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Institute for Renewable Energy

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PHOTOVOLTAIC MARKET IN POLAND

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SUMMARY

Achievements of Polish photovoltaics

The 10th IEO report "Photovoltaic Market in Poland 2022" showed that for the photovoltaic industry in Poland, after a very good 2020, in which the increase in installed capacity was 2.4 GW, the next one - 2021 - turned out to be even better. The annual growth of installed PV capacity was as high as 3.7 GW, with installed capacity reaching 7.67 GW by the end of 2021. The data from the end of the first quarter of 2022 indicate the installed capacity of 9.4 GW. Prosumers, whose number approached one million, are responsible for nearly 80%.

The total turnover on the photovoltaic market in 2021 was estimated at PLN 16.7 billion, including a market value of about PLN 15.4 billion in capital expenditures alone. It is projected that in 2022 the commercial turnover of photovoltaics will increase compared to 2021 and will amount to more than 20 billion zlotys, and the value of the PV investment market will be at 19 billion zlotys.

At the end of 2021, the installed capacity of photovoltaics in the European Union countries will be 158 GW, an annual increase of 21.4 GW. EU countries have achieved a 15% increase in total installed PV capacity by 2020. In 2021, Poland is most likely (not all countries have confirmed final and official data) to be in second place, behind Germany, in terms of growth of installed PV capacity in the European Union.

Regulatory changes will guide PV industry development

Recent decisions relevant to photovoltaics in Poland include the extension of the auction system for another six years (for 2022-2027), the introduction of net-billing for prosumers, and legislative work on the implementation of the so-called direct line into Polish law. At the level of EU law, mention should be made of the anti-crisis REPowerEU package, where there is talk of accelerating the installation of photovoltaic panels on rooftops to 15 TWh in a year, which translates into 11 GW of PV capacity. In May 2021, the European Commission adopted an "EU Solar Energy Strategy" aimed at fully realising the potential of photovoltaics in an era of decoupling from fossil fuel imports and mitigating climate change. Over this decade, the EU wants to install an average of about 45 GW of new PV capacity per year to meet its goal of 600 GW in 2030. The Commission also announces support for the construction of new PV production facilities, in particular the instrument of so-called Important Projects of Common European Interest (IPCEI) focused on breakthrough technologies and innovations in the solar energy value chain.

Work is underway to implement EU regulations to support PV. This is an opportunity to remove such shortcomings as the definition of energy storage (narrowed down to electric-only storage batteries) and hybrid installation (narrowed down to PV+electric battery hybrid without the possibility of so-called *cable pooling* with wind farms) by not taking into account the benefits that hybrids provide in applying for grid connection conditions, lack of preference for agrophotovoltaics.

New trends in the operation of photovoltaics on the energy market

The fourth edition of "My Electricity" program followed the introduction of a new net billing system for prosumers in April this year. What is new in this edition, however, is that the government and the PV industry have recognised the need to increase self-consumption of energy produced from PV installations. For this reason, funding is provided not only for photovoltaic installations but also for energy storage, both heat and electricity, as well as systems for managing this energy. Particularly

noteworthy are heat storages, overlooked for many years, but recently increasingly cited in the context of using surplus energy from PV for heating purposes, serving, among other things, to reduce the use of imported and now extremely expensive gas for heating purposes.

The need to invest in their own power plant is felt not only by prosumers in micro-installations, but also by so-called business prosumers (self-producers), who are particularly affected by high wholesale energy prices raised additionally by a power fee. Despite the support system for energy-intensive companies, these companies still bear the highest cost of energy price increases. In particular, these costs are acute in industries where the so-called electrocosting of the final product is high (e.g., metal, chemical, wood and plastics and other industries). In addition to self-consumption of energy from its own large-scale installations, the energy and any significant surplus can be sold on the market according to various models. One model gaining in popularity is the sale of energy at a fixed price according to CPPAs (*Corporate Power Purchase Agreements*), which are now signed for as long as 10 years and, in an era of rising costs of capital, provide a basis for obtaining bank financing.

Power forecast and limits to PV development - power grids

According to the latest IEO forecast of installed PV capacity, the PV market will maintain its growth momentum in the coming years. Already by the end of this year, the capacity of all installed photovoltaic sources could reach 12 GW.

The years 2022 - 2024 are forecast to be a period of unusually rapid growth in new capacity in the solar farm segment. According to the IEO's latest database, which includes a list of all PV projects under development, at the end of the first quarter of this year there were 12.5 GW of projects on the market with grid connection conditions secured. This number includes about 5 GW of capacity not yet built and contracted in project auctions.

The updated forecast assumes that 20 GW of PV capacity will be reached as early as 2025, and in 2030 the cumulative installed capacity could be as high as 28.5 GW.

The development of photovoltaic power plants is technically limited by the availability of connection capacity and the state of the grid infrastructure. The decline in the size of available connection capacities over the next 3-5 years would not be so difficult for the PV industry if it were not for the multitude of refusals regarding grid connection conditions for new projects issued by Distribution Network Operators. Maintaining such dynamic growth in photovoltaic capacity implies, among other things, the need for investment in the power grid infrastructure.

In order to sustain PV development, it is necessary to remove administrative and grid barriers and create regulations and legal conditions to facilitate grid access. Examples of necessary supportive regulations include ensuring the applicability of direct lines and increasing the availability of space for the construction of PV installations (e.g., promotion of agrophotovoltaics) and introducing further facilitations in investment procedures.

In the medium term, there is no indication of a slowdown in the PV market. If it even temporarily slows down the pace of micro-installation development, photovoltaics as a whole do not read it. This is because it is a flexible, scalable technology that works in several segments and many market niches. At a time of some saturation of the prosumer market, the development of larger capacity photovoltaic segments - photovoltaics for business and industry, large-scale farms - is evident.

The photovoltaic boom continues. In 2021, previous records have been broken, including last year's market growth record. The year 2022 promises to be just as good, but new calls related to disrupted supply chains and rising component prices, the energy crisis and the introduction of PV into a jittery

energy market under grid constraints will require the industry to develop new competencies and business models.



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