

## PHOTON ENERGY – when the sun shines

Photon Energy Group is a global supplier of photovoltaic solutions, offering a wide range of services covering the entire life cycle of systems related to the production of solar energy. It is also consistently expanding its own portfolio of PV power plants. Investing in the company provides excellent exposure to the renewable energy market, in particular the dynamically growing photovoltaics (PV) segment. We set the target price for Photon shares at PLN 13.94 (EUR 3.03), which gives a 29% growth potential.

### Diversified business

The Photon Energy Capital Group is active around the world and has experience in preparing, building and commissioning photovoltaic installations as well as servicing photovoltaic assets. It manages a portfolio of 113 MWp of its own power plants in 5 countries on two continents. In addition, it develops and supplies water treatment, reclamation and purification systems that can be used globally.

### Experienced management staff invested in the company

Photon is managed by a management board with many years of experience in the PV market. The two main shareholders are related to the management board members and together control approximately 70% of the company's capital.

### Dynamically growing PV market

Photon operates on the renewable energy market, in its most dynamically growing photovoltaics (PV) segment. Forecasts for this RES area assume further strong market growth (CAGR<sub>2022-27</sub>=25%). The company takes advantage of the market development by offering a full range of services within the value chain: investment preparation and management (EPC), sale of PV technology, PV power plant maintenance services (O&M) and intermediation in the sale of energy.

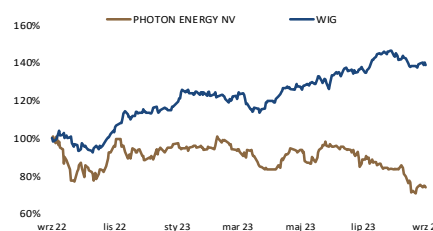
### Risks to forecasts and valuation

The main risks are related to the specific nature of running a business in the PV industry, i.e. high investment outlays and difficulties with planning the production volume. In addition, there were systemic risks resulting from technical barriers (transmission networks) and introduced administrative burdens (production limits, taxes).

We estimated the value of Photon Energy shares based on the sum of the parts valuation at PLN 12.93 (EUR 2.93) and the comparative value at PLN 11.92 (EUR 2.57). We assigned equal weights to both methods. We set the target price in a 9-month horizon at PLN 13.94 (EUR 3.03), which gives an almost 30% potential for an increase in the share price.

**NOBLE  
SECURITIES**  
DOM MAKLECKI

Current price	11.84 PLN
Target price	13.94 PLN
Upside/downside	29%
Market cap.	648 PLNm
Free float	29%
Avg. Vol. 6M	15 531



Source: Bloomberg, Noble Securities

### COMPANY PROFILE

Photon Energy NV is a global supplier of technologies and products in the field of solar energy. It operates in 11 countries on two continents.

### SHAREHOLDERS

Solar Future	35.5%
Solar Power to the People	33.1%
Treasure shares	2.5%
Others	28.8%

Source: Photon Energy, Noble Securities

EURm	2020	2021	2022	2023F	2024F	2025F
Other operating revenues and expenses	28	36	95	83	112	128
EBITDA	8	10	26	12	30	29
EBIT	0	-1	17	4	21	21
Reported net profit	-9	-6	6	-5	9	9
EPS (EUR)	-0.14	-0.11	0.11	-0.08	0.15	0.15
P/E (x)	-16.3	-22.1	22.4	-28.3	16.1	15.9
EV/EBITDA (x)	27.5	23.0	10.3	24.9	9.5	9.8

Source: Photon Energy (2020-2022), Noble Securities (2023-2025)

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## VALUATION

We calculated the value of one Photon Energy share as the average of the sum of the parts valuation and the comparative valuation, with a weight of 50% each. **We set the target price in a 9-month horizon at PLN 13.94 (EUR 3.03), which gives an almost 30% potential for an increase in the share price.**

Sum of the parts (SOTP) analysis assumes a separate valuation of individual assets or businesses. In the case of Photon, we valued each operating segment using the DCF method (model parameters are provided later in the report). We adjusted the valuation of the company's operations obtained in this way by the value of consolidated net debt at the end of 2022.

The comparative method is based mainly on indicators for foreign companies, because there is not a large representation of entities with a profile similar to Photon on the WSE (we decided to include only Polenergia in the comparison group). We used P/E and EV/EBITDA ratios for 2024-26, giving them equal weights.

We assigned equal weights to both of the above methods. For conversions, we used the EUR/PLN exchange rate of PLN 4.6.

Valuation summary	Weight (x)	Per share (EUR)	Per share (PLN)
Sum of the parts	50%	2.93	13.48
Peers	50%	2.57	11.92
Average valuation		2.75	12.70
<b>Target price (9M)</b>		<b>3.03</b>	<b>13.94</b>
Current price			10.84
Upside/downside			29%

Source: Noble Securities

## Sum of the parts valuation

Sum of the part valuation	value (EUR)		value (PLN)	
	total (mln)	per share	total (mln)	per share
Engineering	42	0.70	192	3.21
New Energy (Lerta)	157	2.63	723	12.10
Technology	46	0.78	214	3.58
Investment	182	3.05	839	14.04
O&M	2	0.03	7	0.12
Other+eliminacje	-130	-2.16	-596	-9.94
Cash netto (31.12.2022)	-126	-2.10	-578	-9.64
<b>RAZEM</b>	<b>174</b>	<b>2.93</b>	<b>800</b>	<b>13.48</b>

Source: Noble Securities

## Assumptions for the model:

Parameters of DCF models	Engineering	New Energy	Technology	Investment	O&M	Other+Elimination
Final year of forecasts	2032	2032	2032	2040	2032	2032
Risk free rate	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%
Market risk premium	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%
Beta	1.00	1.00	1.00	1.00	1.00	1.00
<b>Cost of equity</b>	<b>11.9%</b>	<b>11.9%</b>	<b>11.9%</b>	<b>11.9%</b>	<b>11.9%</b>	<b>11.9%</b>
Effective tax rate	20%	20%	20%	20%	20%	20%
Cost of debt	7.6%	7.6%	7.6%	7.6%	7.6%	7.6%
Cost of debt after tax bracket	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%
Net debt/EV	40%	40%	40%	70%	40%	40%
<b>WACC</b>	<b>9.6%</b>	<b>9.6%</b>	<b>9.6%</b>	<b>7.9%</b>	<b>9.6%</b>	<b>9.6%</b>
Growth rate (g)	0%	0%	0%	0%	0%	0%

Źródło: Noble Securities

## Peers valuation

	Market cap. (PLNm)	P/E (x)			EV/EBITDA (x)		
		2024	2025	2026	2024	2025	2026
Clearway Energy	20 523	20.3	19.2	19.0	11.2	10.8	12.0
Neoen	19 384	45.1	30.9	24.1	11.9	9.6	14.1
Encavis	9 888	22.5	20.1	18.4	11.3	10.2	12.3
Solaria Energia	7 915	15.2	13.0	8.3	10.5	8.6	13.4
Scatec Solar	4 379	23.5	17.8	12.5	8.2	6.7	10.0
Grenergy	3 358	19.4	13.5	10.0	9.8	6.5	11.7
Renova	3 137	8.9	18.8	15.7	12.3	9.0	12.3
Audax Renovables	2 616	21.1	17.9	30.7	11.4	10.0	14.4
Soltec	1 611	10.8	9.9	8.5	6.1	5.1	9.7
7C Solarparken	1 217	18.6	20.7	12.7	7.3	6.7	7.5
Polenergia	6 788	13.9	12.5	bd	11.0	10.3	13.5
<b>Median</b>		<b>19.4</b>	<b>17.9</b>	<b>14.2</b>	<b>11.0</b>	<b>9.0</b>	<b>12.3</b>
Photon's implied fair value (PLN)		13.0	12.2	9.7	14.2	9.1	13.3
Weight		17%	17%	17%	17%	17%	17%
Photon's implied fair value (PLN)				<b>11.92</b>			

Bloomberg, Noble Securities, data on 11.09.2023 at 10:10 a.m.

## OPPORTUNITIES AND RISKS

- + Photon operates on the renewable energy market, in its most dynamically growing photovoltaics (PV) segment. Forecasts for this RES area assume further strong market growth (CAGR<sub>2022-27</sub>=25%).
- + The company takes advantage of the market development by offering a full range of services within the value chain: investment preparation and management (EPC), sale of PV technology, PV power plant maintenance services (O&M) and intermediation in the sale of energy. At the same time, it has its own portfolio of PV installations..
- + A significant advantage of the company compared to other representatives of the industry listed on the WSE is the large geographical diversification of sales, which allows for stabilizing revenues and balancing regulatory changes in individual markets.
- + Photon is managed by a management board with many years of experience in the PV market. Persons from the company's management are capitally involved in the company.
- Regulatory risk resulting from the impact of local renewable energy support systems and the implemented energy policy on the results of companies in the sector. Frequent changes in the rules for granting public aid may have a direct impact on the Group's results (through its own portfolio of PV power plants) or indirectly affect the demand for the company's products and services (such as technology sales, EPC or O&M services). We assess this risk as high, as evidenced by the introduction of changes in the operating conditions of the renewable energy industry in many markets (especially in the EU) in recent months, as a consequence of the energy crisis in 2022 caused by the war in Ukraine.
- Risk related to meteorological conditions that determine production volumes and are not fully predictable. Worse weather conditions have a negative impact on the level of revenues, which, given the high operating leverage (dominant share of fixed costs in the segment of electricity generation from own PV power plants), significantly reduces the amount of profit achieved. This risk is characteristic of unstable renewable energy sources, although the company's many years of experience on the market allow it to be managed effectively.
- Risk related to the conditions on the energy market: a decline in current market prices due to short-term oversupply of energy in the event of favourable weather conditions (higher volume, but sold at lower prices) and an increase in prices resulting from a short-term energy shortage in unfavourable weather conditions (balancing the position of PV power plants by purchasing the missing volumes at much higher prices on the market). In our opinion, this risk will increase as the share of unregulated generation sources with similar characteristics (e.g. PV) increases.
- Risk related to projects in preparation, the development of which is always based on economic calculations, taking into account specific assumptions (e.g. the amount of feed-in tariffs, the investment support period, the price of electricity or the price of so-called green certificates). If the above assumptions turn out to be incorrect or if individual factors develop differently than planned, this would have a significant impact on the profitability of the photovoltaic project. In extreme cases, the company may decide to withdraw from the implementation of a given project, recognizing the expenses incurred so far as costs in the form of a write-off. We assess this risk as moderate, manageable by the company due to the competences of its employees, although increasingly difficult to manage in a highly variable regulatory environment.
- Risk related to changes in interest rates: with high debt financing fixed assets (which results from the specificity of companies operating on the renewable energy market and having their own portfolio of power plants), an increase in financing costs may have a negative impact on current financial results and limit development potential (new investments). In the case of a large share of debt, rising market

- interest rates may result in a decline in the value of photovoltaic projects owned (or under construction), as there is a risk that the sale of assets will not be possible at the intended price, significantly deteriorating the Group's financial liquidity. In line with its conservative hedging policy, much of the interest rate risk is hedged through IRS contracts, so Photon is only partially exposed to increases in financing costs.
- Risk related to exchange rate fluctuations and resulting from operating in many markets. Photon assesses the currency risk as moderate, although with the expansion of the Group's business into new markets, especially developing markets, the risk related to the exchange of foreign currencies may increase significantly.



## COMPANY

### History

Photon Energy a.s. was registered in 2008 in the Czech Republic. Its goal was to develop, obtain components, build, invest and provide long-term operation and maintenance services for photovoltaic power plants. In the same year, the company debuted on the NewConnect market of the Warsaw Stock Exchange, raising EUR 0.6 million in a private offering. Since 2016, Photon Energy has also been listed in a dual listing on the Prague Stock Exchange.

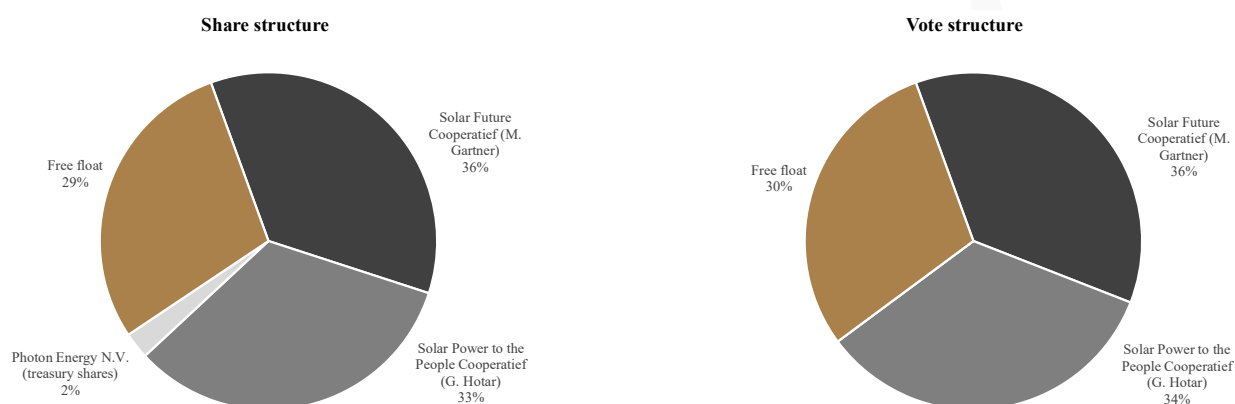
In 2012, a corporate restructuring took place, during which the main assets and business activities of Photon Energy a.s. were contributed to the newly established Dutch company, creating a holding structure. As a result of restructuring, in 2013 the company decided to conduct an exchange offer for minority shareholders of Photon Energy a.s. for shares of Photon Energy N.V. in a 1:1 ratio. In the same year, the capital was increased by EUR 24.0 million through capitalization of receivables.

In the years 2009-2011, the company built and launched, as part of its own portfolio, 11 PV power plants with an installed capacity of 15.0 MWp in the Czech Republic and another 11 PV power plants with an installed capacity of 10.4 MWp in Slovakia. In the years 2011-2021 Photon Energy a.s. expanded its portfolio to Germany and Italy, building additional photovoltaic power plants with a capacity of 2.6 MWp. It has also established its presence in Australia. In 2017, the company opened its office in Hungary and started implementing a number of photovoltaic projects for its own portfolio on this market, and in 2020 the decision was made to enter the Romanian and Polish markets. In the same year, Photon invested in a minority stake in the Australian company RayGen Resources, which deals with the development and construction of photovoltaic installations using PV Ultra technology (a combination of energy generation and storage). 2020 was also a key year for the subsidiary Photon Water, which implemented its own water treatment (remediation) technology while implementing a contract for the Department of Defense of the Australian Government. In 2023, Photon launched its first PV power plant in Romania, the fifth market where the company has its own PV installations.

### Shareholders

The company's share capital is divided into 61,238,521 shares.

#### Shareholder structure as of June 30, 2023



Source: Photon Energy, Noble Securities

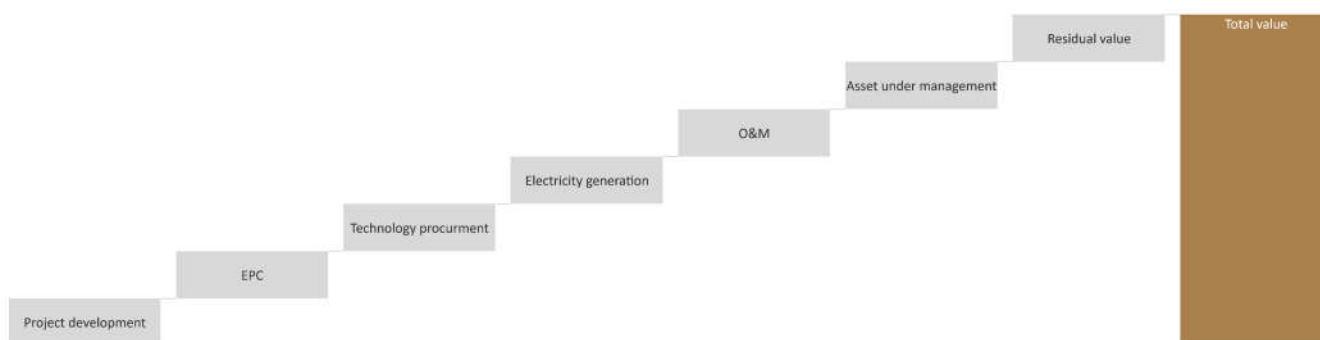


The two main shareholders are related to the management board members and together control approximately 70% of the company's capital. Mr. Michael Gartner (CTO) indirectly holds 35.55% of the shares (through Solar Future Cooperative U.A.) and 0.04% directly, and Mr. Georg Hotar (CEO, interim CFO) indirectly holds 33.11% of the shares (through Solar Power to the People Coöperatief U.A.) and directly 0.13%. The company has 1.5 million own shares (2.5% of capital), and free float accounts for 28.8% (as of June 30, 2023). Own shares were purchased in order to implement an incentive program for key employees of the Group.

## Business model

The company and its subsidiaries (operating as the Photon Energy Capital Group) are a global supplier of photovoltaic solutions, offering a wide range of services covering the entire life cycle of systems related to the production of solar energy. The group is active around the world and has experience in preparing, building and commissioning photovoltaic installations and servicing photovoltaic assets. The group manages a portfolio of 113 MWp of its own power plants in 5 countries on two continents. In addition, the Group develops and supplies water treatment, reclamation and purification systems that can be used globally.

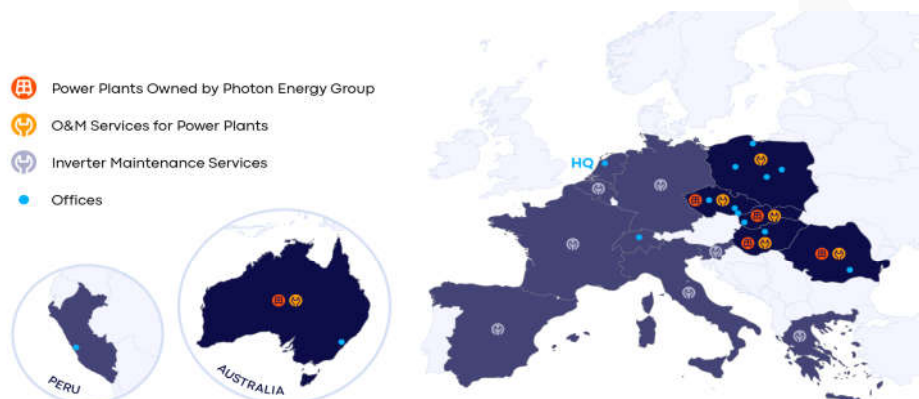
## Photon Energy value chain



Source: Photon Energy, Noble Securities

The company is present on 10 European Union markets and in Australia.

## Geographic diversification of the business



Source: Photon Energy, Noble Securities

Photon Energy, through special purpose vehicles, operates in 5 main business areas:

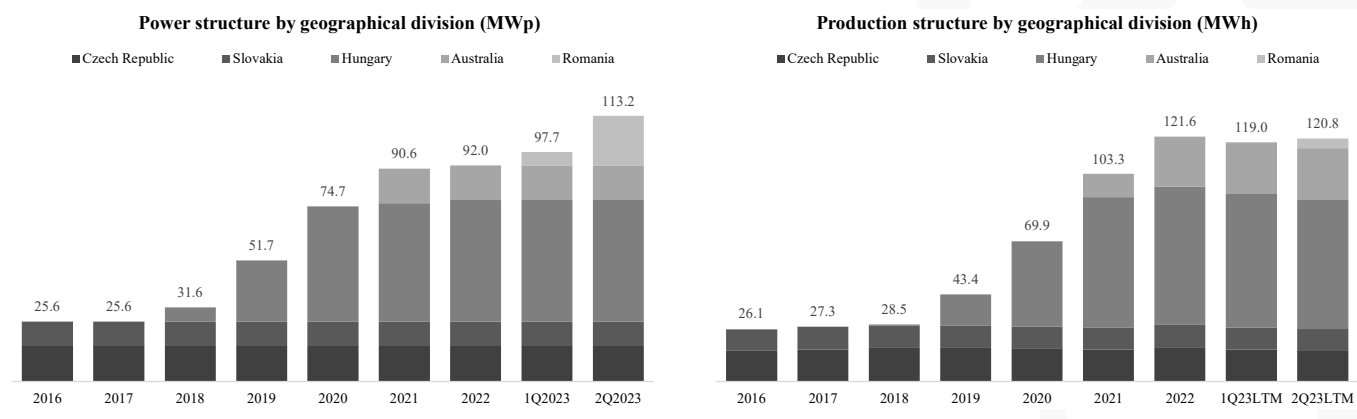
1. Engineering segment (EPC solutions), i.e. preparation and implementation of investments in the photovoltaic installation market, both for our own portfolio and for external clients,
2. New Energy segment,
3. Technology segment,
4. Investment segment (electricity production based on a portfolio of own PV installations),
5. O&M segment (service and maintenance services).

### Investment

This segment is responsible for investing in photovoltaic power plants and generating revenues from electricity production. It includes the results of special purpose vehicles that have completed the construction of photovoltaic power plants or are still in the process of connecting to the distribution network and produce electricity. Although it is not the largest business segment in terms of revenues (30% of consolidated sales), it generates over 60% of Photon's consolidated EBITDA.

The company is present on 5 markets (Czech Republic, Slovakia, Australia, Hungary and Romania) and is preparing to enter the Polish market. Geographic diversification helps limit production fluctuations resulting from weather and seasonal changes. At the end of July 2023, Photon operated PV installations with a total capacity of 113.2 MWp, and according to plans, the capacity is to increase to 143.5 MWp by the end of the year. We write more about development plans in this business area later in the report..

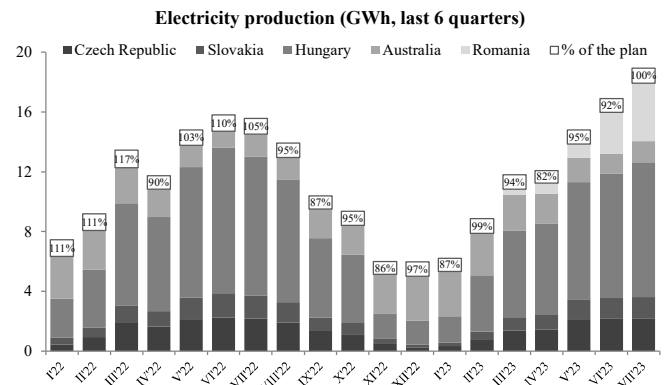
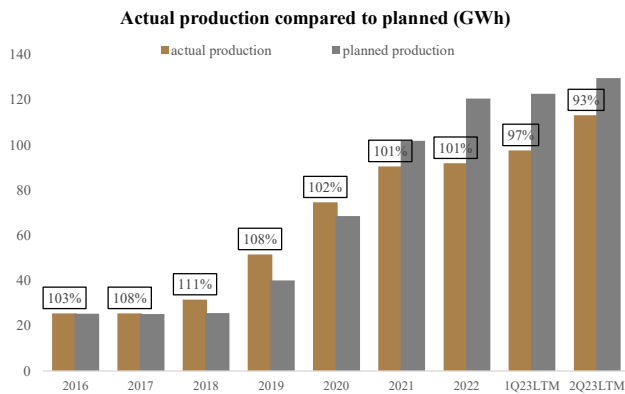
### **Presence on 5 EU markets + Australia**



Source: Photon Energy, Noble Securities

The volume of energy production varies depending on the amount of total power available on a given market and weather conditions (specificity of PV sources). Photon has historically exceeded production plans, only the last quarters saw a decline in generation compared to the assumptions (weaker second half of 2022 and first half of 2023).

**Accurate forecasting of production volumes**

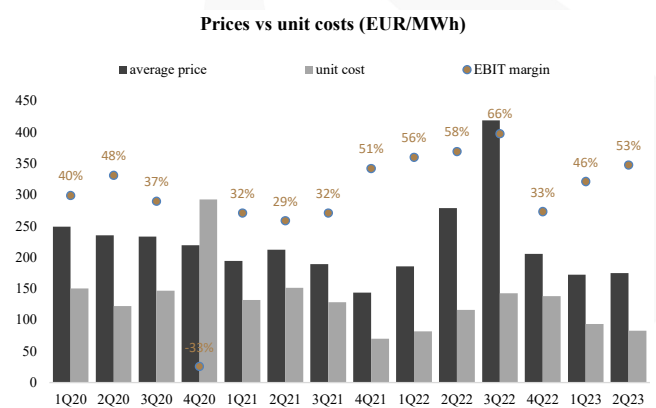
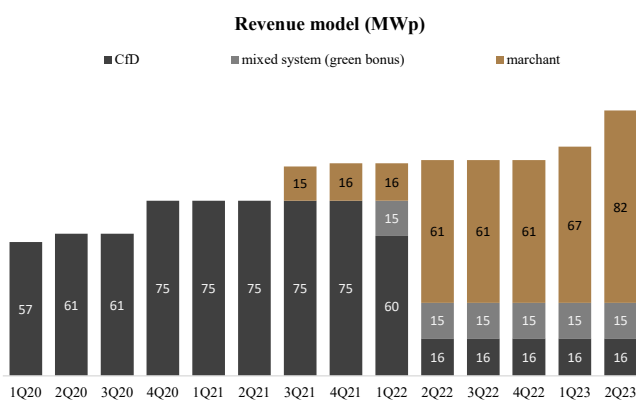


Source: Photon Energy, Noble Securities

Photon actively uses support programs addressed to investors operating on the renewable energy market: in the Czech Republic (Green bonus model - a system of fixed subsidies to the price of energy sold, currently approx. EUR 500/MWh) and in Slovakia (guaranteed prices model, currently approx. EUR 265 /MWh). In Hungary, rising energy prices achievable on the market prompted the management to abandon support systems (but with the possibility of returning to the system). In turn, in Romania and Australia, it was decided from the very beginning to adopt a market model of energy sales.

The prices obtained from the sale of energy allow us to more than cover the operating costs of photovoltaic farms (their main part is depreciation - in accordance with the specificity of the PV industry). Photon's operating margin in the Investment segment is very high (approx. 50% in H1 2023), and its level depends on market prices (the guaranteed price system applies only to the Slovak market, whose share in the Group's total energy production is below 10%).

**Prices, costs, revenue model**



Source: Photon Energy, Noble Securities

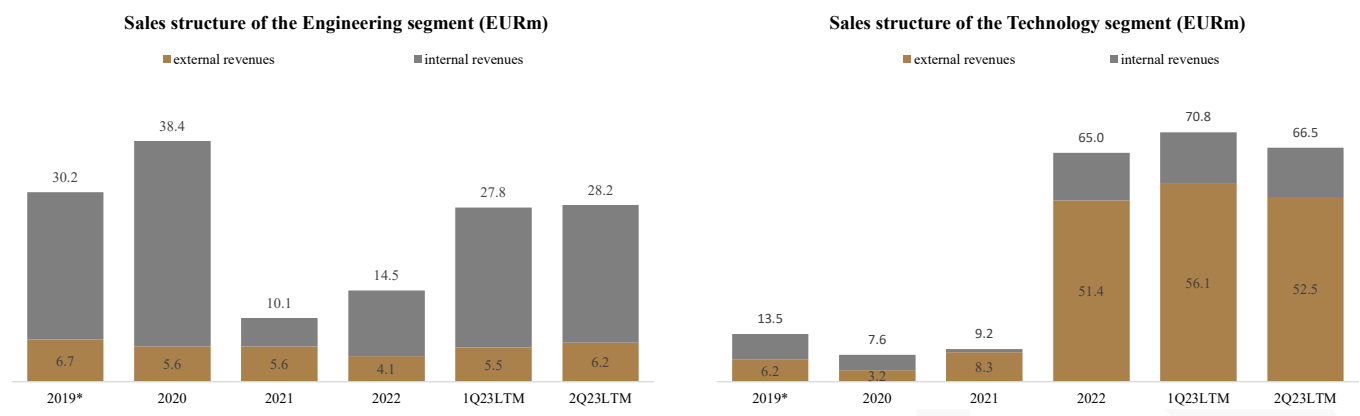
The electricity markets of the Czech Republic, Slovakia, Hungary and Romania are closely interconnected, therefore price levels on the spot market (day-ahead market) are similar. The Polish market has slightly different characteristics (larger share of coal-fired energy, limiting the amplitude of fluctuations), although it follows similar cycles. Even greater differences occur on the Australian market (different seasons).

### Engineering (EPC solutions)

Photon provides development, engineering and construction services for turnkey photovoltaic system installations for external clients and companies from its own Capital Group. Until 2019, this segment was called Energy Solutions and also included wholesale sales of technology, which, due to its size, became its own reporting segment (technology distribution segment - Technology).

A significant part of this segment's revenues is made up of intra-group sales, which is strongly correlated with the schedule for launching its own PV installations.

### **Revenue structure of the Engineering and Technology segments**



\* transformed data

Source: Photon Energy, Noble Securities

### Technology

Photon is also a distributor of solutions in the field of PV installations, offering, among others: PV modules, inverters or batteries. The company maintains close relationships with industry-leading manufacturers such as Huawei, Jinko Solar, Longi Solar, JA Solar, Dyness, Mounting Systems and Alumero.

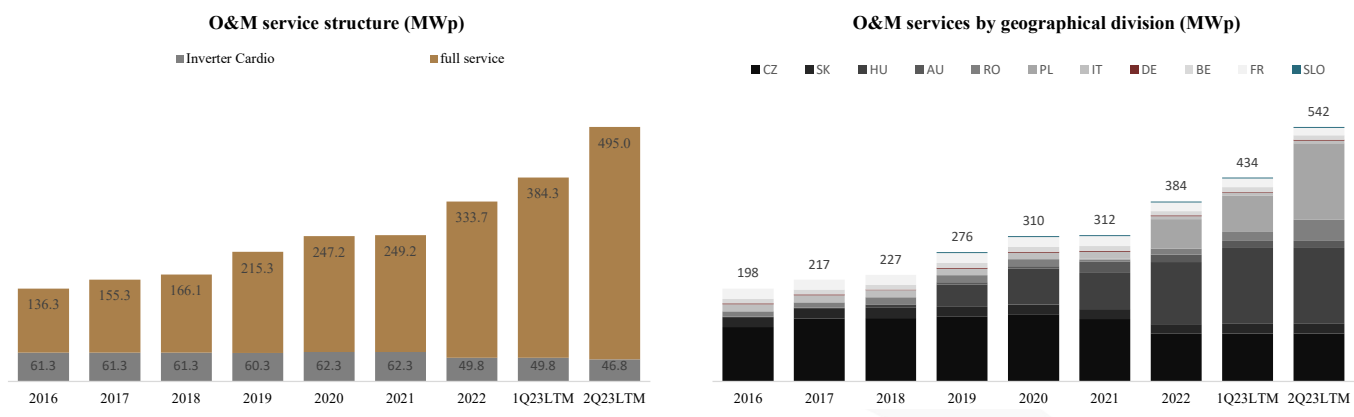
As in the case of the Engineering segment, intra-group sales and cooperation in the implementation of own investments have a significant share in revenues. In turn, exceptionally high sales in 2022 resulted from the boom in photovoltaic solutions in the Czech Republic amid public support for this type of renewable energy installations.

### Operations and Maintenance (O&M)

Photon effectively uses the experience gained in operating its own power plants to offer this type of services to external customers (PV power plants). The company provides technical support services (service, maintenance, monitoring, audit and control), as well as financial and administrative support for PV power plants. Photon also specializes in servicing inverters, which are the heart of a photovoltaic power plant (Inverter Cardio service).

Currently, the company operates installations with a total capacity of over 540 MWp in 11 markets. As part of the full service, Photon supports all its own PV installations (a total of 113 MWp) and dynamically obtains orders from external customers (approx. 380 MWp at the end of Q2 2023). Additionally, in the Inverter Cardio service, the company serves external customers with a total capacity of approx. 47 MWp; in the last few years, the company has lost some orders in this area, mainly due to ownership changes among clients.

**O&M service structure**



Source: Photon Energy, Noble Securities

New Energy (Lerta)

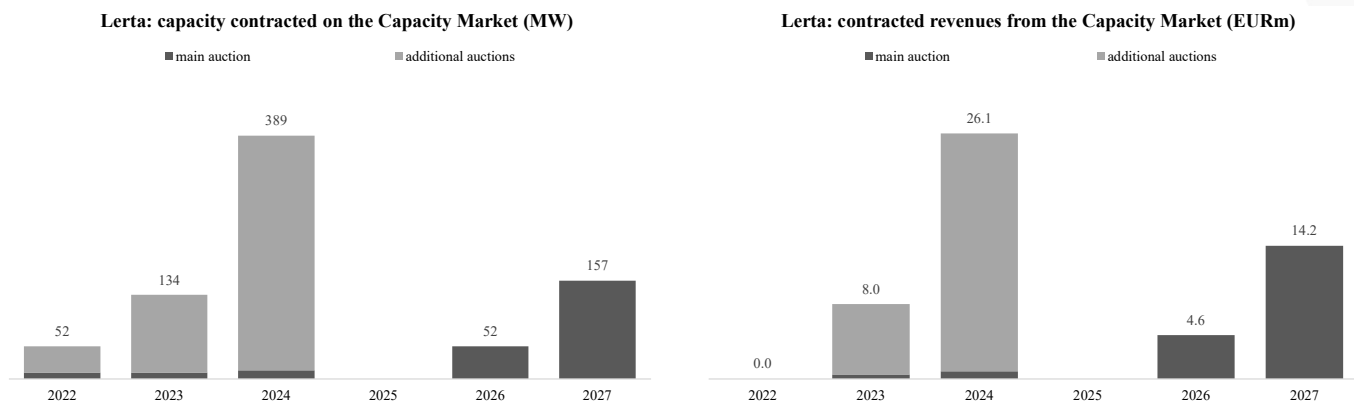
Lerta's technology enables the prediction of the generation supply and power demand by consumers and the coordination of the operation of their devices and assets (engines, HVAC installations, cold stores, etc.) in order to perfectly balance the system to reduce costs and optimize the market position to increase revenues. The Lerta Virtual Power Plant enables flexible energy management and optimization, providing:

- real-time flexibility services to network operators,
- producers maximized profits from optimal sales on many markets at the same time,
- recipients receive savings and additional compensation for their willingness to adjust their needs when necessary (DSR).

The company's unique advantage is its combination of internally developed technology, operations and direct access to energy markets.

Currently, the company generates revenues from the Polish Capacity Market (DSR and generators), sales of PV installations, energy management systems and other services, and has also launched energy trading activities in Hungary, Romania and Poland.

**Participation in the Polish Capacity Market**



Source: Photon Energy, Noble Securities

A significant share of Lerta's revenues comes from revenues from the Polish Capacity Market (approx. 35% in H1 2023). Taking into account the already contracted revenues from this area for 2024-27 and business development plans (1 GW of capacity contracted on the Capacity Market in 2030), we expect a

significant increase in sales in the New Energy segment. The company won the main auctions for 2023-24 and 2026-27, as well as additional auctions for 2023 and 2024; additional auctions for subsequent years will be organized in later periods, we expect a further increase in the contracted capacity.

### New markets – development options

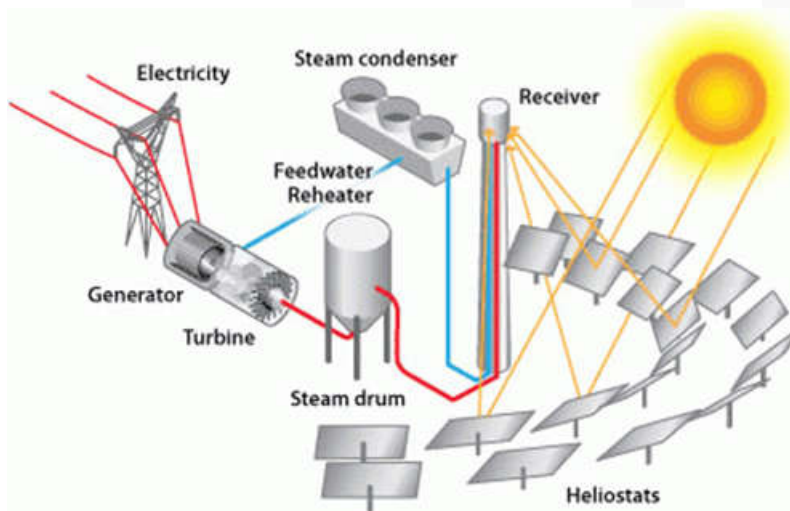
#### PV Ultra RayGen technology

In 2020, Photon Energy acquired a minority stake in the Australian company RayGen Resources. Currently, it holds 7.6% of the capital of this company with a book value of EUR 5.5 million. RayGen's shareholders include: Schlumberger, Equinor, Chevron and AGL Energy.

The assumption is that Photon Energy will remain a minority capital investor and at the same time be the developer and contractor of RayGen projects in the EPC model.

RayGen develops PV Ultra technology (commonly known as Concentrated Solar Power - CSP), which is currently the most effective way to use solar energy. Important elements of the CSP system are parabolic-shaped mirrors arranged in rows that concentrate solar radiation. It is their parabolic shape that allows them to track the movement of the sun, capturing solar radiation throughout the day. The mirrors are placed around the tower, at the top of which there is a heat exchanger with a working medium that receives heat. The high temperature enables the production of steam, which in turn drives the turbine and, as in a classic power plant, electricity is produced through a generator. The combination of PV Ultra technology with the Thermal Hydro system (developed by RayGen) allows for the storage of electricity. Using the ability of the PV Ultra system to cogenerate electricity and heat, the Thermal Hydro system stores thermal energy in two insulated water tanks with a temperature difference of 90 °C.

### Scheme of energy production and storage in CSP technology



Source: Office of Energy Efficiency & Renewable Energy, Noble Securities

Generally, CSP systems work well in areas with high sunlight intensity (usually above 2,000 kW/m<sup>2</sup>/year), which is why the first installations were built, among others, in Morocco, South Africa and Australia. The first installation using PV Ultra technology was built in 2015 in Newbridge in the Australian state of Victoria. Its electrical power is 200 kWe, it consists of 56 mirrors, and solar rays are converted into electricity using highly efficient photovoltaic cells placed on the tower, the efficiency of which reaches 38% (vs. approx. 15% for classic PV installations - for the Australian market ) and which are additionally cooled using technology developed by RayGen.

These types of cells are made of gallium arsenide, and their efficiency can be increased up to 60% (according to IRENA data, the latest panels in CSP systems have efficiency up to 80%). RayGen produces them in its own plant in Melbourne, whose production capacity is expected to allow the production of cells with a capacity of 25 MW per year.

In 2020, the company concluded an AUD 3 million financing agreement with the Australian Renewable Energy Agency (ARENA) to conduct a technical and commercial feasibility study of another project at Carwarp. The installation built there at a cost of AUD 30 million operates with a capacity of up to 4 MW, and the energy storage parameters are 3 MW/50 MWh (17 hours).

Photon plans to implement further investments in Australia using PV Ultra + Thermal Hydro technology. A project with a target capacity of 200 MWp in Yadnarie is at an early stage of development. In turn, in the initial phase (feasibility) there are projects with a total target capacity of 455 MWp located in New South Wales.

Market data indicate a much higher CAPEX for CSP projects compared to classic PV installations. According to NREL (National Renewable Energy Laboratory, an American think-tank associated with the Department of Energy and dealing with energy transformation issues), in 2021 the cost of building a CSP installation was estimated at approx. PLN 7.25 thousand. USD/kW (EUR 6.6 thousand/kW). The forecast for 2023 shows a price drop to PLN 6.77 thousand. USD/kW (EUR 6.15 thousand/kW). For comparison, CAPEX for traditional PV projects (using trackers) is currently approximately EUR 850/kW. In 2030, the unit CAPEX of CSP installations is expected to drop by 25% to approximately 5,000. USD/kW (EUR 4.6 thousand/kW).

Despite falling costs, these are still projects with very high investment outlays. The 200 MWp Photon installation planned to be built in Yadnarie (Australia) would require funds worth approximately EUR 1 billion. Therefore, we expect that Photon will acquire external partners to implement this type of investment. It is currently difficult to indicate when and ultimately in what formula (i.e. with what participation of PEN) they will be implemented. Our forecasts do not include large-scale Photon projects implemented using technology developed by RayGen, treating them as options that may increase the value of Photon shares in the future.

#### Photon Water

Photon Water (PW) is a separate business line of the Group, complementary to the solar energy segment, whose mission is to counteract the growing global problem of shortage of fresh drinking water. PW covers the entire water management cycle, starting from the analysis of the client's current needs, through designing an appropriate solution tailored to individual needs, recommending appropriate technology, project implementation, and ending with the provision of remote monitoring and control software.

The scope of activities includes water management, purification and treatment, ensuring sufficient water resources, remediation of contaminated water and algae and biofilm control. Where applicable, solar or battery solutions are integrated to provide clean water using clean energy.

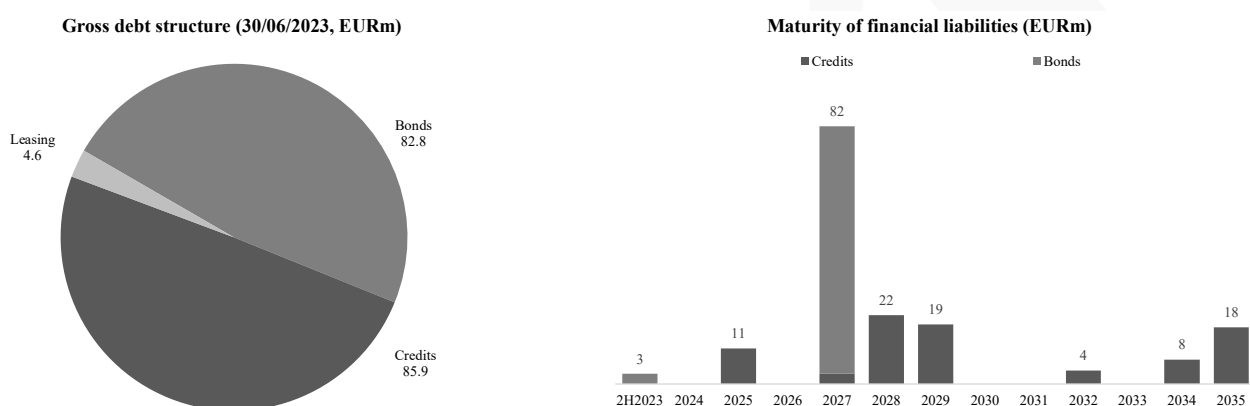
Photon Water's business has not yet been separated as a separately reported business area and is included in the Other segment, along with project development activities and less important areas. Assuming that the results of the "water unit" constitute external revenues of the Other segment, annual sales can be estimated at approximately EUR 0.8 million (data for 2022). Due to its insignificant share in the consolidated results, we omitted this area in our forecasts and valuation.

## Debt and financial costs

Photon has achieved a positive net result only twice over the last 10 years: EUR 0.5 million in 2018 and EUR 6.3 million in 2022. According to our estimates, this year's result will be negative again. Although in this period the company obtained positive operating cash flows, they were insufficient to finance the development program: investments in new production capacities (in total, in the period 2012-22, approximately EUR 85 million) and acquisitions (approx. EUR 10 million).

The company's development in the area of new PV generation capacities has significantly accelerated since 2018 (see chart: Capacity structure by geography, page 10). Average annual investment expenditures over the last 5 years amounted to approximately EUR 16 million, with operating cash flows (OCF) of approx. EUR 6 million per year. The company covered the difference with financial liabilities: loans and bonds. As a result, Photon's financial debt increased from approximately PLN 50 million at the end of 2017 to approximately PLN 150 million at the end of 2022 (+PLN 100 million) and approximately PLN 173 million at the end of the first half of 2023 (+123 million PLN).

## Debt structure and maturity

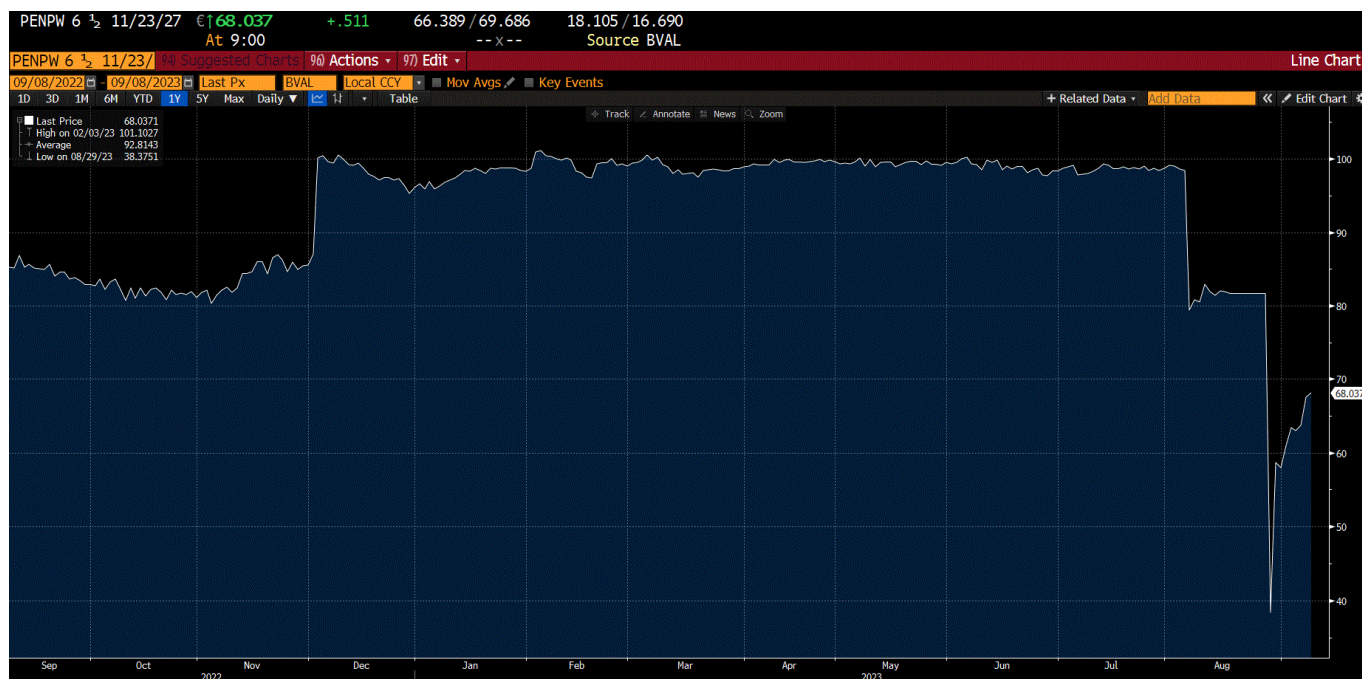


Source: Photon Energy, Noble Securities

Photon is very active on the corporate bond market, taking advantage of the great interest of investors in the so-called green bonds and financing of projects that bring positive benefits to the environment and/or climate. The latest issue allowed to obtain a total of EUR 80 million of long-term financing (6 years, expiry in November 2027) at a cost of 6.5% p.a., these instruments are listed on the Open Market in Frankfurt. Unfavorable legislative changes introduced in many European countries in response to the energy crisis resulted in a deterioration of sentiment towards this asset class, and Photon's weaker-than-expected financial results in 1H2023 and the correction of forecasts further reduced interest in the company's bonds (in August, quotations dropped to only 80% of the nominal value). The repayment schedule for financial liabilities looks favourable, we do not see any significant payments for the next 3.5 years.



## Quotation of green bonds issued by Photon Energy



Source: Bloomberg, Noble Securities

The company constantly maintains a relatively high level of highly liquid financial resources, which reduces net debt. This allows you to react smoothly to the situation on the energy market. Since 2020, Photon has been investing part of its free funds in gold, treating this investment as protection against inflation; at the end of 1H2023, the value of this asset class on the company's balance sheet was approximately EUR 4 million (20% of liquid funds).

### Dividend policy

Photon's strategy is to build the Group's value through further expansion in the globalized PV industry. As long as there are further investment opportunities to build value, the Management Board does not intend to recommend the payment of dividends to shareholders. However, the dividend policy will be reviewed by the Board from time to time and any future dividends will be paid taking into account several factors relating to the company, including its forecasts, future earnings, cash needs, financial situation, level of liquidity ratios, expansion plans as well as legislation and regulations relating to this topic in order to make a decision.

Our forecasts do not assume the payment of dividends in the coming years (at least until the completion of the ambitious program to expand the Group's production potential in the area of photovoltaics, i.e. until 2030).

## MARKET

### Legal environment

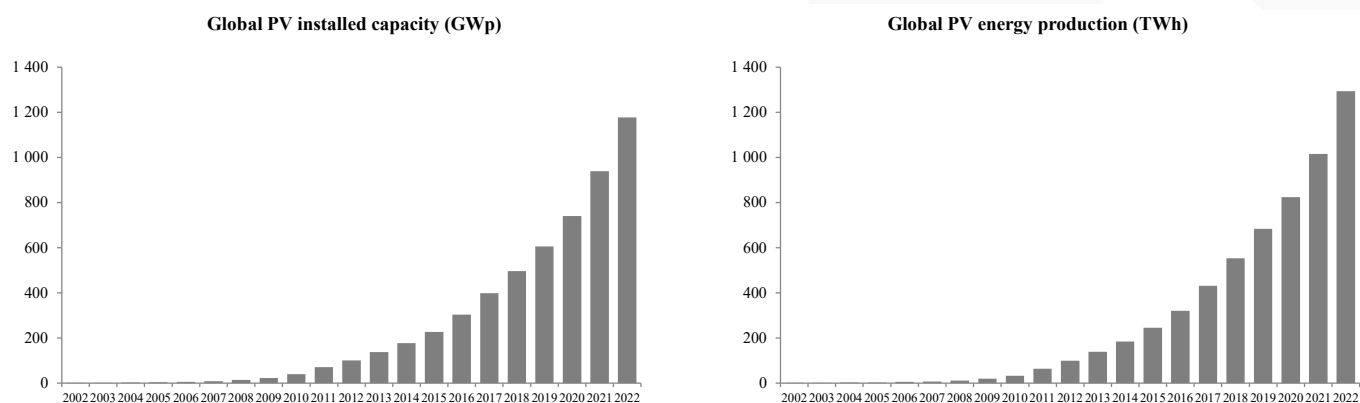
Investors who have been operating on the renewable energy market for many years can count on various support systems for their investments. These systems have evolved over the years, although there is a visible tendency to systematically reduce the amount of subsidies.

- The Czech market very generously supported renewable energy investments in the first decade of the 21st century. Currently, new investments can only count on support from the Modernization Fund of up to 50% of the investment costs, awarded through auctions.
- Slovakia currently has an auction system with guaranteed prices (contracts for difference).
- The situation is similar on the Hungarian market (RES auctions, CfD contracts). Renewable energy companies may decide to temporarily leave the system (and sell energy in the market model) with the right to return, but not earlier than after 12 months.
- New renewable energy projects are co-financed from public funds at the investment stage, using a tender system.
- In Australia, there is a system of green certificates increasing the economic efficiency of renewable energy investments (similarly to Poland for installations commissioned by mid-2016).
- In Poland, new investments can count on support in the form of a guaranteed price (CfD contracts), obtained in renewable energy auctions, which are organized 1-2 times a year by the Energy Regulatory Office, separately for individual renewable energy technologies (baskets). Moreover, energy from renewable energy sources fed into the grid has priority over other sources (coal, gas). In turn, the prosumer system is supported by the use of the net-billing model (formerly net-metering) in settlements with energy companies..

### PV market and its prospects

#### Global market

#### Global PV power and production in 2000-2022



Source: SolarPower Europe, Noble Securities

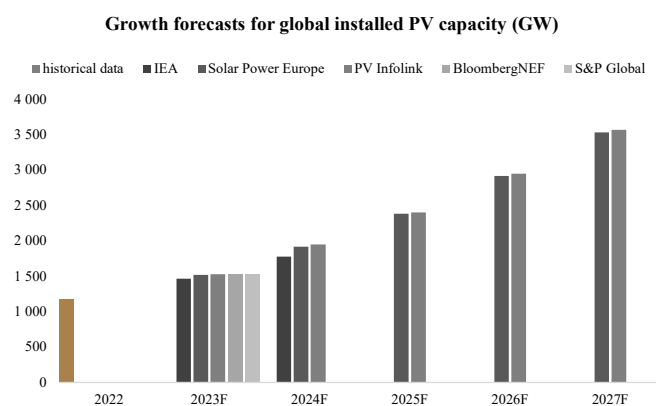
By the end of 2022, the global cumulative capacity of PV systems reached 1,177 GW. The efficiency of solar energy has multiplied 740 times since the beginning of the millennium, when the era of grid-connected solar energy began with the introduction of the Feed-in Tariff Act in Germany. Comparing 2022 capacity to the PV fleet at the beginning of the previous decade, global on-grid PV capacity has increased 28-fold from 41.4 GW operating in 2010. The main milestones in the development of the PV

market are in 2008, when the 10 GW level was exceeded, and 2012, when 100 GW was achieved. It then took 2018 to crack 500 GW, and 4 years for the market to double to above 1 TW in 2022.

The PV market proved resilient to supply chain bottlenecks, high commodity prices and rising interest rates in 2022 and achieved another record annual capacity increase (220 GW). This highlights the growing importance of solar energy in the global energy transition.

Reports with forecasts for the PV market for the coming years indicate that the photovoltaic industry will record a significant increase in installed capacity. Solar Power Europe, in its report from June 2023, expects in its average scenario 341 GW of newly installed capacity in 2023 and 401 GW in 2024. In turn, at the end of March, S&P Global (formerly IHS Markit) revised up its forecast for 2023 by 30 GW to 360 GW, and the PV Infolink market update, also published in March 2023, predicts 351 GW of new installed capacity in the most likely scenario. In its latest solar market forecast, BloombergNEF also became more ambitious, estimating installations at 233 to 380 GW with an average of 344 GW, compared to 316 GW assumed in January 2023. A more conservative estimate was provided by the IEA (International Energy Agency), which in June 2023 published its Renewables 2023 report: it expects only 286 GW of additional solar capacity in 2023 in the baseline scenario (just over 300 GW in the accelerated scenario) and 310 GW (respectively 350 GW) in 2024.

### Forecasts for the PV market for 2022-2027



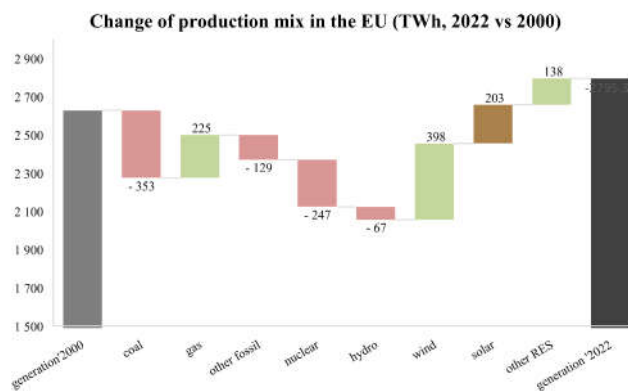
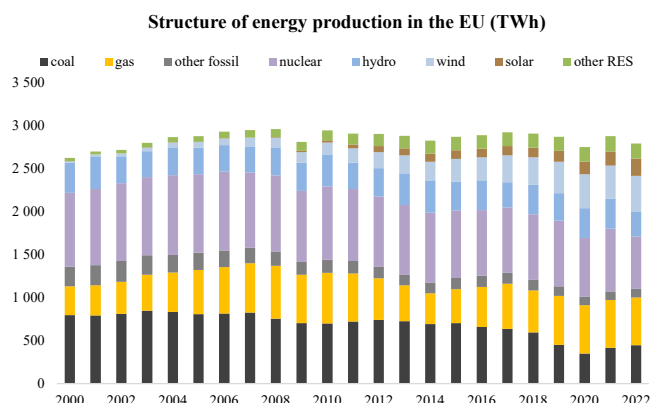
Source: IEA, Solar Power Europe, PV Infolink, BloombergNEF, S&P Global, Noble Securities

Energy production from photovoltaics increased by a record 270 TWh in 2022 (+26% y/y). PV power accounted for 4.5% of total global electricity production and remains the 3rd largest renewable electricity technology after hydro and wind.

### EU market

Electricity generation in the EU remains highly dependent on fossil fuels: 39% (1,104 TWh) of electricity comes from coal, gas and other fossil sources. 16% (447 TWh) of electricity is produced from coal, 20% (557 TWh) from gas, and other fossil fuels account for 3.6% (100 TWh). Nuclear energy remains the single largest electricity production technology in the EU at 22% (613 TWh). Another 15% (420 TWh) comes from wind and 7.3% (203 TWh) from solar energy. Together, wind and solar produce more electricity than any other fuel (22%, 623 TWh). The rest comes from hydropower (10%, 283 TWh), bioenergy (6%, 167 TWh) and other renewable sources (0.2%, 6.7 TWh).

**EU energy mix**

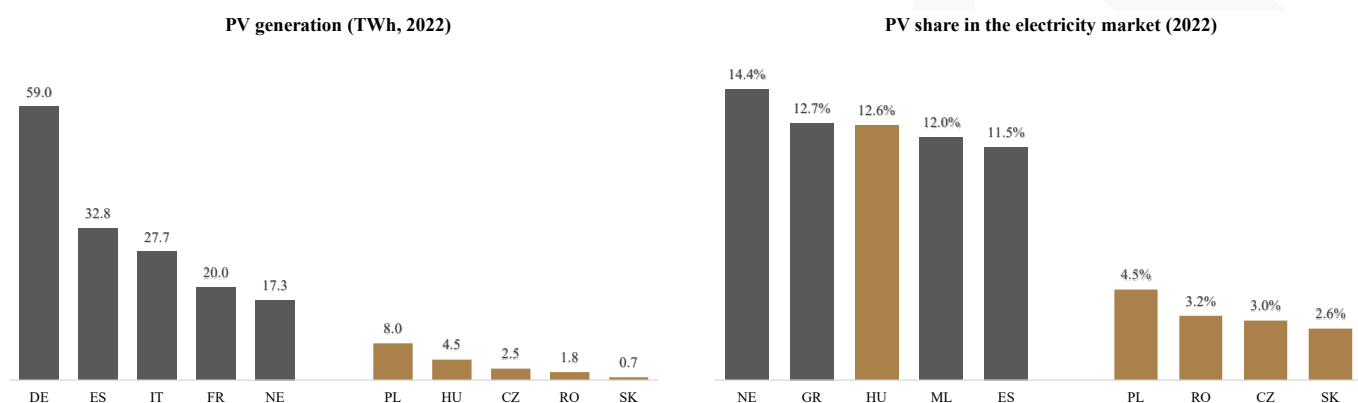


Source: Ember, Noble Securities

A characteristic feature of the changes in electricity generation in the EU over the last two decades has been the increase in wind and solar power production, as well as the reduction of coal. The share of wind and solar generation increased from just 13% (364 TWh) in 2015 (the date of the Paris Agreement) to 22% (623 TWh) in 2022. The development of wind and solar energy has allowed the EU to reduce production from coal: in 2000, about 30% of electricity came from this fuel (800 TWh), and in 2022 only 16% (447 TWh).

Solar alone produced more than 200 TWh (7.3% of total generation) of electricity in the EU in 2022. Germany is the largest producer with a production of 59 TWh (10% of its electricity mix), almost 2x more than the second country Spain (33 TWh, 12%). The Netherlands has the highest percentage of solar energy in its energy mix (14%, 17 TWh), ahead of Greece (13%, 6.6 TWh) and Hungary (13%, 4.5 TWh).

**Photon's operating markets compared to PV leaders**



Source: Ember, Noble Securities

The European Union has been a pioneer in the implementation of renewable energy sources and continues to be a leader in this field. The proposed target of 45% renewable energy in 2030 would mean that by this year 69% of the EU's electricity will be generated from renewable sources. Solar energy provides clean energy that can be quickly delivered to the point of demand. As such, together with wind, it will form the backbone of the future power system, providing nearly 70% of global electricity by 2050 (according to the IEA).

As part of its REPowerEU plan to accelerate the deployment of renewables and replace fossil fuels, the European Commission has set solar capacity targets of 400 GW by 2025 and 740 GW by 2030. According to Solar Power Europe (an association of the European photovoltaic sector), this is not an ambitious enough target. In the latest report "European Market Outlook 2022-2026", they forecast that PV capacity will reach 484 GW by 2026 (591 GW in the optimistic scenario) and 920 GW by 2030 (1,184 GW respectively).

### Czech market

According to the Czech Solar Association, 33,760 PV installations with a total capacity of 288.8 MWp were commissioned in 2022. At the end of 2022, a total capacity exceeding 2.5 GWp (+13.6% y/y) was reported. Prosumer installations mounted on residential buildings are very popular. In 2022, 9,321 PV installations of this type with a capacity of 62 MWp (+366% y/y) were commissioned.

Market forecasts (according to Mordor Intelligence)

- In 2023-28, the PV market in the Czech Republic is expected to grow at an annual average rate of around 2.5%.
- The market has been negatively affected by the Covid-19 pandemic. Currently, the market has reached the pre-pandemic level.
- The main market driver is government initiatives that include the use of clean and alternative energy sources to protect the environment from rising carbon emissions.
- However, regulatory uncertainty and constraints on existing electricity transmission and distribution networks are expected to hamper market development. In addition, the development of nuclear power plant projects may limit the development of the solar energy market.
- As greenhouse gas emissions increase, the government of the Czech Republic will strive to increase the share of renewable energy in total electricity production. With almost 15% renewable energy in electricity production in 2019, it is estimated that the country will increase this share to almost 22% by 2030.

Challenges of the Czech market:

- Not an ambitious goal of the NECP. The National Energy and Climate Plan (NECP) details the scenario for the development of the solar market in the Czech Republic (2030 target: 3,975 MWp). However, given the country's potential in the field of solar energy, the target for photovoltaics seems disappointing. The government admits that the target will be exceeded to a large extent (65% was achieved at the end of 2022).
- Social acceptance of large-scale solar energy. In the Czech Republic, there is a general lack of support for large-scale photovoltaic installations, due to the fact that under the previous feed-in tariff system very generous subsidies were granted for large photovoltaic projects. As not many large-scale projects have been built in the last 10 years, new projects may raise concerns about public acceptance.
- Availability of employees. The sudden increase in demand for solar energy in the Czech Republic has led to a shortage of skilled workers. Recently, the connection to the network has also become a problem. DSOs are facing staff shortages, and it can take many months to connect to the network.

### Slovak market

According to Solar Power Europe (SPE), the capacity of photovoltaic power plants in Slovakia in 2022 was estimated at 0.57 GWp; Compared to 2021, an increase of about 7.5% was recorded. The target capacity level for 2030 is 1.2 GWp, of which 48% has been achieved, according to SPE.

Market forecasts (according to Mordor Intelligence)

- According to the latest statistics published by the International Renewable Energy Agency, solar energy in Slovakia accounted for 23% of total RES capacity in 2021.
- Solar power production is forecast to continue to grow, and PV capacity utilization will increase over the next few years.
- The number of entities producing photovoltaic modules is also growing in Slovakia. Many domestic companies are preparing to launch new plants producing photovoltaic modules. Such production lines will drive the domestic market and will increase the installed capacity of solar energy.

Challenges of the Slovak market:

- Obsolete purpose of NECP. Both the overall ambitions for the implementation of RES and the contribution of photovoltaics remain low. The plan should be updated because both the goals and the path to them are inadequate and are based on outdated data.
- Auctions. There are no specifics regarding the planned RES auctions, including for photovoltaics. In addition, the planned volume of energy ordered during the auction seems low.
- Prosumers. The Slovak NECP positively assesses the prosumer potential in the country. However, it does not provide details on the support schemes that will be developed to encourage self-consumption, including collective self-consumption.

### Hungarian market

Based on the statistics of the International Renewable Energy Agency (IRENA), the total photovoltaic capacity in Hungary in 2022 can be estimated at approx. 3 GWp. The target capacity level for 2030 according to NECP is 6.5 GWp, of which over 45% has already been achieved.

Market forecasts (according to Mordor Intelligence)

- Hungary has a favorable potential for solar energy resources, with relatively high levels of solar radiation. This means that the country receives enough sunlight, making it suitable for generating solar energy. The abundance of solar energy resources creates a strong foundation for the development of solar energy in Hungary.
- The Hungarian government has implemented various policies and incentives to promote the use of solar energy. These include feed-in tariffs, net-metering, tax incentives and subsidies for photovoltaic installations. Such support mechanisms increase the financial attractiveness of solar energy and encourage investment in photovoltaic projects.
- According to the International Renewable Energy Agency, the installed photovoltaic capacity in the country has increased significantly in recent years. Between 2018 and 2022, the installed capacity of solar energy increased more than 4 times. Such a significant growth of the solar energy market is to be maintained in the coming years.

Challenges of the Hungarian market:

- Unstable legal framework for prosumers. The gradual withdrawal of the net-metering system undermined the economic sense of prosumer activity. In addition, the sudden abolition of the FIT tariff for an indefinite period resulted in a market freeze. While electricity price regulation is

detrimental to the attractiveness of photovoltaics, the recent surge in regulated prices has restored its business rationale.

- Unattractive conditions of RES auctions. Auctions have so far yielded disappointing results, mainly due to overly strict deadlines and excessively low prices.
- Necessary development of power grids. New, larger photovoltaic power plants have not been able to connect to the grid due to concerns about overloading. This creates a clear bottleneck that needs to be removed urgently.

### Romanian market

According to the analysis of Solar Power Europe, the total photovoltaic capacity in Romania in 2022 was estimated at 1.8 GWp (+20% y/y). According to NECP, the target capacity level for 2030 is 5 GWp, of which approx. 35% has been achieved. It is expected that in 2023 the number of prosumer installations will increase due to the reduction of the tax on photovoltaic panels for use in residential and public buildings from 19% to 5%.

Market forecasts (according to Mordor Intelligence)

- The average annual growth of the PV market in the next 5 years is expected at the level of 6%.
- The solar market in Romania will be driven by government programs such as the energy-efficient homes program and the Contracts for Difference (CfD) program.
- The growth rate may slow down due to high initial investment costs and a long payback period.
- The Romanian government has announced plans to add approx. 7 GW of new RES capacities by 2030, including approx. 3.7 GW in photovoltaics.

Challenges of the Romanian market:

- The objective of the NECP does not fully reflect the development potential of the PV market in Romania. Under the current target, in 2030 the country would have limited solar penetration compared to more ambitious countries.
- Support for RES through auctions was mentioned only indirectly, but there are no details about the volumes, schedules and design of tenders for renewable and photovoltaic energy.

### Polish market

According to ARE data, at the end of June 2023, over 14 GW of PV capacity was installed in Poland (+37% y/y). Although the growth rate of the market is still impressive, its structure is changing towards large-scale projects at the expense of prosumer energy, which is a consequence of a less attractive support policy from the second quarter of 2022 (replacement of net-metering with net-billing).

Market forecasts (according to Mordor Intelligence)

- The average annual growth of the PV market in the next 5 years is expected at the level of 15%.
- The process of decarbonization of the economy and independence from imported fuels will be conducive to the development of RES sources, in particular photovoltaics.
- The development of the sector is supported by government programs (e.g. Moje Prąd – small prosumer installations) and an auction system (large-scale projects). The government focuses on the need to increase the consumption of its own energy generated from photovoltaic installations, for which funding will be granted not only to photovoltaic installations, but also energy storage and energy management systems.

### Challenges of the Polish market:

- Outdated target of NECP for photovoltaics. As Poland continues to anticipate, it is time to set more ambitious targets. After years of strong dependence on coal, society's perception of solar energy is changing. This is not reflected in the current target for the National Energy and Climate Plan, which has already been exceeded (8 years ahead of schedule).
- Low network availability. One of the main challenges for the Polish solar energy sector is the lack of grid connection points for new projects. This exacerbates delays in the implementation of projects that are already experiencing problems resulting from ongoing supply chain disruptions and price increases.
- Price cap. The recent introduction of an energy price cap creates uncertainty about the durability of regulations and the long-term profitability of investments in RES, including PV sources.

### Australian market

In 2022, 4.1 GWp were installed, for a total capacity of 31.0 GWp as of 31 December 2022. According to the Clean Energy Regulatory Authority (CER), more than 290,000 rooftop installations with a total capacity of 2.51 GWp were connected to the grid in 2022.

Market forecasts (according to Mordor Intelligence)

- The average annual growth of the PV market in the next 5 years is expected at the level of 14% (to approx. 70 GWp in 2028)
- Australia has one of the highest average levels of solar radiation per square metre, one of the highest rates of solar energy consumption on residential rooftops per capita, and world-leading photovoltaic technology. However, it still lags behind the rest of the world when it comes to the development of solar energy on a medium and large scale.
- The demand for photovoltaic power in Australia is growing due to the country's commitment to renewable energy and reducing its dependence on fossil fuels. Australia has set a target of generating 82% of its electricity from renewable sources such as solar and wind by 2030, and solar power is expected to make a significant contribution to this goal.

### **Fiscal burden**

Despite the declared support for the development of RES, individual European countries are increasingly introducing additional burdens for investors operating on the renewable energy market. These trends have intensified in 2022 as a result of the energy crisis and the sudden increase in energy prices on the markets. With a high share of fixed costs, RES companies showed a significant increase in revenues, which was treated as unjustified extraordinary profits and to a large extent burdened with various types of burdens (windfall tax, price limits).

- On the **Czech** market, a tax on the support system has been in force for many years (currently at the level of 21% of revenues from the so-called Green bonus, i.e. approx. EUR 100 / MWh). In addition, a price limit has been introduced until December 2023 (EUR 180 / MWh, above the ceiling a 90% tax applies), but it applies only to installations with a capacity above 1 MWp (8 out of 11 Czech Photon power plants are subject to the limit). The windfall tax introduced by the Czech government does not apply to Photon, as in the financial year 2021 the company did not exceed the threshold of revenues from electricity generation of CZK 2 billion (EUR 82.2 million).



- The company's **Slovak** portfolio, consisting of 11 power plants with a total installed capacity of 10,429 MWp, sells the electricity generated on the basis of feed-in tariffs of between EUR 257 and EUR 273 per MWh and is not affected by any measures adopted by the Slovak Government.
- In June 2022, the **Hungarian** government issued a decree introducing a tax of 65% on surplus revenues (i.e. above the guaranteed price of EUR 85/MWh) generated by licensed photovoltaic power plants (applies to installations with a connection capacity above 500 kW AC) that either left one of the support schemes or received a METÁR license at auction, but did not sign a contract for difference with a designated Hungarian state entity, for the financial years 2022 and 2023. In the case of Photon, 7 units with a total installed capacity of approx. 10 MWp (which is less than 20% of the company's total capacity in Hungary) will be affected by income tax surplus. In addition, the amount of the so-called Robin Hood tax was increased (from 31% to 41% in 2023), which will apply to 8 Photon power plants with a total installed capacity of approx. 11 MWp (slightly above 20% of the company's total capacity in Hungary).
- The **Romanian** government has introduced a maximum price of 450 RON/MWh (EUR 91) of electricity produced from photovoltaics for the period 1.09.2022 - 31.08.2023 (recently extended to 31.03.2025) Above the maximum price, a solidarity tax of 80% applies. In March 2022, Act 27/2022 was passed, which clearly exempts all new electricity generation capacities commissioned after 1.09.2022 from any price restrictions. Based on the current solutions, the company's power plants in Romania will not be subject to the price cap.
- On the **Polish** market, the government has introduced a price ceiling valid until the end of 2023 in the amount of PLN 355 / MWh (EUR 75.5) for photovoltaic power plants with an installed capacity above 1 MWp and PLN 375 / MWh (EUR 80) for power plants with an installed capacity below 1 MWp. Photon does not have its own power plants on the Polish market, although there are plans for projects with a total capacity of over 300 MWp (at various stages of preparation). The future system of incentives or barriers to the development of RES may be decisive for the choice of further path for these projects.

## FORECAST

The forecasted dynamic development of the RES market, in particular the PV segment (25% annually in 2022-27, according to average market forecasts), should bring an increase in sales of products (PV technologies) and services (implementation of turnkey projects, maintenance services) of Photon in the coming years. In our forecasts for 2023-27, we assumed an average annual 25% (in line with forecasts for the PV market) dynamics of revenues to external customers in the area of EPC solutions (Engineering segment), in the area of Technology distribution (Technology segment) and in the area of maintenance services (O&M segment). In addition, the revenues of the above-mentioned segments will be supported by intra-group sales (subject to elimination at the stage of consolidation of results), related to the pace of implementation of own investments in new PV capacities.

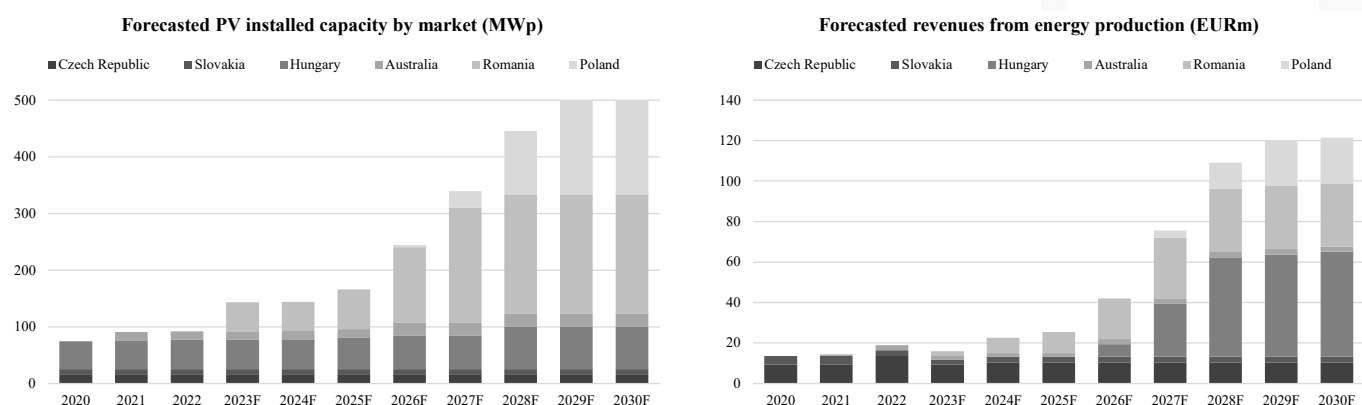
Taking into account the impact of the results of the own portfolio of PV power plants on consolidated EBITDA, the growth rate in the Investment segment will be crucial for Photon's future results. Our capacity growth forecasts until 2030 are based on the company's database of projects in preparation (1.2 GWp in total): 223 MWp in Romania, 313 MWp in Poland, 34 MWp in Hungary and 665 MWp in Australia. Photon presents a list of projects in preparation, broken down by market (see above), as well as taking into account the level of advancement of work. In our forecasts, we have given the appropriate degree of probability and commissioned date for individual stages:

1. Feasibility, 60%, +4 years from today,
2. Early development, 75%, +3 years,
3. Advanced development, 90%, +2 years,
4. Ready-to-build technical, 100%, schedule based on company declarations,
5. Under construction, 100%, schedule based on company declarations.

We have omitted large-scale Australian projects from the forecasts (4 RayGen projects in New South Wales with a total capacity of 455 MWp and a 200 MWp project in Yadnarie) due to their innovative nature (PV Ultra technology) and very high capital expenditures, exceeding in our opinion Photon's capabilities. We treat them as options that after bringing projects to phase 3 or 4 can be sold to an external investor or Photon will look for partners (co-investors) to implement them.

For each installation, we have assumed a 30-year period of operation.

### Forecast of the development of own PV portfolio

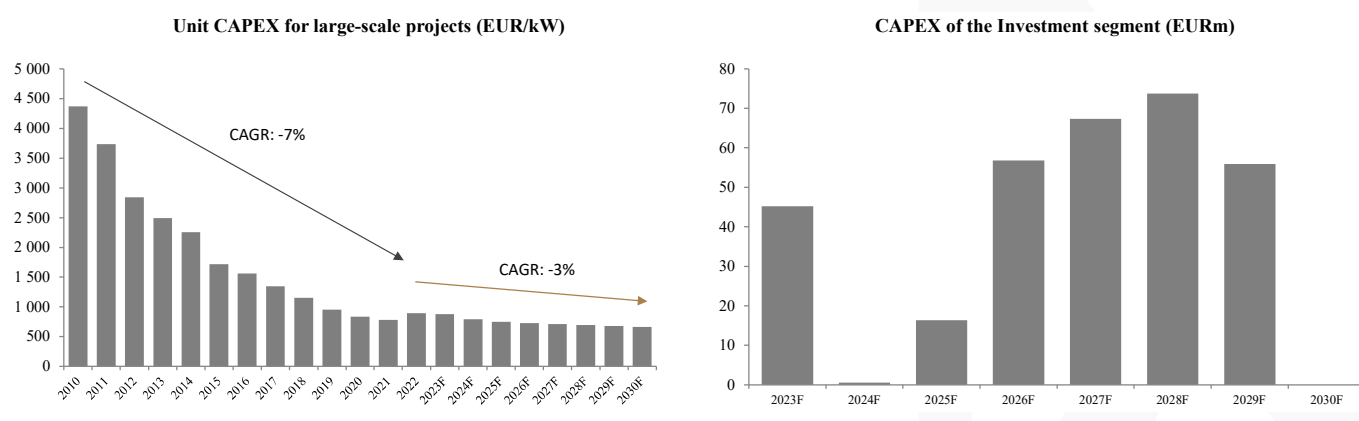


Source: Photon Energy, F - Noble Securities forecast

The costs of investment in the segment of own PV power plants (Investment segment) were based on average NREL forecasts. According to these statistics, in 2022 the unit cost of building a PV farm was approx. USD 1000/kW (approx. EUR 900/kW – consistent with the company's declarations in this area).

By 2025, the average cost should fall to around €750/kW and to around €660/kW in 2030. Taking into account our forecasts for capacity growth in Photon, CAPEX accumulation is expected in 2026-29; later, the company will only incur expenses for the maintenance of its installations. It is possible for the company to adopt a different schedule for the development of its own PV portfolio, including the sale or acquisition of new projects, which will affect the size of CAPEX in individual years. It is also necessary to take into account possible delays resulting from problems beyond the company's control (e.g. inability to connect to the network, low supply of contractors or broken supply chains). In the model, we assumed a 12-month investment cycle and commissioning of the installation at the end of the calendar year. In the remaining business lines, we assumed investments at the depreciation level (growing at a rate of 5-10% per year), a total of approx. EUR 1-1.5 million per year until 2030.

### CAPEX in the Investment segment



Source: Photon Energy, F - Noble Securities forecast

We assumed that the business model for individual markets would remain unchanged: in the Czech Republic the market price (+ Green bonus), in Slovakia the feed-in price model, similarly for one small investment in Australia – until the end of the support program, then sale on market terms; Other Australian power plants (currently operating and potential), as well as Hungarian, Romanian (current and future) and Polish (future) projects will sell energy at market prices.

We would like to point out that around 2030. Photon will lose system support for power plants in the Czech Republic (Green bonus of approx. EUR 500/MWh) and Slovakia (fixed sale price of electricity produced at approx. EUR 265/MWh), which results from the expiry of a 20-year support period for these installations. This will have a negative impact on the level of revenues, although we assume that by that time Photon will significantly increase its potential, limiting the share of the above-mentioned markets in consolidated sales.

Depreciation will remain the basic cost, but the development of the portfolio of own PV power plants and entering another market (Poland), as well as the growing profile costs (costs of balancing the futures portfolio in the environment of the increasing share of the same PV technology in the energy mix) will have a negative impact on margins in the core business line. We expect the EBITDA margin to decline to around 75% in 2030 (vs. around 80% in recent years) and further erosion (below 70%) after 2030 as a result of the termination of support programmes in the Czech Republic and Slovakia.

The pace of expansion of the PV portfolio assumed in the model (and the increase in CAPEX) will lead to a further increase in debt in the medium term. Photon should reach its maximum level in 2029 (approx. EUR 450 million of interest debt, EUR 280 million of net debt, DN/EBITDA=4.7x), then we forecast a gradual reduction of debt. Until the closing of the investment program (or at least its clear slowdown), we

do not expect a dividend payment. In our model, the company will achieve financial surpluses only around 2035.

Compared to the company's financial plans for 2023 (forecast revised in August 2023), our estimates are more conservative in terms of expected sales levels, while we expect slightly higher EBITDA.

EURm	2023F (Photon)	y/y	2023F (NS)	y/y
Revenues	110.0	16%	82.9	-13%
EBITDA	10.0	-61%	11.9	-54%

Source: Photon Energy, Noble Securities, F - forecast

## ENVIRONMENT, SOCIAL RESPONSIBILITY AND CORPORATE GOVERNANCE (ESG)

Photon received a "very good" rating in the field of sustainable development for its ESG practices and business model from imug rating, an independent institution evaluating the company's policies and activities in the area of sustainable development. Two years after the initial assessment carried out in May 2021, Imug renewed the rating "very good".

## FINANCIAL RESULTS AND FORECAST

Profit and loss account (EURm)	2020	2021	2022	2023F	2024F	2025F
Other operating revenues and expenses	28.3	36.4	95.1	82.9	112.2	127.7
<b>EBIT</b>	<b>0</b>	<b>-1</b>	<b>17</b>	<b>4</b>	<b>21</b>	<b>21</b>
Financial income and costs	-6	-5	-8	-10	-10	-9
Profit before tax	-7	-6	9	-7	12	12
Income tax	2	1	2	-2	3	3
Reported net profit	-9	-6	6	-5	9	9
<b>Repeatable net profit</b>	<b>-9</b>	<b>-6</b>	<b>6</b>	<b>-5</b>	<b>9</b>	<b>9</b>
Depreciation and amortization	8	11	9	8	9	8
	0	0	0	0	0	0
<b>EBITDA</b>	<b>8</b>	<b>10</b>	<b>26</b>	<b>12</b>	<b>30</b>	<b>29</b>

Source: Photon Energy (2020-2022), Noble Securities (2023-2025)

Balance Sheet (EURm)	2020	2021	2022	2023F	2024F	2025F
<b>Assets</b>	<b>159</b>	<b>197</b>	<b>254</b>	<b>315</b>	<b>337</b>	<b>361</b>
<b>Non-current assets</b>	<b>135</b>	<b>142</b>	<b>189</b>	<b>228</b>	<b>220</b>	<b>229</b>
Tangible and Intangible assets	130	130	156	195	188	197
Subsidiaries goodwill	0	0	15	15	15	15
Other long-term assets	5	12	17	17	17	17
<b>Current Assets</b>	<b>24</b>	<b>54</b>	<b>65</b>	<b>87</b>	<b>116</b>	<b>131</b>
Inventories	1	2	20	4	5	6
Trade receivables	6	10	19	23	32	36
Cash and cash equivalents	15	41	24	59	78	88
Other current assets	1	1	1	1	1	1
<b>Liabilities</b>	<b>159</b>	<b>197</b>	<b>254</b>	<b>315</b>	<b>337</b>	<b>361</b>
<b>Equity</b>	<b>40</b>	<b>52</b>	<b>71</b>	<b>66</b>	<b>74</b>	<b>83</b>
<b>Long-term liabilities</b>	<b>104</b>	<b>111</b>	<b>150</b>	<b>136</b>	<b>126</b>	<b>120</b>
Loans, borrowings and other financial liabilities	93	100	138	124	114	108
Other	11	11	12	12	12	12
<b>Current liabilities</b>	<b>15</b>	<b>34</b>	<b>34</b>	<b>113</b>	<b>137</b>	<b>158</b>
Loans, borrowings and other financial liabilities	6	29	12	93	110	127
Accounts payable	4	2	12	8	11	13
Other	5	3	10	11	15	17

Source: Photon Energy (2020-2022), Noble Securities (2023-2025)

Cash Flow Statement (EURm)	2020	2021	2022	2023F	2024F	2025F
Net profit	-7	-6	9	-7	12	12
Depreciation and amortization	8	11	9	8	9	8
Change in working capital	-5	8	11	-10	3	1
	0	-2	-2	2	-3	-3
<b>CF from current operations</b>	<b>6</b>	<b>6</b>	<b>3</b>	<b>13</b>	<b>15</b>	<b>16</b>
CAPEX	-18	-9	-28	-46	-2	-18
Capital investments	0	0	-6	0	0	0
Divestments and other	-2	-5	3	0	0	0
Purchase of debt securities	0	0	-3	2	0	0
<b>CF from investing activities</b>	<b>-20</b>	<b>-14</b>	<b>-33</b>	<b>-44</b>	<b>-2</b>	<b>-18</b>
Increase of share capital	0	0	0	0	0	0
Change in financial liabilities	17	30	20	68	6	12
Dividends and other payments due to equity holders	0	0	0	0	0	0
<b>CF from financial activities</b>	<b>12</b>	<b>31</b>	<b>9</b>	<b>68</b>	<b>6</b>	<b>12</b>
<b>CF for the period</b>	<b>-2</b>	<b>23</b>	<b>-21</b>	<b>37</b>	<b>19</b>	<b>10</b>
Cash at the beginning of the period	12	10	33	12	49	68
Cash at the end of the period	10	33	12	49	68	78

Source: Photon Energy (2020-2022), Noble Securities (2023-2025)

Selected indicators	2020	2021	2022	2023F	2024F	2025F
EBITDA margin	28.9%	27.4%	27.3%	14.3%	26.5%	22.6%
EBIT margin	-0.5%	-2.0%	17.9%	4.7%	18.9%	16.1%
Net profit margin	-30.6%	-17.6%	6.6%	-6.0%	7.8%	7.0%
Net debt	84	88	126	155	141	143
Net debt /EBITDA	10.3	8.8	4.8	13.0	4.7	4.9
Number of shares issued	60	60	60	60	60	60
Dividend per share	0.0	0.0	0.0	0.0	0.0	0.0
P/BV	16.2	12.6	9.2	9.9	8.7	7.8

Source: Photon Energy (2020-2022), Noble Securities (2023-2025)

Annual growth rates	2020	2021	2022	2023F	2024F	2025F
Revenues	-6%	29%	162%	-13%	35%	14%
EBITDA	3%	22%	160%	-54%	151%	-3%
EBIT	-112%	401%	-2486%	-77%	448%	-3%
Net profit	1167%	-26%	-199%	-179%	-275%	2%
Repeatable net profit	1167%	-26%	-199%	-179%	-275%	2%

Source: Photon Energy (2020-2022), Noble Securities (2023-2025)

Results by segment (EURm)	2020	2021	2022	2023F	2024F	2025F
<b>Revenues</b>	<b>28</b>	<b>36</b>	<b>94</b>	<b>83</b>	<b>112</b>	<b>128</b>
Engineering	38	10	15	26	10	20
New Energy (Lerta)	0	0	0	23	43	50
Technology	8	9	65	36	35	46
Investment	16	21	35	22	28	31
O&M	4	4	5	9	10	11
Other+Elimination	-38	-8	-26	-32	-13	-31
<b>EBITDA</b>	<b>8</b>	<b>12</b>	<b>24</b>	<b>12</b>	<b>30</b>	<b>29</b>
Engineering	9	-3	2	5	2	4
New Energy (Lerta)	0	0	0	5	9	10
Technology	1	1	7	2	2	3
Investment	13	17	28	16	22	24
O&M	0	0	0	0	0	0
Other+Elimination	-14	-5	-13	-16	-5	-12

Source: Photon Energy (2020-2022), Noble Securities (2023-2025)

Selected indicators	2020	2021	2022	2023F	2024F	2025F
EPS, Adj+ (EUR)	-0.14	-0.11	0.11	-0.08	0.15	0.15
Revenue (EURm)	28	36	95	83	112	128
EBIT (EURm)	0	-1	17	4	21	21
EBITDA (mln EUR)	8	10	26	12	30	29
Net Income Adj+ (EURm)	-9	-6	6	-5	9	9
Net debt (EURm)	84	88	126	155	141	143
BPS (EUR)	0.67	0.86	1.18	1.10	1.25	1.39
DPS (EUR)	0.00	0.00	0.00	0.00	0.00	0.00
Return on Equity (ROE)	9%	10%	11%	11%	13%	14%
Return on Assets (ROA)	8%	9%	10%	10%	12%	13%
Depreciation (EURm)	0	0	0	0	0	0
Amortization (EURm)	8	11	9	8	9	8
Free Cash Flow (EURm)	-2	23	-21	37	19	10
CAPEX (EURm)	18	9	28	46	2	18

Source: Photon Energy (2020-2022), Noble Securities (2023-2025)

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Analyst preparing the Report: Michał Sztabler

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Company	Direction	Target price	Price at publication	Current price	Difference to price target	Date of publication (1)	Validity date (2)	Prepared by (3)
Toya	na	10.1	6.3	6.43	57%	07.09.2023	9M	Dariusz Nawrot
Mabion	na	22.9	18.0	17.82	29%	07.09.2023	9M	Krzysztof Radojewski
Pepco Group	Buy	42.1	32.0	30.94	36%	30.08.2023	9M	Dariusz Dadej
LW Bogdanka	Accumulate	42.3	38.6	33.02	28%	31.07.2023	9M	Michał Sztabler
Torpol	Buy	22.6	18.0	18.72	21%	18.07.2023	9M	Dariusz Nawrot
Forte	Accumulate	31.0	28.0	25.90	20%	17.07.2023	9M	Dariusz Dadej
Tauron PE	Buy	4.2	2.8	3.79	10%	07.07.2023	9M	Michał Sztabler
STS Holding	Sell	16.3	24.3	24.70	-34%	04.07.2023	9M	Mateusz Chrzanoski
Answer.com	Buy	48.0	34.5	35.30	36%	04.07.2023	9M	Dariusz Dadej
Molecure	Accumulate	25.1	21.3	20.75	21%	30.06.2023	9M	Krzysztof Radojewski
Celon Pharma	Buy	32.6	15.9	15.52	110%	30.06.2023	9M	Krzysztof Radojewski
Captor Therapeutics	Buy	183.6	149.0	120.00	53%	30.06.2023	9M	Krzysztof Radojewski
Ryvu Therapeutics	Buy	81.3	60.0	60.60	34%	30.06.2023	9M	Krzysztof Radojewski
Apator	Accumulate	19.2	16.2	15.75	22%	27.06.2023	9M	Michał Sztabler
Ailleron	na	30.0	23.4	19.60	53%	18.05.2023	24M	Dariusz Dadej
Sonel	na	12.9	10.6	11.60	11%	17.05.2023	24M	Michał Sztabler
TIM	na	41.6	49.2	47.65	-13%	16.05.2023	24M	Michał Sztabler
MO-BRUK	Accumulate	337.2	290.0	271.00	24%	09.05.2023	9M	Dariusz Dadej
Selvita	Accumulate	83.0	74.6	66.20	25%	08.05.2023	9M	Krzysztof Radojewski
XTB	Buy	78.9	35.3	32.26	145%	26.04.2023	9M	Mateusz Chrzanoski
Aplisens	na	20.3	17.3	22.00	-8%	21.04.2023	24M	Michał Sztabler
Bioton	na	5.3	3.5	3.90	37%	20.04.2023	24M	Krzysztof Radojewski
MCI Capital	na	36.1	19.5	21.00	72%	20.04.2023	24M	Krzysztof Radojewski
Amica	Accumulate	84.8	79.7	80.50	5%	24.03.2023	9M	Mateusz Chrzanoski
Dino Polska	Reduce	358.6	415.5	383.80	-7%	21.03.2023	9M	Dariusz Dadej
Eurocash	Buy	18.7	13.8	15.60	20%	21.03.2023	9M	Dariusz Dadej
Pepco Group	Accumulate	50.1	43.7			20.02.2023	9M	Dariusz Dadej
LW Bogdanka	Buy	72.5	52.8			27.01.2023	9M	Michał Sztabler
Molecure	Buy	20.8	14.7			05.01.2023	9M	Krzysztof Radojewski
Celon Pharma	Buy	30.9	15.1			05.01.2023	9M	Krzysztof Radojewski
Captor Therapeutics	Buy	192.0	164.0			05.01.2023	9M	Krzysztof Radojewski
Ryvu Therapeutics	Buy	85.4	54.6			05.01.2023	9M	Krzysztof Radojewski
Forte	Hold	21.3	21.0			03.01.2023	9M	Dariusz Dadej
LW Bogdanka	Buy	51.5	38.2			28.12.2022	9M	Michał Sztabler
Wielton	Hold	6.6	6.7			28.12.2022	9M	Michał Sztabler
TIM	na	37.9	28.2			12.12.2022	24M	Michał Sztabler
Aplisens	na	18.3	14.4			06.12.2022	24M	Michał Sztabler
Apator	Reduce	12.9	15.0			06.12.2022	9M	Michał Sztabler
Sonel	na	10.2	9.7			06.12.2022	24M	Michał Sztabler
MO-BRUK	Buy	371.7	293.0			26.10.2022	24M	Dariusz Dadej
LW Bogdanka	Hold	30.5	30.6			20.10.2022	9M	Michał Sztabler
Selvita	Accumulate	97.5	86.0			20.10.2022	9M	Krzysztof Radojewski
Ailleron	na	17.5	12.0			17.10.2022	24M	Dariusz Dadej

(1) Date of publication is simultaneously date of first publication, (2) recommendation is valid for a period of 9 months, unless it is previously updated,

(3) Job position: Krzysztof Radojewski – Deputy Head of Research and Advisory Department, Michał Sztabler – Equity Analyst, Dariusz Dadej - Equity Analyst, Mateusz Chrzanoski - Junior Equity Analyst, Dariusz Nawrot - Senior Equity Analyst

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