

PGE BALTICA: Charter of vessels, onshore construction and O&M base

Energy Security Congress

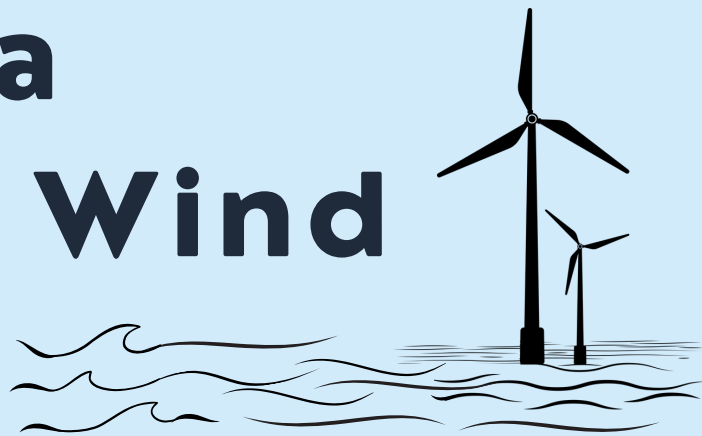
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Baltica

Gdańsk 2025

Baltic Sea Offshore Wind Summit



First International Baltic Sea Wind Industry Gathering



March 10th, 2025, at the
European Solidarity Centre
in Gdańsk, Poland.

PGE BALTICA: CHARTER OF VESSELS, ONSHORE CONSTRUCTION AND O&M BASE



What an intensive year it has been for PGE Baltica. The Baltica 2 project – developed by PGE and Ørsted – has completed a portfolio of key component and installation services for this offshore wind farm. The construction works for the onshore part of the project are underway. At the same time PGE Baltica has cleared land for the O&M infrastructure and conducted tenders. It has carried out part of surveying necessary for Baltica 1.

Almost since the very beginning of last year, each month brought information about the progress of the Baltica 2 project that will have 1.5 GW capacity and is planned for commissioning in 2027. The clearest signal of moving forward was the subsequent signing of contracts for the delivery of individual key components necessary for the construction of the offshore wind farm, as well as their assembly at sea. This series began in 2023 with a contract for turbines.

Key decisions for the land and offshore

At the beginning of 2024, the partners in the Baltica 2 investment awarded the contract for installation of monopile foundations and their prior transport to the sea to Van Oord. Contracts for the transport and installation of wind turbines were signed with Fred. Olsen Windcarrier and Cadeler - this scope of work was divided into two parts, and a different contractor was selected for each of them. Seaway7 will be responsible for the transport and installation of the offshore substations. In case of this part of the project, there is a strong local content - Polish entities will supply cranes and part of the cabling as necessary equipment for the OSS. On land, preparatory work for the

Construction works at the site of future Baltica 2 onshore substation are underway; Source: Polimex Mostostal



construction of the onshore connection infrastructure began in spring 2024. The general contractor selected a consortium of GE Vernova and Polimex-Mostostal to deliver power transformers and carry out works onshore. On the site of the future onshore station in the Choczewo commune in Pomerania, Polimex-Mostostal so far has prepared, among other things, the area and foundations for the 250 and 400 kV stations, as well as a strip of land for the future onshore cable route.

At the turn of November and December, the construction of both buildings for onshore substation was already underway. Earlier in the past year, the tender for the contractor of the horizontal directional drilling was also resolved. The works will later enable the connection of the offshore section of the export cables with the onshore section of cables. The work will be carried out by a consortium of Polish companies ROMGOS Gwiazdowscy and ZRB Janicki. The Baltica 2 project also received building permits for the offshore part of the investment last year. This marked obtaining a complete set of administrative permits required to start construction.

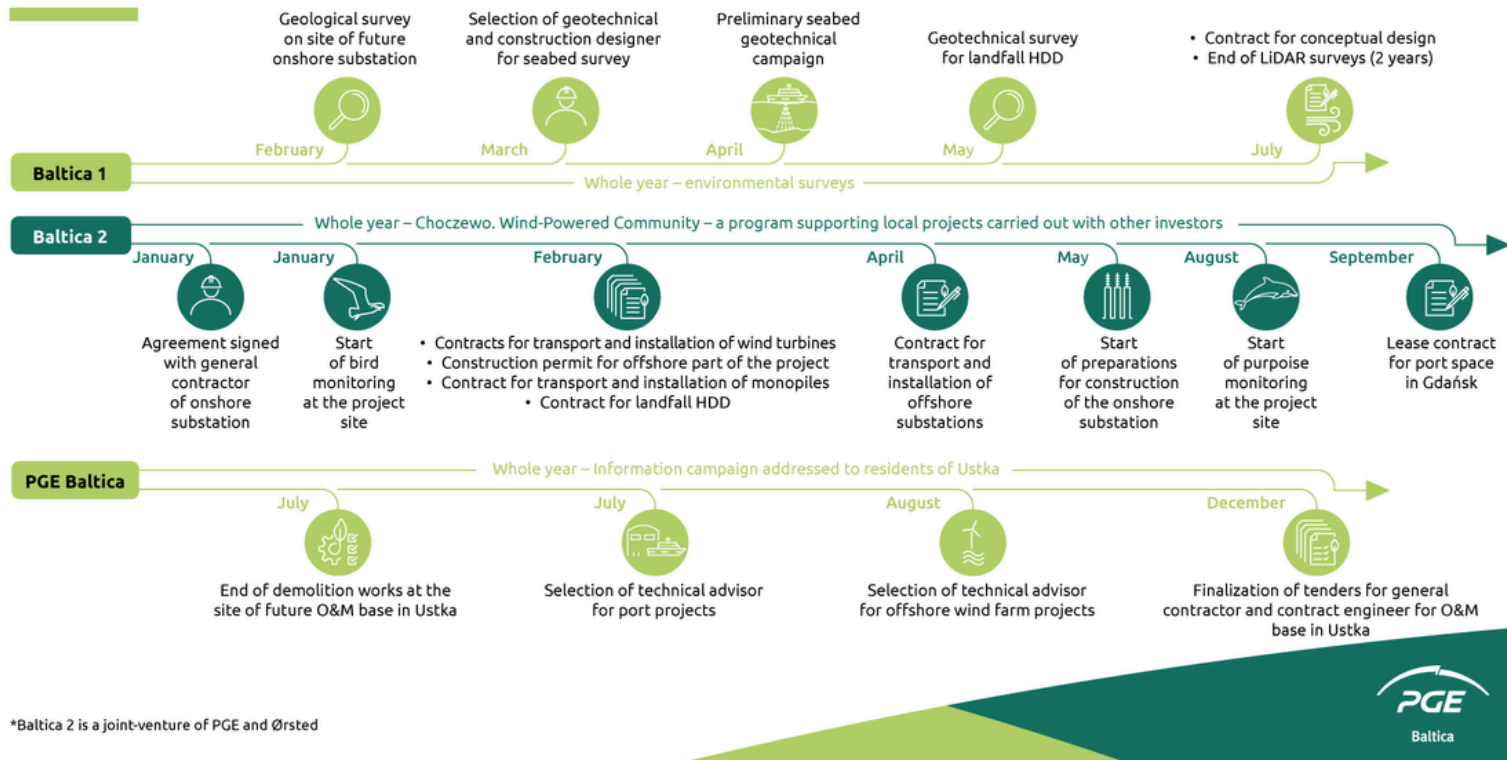
Gdańsk and Ustka – sites under construction

PGE and Ørsted – joint-venture partners for Baltica 2 – have signed a lease agreement for port area that will be created as a result of the expansion of the Port of Gdańsk. An over 20-hectare terminal 5 will be built there for the installation of offshore wind projects, and it has been reserved by investors for the installation of 107 Baltica 2 turbines. The selected general contractor has already begun preparations for the construction of new port infrastructure.



In case of the O&M base, the appropriate infrastructure is being developed in Ustka. There, for half a year, the removal of remnants of former industrial buildings took place in order to clear the area for new O&M facilities necessary to operate and maintain offshore wind farms. In Ustka, among other things, an administrative

PGE Baltica 2024 – most important events



and warehouse building will be built, and part of the quay necessary for CTV service units will be renovated. Back in the summer, PGE Baltica announced tenders for the general contractor and contract engineer, with a plan to resolve them at the turn of 2024 and 2025.

Baltica 1 on the horizon

A 0.9 GW Baltica 1 project, developed by PGE and planned for commissioning in the next decade, has completed the two-year period of metocean data collection using LiDAR technology. The contractors continued environmental research for the project, which began in the autumn of 2022.

For the needs of the future connection infrastructure, geological research was carried out in the Choczewo commune - where an onshore transformer station for this particular project will be built in the following years. Geotop Marine carried out a preliminary geotechnical campaign aimed at recognizing the structure of the seabed in the offshore area where Baltica 1 will be built. At the same time, onshore and offshore research was carried out, necessary to prepare the documentation needed to plan the drilling works. It was performed by Geofizyka Toruń, which led the Polish consortium delivering this task. Energoprojekt - Katowice will carry out a conceptual design for the Baltica 1 offshore wind farm - the relevant agreement was signed in August. In addition, PGE Baltica has selected Ramboll as a technical advisor for all of its offshore wind farm projects – those currently being implemented and those planned for development.

Coming up in 2025

In the new year, the Baltica 2 project will primarily focus on preparing the area of the future offshore wind farm for the installation of monopiles, which requires removing or shifting boulders that could hinder the construction of the offshore power plants support structures. It is also planned to prepare corridors at sea, through which cables will run power towards land. The aforementioned land-to-sea drilling using HDD technology will be carried out for Baltica 2. And while we're on land, the delivery of large-size transformers to the Baltica 2 onshore station is planned for 2025.

In Ustka, PGE Baltica plans to start construction work on the area of the future operational and service base. Its planned commissioning is scheduled for the last quarter of 2026.

Source: PGE Baltica





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HOT AUTUMN ON THE BALTIC. COMPANIES ARE STARTING TO BUILD AT SEA, AND THE GOVERNMENT IS OUTLINING NEW AREAS

EVENT

29.11.2024

In winter, the first companies go out to sea with construction, and the government announces the delimitation of further areas in the Baltic Sea for the next phase of offshore wind energy development, in addition to the two already underway. 'A report on the state of offshore development is being prepared, which will give us the basis for a substantive decision to delimit new areas for the development of offshore wind farms in the Baltic', declared Arkadiusz Marchewka, Deputy Minister of Infrastructure, at the Offshore Wind Poland Conference.

The event gathered over 120 exhibitors representing various stages of the supply chain for the offshore wind energy industry. It is a unique event on a European scale, with the primary aim of educating on zero-emission technologies and show-casing career paths in the offshore sector. The event was once again very well received by companies in the industry, as well as educational institutions and training centers, responding to the prospects for employment in the sector. According to government representatives present at the Offshore Wind Poland 2024 conference, everything points to the government genuinely wanting to base Poland's energy transformation on wind energy.

Offshore wind energy is a technology crucial for the effective and appropriately fast transformation of our energy system, as well as for ensuring the competitiveness and resilience of the Polish economy. This year, the theme of the Offshore Wind Poland conference was "From Words to Actions – We Are Building!"

*Offshore wind farms have entered the implementation stage. We are building. The investment campaign in offshore wind farms is incomparable to any other development project in contemporary Poland. We are talking about 300 billion zlotys by 2040. Paraphrasing the slogan from the American presidential elections 'Let's make the Baltic Sea great again together' – **said Janusz Gajowiecki, CEO of the Polish Wind Energy Association.***

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Photo: Luminaris

Former Prime Minister and former President of the European Parliament, prof. Jerzy Buzek, mentioned security as one of the priorities in the context of the development of offshore wind farms.

"Today, we face specific military threats. We hear about undersea cable cutting in these times of strained international relations. Offshore wind energy must prepare for such security challenges, as these are the threats we will face," he emphasized. He further highlighted the need for the development of the Polish industry through the construction of offshore wind farms.

Key declarations were made by Arkadiusz Marchewka, Deputy Minister of Infrastructure, during the Offshore Wind Poland 2024 Conference, where he announced the unlocking of new areas in the Polish Baltic Sea for the construction of new wind farms.

"At the beginning of this year, we analyzed the marine area development plan to make the best use of offshore potential. Soon, experts will present scenarios that will indicate further offshore development opportunities," the deputy minister declared. He also reminded that thanks to the unlocking of funds from the National Reconstruction Plan (KPO), investments in Polish ports are underway. "In August, a construction permit was issued for a new installation terminal in Gdańsk. EU support amounts to 900 million PLN. We will also use EU funds to finance the development of service ports such as Ustka, Łeba, and Darłowo. The cost of building terminal infrastructure in these locations, within the framework of KPO, is 370 million euros. Recently, we also launched a tender for the development of breakwaters in these ports," he said.

The cost of constructing the T5 terminal is 1.177 billion PLN. When asked about the development of port investments, Deputy Minister Marchewka said that the installation terminal project in Gdańsk had accelerated. "The building permit has been issued. We already have a signed contract for the project implementation. We want the terminal to be operational by the second half of 2026," he added.



Photo: PWEA



Photo: Luminaris

Experts estimate that the energy potential of the Baltic Sea could reach up to 33 GW, according to the Polish Wind Energy Association. The Ministry of Climate and Environment forecasts a value of 18 GW by the end of the next decade.

Miłosz Motyka, Deputy Minister of Climate and Environment, reminded that investments in offshore wind farms guarantee stable energy prices and the development of a domestic supply chain in the industry. "By 2030, 6 GW of offshore capacity will definitely be created. However, this is only the beginning of the changes," Motyka stated.

Source: PWEA



BALTIC POWER WIND FARM COMPLETES FIRST ONSHORE CONNECTION

04.10.2024

In the Lubiawo area, the first of four directional drills under the coastline, beach, and seabed has been successfully completed, with no direct impact on areas of high ecological value. This phase of the project paves the way for connecting the Baltic Power offshore wind farm to its onshore substation. The 1.4 km tunnel will house power transmission cables. The drilling was conducted using HDD (horizontal directional drilling) technology.

The completed section is the first of four underground corridors, designed to hold 30-cm diameter cables. This marks the first large-scale use of HDD technology in Poland. Part of the drilling operation took place offshore, utilising divers and a jack-up rig to complete the underwater section. In total, the drilling will result in the extraction of over 8,000 m³ of spoil from all four drills. According to studies commissioned by Baltic Power, the excavated sand is clean and suitable for beach restoration efforts, helping to repair storm damage sustained over the winter.

*-Progress on Baltic Power, the largest renewable energy project in our region, is on schedule and already well advanced. We have completed the first and are carrying out further drilling for submarine cables connecting offshore substations to land. This is the first project of its kind in Poland and is unique compared to other offshore wind projects carried out in Europe” - said **Jarosław Broda, Member of the Baltic Power Management Board.***

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Baltic Power is one of the first projects in the world to install 15 MW wind turbines and the first in the world to have a significant portion of its turbine towers made of low-carbon steel. With completion in 2026, Baltic Power will be the first Polish offshore wind farm operating in the Baltic Sea, covering 3% of the country's energy needs while reducing CO₂ emissions by about 2.8 million tonnes per year.

Source: Baltic Power



OFFSHORE TERMINAL IN THE PORT OF GDAŃSK: CONTRACT SIGNED WITH THE CONTRACTOR

15.10.2024

A new industrial and service hub will be established at the Port of Gdańsk, designed to support installation vessels for the construction and operation of offshore wind farms. The Center for EU Transport Projects has signed an agreement with the contractor for the installation terminal. This significant project will receive over PLN 900 million in funding from Poland's National Recovery Plan (KPO).

The construction of the installation terminal is a key infrastructural element for supporting the development of renewable energy sources in the Polish Baltic Sea. By reducing the distance between terminals and offshore wind farm projects, the investment will not only lower costs but also ensure timely completion of such projects.

The total cost of the project in Gdańsk is nearly PLN 1.18 billion, with over PLN 900 million coming from EU funding. The company Istrana has been awarded the contract and will be responsible for constructing the terminal. Supported under the National Recovery Plan, the investment is expected to be completed by 2026.

The development of offshore wind farms in Poland will have a significant impact on the country's energy generation capacity and the development of the transmission grid. This initiative is also crucial for Poland's ability to meet its climate and environmental targets in terms of renewable energy sources and CO2 emissions reduction.

According to Poland's Energy Policy until 2040, the goal is to achieve 5.9 GW of installed wind energy capacity by 2030, and 11 GW by 2040. This terminal will play a pivotal role in facilitating the growth of offshore wind power, helping Poland transition toward greener energy and greater energy independence.

Source: MFiPR

PLN 750 MILLION FROM GREEN BONDS FOR POLENERGIA'S OFFSHORE WIND FARMS

18.10.2024

PLN 750 million from the Green Bonds issue has been credited to Polenergia's account. Poland's largest private energy group allocated them to 57 investors. Polenergia will use most of the funds to build offshore wind farms. Two most advanced projects, Bałtyk 2 and Bałtyk 3, with a total capacity of 1440 MW, have complete building permits. The Bałtyk offshore wind farms are one of the largest infrastructure projects in Poland's history. Polenergia is developing it jointly with Norwegian energy giant Equinor.

*The spectacular success of Polenergia's Green Bonds is a very clear confirmation that the market supports the business direction we have chosen and wants, through our Group, to actively participate in the Polish energy transition and the dynamic development of further green assets. Polenergia's investments in RES have a gigantic potential. The best evidence of this is the fact that we have exceeded PLN 1 billion in subscriptions for our Green Bonds and Polenergia's decision to increase the issue amount from PLN 500 to 750 million. Huge confidence from investors is very gratifying. In our opinion, we have obtained financing on attractive terms, and thanks to the issue we are one step closer to realising our key offshore projects. Their importance for the Polish economy is absolutely strategic – **emphasised Adam Purwin Member of the Board of Polenergia S.A.***

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Polenergia's Green Bonds were issued on the basis of the Green Bond Framework, which received a positive opinion from Sustainalytics, a rating agency specialising in this area. The non-brokered public offering on the domestic market was aimed exclusively at qualified investors.

The interest rate on the issued Green Bonds is variable and is equal to WIBOR 6M, plus 2.7 percentage points. The scheduled redemption date for the Series A Bonds is 16 October 2029.

The first energy from the Bałtyk 2 and 3 wind farms is expected to flow into the grid as early as 2027. The commercial phase of their operation is planned from 2028.

Source: Polenergia

THREE YEARS OF 'CAREER WITH THE WIND' – OCEAN WINDS EDUCATES YOUNG PEOPLE IN POLAND FOR OFFSHORE WIND ENERGY

07.11.2024

Ocean Winds, together with the Industrial Development Academy (PAR), has summed up the third edition of the 'Career with the Wind' programme – an educational initiative aimed at preparing technical school students for work in the offshore wind energy sector. The programme is aimed at young people from across Poland to familiarise them with career opportunities in the growing renewable energy sector.

*Careers with the wind is an educational programme that we run as Ocean Winds together with PAR – **Aleksandra Jampolska, spokesperson for Ocean Winds, explains.** - Through the programme, students can gain knowledge about offshore wind energy and familiarise themselves with employment opportunities in this rapidly growing industry.*

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Over the three years of the project, young people have had the opportunity to learn about the specific challenges of working offshore.

*'The programme includes workshops on offshore wind energy – lectures, but also soft skills workshops. The students, over the three years of running this project, were able to learn together with us the secrets of first aid, creative thinking, working in groups' – **Krzysztof Tomaszewski of PAR.***

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One of key elements of the programme is study visits to companies cooperating with the offshore wind energy sector and GWO training centres, where students can see what it is like to be certified to work on wind turbines. Such experiences allow young people to understand what day-to-day duties on wind farms are like.

BC-Wind wind farm – Ocean Winds’ key investment in the Polish Baltic Sea

One of Ocean Winds’ key projects is the BC-Wind offshore wind farm, located about 23 km north of the coast in the Krokowa and Choczewo municipalities. This investment, with a planned capacity of up to 500 MW and an area of almost 91 km², is at an advanced stage of development and already has an environmental decision and grid connection conditions. BC-Wind is one of the key offshore wind energy projects in Poland, and ‘Career with the wind’ is an example of activities that aim to support future staff for such investments.

Source: OW



EIB APPROVES FINANCING FOR CONSTRUCTION OF 1440 MW OF WIND FARMS IN THE BALTIC

11.11.2024

The Board of Directors of the European Investment Bank (EIB) has approved financing for the construction of two wind farms in the Baltic Sea with a total capacity of 1440 MW. This information was shared by Teresa Czerwińska, vice-president of the EIB, on her LinkedIn profile. Although details of the specific projects have not been disclosed, it is speculated that the decision could involve investments by Polenergia and Equinor, who are developing several large wind projects in the Baltic Sea.

Once the agreement is finalised, the EIB funds will be used to support the Polish energy transition. The aim of this investment is to reduce greenhouse gas emissions and air pollution, as well as to develop renewable energy sources (RES) in Poland. EIB financing will contribute to the country's energy security and enable the introduction of modern technologies in the energy sector.

The wind farms in the Baltic Sea are part of a broad plan by Polenergia and Equinor, who are jointly developing three offshore wind farms with a target total capacity of 3,000 MW. This will make it possible to supply more than 4 million households with green energy, a significant step towards the decarbonisation of the Polish energy sector.

The Bałtyk project, comprising the Bałtyk 2 and Bałtyk 3 offshore wind farms with a total capacity of 1440 MW, is one of the largest infrastructure projects in Poland's history. The first energy from these installations is expected to flow into the national grid as early as in 2027. This investment is an important element of Poland's energy strategy, contributing to the achievement of national and European climate goals.

Source: EIB

BALTICEAST TO BE AUCTIONED IN 2025 – ORLEN NEPTUN IS DEVELOPING OFFSHORE WIND ENERGY

27.11.2024

At the Offshore Wind Poland 2024 conference, ORLEN Neptun CEO Janusz Bil announced ambitious plans for the development of offshore wind energy in Poland. In his speech, he highlighted that BalticEast, the company's most advanced project, is being prepared to participate in an auction planned for 2025.

– It is estimated that these projects will have a total capacity of 5.2 GW. Our largest project, Baltic East, is being prepared for the auction in 2025 – **said Janusz Bil.**

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BalticEast is the most advanced of the offshore wind farm projects being developed by ORLEN Neptune. The farm, with planned installed capacity of approx. 1 GW, will occupy an area of approx. 110 km² and will be located on the Słupsk Bank, approx. 22.5 km from the Baltic coast.

With favourable wind conditions and depths ranging from 25 to 40 metres below sea level, the project has the potential to provide clean electricity to up to 1.25 million households in Poland.

The BalticEast site is adjacent to the 1.2 GW Baltic Power farm currently under construction, which is a joint investment by ORLEN and Northland Power. Baltic Power is expected to be operational in 2026, making effective use of the existing infrastructure and experience at BalticEast.

Source: Orlen & www.mediaroom.pap.pl

RWE OBTAINS CONSTRUCTION PERMITS FOR F.E.W. BALTIC II OFFSHORE WIND FARM

04.12.2024

The West Pomeranian Voivode has issued two key decisions on the implementation of the F.E.W. Baltic II offshore wind farm. In doing so, he granted a permit for the construction of offshore wind turbines together with an internal power and telecommunications network and an offshore substation for the RWE F.E.W. Baltic II offshore wind farm.

- Two construction permits relate to the erection of the offshore wind turbines together with the internal power and telecommunications grid and the offshore substation for the F.E.W. Baltic II offshore wind farm
- Implementation of the offshore wind farm project is progressing according to schedule, with commissioning scheduled for the end of this decade

Tomasz Kreft, Team Lead Offshore Consenting at RWE: *We have obtained two key construction permits for our offshore wind farm. This is a very important milestone for the entire F.E.W. Baltic II project. We plan to receive all necessary construction permits in the first quarter of 2025. These documents will allow us to proceed with our first offshore wind project in the Polish Baltic Sea on schedule.*

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The scope of the project covered by the decisions:

- offshore wind turbines,
- internal power and telecommunications networks connecting the offshore wind turbines to each other and the groups of wind turbines to the offshore substation,
- an electrical substation that will be used to transform and transmit the energy generated by the offshore wind turbines to land.

The 350 MW F.E.W. Baltic II offshore wind farm project is being developed in the Polish part of the Baltic Sea in an area of approximately 41 km², about 50 km from the shore, north of Ustka. In 2021. The Energy Regulatory Office granted the right to cover the negative balance subject to approval by the European Commission. Seabed surveys have been successfully completed and both geophysical surveys and preliminary geotechnical investigations have been carried out by Polish contractors. The F.E.W. Baltic II project is at an advanced stage, awaiting further necessary administrative decisions and permits.

Source: RWE

BALTIC POWER: KEY CONSTRUCTION PHASE TO BEGIN IN JANUARY 2025

10.12.2024

In January 2025, the Baltic Power offshore wind farm will enter a critical phase of its development. The project, a joint venture between Orlen and Northland Power, will see the start of the marine stage of construction, which involves the installation of the wind turbine foundations. These massive structures will support the installation of turbines that stand over 230 meters tall, capable of generating 15 MW of clean energy. Once completed, the turbines will operate in the open sea for approximately 30 years, helping to significantly reduce carbon emissions.

The Baltic Power project is a flagship initiative for Poland's transition to renewable energy, aiming to generate nearly 1.2 GW of zero-emission electricity. This will meet approximately 3% of the country's energy needs and result in a reduction of about 2.8 million tonnes of CO₂ emissions annually. The wind farm is set to be one of the first offshore projects in the world to use 15 MW turbines, and it will also feature an innovative use of low-carbon steel in its turbine towers, marking a major milestone in sustainability efforts.

Scheduled for completion in 2026, the Baltic Power wind farm will be located 23 kilometers off Poland's Baltic coast. The project will feature 76 Vestas turbines, each capable of generating 15 MW, with a total installed capacity of 1.1 GW. In addition to meeting Poland's renewable energy targets, it is expected to produce 4,000 GWh of electricity annually.

With a total investment of €4.73 billion, the project is supported by a €4.4 bln loan agreement with 25 Polish and international financial institutions. This is Poland's largest-ever single investment financing. The project's developer, ORLEN Neptun, also plays a vital role in Poland's broader offshore wind energy strategy, with a total of five new sites granted for wind farm development in the Baltic Sea.

Source: ORLEN

POLAND'S CLIMATE MINISTRY ANNOUNCES NEW OFFSHORE SUPPORT LIMITS

11.12.2024

Polish Ministry of Climate has published a new version of the regulation on maximum energy prices at auctions for offshore wind farms. The changes, resulting from an amendment to the so-called Offshore Act, introduce differentiation of support rates under 25-year strike price contracts depending on the location of the wind farms, with the aim of better matching support mechanisms to the costs of project implementation.

Differentiated support limits

The previous limit of PLN 512.32/MWh was to be the same for all investors. The new rules provide that such a rate will only be available for projects located on the Central Shoal (areas 53.E.1 and 60.E.1-4). However, for the farms on the Odra and Słupsk Shoal (areas 14.E.1-4, 43.E.1, 44.E.1, 45.E.1, 46.E.1) the support limit will be 479.10 PLN/MWh.

In practice, the rate of 512.32 PLN/MWh will cover only a few projects, including:

- three developed by PGE in areas 60.E.2-4 (of which one jointly with Enea in 60.E.4),
- a project by Polenergia and Equinor in area 60.E.1.

On the other hand, a lower limit – PLN 479.10/MWh – is to apply to:

- five Orlen farms (Energa OWF 1 and 2 and three Orlen Neptun farms),
- three PGE farms, of which:
 - one implemented with Tauron (43.E.1),
 - one with Ørsted (45.E.1),
 - one on its own (44.E.1).

Why the differentiation of rates?

The Ministry of Climate argues the change is necessary to eliminate the risk of so-called 'over-support' for investors who develop projects closer to the coastline, where logistical and infrastructure construction costs are lower. The projects covered by the higher rate (512.32 PLN/MWh) are located about 90 km from the shore, while the others are located about 60 km away.

According to the Regulatory Impact Assessment (RIA), the total estimated costs of the support scheme for offshore wind farms in Phases I and II of offshore development, covering a target of 17.9 GW of installed capacity, will amount to 144.21 billion.

The regulation is expected to enter into force by the end of the year, which will enable the organisation of auctions in 2025 with the new rates.

Source: Polish Ministry of Climate





WWW.BALTICWIND.EU
CONTACT@BALTICWIND.EU

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