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Powering Europe Together - Poland’s Role in the Offshore Wind Future

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WIND INDUSTRY HUB

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Preface

The offshore wind industry is one of the most dynamic and strategic pillars of Europe's clean energy transformation. As the continent moves toward energy independence, climate neutrality, and industrial resilience, building a competitive and integrated European offshore wind value chain has become more urgent than ever. The success of this sector depends not only on increasing installed capacity, but also on developing coordinated supply chains, regional partnerships, and cross-border collaboration that will ensure stable, secure, and sustainable growth.

Together with our partners, we aim to contribute to a broader European dialogue on how to strengthen regional cooperation and build an effective offshore wind value chain. The Polish Investment and Trade Agency (PAIH) shares in this publication its perspective on supporting the offshore wind sector through export promotion, investment facilitation, and international cooperation.

This contribution complements the input from our partners:

- the Polish Wind Energy Association (PSEW), which presents a dedicated proposal for an industrial strategy for the offshore wind sector in Poland, reflecting the long-term vision and priorities for market development;
- and the Polish Offshore Wind Industry Chamber (PIMEW), whose members represent key players in the domestic supplier ecosystem, building the foundations of a competitive offshore wind supply chain in Poland.

Through this joint initiative, we hope to strengthen awareness of Poland's capabilities and encourage deeper cooperation across Europe's offshore wind community.

Photo: Unsplash/ Nicholas Doherty

Poland's Offshore Wind Industry Development Strategy

Wind energy is a pillar of Europe's decarbonisation and energy security. **The share of wind energy in the EU's energy mix is set to increase** from the current 20% to 34% in 2030 and **over 50% in 2050.** The ambition for new wind capacity is therefore forcing an increased pace of investment in production facilities to match capacity with demand.

Wind sources built in the EU have so far relied mainly on internal (European) production capacity, but other market players are aggressively pushing the European industry out of the global wind industry and exporting more and more wind sector components to the EU.

The EU has been developing regulatory tools to support the resilience and competitiveness of the European industry since 2021, and individual countries are implementing national industrial strategies and investing in new facilities production. The first wave of development of offshore wind farms (OWFs) in Poland shows that it is essential to provide a systemic support for Polish industry, so that it can meet the expectations of OWF developers and increase its share in the industrial base for projects.

At the same time, the scale of **investment for the planned 18 GW of offshore wind power capacity by 2040 in Poland is estimated at PLN 300 billion. The EU and the UK, in turn, will spend up to PLN 3,700 billion on offshore wind development by 2040, what gives Polish companies (among others)** an opportunity to export their products.

Poland needs its own national STRATEGY FOR WIND INDUSTRY DEVELOPMENT to develop the country's industrial potential, increase the share of domestic suppliers in national projects and make this new sector a driver of economic development and exports. **A draft of such a STRATEGY has been developed by industry experts from the Wind Industry Hub, the Polish Wind Energy Association and the CEE Energy Group and is ready for implementation at government level.**

The document maps the European situation of the OWE supply chain and, taking into account Poland's role in capacity development, offers a common EU approach to the development of the OWE industry.

Photo: Shutterstock

About the strategy

On the eve of the announcement of the European Commission's most important document of this term, i.e. the „Clean Industrial Deal", which aims to combine EU efforts to achieve climate neutrality with significant support for the competitiveness of European industry and safeguarding the Community against the risk of a loss of economic security - **a team of experts (Wind Industry Hub, Polish Wind Energy Association and CEE Energy Group) has prepared a POLISH OFFSHORE WIND INDUSTRY DEVELOPMENT STRATEGY.**

The overarching aim of the study is to provide the Government of the Republic of Poland with comprehensive material to enable the adoption of a National Offshore Wind Farm Industry Development Strategy, recognising it as one of the most important investment programmes in modern Poland.

The authors also proposed an approach coherent within the EU aiming at the support of the coordination of the development of the wind industry in Europe by applying a common methodology to the concept of offshore wind supply chain development.

Unlocking of the domestic potential in terms of wind power supply chain development requires active and precise action by government administration.

The document discusses the importance of wind energy in increasing the supply of affordable and clean energy in Poland, summarises the context of the strategic position of the offshore wind, and identifies systemic solutions necessary to be implemented in order for wind farms to become an engine for the development of the Polish economy. The Strategy focuses also on drawing lessons from the first national experience in the construction of offshore wind farms.

At the centre of the document are the Priority Implementation Programmes - a set of key market segments that (as indicated by detailed market and economic analyses, experience, synergies and security aspects) should be developed in Poland.

Experiences of offshore wind farm development in Poland

Unlocking of the domestic potential in terms of wind power supply chain development requires active and precise action by government administration, without which Poland will not be able to take advantage of the economic opportunities associated with European regulations (e.g. Net Zero Industry Act - NZIA). The participation of domestic contractors in the so-called first phase of OWF construction in Poland is widely considered to be unsatisfactory.

The analysis of the participation of Polish companies in the so-called Phase I of the OWF, in the CAPEX part of the projects, shows that out of 40 identified Tier-1 contracts, only 5 were signed by companies with operations in Poland. At the same time, taking into account the technical and organisational potential of domestic companies, it should be recognised that it would be possible for more contracts to be signed by domestic companies for components or services such as: offshore substations, foundation transition pieces, installation vessels, cables.

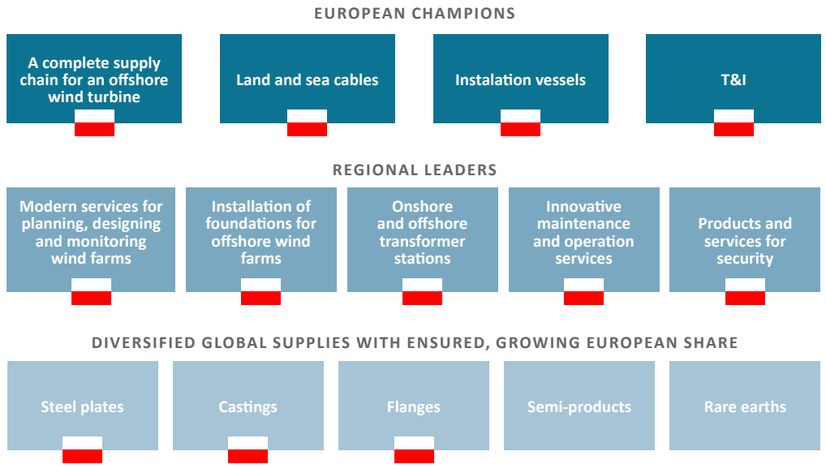
Currently, developers are already preparing for the contracting of Phase II of the OWF in Poland. Industry lessons learned will be crucial for the domestic wind sector.

The idea of *European content*

As the authors of the Strategy argue, in order to increase international cooperation and the participation of Polish industry in the European offshore wind energy market, it is necessary to introduce the concept of *European content* instead of the traditional *local content*. Polish industry should not only serve local projects, but also play an important role in the European supply chain.

The idea of *European content* is also relevant to the challenges of an EU industry which faces a strategic need to consolidate its resources and skills in order to effectively face the challenges of global competition and to contribute to accelerating the green energy transition. On the other hand, certain economic activities, particularly those related to the maritime industry and logistics will probably remain the domain of individual Member States for many years to come. The following graphic presents an analysis of the supply chain segments with the assignment of the level of European integration and an indication of Poland's possible contributions.

The supply chain of the offshore wind sector in Europe, according to the authors, can be divided into three levels, from full European integration supporting market leaders, through regional, national players, to a more diversified global supply with a smaller European share. Each of these levels encompasses different areas of activity where Europe can make its mark internationally, ensuring security of supply and strengthening energy independence.



A strategic vision for offshore wind supply chain development in the EU (own elaboration).

Priority programmes

In the Strategy the following Priority Implementation Programmes, have been identified and selected according to 4 criteria (cost-effectiveness, experience, synergy to other industries and safety).

Modern wind farm planning, design and monitoring services. The programme assumes that the majority (more than 50%) of the project development work (DEVEX) will be carried out in Poland. In this way, Poland will be able to develop local competencies in managing offshore wind energy projects, ensuring a high level of control over each stage of the investment process. It will also enable the creation of jobs in specialised fields such as offshore engineering and wind farm design, which in the long term will strengthen the Polish offshore wind industry, as well as other areas of the economy. Poland should have its own potential to design key connection infrastructure (offshore substation and cables).

A complete supply chain for an offshore wind turbine. The development of a local supply chain for offshore wind turbine components is key to achieving Europe's independence in this area. Poland should be a key hub for European industrial champions in this product. The aim of the programme is to ensure that between 50-75% of the components for the offshore turbines in Europe (in terms of financial value to level Tier 2) will be manufactured in Poland. This includes ensuring knowledge of the key raw materials and technologies that are required for production.

Poland has at least three unique assets with the capacity to build or convert its own installation vessels.

Photo: Unsplash/ Theodor Vasile

Foundation assembly for offshore wind farms. The country's shipyards and ports have a very high potential for the location of foundation assembly, particularly transition piece, floating foundations, but also the jacket type / monopiles . Despite their dependence on the supply of heavy plate, the location of foundation production facilities in Poland will allow the industrial development of Baltic ports to intensify. An interesting alternative is gravity-based foundations (GBS), which can be 100% made by Polish/European companies, as all substrates are available on the domestic market.

National offshore substation project. Any offshore substation for Polish farms should be built domestically, allowing the development of the Polish shipbuilding, electrical and auxiliary equipment industry. Developing the design potential will allow maintain competence in offshore engineering in Poland, while the critical energy infrastructure of which the OWF will be a component will ensure digital security.

Cables. Poland should identify and support the ambition to develop a European champion of cable production for offshore wind. A key element of the programme is also to build capacity of cable production for offshore wind farms in Poland, which will further strengthen the local supply chain and reduce dependence on foreign suppliers.

New European offshore wind farm installation company based in Poland. Transport and installation of OWF is the domain of large European companies and Poland should support their development. The national objective is to establish a regional European installation company, which will have its headquarter in Poland. Offshore wind farm installation capacity will be provided by a national company, which - in partnership with a European champion - will increase Polish autonomy in the installation of offshore wind farms, which will reduce project costs and accelerate investment. The programme will contribute to the construction of a modern installation and support fleet, and increase the competence of Polish companies on the international market. The aim of the programme is to return specialised shipbuilding production for offshore wind, particularly the installation fleet, to Europe and to propose that Poland would be the main production location as well as converting/ rebuilding units. Poland has at least three unique assets with the capacity to build or convert its own installation vessels.

Innovative operation and maintenance services. This programme focuses on the development of modern operation and maintenance services for offshore wind farms, using the latest technologies such as artificial intelligence and automation. The programme also aims to develop state-of-the-art tools and systems that allow for remote or unmanned

monitoring and maintenance of wind farms, minimising downtime and reducing maintenance costs and ensuring their physical safety. Implementing innovative solutions in the area of O&M (operation and maintenance) will increase the efficiency of farm operations, which will translate into long-term economic and environmental benefits for Poland, but will also allow such services to be provided to foreign projects.

Safety. The evolution of the perception of offshore wind farms as critical infrastructure, and its use in the development of dual-use technologies, necessitates the need to define the role of the national defence industry in the development of offshore wind farms in Poland and internationally.

Furthermore, the common denominator for all the Priority Implementation Programmes identified is security issues understood in a multifaceted way.

- **Development of maritime infrastructure protection technology.** This includes monitoring systems and threat detection, autonomous patrol craft, and technology to operate communication and control systems resilient to cyber threats.

- **Cooperation between the defence and energy sectors.** Development of joint research and development projects for multipurpose product platforms and services, that can be used for both energy production and defence purposes.

- **Increasing interoperability of infrastructure.** Ensure compatibility of technology solutions with defence requirements, including integration with radar, maritime surveillance and border protection systems.

- **Building the competencies of the domestic industry.** Supporting local suppliers and manufacturers in developing solutions for both renewable energy and defence, which fosters an increase in the added value of Polish industry.

Safe Baltic

In an era of increasing geopolitical tensions and changes in the European security architecture, the proposed approach enables the integration of key State interests in the energy, defence and industrial areas. As indicated in a report of the European Defence Agency (EDA) issued in June 2023[1], the integration of offshore energy and defence industries is key to build a safer and more sustainable Europe, and Poland can play an important role in this process by developing innovative solutions for the protection of critical infrastructure.

From the perspective of the large scale investment programme in offshore wind farms in Poland, it is necessary to ensure close oversight of the design and project implementation process to prevent the disclosure of strategic information. In addition, coordination of activities at national and international level, including cooperation with NATO allies and the EU, remains a key aspect. Therefore, maximising the participation of the domestic and European supply chain in the implementation of investments is essential. In the face of hybrid warfare and the presence of so-called 'shadow fleets' in the Baltic Sea, projects in the Baltic Sea require particular attention to the reliability and security of the components and services involved.

[1] https://eda.europa.eu/news-and-events/news/2024/04/24/filling-gaps-in-eu-defences-eda-publishes-its-2023-annual-report

The creation of a medium-term development plan, taking into account the specificity of Polish problems and conditions, is becoming the need of the hour.

SUMMARY

A report by the former head of the European Central Bank, Mario Draghi, speaks of **€800 billion a year** that should be injected into the EU economy to at least sustain its effective competition with non-European companies. **The creation of a medium-term development plan, taking into account the specificity of Polish problems and conditions, is becoming the need of the hour. Europe has a Mario Draghi report - the Polish economy should have its own competitiveness strategy.**

The need for a greater involvement of domestic stakeholders in the investment programme in OWE is not only a developmental and transformational opportunity for Polish industry, but also the need to ensure stability, reliability and resilience throughout the supply chain and life cycle of offshore wind farms. Against this backdrop, an expert team from Wind Industry Hub, Polish Wind Energy Association and CEE Energy Group has developed a nearly 400-page analysis, which provides a comprehensive study of the topic, while offering concrete solutions, business models and recommendations for action included in 10 key implementation packages.

Contributed by the Polish Wind Energy Association (PWEA) & Wind Industry Hub (WIH): Dominika Taranko, Maciej Mierzwiński, Krzysztof Tomaszewski

Offshore Wind in Poland in a Nutshell – Manufacturing Capacity and Supply Chain Development

The Polish offshore wind market is booming. The **1,140 MW Baltic Power offshore wind farm,** developed jointly by **Orlen S.A. and Northland Power** under a joint venture of the same name, is currently under construction. In **January 2025, the first monopile** for one of the **76 Vestas 15 MW wind turbines** was installed in the seabed. Around the same time, the joint venture between **PGE Baltica and Ørsted** announced the **final investment decision (FID) for the 1,498 MW Baltica 2 project.** By 2030, **approximately 6,000 MW** of offshore wind capacity will be installed in the **Polish Exclusive Economic Zone of the Baltic Sea.** An additional **12,000 MW,** spread across a dozen offshore wind projects, is gradually progressing through the development phase, with the ultimate goal of reaching **18,000 MW by 2040.**

At the same time, the **Polish offshore wind industry is rapidly expanding its capacity and expertise,** emerging as a **leader in the Baltic Sea Region** and an equal partner to the well-established Western European offshore wind sector. **Installation and O&M seaport bases, state-of-the-art factories for steel structures** such as **wind towers (Baltic Towers), EPC-level OSS supplies (CRIST Offshore),** and **export cable manufacturing** with **installation services (TELE-FONIKA Kable)** – these developments and more are becoming a reality in Poland's industrial landscape. As a result, **Poland is solidifying its role as a key force in building a resilient and competitive European offshore wind industry.**

Photo: Freepik

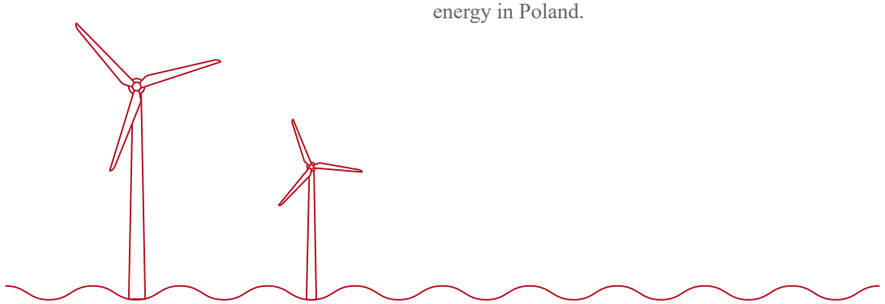
About the Polish Offshore Wind Industry Chamber (PIMEW)

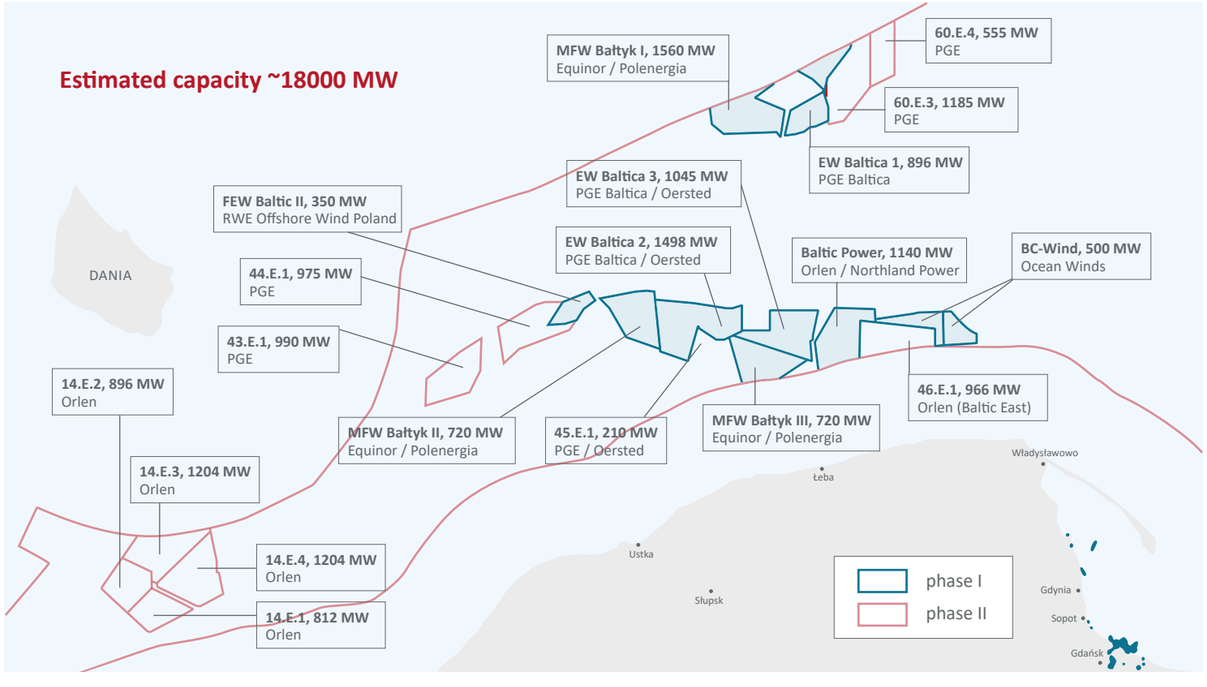
The Polish Offshore Wind Industry Chamber (PIMEW) is a nationwide organization that officially represents the economic interests of businesses operating in Poland in **production, services, trade, and construction** for the offshore wind energy sector. It also welcomes other entities engaged in the sector's development. PIMEW unites **over 170 enterprises from Poland and abroad.**

By 2030, approximately 6,000 MW of offshore wind capacity will be installed in the Polish Exclusive Economic Zone of the Baltic Sea.

Chamber's mission:

- **Strengthening domestic industry participation** – Supporting businesses operating in Poland across production, services, trade, and construction in securing contracts for offshore wind projects in the domestic market.
- **Facilitating international expansion** – Assisting Polish-based companies in accessing foreign markets, fostering international business relations, supporting overseas operations, and promoting Polish exports.
- **Advocacy and representation** – Advancing the collective interests of Chamber Members, particularly in engagements with public authorities and key market stakeholders.
- **Regulatory engagement** – Collaborating with public authorities to shape regulatory frameworks governing offshore wind energy and the broader business environment in Poland and the EU.
- **Strategic industry cooperation** – Partnering with public and private stakeholders to define the long-term strategic direction and development of offshore wind energy in Poland.





Offshore wind farm projects approved by Poland`s Government and being under construction or development

Year		Capacity volume under CfD
	'Phase I' (closed, non-competitive)	
2021	max. 5,9 GW	5,9 GW
	Phase II' (reversed auctions)	
2025	max. 4 GW	9,9 GW
2027	max. 4 GW	13,9 GW
2029	max. 2 GW	15,9 GW
2031	max. 2 GW	**17,9 GW**
2032 (option)	min. 0,5 GW	

CfD contracting scheme according to Offshore Wind Act

The Polish offshore wind industry stands as your **reliable partner across the entire supply chain.** Below, you will find a list of key areas in alphabetical order, but our expertise extends beyond these categories. For more details and access to the supply chain map, please contact PIMEW: biuro@pimew.pl.

- Array cables
- Aviation services
- Bearings
- Blades
- Bolting systems
- Building permit design
- Cabling accesories supplies
- CCTV systems supplies
- Certification
- Coatings / special paintings
- Construcion support services
- Customs clearance
- Davit cranes
- EIA execution services
- Electrical design
- Electrical equipment
- Elevators
- Environmental advisory
- ESG advisory
- Export cables
- Financial advisory
- Fire protection systems and infrastructure
- Geotechnical campaigns
- HDD / landfall
- HSEQ services/PPE supplies
- HV devices
- Industrial design
- Insurance services
- Legal advisory
- Lighting systems
- Logistics / port logistics / stevedoring
- MCC
- Metocean
- MWS
- Nacelle parts
- O&M WTG
- Offshore connection systems
- Offshore structures inspections
- Offshore training services
- ONS / OSS in EPC formula
- Permitting services
- Primary steel (TP)
- QA/QC
- Recruitment/HR
- Rope access
- Rotor elements
- Secondary and tertiary steel
- Ship design
- Shipping or / and shipyard production
- Special software design
- Special vessel equipment production / supplies
- Special welding
- Technical design
- Transport & Installation
- Underwater works / diving works
- UXO clearance
- Vulcanized steel elements
- Welding materials supplies
- Wind towers

Some of new, ongoing investments in Polish offshore wind industry

New offshore towers production facility – Baltic Towers

- Owner / investor: **ARP – GRI joint venture**
- Location: **Gdansk Shipyard area, Gdansk, Poland**
- Operational: **H1 2025**
- Annual capacity: **150 units**
- FTE: **550-650**
- Total investment value: **approx. EUR 200M**
- Production and painting area: **6,2 ha**
- Storage area: **9,3 ha**
- Max. length of section: **50 m**
- Max. diameter of section: **10 m**
- Max. weight of section: **500 t**
- Max. thickness of sheet: **120 mm**

Courtesy: Baltic Towers

ORLEN Neptun installation terminal in Świnoujście

- Owner / investor: **ORLEN Neptun**
- Location: **Świnoujście, Poland**
- Operational: **2025**
- Annual capacity: **~80 WTG units**
- Fairway depth: **12.5 m**
- Bottom width on approach track: **130 m**
- Total quays length: **495 m (250+245)**
- Storage area: **16 ha**
- Capacity on loading quay: **50 t / sqm**

Courtesy: Orlen Neptun

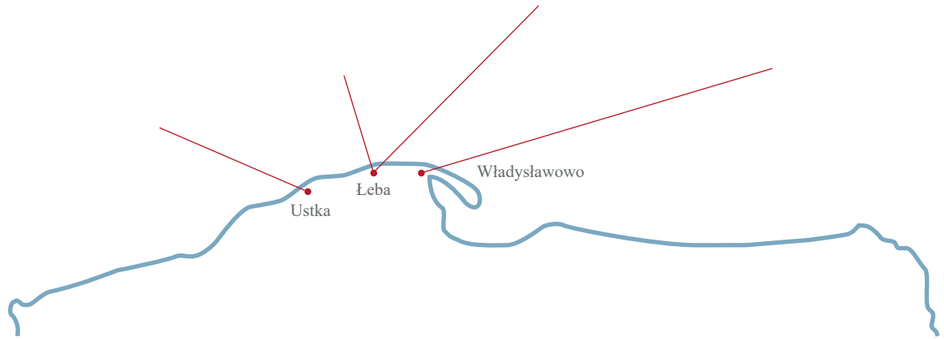
Offshore Centre in Gdańsk operated by Maritime University in Gdynia

- Owner / investor: **Pomerania Development Agency**
- Location: **Gdańsk, Poland**
- Operational: **2024**
- General description: Innovative Center of Integrated Marine Environment Research Laboratories for the Offshore Industry will include comprehensive research and measurements at sea tools in order to obtain information about the state of the marine environment and its resources necessary for operations on the fuel market, shipbuilding, offshore wind energy and maritime transport.

Courtesy: Maritime University of Gdynia

O&M seaport bases along Pomeranian coastline

- Investors: **PGE Baltica, Equinor, Baltic Power, Ocean Winds**
- Operational: **2025-2028**
- FTE: ~ **300**



Moreover:

- New Vestas facilities: WTG assembly and blades factory in Szczecin
- New WINDAR facilities: offshore wind towers production in Szczecin
- New TELE-FONIKA Kable export cable production facility and logistics base in Szczecin
- New T5 Terminal dedicated to offshore wind installation, located in Gdansk

Contributed by the Polish Offshore Wind Industry Chamber (PIMEW): Jakub Budzyński

Poland’s Offshore Wind Revolution: ARP S.A., Baltic Towers and Baltic Industry Group driving industrial growth

Baltic Towers: a Game-Changer for Poland’s Offshore Industry

Introduction

Poland is rapidly emerging as a key player in Europe’s offshore wind sector, thanks to strategic investments led by ARP S.A. (Industrial Development Agency), Baltic Towers and the Baltic Industry Group. These entities are accelerating the country’s energy transition while strengthening its industrial capabilities. From cutting-edge manufacturing facilities to critical offshore infrastructure, their projects are setting new benchmarks for innovation, local content, and sustainable development.

A new industrial landmark in Gdańsk

The Baltic Towers facility, currently under construction on Ostrów Island in Gdańsk, represents a milestone in Poland’s offshore wind ambitions. Developed through a partnership between ARP S.A. and GRI Renewable Industries S.L., this state-of-the-art factory will be one of the most advanced offshore wind tower production plants in Europe.

Key features:

- Annual capacity: 150+ towers for next-gen offshore turbines (15+ MW).
- Massive dimensions: Tower sections up to 50 meters long, 11 meters in diameter, and 500 tons in weight.
- Strategic location: Proximity to Baltic Sea ports ensures efficient logistics for regional wind projects.

Photo: Unsplash/ Jesse de Meulenaere

The Baltic Towers facility, currently under construction on Ostrów Island in Gdańsk, represents a milestone in Poland's offshore wind ambitions. This state-of-the-art factory will be one of the most advanced offshore wind tower production plants in Europe.

Economic and employment impact

The facility will create 500+ high-skilled jobs, with 80% in production roles (welders, assemblers, engineers). To support workforce accessibility, Baltic Towers offers transport solutions for employees commuting from distant regions.

Strengthening Poland's energy independence

By localizing production, Poland reduces reliance on imported components, shortens supply chains, and enhances its role in the EU's offshore wind expansion. With 6 GW of offshore wind capacity targeted by 2030, Baltic Towers will be a cornerstone of this growth.

ARP S.A.: key achievements in offshore infrastructure

Successful delivery of offshore substations for Baltic Power

A recent milestone was the completion of two offshore substations for the Baltic Power wind farm (a joint venture between PKN Orlen and Northland Power). These substations are critical for transmitting electricity from turbines to the onshore grid.

Project highlights:

- Fully compliant with international offshore standards (safety, durability, efficiency).
- High local content – significant involvement of Polish suppliers and contractors.
- Proven capability to execute complex offshore energy projects.

This achievement demonstrates Poland's growing expertise in offshore electrical infrastructure, a crucial step toward energy security and industrial self-sufficiency.

Photo: Baltic Towers

Expanding Poland's Offshore Supply Chain

ARP S.A. and the Baltic Industry Group are actively developing Poland's offshore wind ecosystem by:

- Modernizing port infrastructure (e.g., Świnoujście, Gdynia) to handle large-scale components.
- Investing in R&D for floating wind and hydrogen integration.
- Fostering partnerships with global energy leaders to transfer knowledge and technology.

Baltic Industry Group recent projects for offshore wind industry:

- Production of steel structures for wind energy and offshore and onshore industry (transformer stations and secondary steel products)
- Implementation of comprehensive projects for Polish and foreign shipowners,
- Diagnosing and using the potential of cooperation in the Baltic region and globally.

Why Local Content Matters? The strategic advantage of Polish supply chains

Boosting economic resilience

Maximizing local content in offshore wind projects ensures:

- Job creation in manufacturing, engineering, and logistics.
- Reduced costs and risks by shortening supply chains.
- Stronger industrial base for future renewable energy projects.

Energy security & EU Climate Goals

Poland's offshore wind expansion aligns with the EU's Green Deal, reducing fossil fuel dependence while meeting rising electricity demand. By developing domestic manufacturing and infrastructure, Poland avoids over-reliance on foreign suppliers and strengthens its energy sovereignty.

Global Competitiveness

With the Baltic Sea's vast wind potential (2,000 km² of designated development zones), Poland is poised to become a regional offshore wind hub. Investments like Baltic Towers and offshore substations prove that Polish industry can compete on a global scale.

Photo: Baltic Towers

Strengthening Poland's Offshore supply chain: ARP S.A. and Tele-Fonika Kable S.A. join forces

A further step in reinforcing Poland's offshore wind capabilities was marked by the signing of a Letter of Intent (LOI) between ARP S.A. and Tele-Fonika Kable S.A., a leading Polish manufacturer of power and fibre optic cables. This strategic partnership aims to enhance the domestic production of subsea cables, a critical component for offshore wind farms. By leveraging Tele-Fonika's expertise in cable technology and ARP's role in industrial development, the collaboration will help localize more of the offshore wind supply chain, reduce dependency on imports, and create high-value jobs in Poland. This initiative aligns with the broader goal of maximizing local content in renewable energy projects, ensuring that Poland not only participates in but also benefits economically from its growing offshore wind sector.

Future outlook: ARP S.A. next steps

Upcoming Projects & Vision for 2030

- Further expansion of offshore substation production to support new wind farms.
- Development of floating wind technology for deeper Baltic waters.
- Training programs to build a skilled workforce for offshore energy.

The collaboration between ARP S.A. and the Baltic Industry Group is transforming Poland into a renewable energy powerhouse.

Conclusion: Poland's offshore wind leadership

The collaboration between ARP S.A. and the Baltic Industry Group is transforming Poland into a renewable energy powerhouse. From Baltic Towers' cutting-edge manufacturing to the successful delivery of offshore substations, manufactured by the Baltic Industrial Group, these initiatives prove that local content, innovation, and strategic partnerships are key to a sustainable energy future.
As Poland advances toward 6 GW of offshore wind by 2030, these investments will ensure the country remains at the forefront of Europe's green energy transition.

Contributed by Industrial Development Agency JSC (ARP S.A.) | Baltic Industry Group | Baltic Towers: Michał Garbaczuk

Offshore Wind in Poland – From Energy Goals to Investment Growth

The first Polish offshore wind farm will start producing energy as early as 2026. **The estimated value of investments in offshore wind energy will amount to approximately PLN 130 billion, but the benefits of increasing the share of RES in the energy mix may exceed the above costs.** Thanks to offshore wind farms, Poland will become an attractive country for companies from sectors such as semiconductors and electromobility.

The Offshore Wind Energy (OWE) sector plays a key role in Poland's energy transformation. Thanks to its location on the Baltic Sea, Poland has a huge potential for the development of the wind energy sector. According to the assumptions in the document entitled: "Energy Policy of Poland until 2040", offshore wind farms with a total capacity of 18 GW are planned to be installed in Poland's exclusive economic zone of the Baltic Sea.

The program for the construction of offshore wind farms in Poland will significantly affect the structure of generating capacity in the energy sector and the development of the transmission network. Thanks to the program, Poland will be able to not only achieve climate and environmental goals in the field of renewable energy sources and CO_2 emission reduction, but also attract new investment projects.

However, in order to achieve this goal, it is necessary not only to develop and support the construction of wind farms in the Baltic Sea. It is equally important to attract investments to Poland that involve the production of components for renewable energy sources. Companies planning such projects are considering locating them in the immediate vicinity of a seaport, due to the dimensions of the components to be produced.

This means that it is necessary to find a suitable investment area in one of the port cities which has access to good port infrastructure, enabling the servicing of ships with a large draft and a load capacity enabling the loading of heavy components. In addition, the potential investment plot must meet all the standard requirements for production projects – have access to media, road infrastructure, etc.

Photo: Unsplash/ Nicolas Doherty

Examples of the three largest investments in the field of offshore wind components production that have been implemented in Poland in recent years are by the following companies: Vestas, Windar and the Baltic Towers (the latter implemented by Industrial Development Agency (ARP) in cooperation with the Spanish GRI Renewable Industries).

PAIH supported 7 renewable energy component projects between 2019–2024, valued at over EUR 650 million.

Baltic Towers plans to start producing towers for offshore wind energy on Ostrów Island in Gdańsk – the new plant will start operating in the second quarter of 2025. The investment will cost EUR 200 million and will employ up to 500 people. The 6,2 ha production hall will enable the production of tower elements, sections of which will weigh up to 500 tons and measure 50 meters in length and 10 meters in diameter.

The Danish company Vestas is implementing an investment in Szczecin involving the creation of a wind turbine nacelle assembly factory for the V236-15.0 MW™ model. The new factory will be built on the site of the former ST3 Offshore investment, which produced foundations for offshore wind farms. In 2023, Vestas purchased the plant and began its reconstruction. The opening of the factory in Ostrów Brdowski, which is to eventually employ up to 700 people, is planned for 2025.

Moreover, the Spanish company Windar plans to build a plant producing foundations and towers for offshore wind in Ostrów Grabowski in Szczecin. The estimated CAPEX of this investment is EUR 70 million, and the employment level is planned to be 400. The location of the factory is in the port, due to the need to directly load offshore wind towers onto ships. The plant is planned to start operating in 2026.

Support for investments in the production of offshore components

PAIH actively supports the implementation of greenfield and brownfield investment projects. The Agency's task is to provide entrepreneurs with all the information necessary to start their operation in Poland. It is worth remembering that PAIH only supports investment projects aimed at producing components for renewable energy generation, and does not offer services for companies aimed at producing electricity. In the period between: 2019-2024, PAIH supported 7 investment projects in the renewable energy components production sector. Their value amounted to over EUR 650 million, and it is planned that the new plants will employ over 1,200 people.

Baltic Towers plans to start producing towers for offshore wind energy on Ostrów Island in Gdańsk – the new plant will start operating in the second quarter of 2025.

Among the services offered by PAIH are: location consulting, preparation of comprehensive information packs and consulting in the area of public aid. PAIH also offers support in contacts with public administration and post-investment care. Each investment project has an individual Project Manager who will ensure that the investor receives all the necessary information on an ongoing basis.

Production projects can count on public aid support. Available tools include Government grants, company income tax exemptions (CIT) within the Polish Investment Zone and, in some municipalities, real estate tax exemptions (RET). Projects applying for support must meet specific quantitative and qualitative criteria. Depending on the type of project, location and size of the company implementing the investment, the package of available public aid may be different, which is why it is worth taking advantage of PAIH's free advice on the available incentives.

The importance of RES from PAIH's perspective

Investors who are considering implementing investment projects in Poland increasingly require that their operations be powered by energy from renewable energy sources. The current energy mix, still has a majority share of its energy from coal, making it difficult for Poland to attract projects from the previously mentioned sectors related to the production of microelectronics, components for electric cars, etc.

The construction of Offshore Wind in the Baltic Sea is the simplest and most effective way to increase the share of RES in Poland's energy mix, which is why the development of this sector is of great importance in the context of meeting the goals of climate neutrality. The development of offshore wind energy in Poland will bring in many new investors, who will create new employment opportunities and in this way greatly benefit Poland's economy.

Contributed by the Polish Investment and Trade Agency (PAIH), Investment Support Department: Monika Grzelak, Monika Kisiel, Wojciech Rydel, Tomasz Kopka

Offshore Wind in Denmark – Current Situation and Future Goals

Offshore wind energy in Denmark – current developments and outlook

Denmark has been a world leader in offshore wind energy for years, partly due to its unique geographical conditions. Although Denmark's share of global CO_2 emissions is minimal, at just 0,1%[1], the country is ambitiously pursuing its climate goals, proving that economic growth can go hand in hand with reduction in emission.

Denmark began developing its offshore wind policy as early as 1991 with the establishment of the world's first offshore wind farm – Vindeby Offshore Wind Farm. This project, consisting of 11 turbines with a total capacity of 4,95 MW, initiated the beginning of global offshore wind development.

There are currently 17 offshore wind farms in Denmark with a total installed capacity of 2,7 GW. They cover approximately 40% of the country's total energy demand. A complete list of Denmark's offshore wind farms is available on the Danish Energy Agency's website[2].

The three largest offshore wind farms in Denmark are:

- Kriegers Flak – Denmark's largest offshore wind farm, with a capacity of 604 MW. It is located in the Baltic Sea.
- Horns Rev 3 – a wind farm in the North Sea with a capacity of 407 MW.
- Anholt Offshore – a wind farm situated in the Kattegat Strait with a capacity of 400 MW.

Planned investments, government targets and financial outlays

In December 2019, Denmark passed a climate act aiming at reducing greenhouse gas emissions by 70% by 2030 (compared to 1990) and achieving a complete phase-out of fossil fuels by 2050. Offshore wind energy plays a key role in these efforts, being the foundation of Denmark's energy strategy[3].

The government's strategy sets a target of reaching 9 GW of offshore wind capacity by 2030, with a long-term goal of achieving 35 GW. A significant part of this strategy includes a model in which 20% of new offshore wind projects will be state-owned[4].

[1] Denmark - Countries & Regions - IEA
[2] Fakta om vindenergi på hav | Energistyrelsen
[3] Aftale om klimalov af 6. december 2019
[4] Danmarkshistoriens største havvindsudbud skudt i gang - Regeringen.dk

Photo: Freepik

The goal of this approach is to strengthen public control over green energy production and to ensure that the benefits of these investments reach a wider group of Danish citizens.

On 21st April 2024, the Danish Energy Agency announced the largest offshore wind investment tender in the country's history, covering the construction of six new offshore wind farms with a total capacity of 6 GW. **It was estimated that a single offshore wind farm with a capacity of 1 GW would require an investment of approximately 16 billion Danish kroner.**[5]

Together with previous tenders from 2023, related to the creation of an innovative energy island off the coast of Bornholm[6], the total planned offshore wind capacity was expected to reach 9 GW by 2030. However, in January 2025, the Danish government put the 3,3 GW Bornholm Energy Island project on hold.

Additionally, the government has cancelled the tender for offshore wind turbine construction in inland waters. **At the same time, Denmark has announced plans to announce new tenders for 2–3 GW of offshore wind capacity in 2025, with contracts expected to be awarded in early 2026. The new tender conditions are intended to be more attractive for the bidders, including the possibility of state support.**

[5] The biggest offshore wind tender in Danish history has been published
[6] Status: Udbud udskudt

It is worth mentioning that Denmark's original plans also included the construction of an energy island in the North Sea, but this investment and the related tenders have been postponed. The project is now not expected to be realized before 2036[7].

A list of offshore wind farms that have not yet been installed but are planned based on political agreements is available on the Danish Energy Agency's website. It currently includes 12 projects.

There are currently 17 offshore wind farms in Denmark with a total installed capacity of 2,7 GW. They cover approximately 40% of the country's total energy demand.

Photo: Unsplash/ Miguel a Mutio

Energy islands, one of the most technologically advanced solutions in the energy sector, are designed to serve as hubs for collecting and distributing energy from offshore wind farms, both for Denmark and neighbouring countries. These ambitious plans are estimated to require multi-billion investments from both the public and private sectors, making them a key element of Denmark's energy transition.

In 2022, Denmark, the Netherlands, Belgium, and Germany signed the so-called Esbjerg Declaration, the main goals of which are:

- development of offshore wind energy – increasing offshore wind power capacity to at least 150 GW by 2050, which will provide up to 230 million European households with green electricity;
- enhanced energy security by reducing Europe's dependence on fossil fuels such as Russian oil, coal, and gas, while increasing renewable energy production;
- a reduction of the use of fossil fuels;
- a sustainable future – by prioritising renewable energy sources[8].

The largest of these is the Thor wind farm project, which will have a capacity of 1 GW and will provide energy for one million households. The farm will be located 22 km from the coast in Thorsminde and is due for completion in 2027. The total investment cost for the Thor project is estimated at approximately 15,5 billion Danish kroner[9].

Leading players in the offshore market in Denmark

Vestas – one of the world's largest wind turbine manufacturers and a global leader in the renewable energy sector.

Ørsted – a pioneer in the offshore industry and the world's largest developer of offshore wind energy. The company has undergone a complete transformation from an oil and gas company to a leader in renewable energy. It is cooperating with PGE Baltica on a project of two wind farms in the Baltic Sea.

[7] esbjerg-declaration_170522_v3.pdf
[8] Thor: Danmarks største havvindmøllepark får etableringstilladelse | Energistyrelsen
[9] Thor: Danmarks største havvindmøllepark får etableringstilladelse | Energistyrelsen

It was estimated that a single offshore wind farm with a capacity of 1 GW would require an investment of approximately 16 billion Danish kroner.

Siemens Gamesa Renewable Energy – a Spanish-German giant in the wind turbine industry, actively participating in offshore projects in Denmark, providing technology to many wind farms in the region, including Kriegers Flak.

Copenhagen Infrastructure Partners – a Danish investment fund specializing in green energy, managing multiple offshore projects and investing in wind farm development and marine infrastructure. The fund invests not only in Denmark but also in projects across Asia, Europe, and North America.

Semco Maritime – specializes in engineering projects for the offshore sector, including platform and marine infrastructure projects.

CS WIND Offshore – a manufacturer of steel structures, including foundations for offshore wind turbines.

Institutional and business support

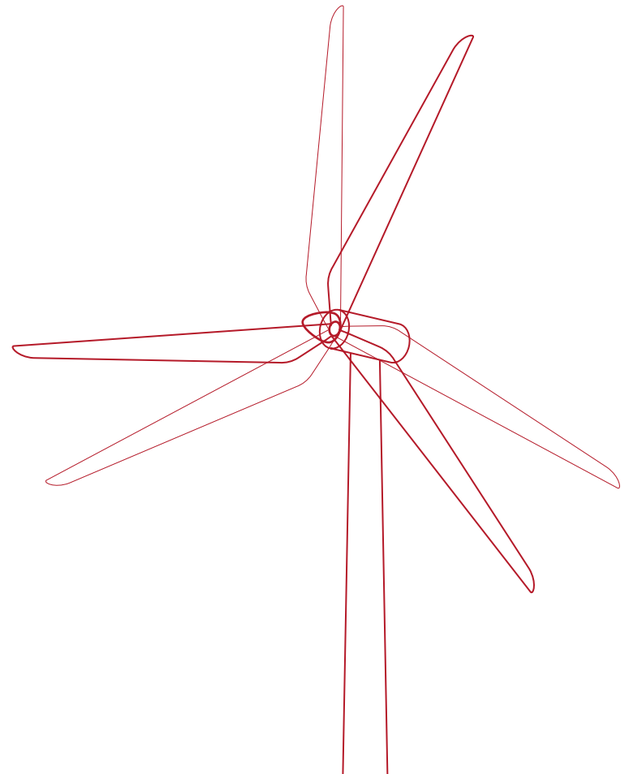
There are many organizations in Denmark that support the development of wind energy, both by creating a political framework and by supporting investments, research and logistics. Here are the most important entities:

- Green Power Denmark – an organization promoting Denmark's green transition by supporting technological development and fostering collaboration between businesses.
- Energinet – Denmark's transmission system operator, responsible for integrating renewable energy sources into the national power grid.
- Port Alliance – a cooperation of leading seaports, the aim of which is to achieve the EU target set within the offshore wind energy strategy for 2030 and 2050. Port Alliance includes the Port of Szczecin-Świnoujście.
- Danish Energy Agency – a part of the Danish Ministry of Climate, Energy and Utilities, responsible for tasks related to energy production, supply and consumption, as well as Denmark's efforts to reduce CO_2 emissions.
- DTU Wind – a research department with one of the world's most advanced research infrastructures and testing facilities for wind and energy systems.
- Danish Energy Cluster – a cluster organisation, establishing and facilitating cooperation between small and large companies, institutions and public entities in the entire energy sector.
- State of Green – a platform for cooperation between the private and public sectors, aiming to support green development by sharing the Danish experiences in the field of sustainability, technology and renewable energy.

Opportunities for Polish companies

Polish companies observe an array of opportunities for collaboration with Denmark, particularly in subcontracting and supplying components for wind turbines and offshore infrastructure. **Other promising areas include energy storage, installation and maintenance services, port infrastructure expansion, advanced offshore technologies, as well as training services. Moreover, the reuse and recycling of wind turbine components are gaining traction.**

The largest of these is the Thor wind farm project, which will have a capacity of 1 GW and will provide energy for one million households.



Information on ongoing offshore-related tenders in Denmark can be found on the website of the Danish Energy Agency.

It is worth mentioning that Vestas' brand new wind turbine components factory in Szczecin has been operational since January 2025. The investment created 700 jobs.

Key industry events Denmark

As one of the pioneers of wind energy, Denmark regularly hosts key industry events, which are an opportunity to exchange knowledge, establish contacts and present the latest technological solutions.

WindEurope Annual Event 2025 – an event dedicated to wind energy organized by the Wind Europe association based in Brussels. The next edition will take place between 8th and 10th April 2025 in Copenhagen.

El & Teknik '26 | Green Power Denmark – Denmark's largest technology and energy industry trade fair will take place between 5th and 7th May 2026 at the Congress Centre in Odense. This event is an excellent platform for presenting technological innovations, including solutions related to wind energy.

Sources: Home | en.efkm.dk, Klimarådet, Energistyrelsen, WindEurope Annual Event 2025 - WindEurope Annual Event 2025, State of Green: Connect. Inspire. Share. Think Denmark, Green Power Denmark, Regeringen - Regeringen.dk, IEA–International Energy Agency

Contributed by the Polish Investment and Trade Agency (PAIH), Foreign Trade Office in Copenhagen: Marzena Pedersen, Marta Orlikowska

Norwegian Offshore Wind – From Oil & Gas Legacy to Floating Wind Leadership

1. Current State of Development

Despite being a global leader in offshore oil and gas, Norway is still in the early stages of developing its offshore wind industry. As of early 2025, Hywind Tampen remains the country's only operational offshore wind project. Developed by Equinor, **Hywind Tampen is the world's first floating wind farm built to power offshore oil and gas platforms.** It began producing power in late 2022 and became fully operational in 2023, supplying renewable electricity to the Gullfaks and Snorre platforms in the North Sea. This pioneering facility is a key milestone, demonstrating Norway's capacity to repurpose its offshore expertise for the energy transition.

To support future growth, key supply chain components are already in place. Cable manufacturers such as Nexans (Halden and Drammen) and NKT play vital roles—Nexans notably expanded its Halden facility to meet rising global demand. In parallel, **Norway boasts strong port infrastructure,** with logistics hubs such as Karmsund, Eigersund, Wergeland, Westcon Helgeland, Norsea Group, and Semco Maritime Hanøytangen ready to support offshore wind operations.

2. Future Prospects and Investments

Looking ahead, Norway has set an ambitious target: 30 GW of offshore wind capacity allocated by 2040. As part of this effort, the government has already designated two development zones—Sørlige Nordsjø II (bottom-fixed, 3 GW) and Utsira Nord (floating, 1.5 GW). The next licensing round is scheduled for 2025, with mounting expectations for clear development plans, particularly for Sørlige Nordsjø II and Utsira Nord. **Additional identified areas like Sørvest F and other sites could further expand the country's offshore wind footprint.**

To achieve these goals, the government has laid out five guiding principles, with particular emphasis on using offshore wind to power new green industries onshore. The expected power surplus could be used for hydrogen

Photo: Freepik

production or exported to neighboring markets. At the same time, the strategy includes deliberations on hybrid vs. radial cable connections, aiming toward a long-term meshed grid in the North Sea.

To make this vision a reality, financial support will be essential. Contracts for Difference (CFDs) are expected to become the key derisking mechanism for floating wind projects. Already, Norway has pledged support to early-stage development efforts at Utsira Nord and Sørlige Nordsjø II Phase I, signaling a clear path toward commercialization.

ing this transition. Norsk Industri launched the Offshore Wind Entry Program to help companies enter the market, while Norwegian Energy Partners (NORWEP) supports international export efforts. Additionally, test and training centers in Rogaland (Karmøy and Egersund) are building technical competence to serve the growing sector. Together, these initiatives reflect a coordinated approach between government and industry.

At the core of Norway's public support is Enova, owned by the Ministry of Climate and Environment. In June 2024, Enova launched a funding program for floating wind projects, offering up to €175 million per project to accelerate commercialization. In parallel, it has allocated 2 billion NOK to stimulate small-scale floating wind innovations, focusing on technology development and cost reduction. Complementing this is Innovation Norway, which provides advisory and financial support for innovative business development in offshore wind and remains a key enabler of market entry and growth.

Furthermore, the Norwegian government has proposed a state funding framework capped at 35 billion NOK (approx. €3 billion) for the first floating wind tender in Vestavind F and Vestavind B. This is in addition to a €3 billion budget allocated for the upcoming Utsira Nord auction, which will feature two-sided CFDs. At 500 MW Utsira Nord would be the largest floating offshore wind farm in Europe to date. These financial mechanisms signal a clear intent to position Norway as a global leader in floating offshore wind.

As Norway's offshore wind market grows, there are clear opportunities for Polish firms across the value chain.

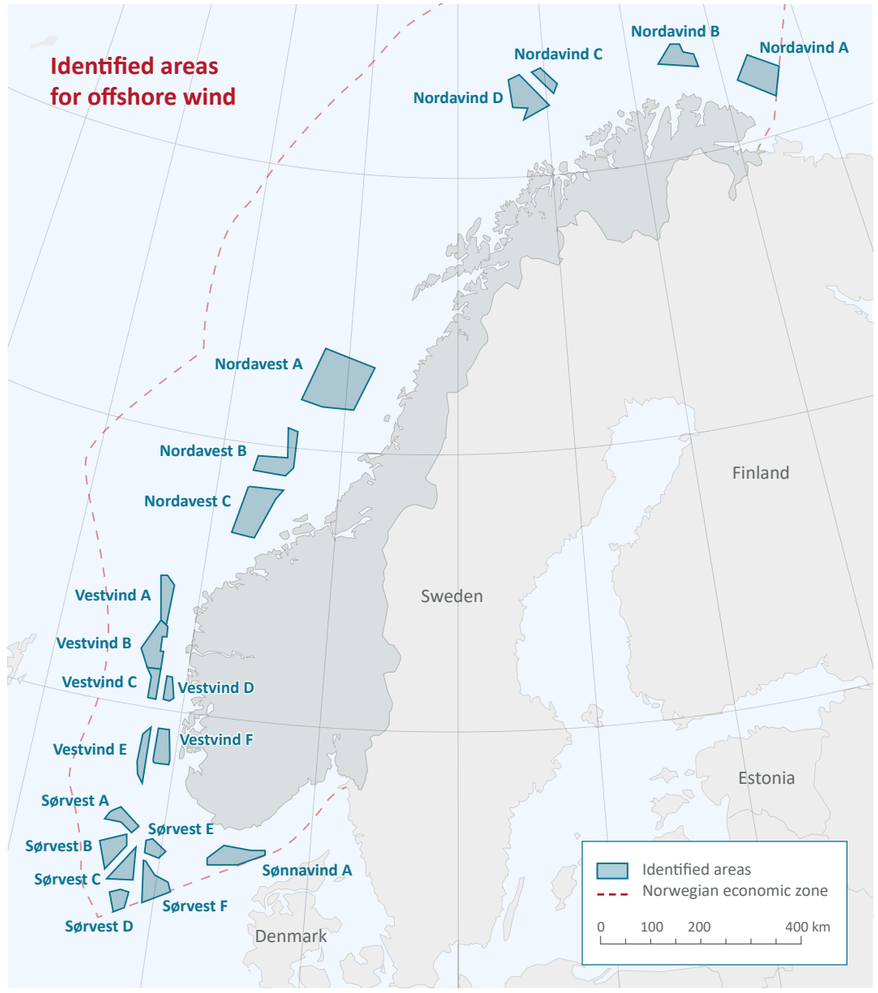
3. Key Industry Players

Norwegian energy giants are increasingly pivoting toward offshore wind. Equinor leads with the Hywind Tampen project, while companies such as Seaway7 and Nexans are active in cable manufacturing. On the logistics side, operators like Norsea Group play a growing role in supporting offshore development.

Meanwhile, many Norwegian companies are already engaged in bottom-fixed offshore wind projects across Europe and beyond. Their future competitiveness depends heavily on the continued development of a strong domestic market, particularly in floating wind, and on scaling technologies already in use.

4. Institutional and Business Support

Norway's offshore wind development is bolstered by several key institutions and substantial financial commitments from the state. A network of initiatives is driv-



https://veiledere.nve.no/havvind/identifisering-av-utredningsomrader-for-havvind/nye-omrader-for-havvind/

5. Opportunities for Polish Companies

As Norway's offshore wind market grows, there are clear opportunities for Polish firms across the value chain. Potential areas of engagement include the manufacturing of floating substructures, cable production, port services, logistics, and component assembly. Additionally, demand is rising for specialized vessels, engineering services, and offshore installation capabilities.

Encouragingly, the Ventyr project (Sørlige Nordsjø II Phase I), led by Belgian developers, has publicly called for cooperation with local suppliers. This opens the door to foreign partners –including Polish companies – who are well-positioned to contribute via joint ventures, subcontracting, or technology partnerships, particularly within the floating segment.

A flagship example of Polish-Norwegian cooperation in offshore wind is the long-term strategic partnership between Equinor and Polenergia, which involves the joint development of three offshore wind farms in the Polish part of the Baltic Sea: Bałtyk I, Bałtyk II, and Bałtyk III. Among them, Bałtyk I is the largest and most strategic, with a planned capacity of up to 1,560 MW, making it the biggest individual offshore wind project in Poland's second phase of offshore wind development. Together, the three Bałtyk projects demonstrate the strength of Polish-Norwegian industrial collaboration and contribute significantly to both countries' offshore wind ambitions and Europe's broader energy transition.

6. Key Industry Events in Norway (2025–2026)

Norway regularly hosts a number of high-profile industry events in offshore wind and broader energy. These forums are excellent platforms for networking, supplier engagement, and gaining strategic insights:

- **Nor-Shipping 2025** (June 2–6, Lillestrøm)
  Global maritime and ocean industries exhibition with an Offshore Wind Conference.
  Organizer: Nor-Shipping | nor-shipping.com
- **Floating Wind Days 2025** (May 21–22, Haugesund)
  Norway's flagship floating wind event connecting global developers and policymakers.
  Organizer: Norwegian Offshore Wind | floatingwinddays.com
- **OTD Energy 2025** (October 15–16, Stavanger)
  The largest annual energy trade fair in Norway, featuring Ocean Wind Conference, WindHub, and Equinor Supplier Day.
  Organizer: OTD Energy | otdenergy.com
- **Havvindkonferansen 2025** (October 21, Oslo)
  National offshore wind conference focused on domestic supply chain development.
  Organizer: Norwegian Offshore Wind | norwegianoffshorewind.no
- **ONS 2026** (August 24–27, Stavanger)
  One of the world's leading energy events covering offshore wind, oil & gas, and the energy transition.
  Organizer: ONS Foundation | ons.no

Photo: Freepik

7. PAIH's Promotional Experience

The Polish Investment and Trade Agency's Foreign Trade Office in Oslo has been actively supporting Polish businesses in Norway, using key industry events such as ONS, OTD, Nor Shipping, Floating Wind Days, as well as trade missions and B2B matchmaking to help Polish companies build presence on the Norwegian market.

Some key lessons learned include:

- Norway values long-term collaboration and proven technical competence.
- Aligning with Norwegian industrial and sustainability goals helps ease market entry.
- Visibility at industry events and early engagement with key players is critical.

Conclusion

Norway is positioning itself to lead in floating offshore wind. While the domestic sector is still emerging, the country's strengths in offshore infrastructure, coordinated public-private efforts, and technological leadership make it fertile ground for rapid advancement. **Importantly, Norway's offshore wind ambitions extend beyond national energy needs.** They represent a strategic contribution to Europe's wider energy transition. The coming years will show how effectively Norway can translate this vision into a globally competitive reality.

Norway is positioning itself to lead in floating offshore wind. While the domestic sector is still emerging, the country's strengths in offshore infrastructure, coordinated public-private efforts, and technological leadership make it fertile ground for rapid advancement.

Contributed by the Polish Investment and Trade Agency (PAIH), Foreign Trade Office in Oslo: Joanna Irzabek, Martalena Eriksen

Finland’s Offshore Wind Momentum – Projects, Potential and Policy

Overview

Finland began wind power construction later than many other European countries. Nevertheless, during the last twelve years, 2012 to 2024, wind power construction in Finland has gained momentum and national construction and production has increased year after year. Finland has the potential to grow its wind power capacity greatly. **During 2024, Finland’s total wind power capacity grew by 20%.** The completed wind power projects represent an investment of over €1.8 billion for the country.

A total of 235 new wind turbines, with a combined capacity of 1,414 megawatts, were built in Finland during 2024. **Finland’s wind power potential is much higher than the capacity, which is currently built.** There are about 134, 000 megawatts of wind power projects under development and over 11, 000 MW of projects already have a land use plan or a land use plan and a building permit.

At the end of 2024, there were installed 1,835 wind turbine generators, with a combined capacity of 8, 358 MW. They generated 24% of Finland’s electricity consumption in 2024.
To achieve carbon neutrality by 2035 and to enhance Finland’s energy self-sufficiency, more electricity from renewable sources is needed.

It is expected that in 2040 annual onshore wind power production will be approximately 100 TWh and annual offshore wind power production in Finland will reach 100 TWh.

The proportion of offshore wind power in all the wind power production will continue to grow because the wind conditions at sea are better and the offshore wind technology enables building large-scale wind farms.

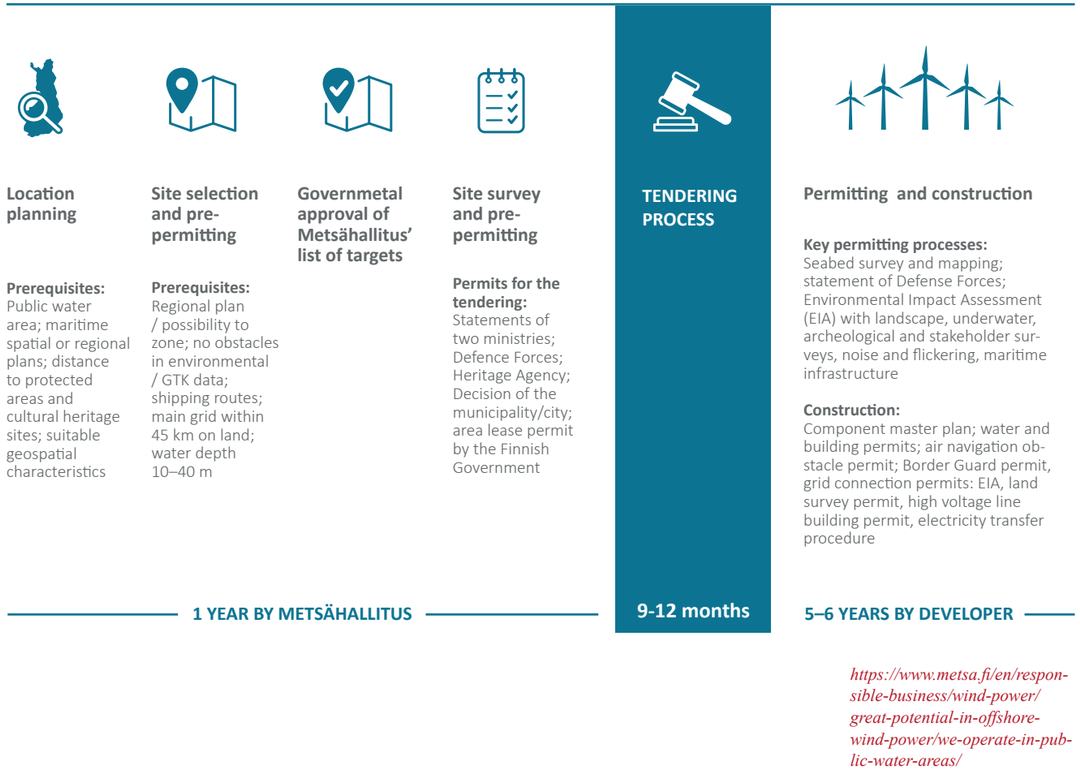
Photo: Freepik

Tenders

Finland's western sea areas are well suited for the construction of offshore wind farms. The new offshore wind farm areas will be leased according to the state-approved allocation model. Metsähallitus is the body managing the state-owned land and water areas, on behalf of the State.

Metsähallitus is responsible for the development of the initial phase of the projects and organizes relevant international tenders on a separately announced schedule. As a state-owned business, Metsähallitus acts as a project developer at the beginning of the project and as an issuer and lessor of reservation and access rights contracts. Ownership of the water area remains with the state.

Tendering process for Finnish public water areas



https://www.metsa.fi/en/responsible-business/wind-power/great-potential-in-offshore-wind-power/we-operate-in-public-water-areas/

Photo: Unsplash/ Howard Senton

Existing offshore farms

- There is currently only one offshore wind farm in Finland where the foundations of its turbines are built on the seabed.

The Tahkoluoto offshore wind farm in Pori has a total of eleven wind turbines, with the first one completed in 2010 and the other ten in 2017. The wind farm is owned by Suomen Hyötytuuli, which has been developing offshore wind power for over 20 years and making investments of over 140 million euros.

Tahkoluoto is the world's first offshore wind farm in frozen sea conditions. Despite the diminishing of sea ice, there is still ice in Finnish sea areas every year. Therefore, the ice conditions and the impact of ice on offshore wind farms must be taken into account in the planning and construction of the project.

The infrastructure and the wind conditions in the Tahkoluoto area are perfect for wind energy production.

The Tahkoluoto offshore wind farm produces about 157,000 MWh of electricity per year, which corresponds to the annual electricity consumption of approximately 8,600 detached homes with electric heating.

- There is also a wind farm (owned by IKEA) in Ajos in Kemi, with eight of the thirteen wind turbines constructed on artificial islands in the sea around the port and five of them on land. The total output of its turbines is 26.4 MW.

In 2016, the subsea cables of the old wind farm were removed from the seabed. New cables were then installed at nine new power plants on the artificial islands.

New projects

Metsähallitus continues the development of three offshore wind power projects (Korsnäs, Ebba and Edith).

In Korsnäs off the west coast of Finland, near Vaasa, one of the most significant industrial projects in the country is in progress – Finland's first commercial-scale offshore wind farm. It will have a 1.3-2.5 GW capacity and a potential annual fossil-free electricity production of 5–7 TWh.

According to Anni Mikkonen, Executive Director of the Finnish Renewables Association Finland's huge wind potential is an asset in attracting investments in green transformation, she emphasizes that one of the greatest advantages of wind energy is the speed of implementation - from obtaining permits to the start of energy production, takes only 2-3 years.

Environmental impact is always assessed in each case separately in connection with every wind power project. In the same way as in onshore wind power, an impact assessment is also carried out in offshore wind power projects in relation to anthropogenic activities, in terms of the landscape, trade, cultural heritage, population, territorial surveillance, and seafaring.

According to a study published by SYKE in 2022, **there are areas suitable for offshore wind turbines in all sea areas of Finland.**

Finland's offshore wind power is entering a dynamic growth phase, backed by strong political commitment, strategic tenders, and world-class wind resources.

In Finland, there are currently several offshore wind power projects under development. The total output of the projects in different stages of planning is several thousands megawatts. If all pending offshore wind power projects were implemented, it would generate tax benefits of several billion euros for Finland and jobs worth almost 150,000 person-years, according to an estimate made in spring of 2024.

Finnish wind conditions are extremely favourable and Finnish wind resources do not set limits to the amount of wind power that can be built in Finland. Both onshore and offshore wind resources are sufficient to meet Finland's ambitious wind energy targets.

The most important operators in Finland

Halla Offshore Wind, Laine Offshore Wind, Navakka Offshore, Wellamo Offshore, Skyborn Renewables Finland, Ilmatar Offshore, Ilmatar Vågskär, Ilmatar Bothnia & Bothnia West, Suomen Hyötytuuli, Pohjan Puhuri ja Pohjan Viima.

Wind power areas approved by the Council of State

The tendering process for the Ebba and Edith projects commenced at the end of 2023, and for Korsnäs in 2022. The process will be completed in the first half of 2025. The schedule for the following projects will be confirmed later.

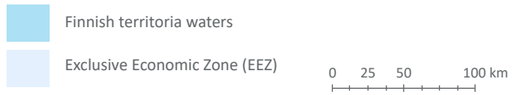
1. Area: approx. **120 km²**
Siikajoki and Hailuoto

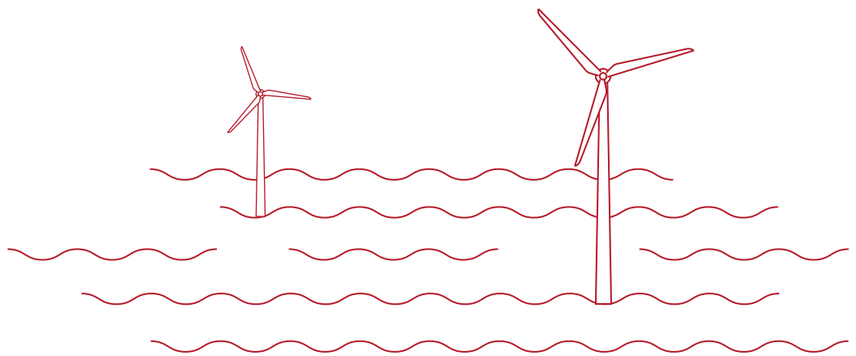
2. Area: approx. **220 km²**
Raahe, Siikajoki

3. Ebba: approx. **160 km²**
Pyhäjoki, Raahe

4. Edith: approx. **180 km²**
Närpiö

5. Area: approx. **180 km²**
Kristiinankaupunki





The event to visit

On May 21st 2025 Wind Finland Offshore will bring together specialists of the wind power industry in Finland.
The seminar will gather over 300 guests in Kaapelitehdas, Helsinki to share new ideas about the latest winds in offshore development.
https://www.windfinland.fi/wind-finland-offshore-2025/

Sources:
www.windfinland.fi, www.metsa.fi, suomenuusiutuvat.fi, group.vattenfall.com, www.4coffshore.com

Contributed by the Polish Investment and Trade Agency (PAIH), Foreign Trade Office in Helsinki: Patrycja Saxlund

Harnessing the Winds – The Philippines' Offshore Wind Energy Potential

The Philippines, an archipelago of more than 7,600 islands, is known for its stunning beaches, vibrant culture, and warm hospitality. But beyond its postcard-perfect landscapes lies an energy challenge that has long shaped its economic trajectory. The country has long been dependent on imported fossil fuels, making it vulnerable to price fluctuations and supply disruptions. As demand for electricity grows in tandem with economic expansion, the need for a cleaner, more stable, and sustainable energy mix has never been more urgent.

This is where offshore wind energy emerges as a game-changer. Blessed with vast coastlines and strong, consistent winds, the Philippines has the potential to harness significant offshore wind power—potentially transforming its energy landscape. However, despite this promise, offshore wind remains an untapped resource in the country's energy mix. With new policies, government incentives, and foreign investments lining up, is the Philippines on the cusp of an offshore wind revolution?

Photo: Usplash/ Aron Yigin

The Current State of Offshore Wind – A Sleeping Giant

While wind power is not a new concept in the Philippines, it remains largely underdeveloped—especially offshore. Onshore wind farms have been operational for over a decade, with several large-scale projects already contributing to the country's renewable energy output. The most well-known among these is the **Burgos Wind Farm** in Ilocos Norte, with a capacity of **150 megawatts (MW).** Alongside Burgos, other onshore wind developments like the **Bangui (51 MW)** and **Caparispisan (81 MW) wind farms** have contributed to the country's 443 MW of installed wind capacity.

Offshore wind, however, is an entirely different story. Despite being surrounded by ocean, the Philippines does **not yet have a single operational offshore wind farm.** The country remains at a stage where the potential is well-documented, and investments are beginning to materialize—but no turbines have yet been installed offshore.

According to a **joint report by the World Bank and the Department of Energy (DOE),** the Philippines has a staggering **178 gigawatts (GW) of offshore wind energy potential** – a figure that, if realized, would dwarf the country's entire existing power capacity. Notably, 90% of this potential is in waters deeper than 50 meters, making **floating offshore wind technology** a necessity for large-scale projects. This positions the Philippines as a prime candidate for the **next generation of offshore wind technology,** similar to developments in Northern Europe and Japan.

Not a single offshore wind turbine is yet spinning in the Philippines—but $71.8 billion was committed to renewables in 2024 alone.

Government Ambitions and the Road to Renewable Dominance

Recognizing the urgency of shifting towards cleaner energy sources, the Philippine government has set bold renewable energy targets:

- **35% of the country's power supply should come from renewable energy by 2030**
- **50% by 2040**

To achieve these goals, the **Department of Energy (DOE)** has already awarded **92 Wind Energy Service Contracts (WESCs),** with a combined capacity of **66.1 GW** – a major leap forward for a country that has yet to build its first offshore wind farm.

International investors have taken notice. One of the most significant agreements in recent history came in **January 2025,** when the Philippines and **Masdar,** the renewable energy giant from the United Arab Emirates, signed a **$15 billion investment deal**. This partnership aims to deliver up to **1 GW of clean energy by 2030,** with the potential to **expand to 10 GW by 2035.**

Other key projects currently in development include:

- **San Miguel Bay Offshore Wind Project (1 GW)** – Led by Copenhagen Infrastructure Partners (CIP), this project is among the first in the Philippines to receive a **"Green Lane" certification** from the **Board of Investments (BOI),** allowing for fast-track approvals and regulatory clearance.
- **Guimaras Strait Offshore Wind (1.2 GW)** – Developed by Triconti Southwind Corporation and Jet Stream Windkraft Corporation, this project aims to take advantage of strong wind conditions in the Visayas region.
- **Buhawind Offshore Wind Projects (4 GW)** – A joint venture between **Petro-Green Energy Corporation and Copenhagen Energy,** this initiative represents one of the largest offshore wind investments in the country.

In total, **over 71.8 billion USD** has been committed to renewable energy investments in 2024 alone, underscoring the rapid momentum behind the Philippines' offshore wind ambitions.

Photo: iStock

Key Players Driving the Offshore Wind Revolution

While the Philippine government plays a central role in policy-making and permitting, the real push for offshore wind comes from a mix of **international energy giants, local developers, and private investors.** Some of the biggest names in the industry include:

- **Copenhagen Infrastructure Partners (CIP)** – A Danish renewable energy leader investing in multiple large-scale offshore wind projects, including the **San Miguel Bay Wind Project.**
- **BlueFloat Energy** – A European firm acquiring wind energy contracts for **four offshore sites,** aiming for **7 GW of floating offshore wind capacity.**
- **Triconti ECC Renewables & Iberdrola** – A joint venture focusing on developing five offshore wind projects, **totaling up to 3.5 GW.**
- **Buhawind Energy Philippines** – A new player with big ambitions, this venture aims to build **4 GW** of offshore wind capacity, with substantial foreign backing.

This wave of foreign interest signals **growing confidence** in the Philippines' offshore wind potential, particularly as the country strengthens its regulatory framework and incentive structures.

Institutional and Business Support: Who's Making it Happen?

Bringing offshore wind projects to life requires **strong institutional backing,** and the Philippines has been expanding its support network:

- **Department of Energy (DOE)** – The lead agency responsible for granting service contracts and setting national renewable energy targets.
- **Board of Investments (BOI)** – Facilitates investments and has introduced a **"Green Lane" program** to accelerate approvals for priority offshore wind projects.
- **National Renewable Energy Board (NREB)** – Advises the DOE on renewable energy policies and initiatives.
- **Department of Environment and Natural Resources (DENR)** – Ensures that offshore wind projects adhere to strict environmental standards, balancing energy development with ecosystem protection.

Why Offshore Wind? The Case for the Philippines

With its unique geography, the Philippines is **one of the best-suited countries in Asia for offshore wind development.** Several factors make this technology particularly attractive:

- **Strong and Consistent Winds** – The country's coastal areas experience steady, high-speed winds, perfect for large-scale energy generation.
- **Limited Land for Onshore Energy Expansion** – Unlike larger nations, the Philippines faces land-use constraints, making offshore solutions a logical choice.
- **Energy Security** – Offshore wind can **reduce dependence on imported fossil fuels,** stabilizing electricity costs and supply.
- **Economic Growth** – The sector promises **thousands of jobs,** from construction and engineering to long-term maintenance and research.

Upcoming Events: The Offshore Wind Asia Conference 2025

For those looking to engage in the offshore wind industry, one of the key events to watch is the **Offshore Wind Asia Expo & Conference,** scheduled for **June 18-20, 2025**, at the **SMX Convention Centre in Manila.** The event will bring together investors, policymakers, and energy leaders from across the region to discuss the latest advancements in offshore wind technology. PAIH is hosting a trade mission of Polish companies to this event.

Opportunities for Polish Companies: A Chance to Make an Impact

With the offshore wind industry in the Philippines still in its early stages, there is **significant room for international collaboration** – and Polish companies are well-positioned to take part in this transformative journey. Poland itself is actively developing offshore wind in the Baltic Sea, accumulating valuable expertise that can be applied to emerging markets like the Philippines.

Several areas offer **strong opportunities for Polish businesses** to enter the Philippine offshore wind sector:

- **Component Manufacturing and Supply** – The Philippines will need **massive amounts of infrastructure** to support its offshore wind goals. Polish companies specializing in **turbine components, cables, and foundations** can establish partnerships with local developers and international firms already investing in the region.
- **Engineering, Procurement, and Construction (EPC) Services** – From marine engineering to offshore platform construction, Polish firms with experience in **wind farm installation** can offer valuable expertise in the execution phase of Philippine projects.
- **Operation and Maintenance (O&M) Services** – Offshore wind farms require **long-term maintenance solutions**, including **vessel support, inspections, and system optimization.** Given Poland's growing offshore wind capacity in the Baltic, Polish O&M service providers could find strong demand in the Philippines.
- **Consultancy and Training** – The **technical knowledge gap** in offshore wind energy is a key challenge in the Philippines. **Polish consultants and educational institutions** can play a crucial role in **training local professionals** and assisting in project planning, feasibility studies, and regulatory compliance.

Beyond direct business opportunities, **PAIH (the Polish Investment and Trade Agency)** can support Polish companies looking to enter the Philippine offshore wind market in two key ways:

- **Networking** – By leveraging its local presence and business connections, PAIH can help Polish firms **establish relationships with Filipino developers, government agencies, and investors.** Participating in industry events, such as the **Offshore Wind Asia Conference 2025,** can also open doors to new collaborations.
- **Capacity Building** – As offshore wind energy in the Philippines develops, **training and knowledge transfer** will be in high demand. Polish experts in wind farm planning, grid integration, and floating wind technology can provide **workshops, seminars, and consulting services** to Filipino stakeholders.

With the right partnerships and strategic engagement, Polish companies **can become key contributors** to one of Southeast Asia's most promising renewable energy markets. The offshore wind revolution in the Philippines is just beginning, and those who act early will have the advantage of shaping the future of this industry.

Conclusion: The Philippines' Offshore Wind Future

While the Philippines has yet to see its first offshore wind turbine spinning at sea, the groundwork is undeniably in place. With **massive investment commitments, a supportive regulatory environment,** and **world-class wind resources,** the country is on the brink of a **clean energy revolution.** Whether it can fully capitalize on its **178 GW potential** remains to be seen—but one thing is clear: **the winds of change are blowing stronger than ever.**

Contributed by the Polish Investment and Trade Agency (PAIH), Foreign Trade Office in Manila: Bartek Wasiewski

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