the most significant development for the offshore wind in 2023?

During last year's North Sea Summit, Offshore Wind was seen as a major driver to go forward, also reflected in the Ostend declaration with the ambitious target of reaching 120GW by 2030 in the North Sea, following the Marienborg Declaration, where new volumes for the build-out of offshore wind in the Baltic Sea were agreed.

In order to realize these enormous ambitions, standardization and scaling across the entire value chain is needed. The EU Fit for 55 program and the European Wind Charter, now signed by 26 member states, already are crucial enablers on this path ahead.

The wind industry can scale very fast, it is ingrained in its DNA – and we need to move fast, so it is important to utilize this. The last few years' challenges in the industry have not changed our view on its potential; highlighted again in our latest Energy Transition Outlook from 2023.

The Baltics are now in the unique position to capitalize on the past learnings from the offshore industry, as they have access to a very strong supply chain that Europe has built up over the past two decades. The key is to work together to create one European market, which is where the EU should be able to standardize and scale.

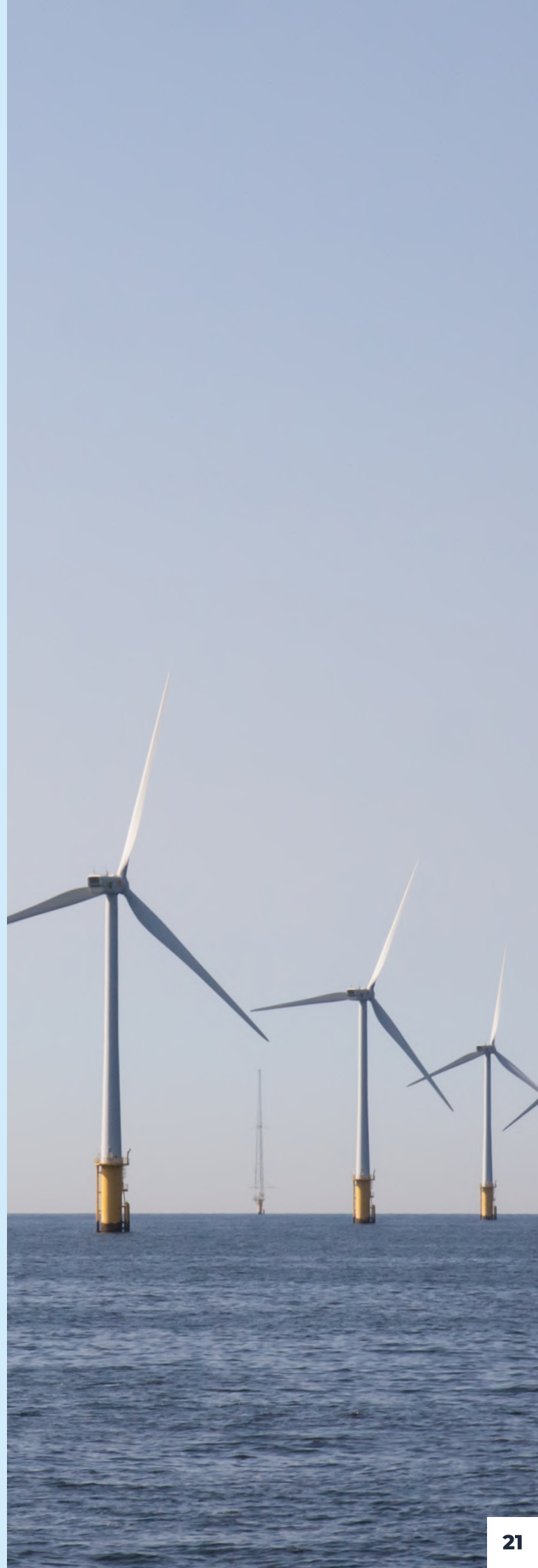
What are the most important challenges for offshore wind development in 2024?

The offshore industry has enormous potential, but the market design must enable long term planning with firm commitments, so the value chain can be expanded in a profitable way - which are challenges not related to the technology as such. The supply chain has been developed for over two decades, so we have a very solid and well proven technology. However, in the renewables industry, the margins are extremely slim for all stakeholders, and any deviation on the cost and income side can very fast lead to red numbers, so the execution must be flawless by all parties involved with long term commitments and short-term firm deliveries.

What matters related to offshore wind energy will you particularly focus on in 2024?

In 2024, we will in the Baltics focus on expanding in Poland and working closely with regulators and customers to support them on their journey; utilizing our many years of experience and best practices in the fields of certification and advisory to help accelerate the market. The acceleration of decarbonization and electrification is a key enabler in many industries, so the demand for green electrons is high. We are currently working on 41 Joint Industry Projects across the value chain, like for instance floating sub-stations, testing of hydrogen infrastructure and Power-to-X, to name a few – we need to scale this and come up with recommended practices and solutions.

We will also continue to participate in a research and innovation project related to further digitalization of wind energy, funded by several European universities including Gdansk University of Technology.





Kamil Kobyliński
Head of Offshore Wind Poland,
TotalEnergies

What is the most significant development for the offshore wind in 2023?

From my perspective, the most significant events for offshore wind energy in 2023 are appearance of new capacities despite challenges of offshore wind energy industry in the world. By the end of 2022, we had over 63 GW of global offshore wind energy capacity, which represented 7% of global wind installations. In 2023, the capacity of offshore wind farms continued to grow, reaching over 70 GW of capacity at the end of the year. Last year, over 7 GW of capacity was fully commissioned - including the TotalEnergies – Seagreen offshore wind and 48 GW was in the construction phase.

Regionally, the announcement of the European Wind Power Package was received with great satisfaction, specifying, inter alia, intensification of offshore wind energy development targeting 60 GW by 2030 and 300 GW by 2050.

In turn, in Poland new awards for offshore wind energy under the so-called “the second phase” was significant event of the year. As of now, Poland already secured over 18 GW in offshore locations and significantly starts contributing in offshore development in Europe.

What are the most important challenges for offshore wind development in 2024?

Most important challenges for offshore wind development in 2024 are mastering the dynamics of change and uncertainty in the offshore wind market, in particular related to the supply chain, components’ prices variability and cost inflation. These factors have made commercial decisions increasingly difficult and uncertain in 2023 and may lead to even more delays or abandonments of offshore projects in 2024. Despite of that TotalEnergies continues its offshore wind worldwide program.

However, these issues will have significant implications for the European offshore market, which in my opinion, must relatively quickly rebuild its production and logistics potential in order to achieve the goals set out in the European Wind Charter, but also to ensure competitiveness in relation to other markets – American or Asian.

Nationally, the industry is catching up on infrastructure for offshore wind – the construction of an installation port has started (Orlen), nacelle assembly and blade production plant is underway (Vestas), and preparatory works for the construction of foundation factories and towers are being finalized (Windar Renovables, Baltic Towers). The timely implementation of these projects will certainly have an impact on the feasibility of the Polish 18 GW offshore program by 2040.

In addition to strictly infrastructure issues, the foreign investors wait for decisions regarding strategic partnerships for the second offshore phase (over 10 GW). As TotalEnergies, we continue to maintain our interest in the development of the Polish offshore program, targeting our cooperation not only in this area, but in the entire integrated energy transformation value chain.

What matters related to offshore wind energy will you particularly focus on in 2024?

Globally, we will continue to implement our offshore wind energy portfolio to achieve at least 15 GW of power in operation by 2030. In addition, we are analyzing the possibilities of participating in upcoming tenders for concessions for offshore wind energy - in Europe alone, 2024 may bring up to 40 GW of power to be contracted in auctions.

Finally, from the Polish perspective, we hope that 2024 will also bring a clear plan for the development of offshore wind energy, especially the second phase.

When talking about Polish offshore, we are talking about over 18 GW of capacity with a perspective until 2040. Taking into account the scale of the project as well as the needs of the country's energy transformation, offshore wind energy should be considered as a component of the entire energy transformation chain and not only as "stand-alone" projects. . Utilization of such potential should serve the development of new technological and commercial solutions, such as Power-to-X technologies, transforming it into hydrogen-based energy carriers - green ammonia or synthetic fuels.

Hence, the proper selection of partners for the implementation of Polish offshore, who, in addition to knowledge and experience, will help build the highest possible added value in the entire value chain, thus making Polish offshore more credible compared to other competitive markets.

As a multi-energy company, we operate in all the above-mentioned areas, always in the partnership formula - this is in our DNA. By contributing our know-how, reliable financial position as well as purchasing power - which is crucial in the context of the current situation on the offshore market - we implement synergy effects and maximize the added value both for joint ventures and for the entire local economy.

To sum up, 2024 will be a year of intensive work aimed at convincing Polish partners to jointly implement energy transformation projects.



Otto Swanljung
Director, Wind Energy, Metsähallitus

What is the most significant development for the offshore wind in 2023?

Metsähallitus proceeding with Finnish offshore projects Korsnäs and tendering procedure of Ebba and Edith. Metsähallitus is responsible for the pre-development, the tendering process leading to the sale of project rights and the leasing of the sea area. The aim is to substantially increase offshore wind capacity in the Finnish territorial waters during the 2030's.

What are the most important challenges for offshore wind development in 2024?

The most important challenges are macroeconomic environment of the

global offshore wind industry with escalating costs and interest rates for example. At the same time the European energy system is undergoing a big shift in order to reduce the dependence on Russia and reach the climate change targets and push forward green transition in general. For investors the environment is very challenging at the moment.

What matters related to offshore wind energy will you particularly focus on in 2024?

In 2024 we will focus in particular on working hard to support the European energy self-sufficiency and developing the Finnish investment pipeline as predictable and attractive for as possible.



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