POLITYKA INSIGHT | RESEARCH

Potential partners for Polish companies in the second phase of offshore development

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Key findings

1. PGE and Orlen will not be able to carry out offshore wind farm projects alone in the second phase of offshore development. Legal and business circumstances will force both companies to sell stakes in special-purpose vehicles. Talks with potential partners may take years and the final outcome will be a combination of political, financial and operational factors. Foreign energy groups, investment funds and RES developers are competing for access to projects in the Polish Baltic Sea on the secondary market, which can also take care of the management of the installation once it is operational.

2. Foreign energy companies are partners of Polish companies in projects implemented in the first phase of offshore support. They know the industry well and can offer extensive operational and technological support to Polish companies. As companies of strategic importance in their own countries, they can bring political advantages to OWF projects and often ease their access to cheap financing. These advantages give energy groups the strongest negotiating position in talks with PGE and Orlen. But at the same time they can be seen as their regional competitors.

3. Investment funds and financial institutions are partners who can potentially offer the most favourable conditions for project financing. However, they do not have the workforce or engineering resources at their disposal, so in the scenario of them taking a stake in an SPV without additional partners, Polish companies would have to build offshore windmills on their own, which they are unlikely to be able to do at the moment. In the case of the Polish offshore, investment funds or other entities offering cheap capital should be leveraged with experienced and knowledgeable workforce to meet the needs of PGE and Orlen.

4. RES developers can offer technical expertise and cost optimisation to Polish partners thanks to their experience in the offshore sector and their ability to develop synergies (e.g. in the form of exchange of shares in other projects developed in the Baltic Sea). This allows them to compete with energy groups for shares in Polish OWF projects, also due to their flexible approach to the size of their shares in PGE's and Orlen's special purpose vehicles. However, developers do not necessarily bring significant political benefits to SPVs, although some of them – especially those already operating in the Baltic Sea – may make it easier for Poland to build intergovernmental relations and increase the credibility of projects on the financial market. Developers with significant development capacity – like energy groups – also offer economies of scale, which is very important in the procurement of services and equipment. In addition, their operating model allows them to partner with entities that provide cheap capital but lack know-how.

Introduction

Harnessing offshore potential is essential for Poland to meet its climate targets. According to the amendment to the RES Directive (RED III), by 2030, the EU is to raise the share of RES in final energy consumption from around 23 to 42.5 per cent. The EU's offshore strategy assumes that the installed capacity of offshore windfarms will increase in this decade from the current 34 GW to 60 GW. However, the transition will need to accelerate in the following years. In February 2024, the European Commission recommended that the EU adopt a 90 per cent reduction target for CO2 emissions by 2040 compared to 1990 levels. Regardless of the overall climate target for 2040, the European Commission estimates that the binding target of achieving climate neutrality by 2050 will require an increase in offshore wind capacity to 300 GW, or nearly tenfold.

Offshore wind farms are essential for Poland to reduce the looming supply gap in the electricity market. According to the Energy Regulatory Office, power generators plan to decommission units with a capacity of around 20 GW by 2036. They will commission 22 GW of new capacity, but only 12.6 GW will be avilable capacity. Indeed, the efficiency rate of offshore windfarms reaches 45 per cent, compared to around 10 per cent for photovoltaic plants and around 25 per cent for onshore windfarms. It is also possible to install the largest and most powerful turbines offshore.

At the beginning of 2024, the total capacity of windmills on EU seas was 34 GW. However, none of them are operating in the Polish part of the Baltic Sea. Meanwhile, according to the Ministry of Climate and Environment (MoCE), the potential of the Polish Baltic Sea by the end of the next decade is just under 18 GW . The Polish Wind Energy Association, meanwhile, estimates that as much as 33 GW is within reach. The environmental conditions, including the shallow bottom and high windiness, make the Polish Baltic an exceptionally favourable area for this type of investment. For this reason, leading global players, such as Denmark's Ørsted, Norway's Equinor, France's Total, EDF Renewables and Engie, the UK's Shell, Sweden's Eolus and OX2, Spain's Iberdrola, Germany's RWE and Portugal's EDP, have taken an interest. In the future, the queue of those willing to develop the Baltic Sea with offshore farms will certainly grow.

The construction of offshore wind farms is strongly supported by the government and the companies it controls. However, the participation of foreign and institutional investors is key to the smooth and timely construction of the farms. They can bring experience and capital to the projects, as well as participate in the investment risk. Hence, Orlen and PGE can be expected to show openness to their offers as they prepare for the construction of farms in the so-called second phase of offshore development, which will increase the chances of the full and timely use of the Polish Baltic Sea's potential.

In this report, we discuss the opportunities and threats related to the involvement of foreign entities in offshore projects in the so-called second support phase. In the first section, we present the conditions and perspectives of the projects themselves, including the related administrative procedures and investment barriers. In the second section, we analyse the business models of three types of potential partners of Polish companies, as well as the characteristics of their participation in the European offshore market. The third section presents the benefits and risks that their involvement in projects under the second phase of support may bring. The report is based on an analysis of source documents, academic and industry publications, investor data, as well as the authors' own research. The conclusions are based on publicly available information, including details of planned investments and declarations from public authorities and institutions.

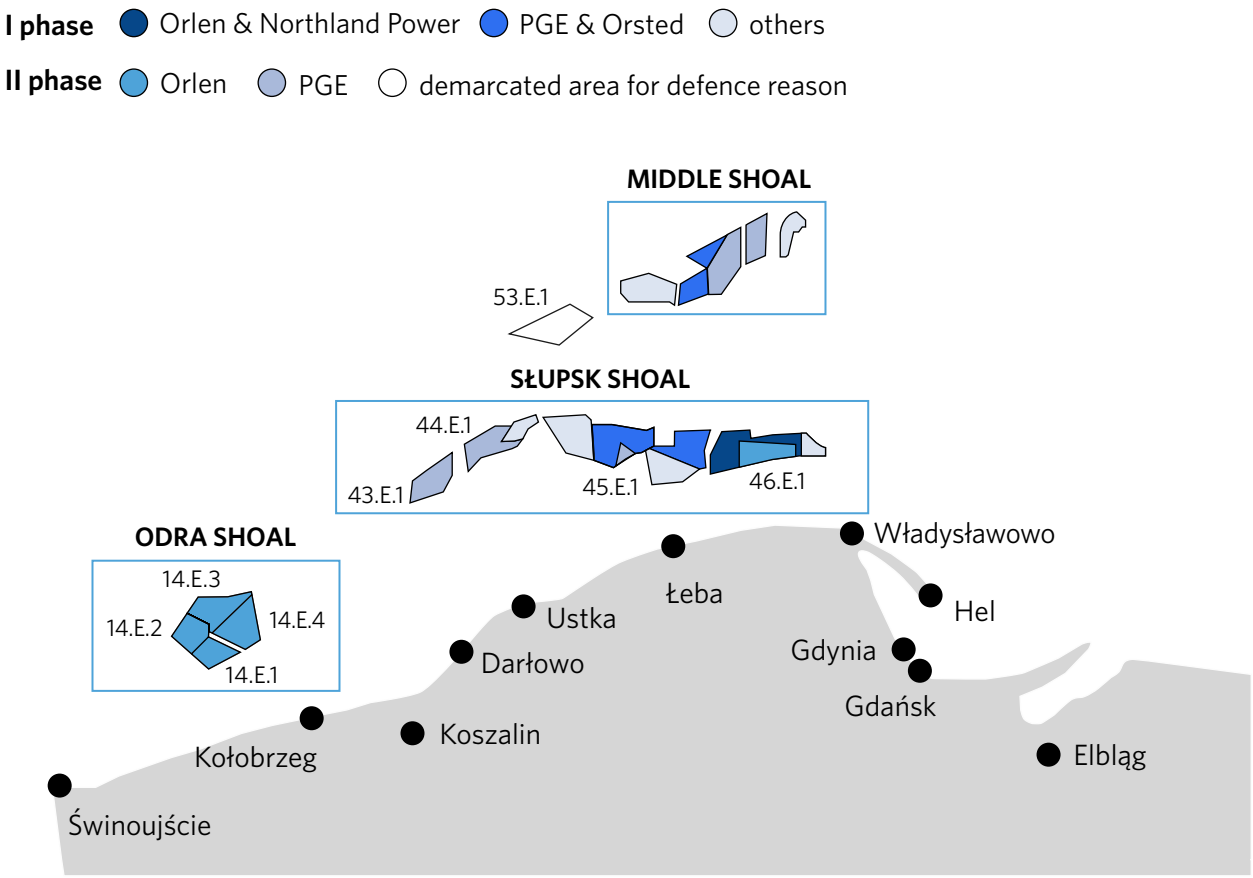
01 Conditions and prospects for the construction of farms

The construction of the offshore wind energy sector in Poland was divided into two phases in which investors could or could apply for public aid for their projects. The first was reserved for the most advanced investments with a grid connection agreement, an environmental decision and a permit to erect artificial islands (PSZW), among others. Under it, until the end of 2022, the head of the Energy Regulatory Authority (URE) granted contracts for difference to projects with a total capacity of 5.9 GW by administrative decision. These are:

- Two projects by Polenergia and Equinor: 720 MW Baltic II offshore wind farm and 720 MW Baltic III offshore wind farm.
- Two projects being developed by PGE and Denmark's Ørsted: OWF Baltica 3 with a capacity of 1045 MW and OWF Baltica 2 with a capacity of 1498 MW.
- Project by Orlen and Northland Power: Baltic Power with a capacity of 1,200 MW.
- Project implemented by Baltic Trade and Invest (an RWE company): F.E.W. Baltic II with a capacity of 350 MW.
- Project implemented by Ocean Winds (a partnership between EDPR and Engie): BC Wind Poland with a capacity of 500 MW.

Under the so-called second phase of offshore support, investors will be able to apply for contracts for difference with the government at auctions. The auctions will take place in 2025, 2027, 2029 and 2031 (holding the subsequent ones depends on the pace of development of the sector), with a maximum volume of supported capacity of 4 GW each in the first two and 2 GW each in the subsequent two (12 GW in total). Auction subsidies will be awarded to the generators offering the lowest energy price. The right to take part will be granted only to those entities that, in the proceedings conducted by the Minister of Infrastructure (MI), have received the permits to erect artificial islands, specifying the location, power of the farm and its intended use and location (determined by the areas on the Polish Baltic Sea designated by law). In addition, the application for admission to the auction will have to include the preliminary connection conditions or an agreement to that effect with the operator, the environmental decision, the material and financial schedule of the project and the plan for the supply chain of materials and services.

MAP 1. AREAS DESIGNATED FOR THE CONSTRUCTION OF OFFSHORE WIND FARMS



SOURCE: OWN ANALYSIS.

The process for issuing permits to erect artificial islands as part of the second phase of Polish offshore development ended in 2023. The Ministry of the Interior conducted 11 proceedings, but in one (concerning area 53.E.1) no winner was selected because the basin was reserved for defence purposes until 2040. Five proceedings were decided in favour of PGE and five in favour of Orlen. Once these decisions become final, the companies will be able to obtain permits to erect artificial islands and, on this basis, develop projects with a total capacity of up to approximately 13.1 GW, of which 12 GW will be eligible for support from the auction. This means that under the first and second phases, farms with a total capacity of around 15 GW will be able to be developed in the Polish Baltic Sea. For comparison: the Energy Policy of Poland until 2040, adopted in February 2021, assumes that by 2030, their total capacity will be 5.9 GW, and by 2040 – 11 GW. Meanwhile, in an optimistic scenario, by 2040 this will rise to as much as 19 GW, of which around 7.3 GW will belong to PGE and 5.8 GW to Orlen. However, the rules of the location proceedings were met with consternation by PGE's and Orlen's competitors, who judged them as favouring the Polish companies. Apart from them, other companies with extensive experience (and often capital) in the construction of OWFs, such as Iberdrola, Ørsted, RWE or Equinor, were also vying for concessions on the Baltic Sea.

Contracts for difference granted in both phases of Polish offshore development are to be valid for 25 years from the first generation and introduction of electricity from a given farm to the grid. The basis for calculating the amount of support will be the so-called negative balance, i.e. the difference between the cost of producing electricity from offshore wind farms and its wholesale price. In simple terms, this difference will be accounted for on the basis of the maximum price set by the government, which in the 2021 regulation was set by the Ministry of Climate and Environment at PLN 319.60/MWh. An additional support limit will be an amount determined by multiplying 100,000 hours by the capacity of the wind farm in question.

By law, from the moment the permit is granted, investors have eight years to obtain construction permits (this deadline will be able to be extended by two years) . Within three years of obtaining them, they must start construction of the artificial island, and after another five years they must start the farms. If either of these deadlines is not met, the MI must declare the permit to have expired. Investors are also subject to a 10-year deadline to start laying cables and a 15-year deadline to start using them, counting from the date of obtaining the final decision on the permit for works in this respect. At the same time, a seven-year deadline for generators to produce and feed the first electricity from their windfarms into the grid will start to run from the date of the auction settlement (in the case of the first phase of support, from the European Commission's approval of state aid).

These deadlines will pose a major challenge for investors, especially PGE and Orlen. They will be compounded by the necessity to apply for subsequent permits and handle the investment process in all granted areas simultaneously. This will be all the more difficult as both companies lack experience in the construction of offshore wind farms and the necessary experience for:

- **know-how** – for Poland, investments in the OWF are greenfield projects, requiring the adaptation to their implementation of many segments of the economy, the organisation of the goods supply chain and the development of the production and service base, including the construction of port infrastructure.
- **workforce** – Polish workers have experience in the construction of onshore wind farms, but the vast majority of this experience cannot be translated into offshore projects. Studies, courses and training for future offshore personnel are being developed in Poland, but their entry into the labour market will take place in a few or even a dozen years. Until then, investors will have to rely on the workforce of their partners.
- **capital** – PWEA estimates that CAPEX alone for Polish OWFs may amount to approximately PLN 12.9 million per MW of capacity. The costs are influenced by factors such as the distance of the installation from land, depth of the seabed, turbine power and exchange rate fluctuations. The construction of 1 GW of OWF power may consume several billion złoty, while these estimates do not take into account issues such as the cost of capital or operating costs after the start-up of the farm. The availability of such money for the simultaneous implementation of several offshore projects will be severely limited.

The domestic industry will only be able to support Polish investors to a symbolic extent in the construction of offshore wind farms —in the most optimistic scenario, the share of so-called local content for the first farms is estimated at no more than around 10 per cent. Investors must also reckon with risks beyond their control, such as high interest rates, inflation, disrupted supply chains, or political uncertainty.

All this casts doubt on the ability of PGE and Orlen to implement all the planned projects on their own. While it cannot be ruled out that, in response to possible difficulties in meeting statutory deadlines, the government will decide to extend them, such an action would be undesirable from the point of view of climate objectives and the needs of the energy sector, also in the context of the generation gap that the national electricity system may face in the 2030s. In this situation, PGE and Orlen may enter into talks with other stakeholders regarding the resale of stakes in project companies. In attempting to attract new partners, the Polish companies would most likely be motivated by a desire to increase their operational capacities during the implementation of the investments and, thus, their chances of successful completion. However, it is possible that for the time being they will consider the resale of stakes as not cost-effective, as their price will increase as the farm project develops, e.g. after obtaining further administrative decisions or completing environmental studies. At the same time, an important argument for speeding up the negotiations may be the desire to minimise the risk of legal challenges (for example, at the EU level) to the results of the permits to erect artificial islands for PGE and Orlen.

The selection of a partner for Polish energy groups to carry out the investment will raise a strategic dilemma – whether to be guided in the process mainly by:

- financial considerations without significant operational and political benefits.
- political and business considerations, but at the price of, for example, higher investment implementation costs and increased competitiveness in the regional energy market, or
- primarily the good of the project itself, including the need to ensure its efficient and relatively cheap implementation, but at the price of limiting potential benefits in other areas.

It will be particularly challenging to balance and maximise the combination of these aspects in the decision-making process.

02 External actors

Polish companies are already cooperating with foreign partners in the construction of OWFs. Such partnerships have been concluded by the state-controlled companies Orlen and PGE, as well as the private Polenergia. They are implemented in the project finance model on the basis of a joint venture (JV) agreement, popular for capital-intensive, high-risk projects (it can be assumed that the cost of all PGE and Orlen projects will be higher than their capitalisation). This model assumes the establishment of a Special Purpose Vehicle (SPV), in which part of the shares are covered by capital external to the investor, e.g. bank loans secured on the company's assets, bonds or funds put up by partners. The SPV's liabilities are then paid from the financial surpluses generated. Such a structure also has the advantage of being able to distribute project risks between the partners. These risks are usually insulated from them, limiting the exposure of the parent companies.

- **Orlen and Canada's Northland Power** entered into a JV agreement in January 2021. It concerns the preparation, construction and operation of the 1.2 GW Baltic Power offshore wind farm. Orlen holds a 51 per cent stake in the JV and the Canadian company's subsidiary holds a 49 per cent stake.
- **PGE and Denmark's Ørsted** formed a JV in February 2021. The agreement governs the cooperation of the partners in the two project companies Baltica 2 and Baltica 3, in which each partner has taken a 50 per cent stake. The combined capacity of the wind farms will be approximately 2.5 GW.
- **Polenergia and Norway's Equinor** formed a partnership in 2018 and are developing three projects with a total capacity of around 3 GW. Initially, Equinor took a 50 per cent stake in Polenergia's OWF Baltic II and OWF Baltic III projects, but in 2019 it exercised an option in the initial agreement and acquired a half stake in OWF Baltic I.

The shareholders of the special purpose vehicle bring resources necessary to implement the investment. These include technical knowledge, material, human and financial resources, expertise in project management or political background. Partnerships already established by Polish investors show that the key advantage of foreign investors is their long-standing experience in the construction and operation of offshore wind farms, including on the Baltic Sea. For example, the division of tasks between PGE and Ørsted assumes that the Polish company will carry out onshore works and the Danish company will take care of the construction and operation of the windmills. Similarly, Polenergia is taking advantage of Equinor's position in the offshore sector to mitigate the risks associated with the construction and operation of the supply chain and the cost of offshore investment. The Norwegian conglomerate is conducting procurement proceedings on behalf of the SPVs and is responsible for the construction of the farms, with the ultimate aim of being their operator.

The cooperation of large companies increases the credibility of the project in the financial market. In the case of Baltic Power, it was instrumental in securing a EUR 3.6 billion investment loan from a consortium of 25 institutions (including the European Investment Bank) in autumn 2023. In addition, investors benefit from the political backing of the authorities of the partner

companies' home countries – the consortium financing Baltic Power included the Canadian Export Credit Agency, which without Northland Power's involvement would not have participated in the project. On the other hand, for foreign partners, the participation of Polish state-controlled companies facilitates administrative procedures. For example, in the Baltica 2 and Baltica 3 projects, PGE is responsible for obtaining the necessary permits and decisions.

The implementation of offshore projects in the first phase will allow Polish investors to acquire some of the necessary know-how. PGE and Orlen will thus be more independent when implementing projects in the second phase of offshore development. So while so far they have chosen large foreign energy groups as partners, two of which (Equinor and Ørsted) are companies controlled by the state, in the second phase they may consider offers from other, smaller entities. We analyse the business models of potential partners.

Energy groups

Their primary source of revenue is the sale and distribution of energy. They are usually multi-utility corporations that offer customers electricity, natural gas and possibly its low-carbon alternatives, as well as oil and fuels. The requirements of climate policy and public pressure to decarbonise the energy they produce mean that these players are building multi-year strategies to increase the share of RES in the fuel mix. To make their progress in this regard visible, they usually present EBITDA results by business segment in their interim reports, highlighting the RES business. The need for decarbonisation is also giving impetus to the expansion of energy companies abroad. There, they are looking for simpler or cheaper investment areas to develop and are building their portfolios by competing with other energy groups, expanding their own expertise and developing supply chains in promising technologies such as offshore wind power.

Large energy groups are listed companies. In many of them, a significant or majority shareholding is controlled by the state. For example: 50.1 per cent of Ørsted's shares are held by the Danish government. In the case of Equinor, the state's stake is 67 per cent, while EDF has been fully nationalised since July 2023. Established market positions and far-reaching revenue diversification allow state-controlled companies to engage in capital-intensive and time-consuming projects of strategic importance from the perspective of the home country's energy policy. EDF is to become involved in the modernisation of the French nuclear plants, to be expanded by 14 reactors by 2050, according to the French government's plan. Equinor controls around 70 per cent of gas and oil production on the Norwegian Continental Shelf. Ørsted focuses on the offshore sector, as Denmark is one of the leaders in terms of installed offshore wind capacity, but also in the production of plant components and services for OWFs.

State-controlled energy groups go to foreign markets to pursue national political or economic interests. In the offshore industry, the EU's strategic partner is Norway, which is the only country outside the EU to participate in the North Seas Energy Cooperation initiative, which is geared towards harnessing the wind potential of the North and Baltic Seas. This is among the reasons for Equinor's desire to attract further offshore investments in the EU seas.

In the first phase of offshore development, Polish investors mainly work with state-controlled energy groups, but in the second phase they may consider cooperation with other players.

Energy groups have played a pioneering role in developing the offshore wind sector in Europe. They have gained in-depth know-how and knowledge of the market. Some still have farms in their portfolio in which they are the sole shareholder. Ørsted, for example, operates two farms on its own in Denmark (Horns Rev 2 with 209 MW and Avedøre with 7.2 MW) and two in the UK (Barrow and Burbo Bank with 90 MW each); it also has stakes in a dozen other farms in Germany, the UK and the Netherlands.

European energy groups remain an active group of investors in the OWF. They are also increasingly choosing to develop projects outside Europe in the wake of new state aid instruments, but with varying fortunes. In 2023, Ørsted, Equinor and BP recognised losses totalling USD 5 billion after prices in US offshore wind power sales contracts proved disproportionate to construction and financing costs. Several European companies also decided to compete for support from Japanese auctions; RWE was awarded a stake in one of the awarded contracts.

Developers

The business model of RES developers is based on the construction and subsequent sale of installations. They implement greenfield projects, but also purchase investments at various stages of development from other entities. They offer financing, project execution and handling of the construction itself. To this end, they make use of economies of scale (generated by the large number of assets in their portfolio) and access to supply chains for goods and services. Ultimately, they sell the finished plants to the end customer or contract the electricity produced in them under a power purchase agreement (PPA). Sometimes they resell projects under development to another investor (e.g. an energy group) in the so-called ready-to-build model, i.e. after obtaining the necessary permits. They also often provide operation and maintenance services for active RES installations. Most of them (both on the Polish and European market) base their activities on photovoltaic projects and onshore wind farms, although they also implement hybrid installations, power-to-X systems (e.g. electrolysers for hydrogen production), or large-scale energy storage facilities. The largest players are investing in offshore wind energy.

Renewable energy developers with international operations are competing for the Polish market. For them, one of the most important factors determining the attractiveness of a given market is the local investment needs related to the decarbonisation of the electricity system. For this reason, Poland, still deeply dependent on fossil fuels, is an important market for leading RES developers. One such player is the Swedish company OX2, operating in Poland since 2019. It develops and sells RES projects in more than a dozen countries, but has the most employees in Poland after Sweden and Finland – as of March 2024, it has developed or is developing large-

scale photovoltaic, wind and energy storage projects in Poland with a total capacity of more than 3 GW. Projects in Poland also account for nearly half of the portfolio of the US-based Greenvolt Group, which is active in 16 markets. This company entered the Polish market in 2020 with the acquisition of a company with a similar business profile (Geo Renewables), and by January 2024 had photovoltaic, wind and battery projects in Poland with a total capacity of 3.4 GW. Classic developers compete with companies with a mixed model, such as Portugal's EDPR, for which the strictly development business is one of several business segments under the so-called asset rotation model, which assumes the sale of around 30 per cent of new capacity from completed or ongoing projects between 2023 and 2026 (around 5 GW across the group's global operations).

Polish RES developers are growing in strength. Slightly smaller Polish companies competing with international giants are moving into the RES industry from other sectors, e.g. through acquisitions or the use of existing assets and know-how. Grenevia (formerly Famur), which for decades produced machinery for the mining industry, wants to generate around 70 per cent of its revenues from outside the thermal coal industry from 2024. To this end, it has acquired Projekt Solartechnik, a company specialising in the development of photovoltaic farms, and is expanding its service offering for wind power. Also active in the RES sector is ONDE (Erbud Group), a company originating from the road and engineering sector, and Budimex, which has so far developed the RES segment through the acquisition of ready-to-build projects, but wants to start implementing greenfield projects in the coming years. In addition, there are companies on the market that offer RES systems for small and medium-sized companies and tailor-made power purchase agreements (PPAs) or provide solutions for individual customers (prosumers).

The involvement of large foreign developers in the OWF could free up space in the photovoltaic and onshore wind market for their Polish competitors.

Developers' key customers are energy groups that are expanding their own RES portfolios based on acquisitions. An example of such a transaction was Orlen's acquisition in December 2023 of the Ujazd, Dobrzyca and Dominowo wind farms with a total capacity of more than 140 MW, developed by Portugal's EDPR. In September 2023, OX2, meanwhile, sold a 100 per cent stake in the 19.8 MW Bejsce Wind Farm to Enea, which is due to start operation in 2025. Energy groups optimise costs in this way – developers are often able to build RES installations faster and cheaper than they can. This also frees up energy groups' internal resources for other, sometimes more complex projects, such as offshore wind or conventional power. Another important group of clients of RES developers are industrial companies that need a comprehensive decarbonisation strategy, but do not have the resources necessary to select and implement specific technologies. On the Polish market, KGHM is one such client, buying a portfolio of eight photovoltaic installations from Projekt Solartechnik (Grenevia) in autumn 2023. During the operation phase, it will also provide maintenance services for the farms. Sometimes developers sell stakes in their installations to investors from the financial sector, such as pension funds or insurers.

TABLE 1. PROJECT PORTFOLIO OF SELECTED RES DEVELOPERS IN EUROPE

NAME	PORTFOLIO SIZE (INCLUDING OFFSHORE)
OX2	47.46 GW (13.8 GW)
Eolus	26.8 GW (10 GW)
RES Group	24 GW (-)
Grenevia	5 GW (-)
ONDE	0,9 GW (-)
Greenvolt Power	6,9 GW (-)

SOURCE: OWN ANALYSIS.

RES developers are increasingly investing in offshore. Large developers owe their position in the market to onshore photovoltaic and wind projects, i.e. investments that are less capital-intensive and less risky. However, some are taking on offshore projects – for example, OX2 was developing offshore projects with a total capacity of 13.8 GW at the end of 2023, representing 29 per cent of the total capacity in the company's portfolio.

RES developers often make offshore investments through partnerships with other entities, already established at the stage of applying for concessions.

Developers are showing interest in wind investments in the Polish part of the Baltic Sea, as reflected, for example, in the participation of OX2 and Eolus in the location procedure for the second offshore phase. Development in this direction, however, requires developers to have extensive risk management strategies. They do not carry out investments in OWFs on their own, but in partnerships. Of the Polish companies that are involved in RES development as part of their development activities, Respect Energy has entered the offshore area, heading a consortium that is developing the Elanora Offshore project in Australia with a connection capacity of 5 GW.

Investment funds and financial institutions

Institutional investors fill the gap between private and commercial financing of RES. This group includes pension and equity funds, insurance companies and sovereign wealth funds. They view OWF SPVs as a safe capital investment and a way to diversify their portfolios. They also see them as a source of predictable income free of capital market risks. They are keen to invest in developed countries and see Europe as a market with a high demand for new investments, driven by the requirements of climate policy. Finally, they see renewable energy as a sector with good global growth prospects and recognise the need to move away from high-carbon assets in their portfolios, as well as the risks associated with not doing so, particularly in Europe.

Investment funds, insurance companies and public financial institutions are increasingly willing to participate in European OWF projects. Their contribution to the project is capital and assistance in raising additional financing.

Institutional investors have limited operational involvement in the construction of new farms. Data from the International Renewable Energy Agency (IRENA) shows that they focus on refinancing existing installations through various financial instruments. From the perspective of those involved in OWF projects, this means the potential to free up capital for further investments. However, the increasing pressure to green the business is making institutional investors more willing to take stakes in project companies as well – an example of such an investment is the Dutch OWF Hollandse Kust Zuid, in which Allianz Capital Partners took a 25.2 per cent stake in 2021. Institutional investors are unlikely to provide know-how, only capital, but they can also lend credibility to a project in the eyes of the financial sector.

Private investors are making a stronger capital commitment to OWFs than public ones. According to the latest IRENA data, in 2020, the former put up 65 per cent of global investment in offshore wind, while the public put up 35 per cent. However, private entities are more likely to lean towards mature technologies with relatively low risk, which is why photovoltaics are attracting more and more investment every year – data from IRENA and Bloomberg New Energy Finance show that the share of this technology in total RES investment increased from 43 per cent in 2020 to 60 per cent in 2022. Wind power is losing out, especially offshore, which still attracted 12 per cent of RES investments in 2020, but only 7 per cent in 2022. However, private investors are more willing to engage in European projects, as available support mechanisms, such as the contract for difference, reduce investment risk and the cost of capital.

03 External investors – opportunity or threat for Polish offshore?

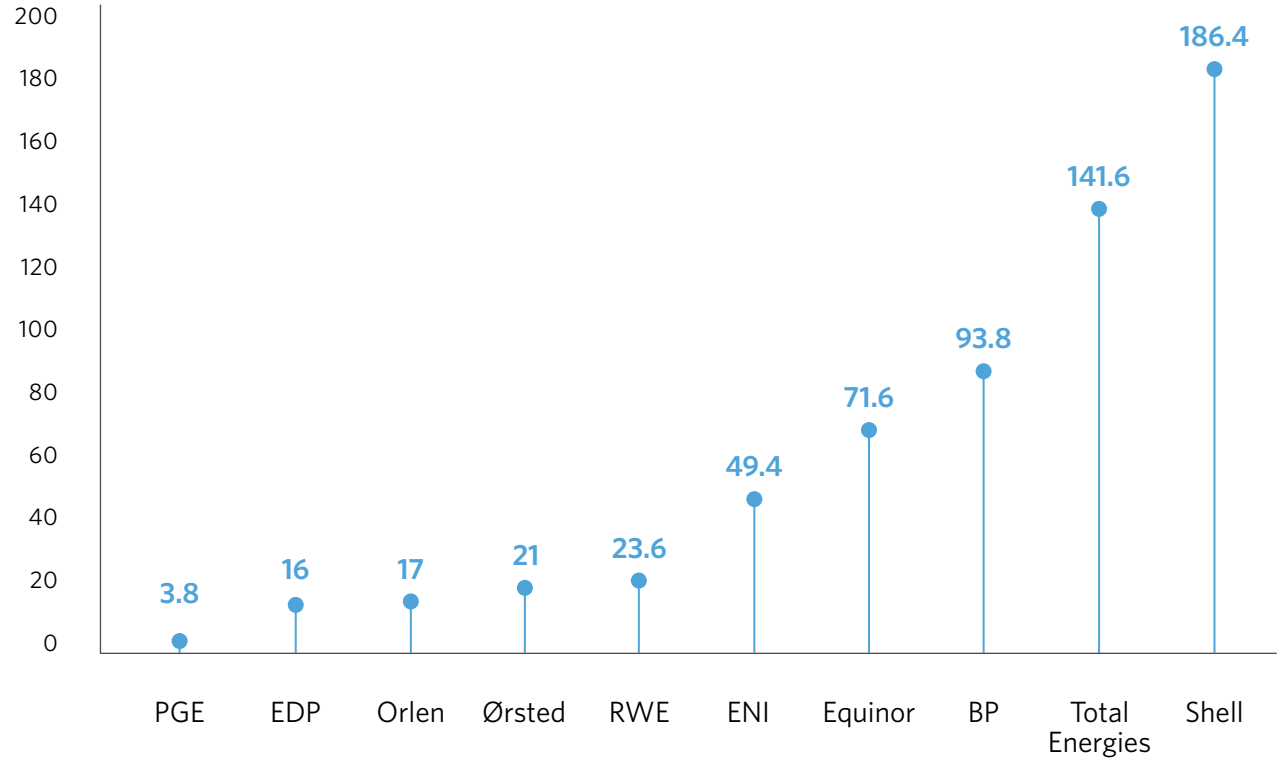
The final decision on who will build windmills in the Polish Baltic Sea as part of the second phase will be determined by agreements between PGE and Orlen and potential external investors. A wide range of them are counting on securing a stake in the OWF projects on the secondary market by buying back some of the shares in the two state-controlled companies' special purpose vehicles. PGE's and Orlen's final decision on the choice of an OWF construction partner will be a combination of political, financial and operational factors, as well as the opportunities and risks involved.

Energy groups

These groups are potentially natural partners for offshore wind farms, as they have a similar business model to PGE and Orlen. By committing capital to an SPV, other energy companies may be interested in both the future revenues from the operation of the installation and in receiving some of the electricity from it. In return, they can sometimes offer a significant amount of experience in building windmills on the same or other waters, including know-how, employees and a wide range of companies working with them. In the offshore sector, major investors often use the same supply chains for goods and services, even in different markets. This reduces costs and increases the certainty of timely delivery – but makes it even more difficult to build Polish local content.

The involvement of energy groups in second-phase projects would substantially lend them credibility, especially in the eyes of the banks and financial institutions lending to the investment. Thanks to the scale and objectives of its activities, such a business entity can be seen as a stable partner for PGE and Orlen, which will see its involvement in their SPVs not only through the prism of financial benefits, but in a broader business context and as a long-term investment. This increases the certainty and security of offshore wind development.

CHART 1. MARKET CAPITALISATION OF SELECTED ENERGY COMPANIES (EUR BLN, AS OF MARCH 9, 2024)



SOURCE: OWN ANALYSIS.

At the same time, the discussed solution may be perceived as a threat to Polish companies. It cannot be ruled out that PGE and Orlen, in the second phase of offshore development, will be interested mainly in the material and financial background of the future partner and will not want to share benefits with it on the operational level, e.g. electricity produced in the farm. Moreover, the prompt completion of investments in Poland will not necessarily be the top priority for foreign energy groups.

Joint venture cooperation between energy companies from different countries may depend on local business conditions, such as the impact of a particular investment on competition in the regional electricity market. A given company may be reluctant to engage in a project that it considers contrary to its interests in this area. Nevertheless, it may be attractive for it to participate in several offshore investments in the waters of different countries, e.g. in Lithuania, Poland and Denmark. Already today, some investors looking for SPV partners declare their openness to cross-border projects, consisting, for example, in connecting their windmills with other farms in the Baltic Sea by HVDC cable and creating a so-called meshed grid. Meanwhile, the needs of the domestic energy market will tend to push PGE and Orlen to supply electricity from their installations mainly to domestic consumers.

A potential advantage of energy companies is that they can offer offshore partners concessions in other energy or economic sectors. These could be, for example, stakes in other projects or discounts on commodities offered through swaps. Analogous "privileges" can be expected from PGE and Orlen, offering in return more attractive terms for entry into the SPV. This is prospective for talks with other companies developing offshore wind farms in the Baltic Sea, also under the first phase of support – it is possible that energy companies will offer Polish companies involvement in their second phase projects, offering their own projects as an in-kind contribution to SPVs.

The involvement of foreign energy companies in SPVs implementing the OWF may bring political benefits to Poland. However, the course of cooperation will then be strongly dependent on the current international situation, including the extent and nature of relations between the governments of the countries concerned. The worse they are, the more difficult it will be to establish and develop a business partnership. Its effectiveness may also be susceptible to changes in the political environment and diplomatic pressure. Under favourable conditions, however, such cooperation can bring tangible political benefits to its parties, as well as to other actors in the country concerned, and provide an impetus for the development of projects in other areas.

Negotiations by PGE or Orlen with other energy companies will be made more difficult if they make it a condition to take a large stake in the SPV, e.g. in the range of 40-49 per cent.

Smaller stakes would probably be unattractive to them due to an unfavourable input-benefit ratio. This would not only reduce the latter for Polish companies, but also increase the risk that – given the political factor and greater business opportunities – foreign companies would actually seek to dominate the project despite holding a minority stake in it. On the other hand, such a large shareholding of a partner would allow PGE and Orlen to expect a much broader scope of involvement in the project and the SPV, including giving space for simultaneous negotiations on business benefits in other areas.

The prospects of some energy companies engaging in investment may be undermined by the financial problems of their offshore segments. Denmark's Ørsted is a case in point, with an EBITDA of around EUR 3.2 billion in 2023, 25 per cent lower than in 2022, when it was the highest in the company's history. Ørsted now forecasts that in 2024, EBITDA will not exceed EUR 3.5 billion, but could rise to EUR 4-4.5 billion in 2026. This has forced the group to suspend dividends in 2023-2025, cut 800 jobs and reduce and stagger investments in order to reduce CAPEX for 2024-2026 by EUR 4.7 billion. Reasons for this include supply chain problems and an unfavourable macroeconomic environment, which has prompted Ørsted to withdraw from certain markets. BP and Equinor also have financial problems due to difficulties with OWF projects. If these problems persist in future years, the acquisition of large stakes in the SPVs of PGE and Orlen by the troubled companies may increase financial risks and limit flexibility in building the capital structure of investments.

TABEL 2. POTENTIAL FOR COOPERATION WITH ENERGY COMPANIES IN THE SECOND PHASE OF POLISH OFFSHORE DEVELOPMENT

STRENGTHS	WEAKNESSES
• Similar business model to PGE and Orlen • Very extensive experience in the construction of windmills on the same or other basins, including know-how • Access to qualified staff and a pool of cooperating companies • Possibility to cooperate also in other areas, including swap transactions	• Possible orientation towards financial and operational benefits • Dependence of cooperation on political situation and local business conditions • Pressure for a large stake in the SPV • Financial problems of key players in the industry
OPPORTUNITIES	**WEAKNESSES**
• Opportunity to reduce supply chain costs • Stable partner for years • Rapid development of own know-how by PGE and Orlen • Making the project credible and increasing the chances of attractive financing • Achieving political and business benefits and concessions in areas other than offshore • Reducing the risk of the proceedings for the issuance of the permits to erect artificial islands being undermined by foreign countries	• The desire of a minority shareholder to actually dominate the project • Limitation of space in the project for domestic companies • Necessity to share operational benefits, e.g. electricity produced in the OWF • Pressure on cross-border projects • Risk of prolonged financial problems of leading energy groups • Limited flexibility of PGE and Orlen in building the capital structure of the investment

SOURCE: OWN ANALYSIS.

Developers

The nature of their offshore activities places them, as it were, between energy companies and investment funds and financial institutions. They draw on their business models. Developers have been a significant player in the RES sector for years, including onshore and, in other countries, offshore wind energy.

Developers generally have strong financial and operational assets. They have their own capital, from which they co-finance the projects of their partners, such as energy companies, energy-intensive companies or funds. They cooperate with them on various projects, which, due to economies of scale, can make it easier to secure financing for investments in the Polish Baltic Sea, especially as developers are very often controlled by investment funds or financed by big business. The largest of them – similarly to energy groups and investment funds – also have cash or credit lines in euro available, which is particularly important for the bankability of Polish OWF projects,

whose CAPEX will mainly consist of costs in this currency. Thanks to their investment portfolio, it is also easier for such entities to reduce the costs of the so-called hedging and to reduce the debt burden on investments. Additionally, their involvement may reduce project risks in the eyes of the banks, for whom the biggest risks are delays in the construction of the OWF and changes in the regulatory environment. Developers may offer PGE and Orlen a partial settlement of the deal through an exchange of assets, e.g. they will offer stakes in other projects in the Baltic for stakes in their SPVs.

Projects involving public and private investors are financially recognised as safer, which can have a positive impact on the cost of raising capital. This is needed at a very early stage of investment, for example to reserve capacity in production facilities.

Developers have access to the know-how and operational capacity to develop offshore projects. This usually includes offshore engineering and permitting experience, as well as knowledge of the specifics of the basin. With windfarm investments in other countries, such operators also often have their own base of engineering teams and competence in developing and operating supply chains. In these aspects, they act, as it were, as consultancy firms for the dominant investor: they assist with procedural and procurement matters, offer environmental studies and manage the project and its associated risks. The largest offshore developers potentially have considerable flexibility in optimising construction costs. By developing other wind projects in different parts of the Baltic or North Sea, they are able to combine their supply chains of goods and services, for example using the same installation vessels. From the developers' business model comes their pressure to deliver offshore wind projects within budget and on time.

The disadvantage of engaging developers may be the lack of clear political benefits associated with it. Indeed, as private companies, they are less likely to have the full political support of the government in their country. However, if such a government considers a developer's area of activity to be strategic, involvement in PGE and Orlen SPVs may bring indirect political benefits to Poland, for example as a catalyst for closer economic relations in other sectors. Such a situation may arise especially in the case of companies already active in the Baltic Sea or coming from countries with close political and economic relations with Poland, such as EU countries or Norway. In talks with PGE and Orlen, developers will also strongly emphasise financial issues, including return on capital. They can be seen as bridging partners – providers of services and goods (such as financing or supply chain elements). On the other hand, developers do not aspire to a dominant role in the SPV and are generally not interested in the non-financial benefits of developing OWF projects. Unlike energy groups, they would also not be potential competition for PGE or Orlen.

The developer's involvement will not necessarily have a positive impact on the cost of the overall development. Moreover, ultimately, the developer will seek to sell its shares in the project once its value increases. This raises the risk that, in order to strengthen their control over

the SPV, in the future PGE and Orlen would have to buy back the developer's stake at a high price, which can be mitigated by introducing appropriate provisions in the shareholders' agreement. Orientation towards the progress of the development may also influence the construction of Polish local content, the scale of which in the development will be determined by a potential PGE/Orlen-developer agreement. Many developers have also struggled financially in recent years due to high inflation and interest rates. Some have been forced to withdraw from projects. In general, however, they have been able to monetise their holdings more quickly than energy groups, for whom the financial factor is only one of many aspects determining the attractiveness of a given investment.

TABEL 3. POTENTIAL FOR COOPERATION WITH DEVELOPERS IN THE SECOND PHASE OF POLISH OFFSHORE DEVELOPMENT

STRENGTHS	WEAKNESSES
• Access to know-how and human resources • Access to large amounts of equity and/or low-cost external financing • Close cooperation with energy groups, financial institutions and industry • Lack of orientation towards operational benefits of OWFs • Specialisation in farm construction and management	• Profit orientation • High vulnerability to financial problems of the offshore sector • Lack of political benefit from cooperation
OPPORTUNITIES	**THREATS**
• Reducing the cost of so-called hedging and lower debt burden on investments • Public-private projects are perceived as safer by banks • Possible exchange of assets within the JV	• Increase in investment costs depending on the scale and scope of project involvement • Pressure to implement the project too quickly • Uncertain prospects for long-term cooperation

SOURCE: OWN ANALYSIS.

Investment funds and financial institutions

These are entities primarily interested in the return on their investment, including the increase in its value over a certain period of time. Consequently, their entry into a given OWF project is mainly oriented towards a safe investment of capital and monetising the share at a convenient moment. This, in turn, may contradict the objectives of PGE and Orlen, which may potentially prefer partners not only financial, but also technological and ready for long-term, operational cooperation in the Baltic Sea. At the same time, this would create a chance that ultimately – after buying out the shares of investment funds in the future – Polish companies will become the sole or definitely dominant shareholder in their projects. However, this will only be possible after they have previously built up their own competence in the construction and operation of the OWF, including production and service facilities.

The main advantage of cooperation with investment funds is that they have access to relatively cheap financing, including their own. This, in turn, creates an opportunity to reduce the costs of the entire OWF construction project, also on the part of the dominant investor, i.e. PGE and Orlen. This is crucial for both companies due to the need to carry out several very costly windfarm investments in the Baltic Sea simultaneously. Moreover, the possible involvement of public financial institutions (e.g. PFR) in the SPV would lend credibility to its projects and make it easier to obtain external loans.

The involvement of financial institutions in offshore projects is particularly promising given PGE's large carbon footprint (including numerous coal assets in its portfolio). Without a partner with its own capital or access to low-cost financing, Polish companies may find it difficult to obtain loans for offshore investments.

The involvement of investment funds in IMF projects is unlikely to entail political and other business advantages on the Polish side. At the same time, their profit-oriented business model poses a possible risk of such entities exerting pressure, e.g. on the payment of dividends from the SPV or rapid growth and maximisation of the project value. This could, on the one hand, provide an impetus for efficient implementation of the investment, and on the other hand, hinder the involvement of domestic suppliers of goods and services. At the time of construction of the second-phase OWFs, they are unlikely to be able to compete effectively on price with foreign players yet.

Investment funds usually do not have comparable experience with energy companies in the development of offshore projects. They are unlikely to have the staff or operational capabilities necessary for this, nor is their offer likely to include organising the supply chain of goods

and services for the OWF. Such actors are also unlikely to be interested in electricity from farms or other political or business concessions. It follows that their involvement in the project leaves challenges in this regard either on the part of PGE and Orlen or their other partner in the SPV. In the former option, the investment would probably be difficult for both companies to bear – it would take many years to build their own resources in this area. In the latter case, the funds would probably only supplement the project's entity structure (taking up e.g. 5-10 per cent of shares) and close its financing. Regardless of the risks involved, the advantage of this solution would be that Polish companies would retain some flexibility in decisions concerning the capital aspect of the investment, which would give these entities a chance for greater control over the implementation of the project.

TABEL 4. POTENTIAL FOR COOPERATION WITH INVESTMENT FUNDS IN THE SECOND PHASE OF POLISH OFFSHORE DEVELOPMENT

STRENGTHS	WEAKNESSES
• Access to cheap financing • Large potentional to close capital structure Lack of interest in purely operational benefits • Independence of cooperation from political factors	• Profit orientation • Lack of political benefits • Lack of prospects for a large share of venture capital
OPPORTUNITIES	**THREATS**
• Reduction of investment costs • Lowering the impact of PGE's and Orlen's carbon footprint on OWF financing costs • Greater freedom in building the supply chain • Preservation by PGE and Orlen of flexibility in decisions concerning the capital aspect of investments • In the long term, Polish companies will be able to become the sole owners of their projects	• Risk of quick exit from the investment • Lack of experience in OWF construction • Lack of know-how, labour force and production and service base • Possible pressure for quick profit and minimisatio of investment costs

SOURCE: OWN ANALYSIS.

Conclusion

PGE and Orlen face the question of the shape of the entity and capital structure of the SPVs implementing their projects in the second phase of the Polish offshore wind energy sector. The resolution of this issue will determine both the cost of the investment and the manner in which it is carried out, as well as possibly the shape of other political and business benefits associated with it. Energy groups, RES developers, and financial institutions will fight for cooperation with Polish companies.

The choice of an external investor will determine the nature and scale of the benefits that PGE and Orlen will be able to gain from their investments in the Baltic. Cooperation with other energy groups may not necessarily translate into lowering their costs, but it certainly has political and business advantages – for stakes in Polish SPVs, such entities are able to offer stakes in their projects or lower prices for e.g. raw materials and other technologies. Financial institutions, on the other hand, are likely to be most able to provide Polish companies with cheap capital, although they will not actually offer them any significant political advantages or any form of asset swap. Nor will they be able to support the project on an operational level. The nature of their business makes it possible to assume that the inclusion of their SPV will be possible mainly to close the financing of the investment. A possible partnership with developers will probably not have much political potential either. At the same time, such entities may bring a number of advantages to the project, in the form of know-how, human resources, relatively cheap financing or exchange of assets. Their additional advantage may be to relieve PGE or Orlen from ongoing involvement in the project, but the disadvantage may be an increase in its costs, on a scale that depends on the extent to which Polish companies cooperate with them.

TABEL 5. IMPACT OF COOPERATION WITH EXTERNAL INVESTORS ON THE IMPLEMENTATION OF OWF CONSTRUCTION PROJECTS IN THE SECOND PHASE

ASPECT	ENERGY GROUPS	FINANCIAL INSTITUTIONS	DEVELOPERS
Political	Positive	None	Moderate
Financial (cost of capital)	Moderate	Positive	Positive
Staff	Positive	None	Positive
Technological (know-how)	Positive	None	Positive
Additional business benefits (e.g. asset swap, barter)	Positive	None	Moderate
Business risks (e.g. project costs)	Moderate	Moderate	Moderate
Stability of cooperation	Positive	Moderate	Moderate
Competitive pressure on Polish companies	Negative	None	None

SOURCE: OWN ANALYSIS.