

Past, Present & Future of the Belgian Solar PV Market

Insights from Q3 2023 EU-27 & Belgian PV Market Updates

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Solar Market Briefing Belgium

25 October 2023 | Solar Solutions 2023 Belgium



Agenda

- ❖ **About EUPD Research**
- ❖ EU-27 PV data overview
 - ❖ Top 5
- ❖ PV market overview Belgium
 - ❖ Belgian PV Status and Outlook
 - ❖ Residential PV Status
 - ❖ Barriers
- ❖ Summary: Key facts and figures

A woman is seated at a wooden desk in a modern office, working on a silver laptop. The laptop screen displays a dashboard with various charts, including a large pie chart with segments labeled 75% and 50%, and a bar chart. The woman is wearing a grey sweater and has a tattoo on her left forearm. In the background, another person is standing near a desk with a laptop, and a potted plant is visible. A blue semi-transparent banner is overlaid on the left side of the image, containing the text "About EUPD Research".

About EUPD Research

EUPD Research – Research, Certification, Consulting

EUPD Research

Market Research

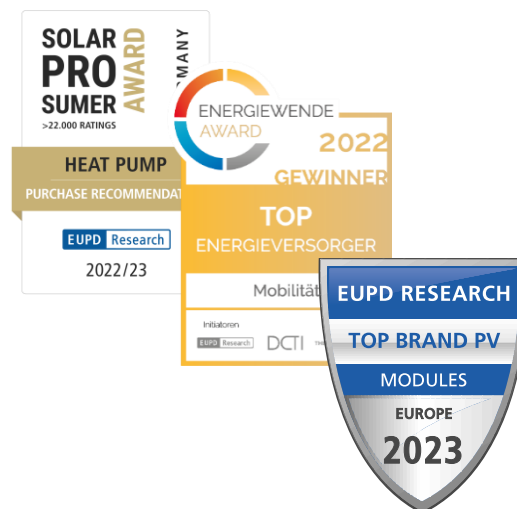
- Market analyses
- Competition analyses
- Product analyses
- Price analyses



EUPD Cert

Certification

- Top Brand
- Customer Satisfaction Seal
- Energy Transition Award
- SolarProsumerAward



EUPD Consult

Exclusive Consulting

- Within the scope of strategic consulting projects, we focus on the review, further development or redevelopment of the company's orientation, we rethink concepts, measures or the positioning within the competitive environment and shape growth paths and business models
- Our future-oriented consulting services analyze both the corporate environment and the fundamental objectives of the client

EUPD RESEARCH | REFERENCES (EXTRACT)



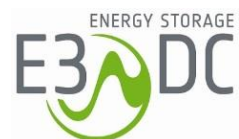
SUNGROW
Clean power for all

IBC
SOLAR



JinKO Solar

SUNTECH



Trinasolar

 **ENPHASE.**



KOSTAL



JASOLAR

krannich
Solar



 **SOLARWATT®**

Panasonic



SENEC

LONGi Solar

aleo

GROWATT

Qcells



Libra
ENERGY

MEMODO
energy storage experts



SUNPOWER®



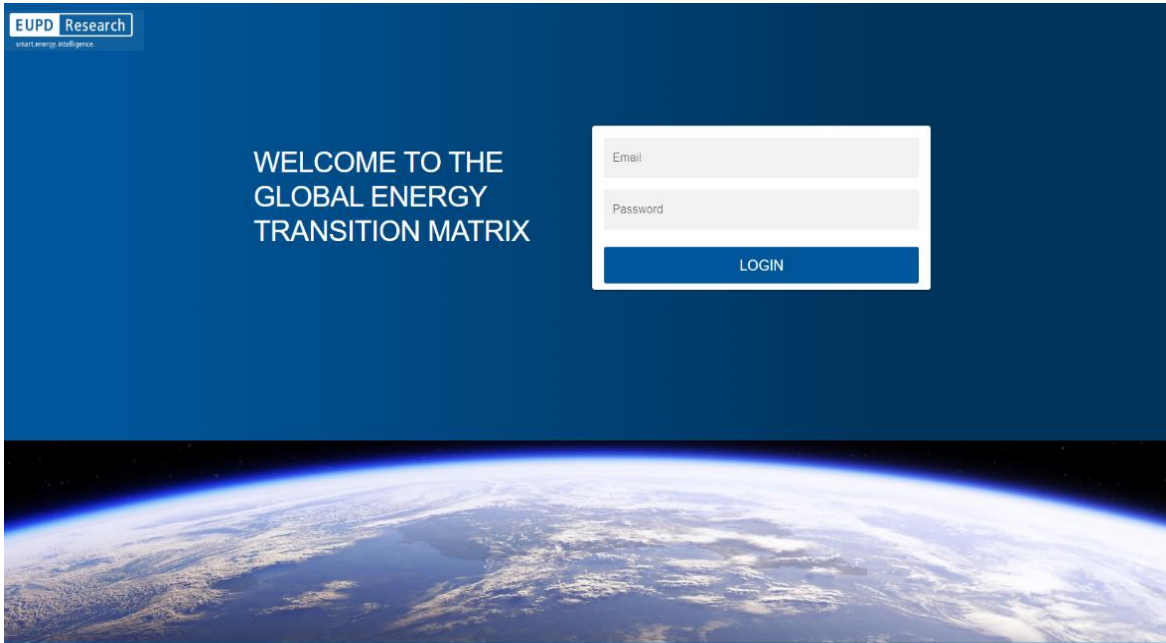
 **VARTA**



SOLA X POWER

Global Energy Transition (GET) Matrix

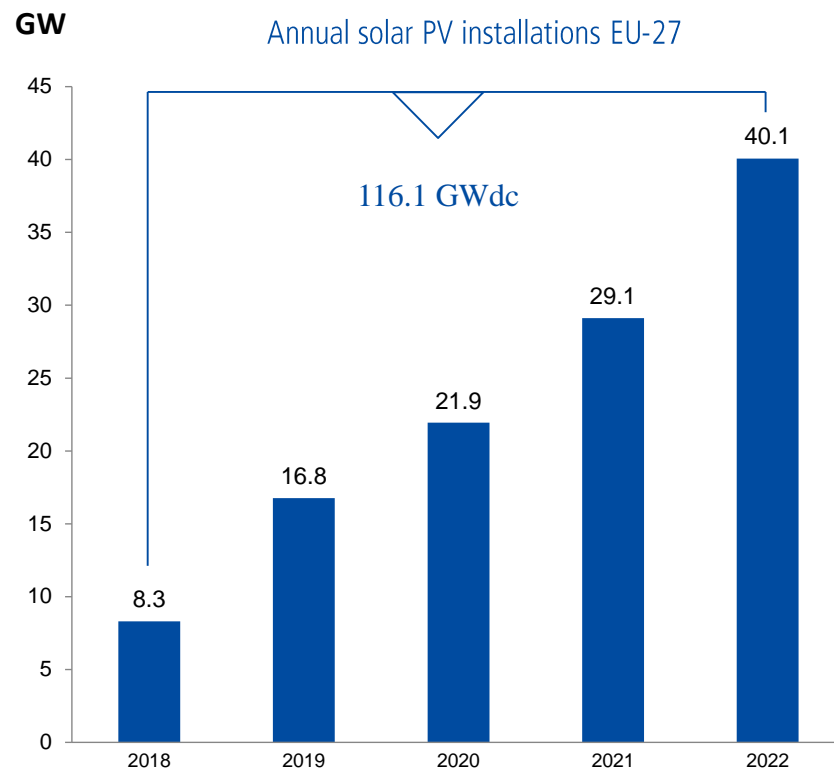
59 global markets under our radar of which all of European markets as well as the major global markets are updated on a quarterly basis
Data gives the users a clear macro level outlook of the established as well as the emerging global PV markets and their evolution



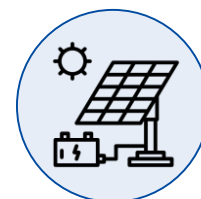


PV Market overview: EU-27

Solar PV Installations | EU-27



EU NECP and REPowerEU partially boosted solar growth

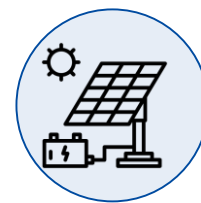
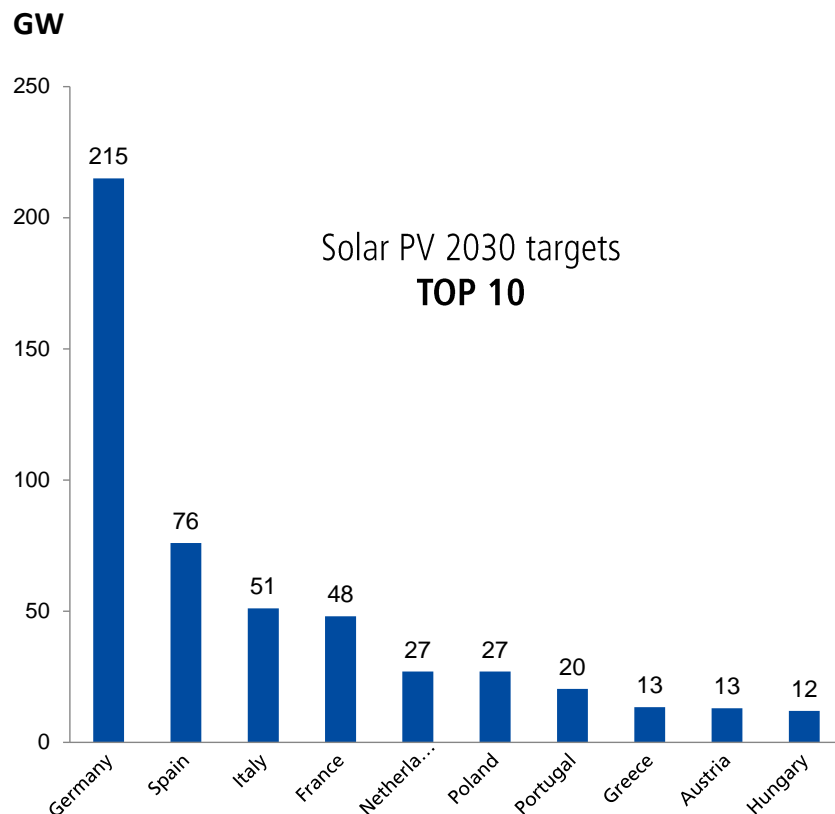


Solar PV is the fastest growing RES in the last 5 years

EU PV Status

- The implementation of solar PV systems in Europe experienced significant growth in the early 2020s, supported by the introduction of the comprehensive National Energy and Climate Plans (NECP) by each member state of the European Union
- The EU countries, witnessed record installations in 2021 and 2022, despite supply chain bottlenecks and periodic lockdowns in several countries due to the COVID-19 pandemic. During the 2018-2022 period, the EU member states installed a total capacity of **~116 GWdc**

Solar PV Targets/Feasible Scenarios | EU-27



Solar PV estimated to have highest growth among RES



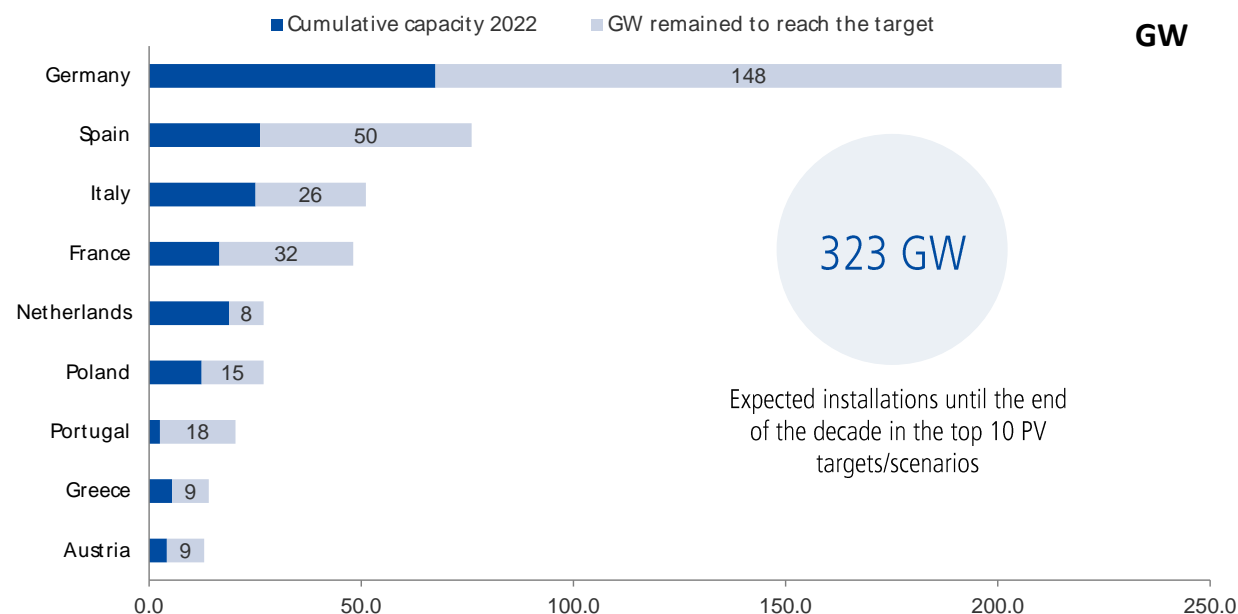
Germany's target capacity of 215 GW is 35% of the entire EU's targets combined

Solar PV: Critical for EU's RE Ambitions

- Solar PV within Europe has experienced significant momentum entering into the decade of 2021-2030, further accelerated by subsequent geopolitical developments. The combined targets of EU nations now aim for a total installed capacity of **600+ GWdc** by 2030 based on current individual country PV targets/feasible scenarios
- The combined 2030 PV target of the top 10 EU markets is **~503 GW**

Top 10 Solar PV Markets based on the target | EU-27

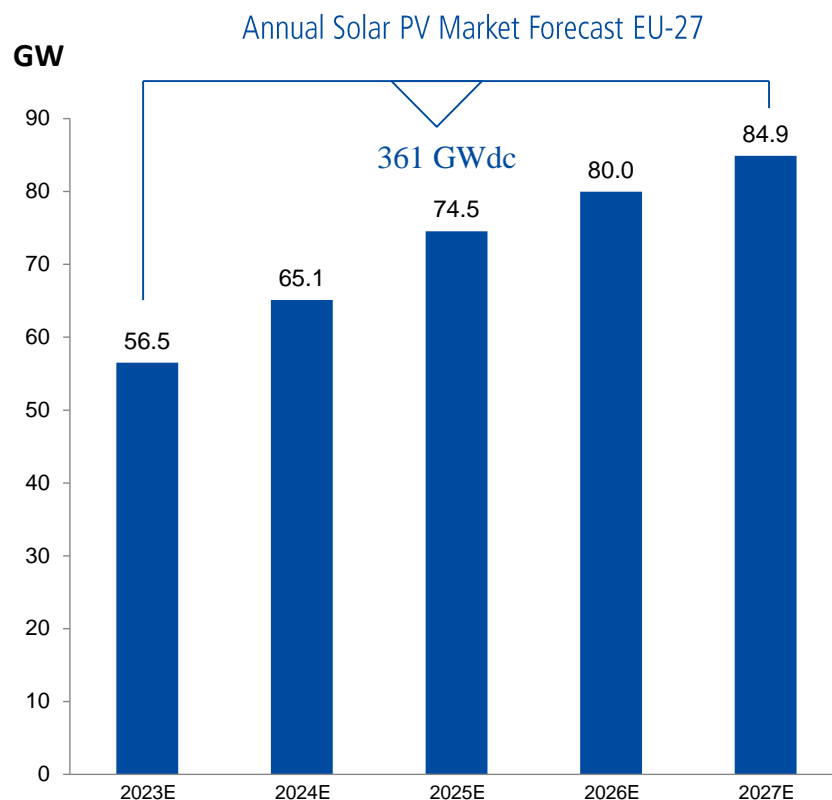
Based on the PV targets set by the EU-27 member states to meet their energy demands, **323 GW** will be installed in the top 10 markets



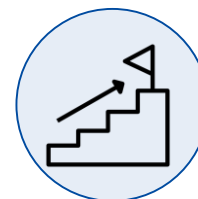
PV Targets as a Benchmark of Future Developments

- Germany has set the highest PV target with 215 GW, the realization of which will require an average annual installation of ~18 GW
- Likewise member states such as France and Portugal have revised their PV targets: France is now aiming for 48.1 GW and Portugal for 20.4 GW until the end of 2030
- Accordingly, only in the top markets, shortlisted based on their targets, an average of ~41 GW of PV is expected to be installed every year until 2030

Solar PV Market Forecast | EU-27



EU countries have a provisional target of 42.5% renewable share by 2030

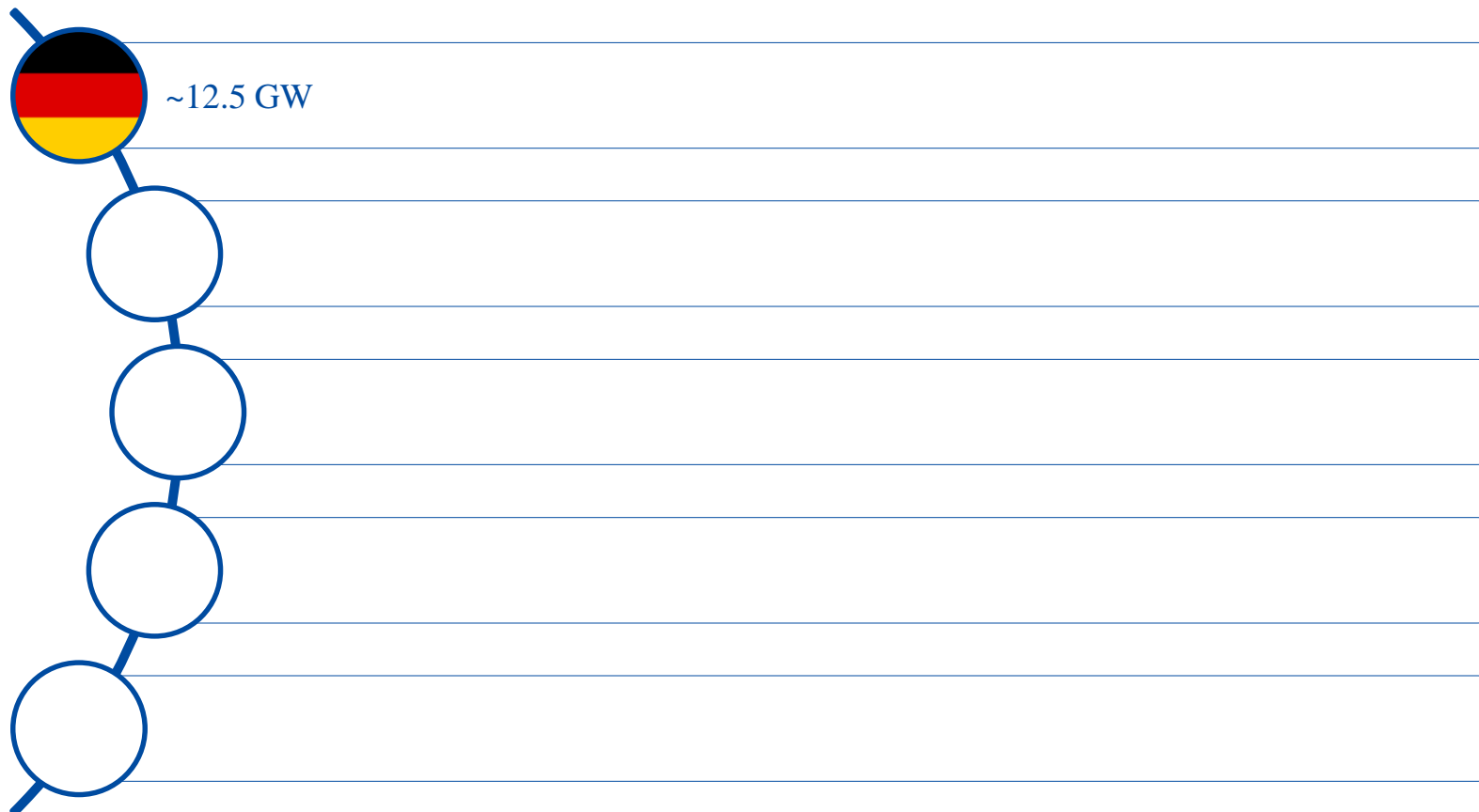


Next 5 years will determine leaders in the highly competitive market

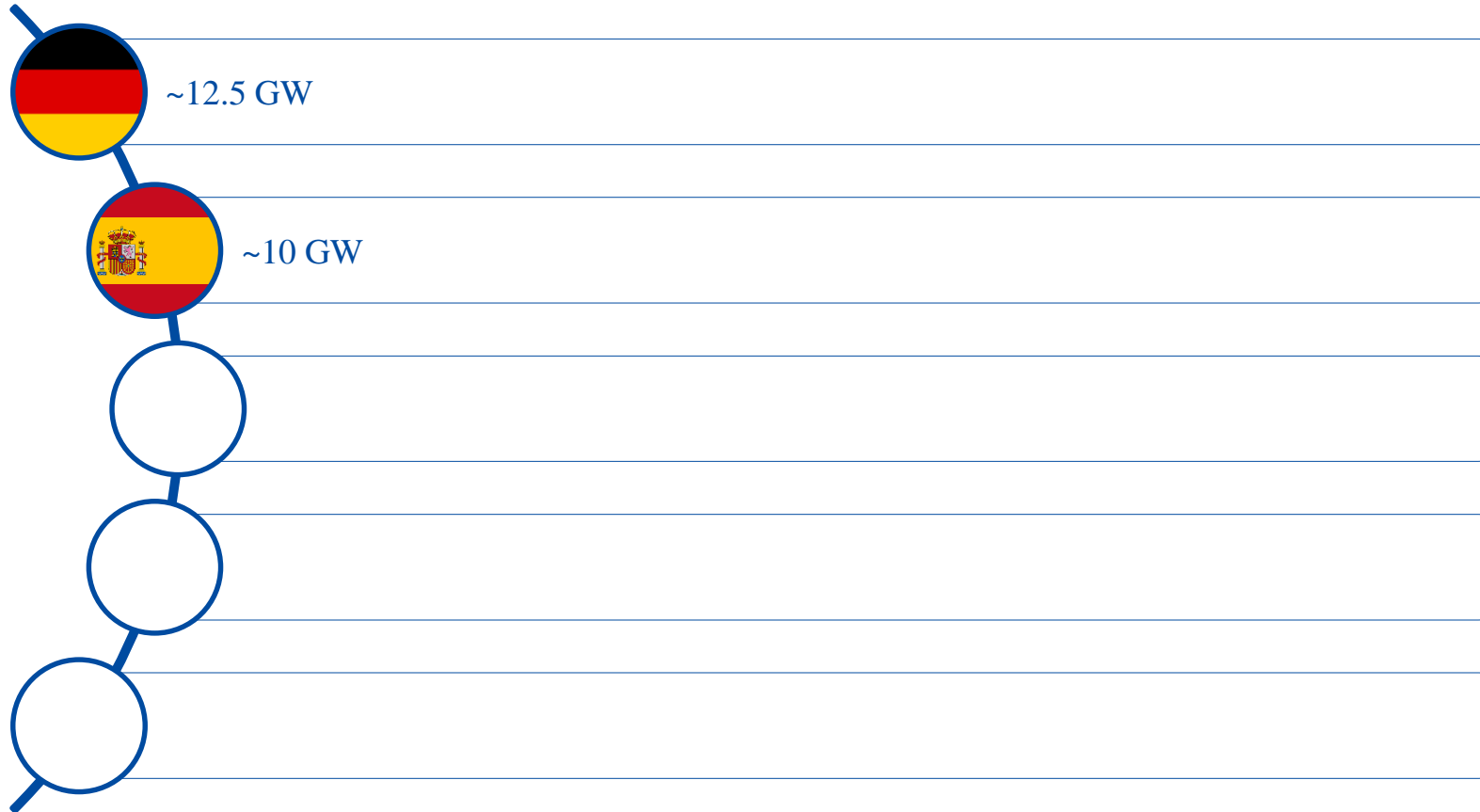
Solar PV to continue as the most popular RES

- Market leaders are expected to emerge in various European countries over the next five years. This period will establish the groundwork for capitalizing on the energy transition phase in Europe
- The EU member states, are expected to add a record-setting **~361 GWdc** over the next 5 years across distributed and the utility scale segments. Due to the robust growth anticipated in the markets, several national and continental downstream players will evolve to capitalize on this growing opportunity
- Solar PV is expected to contribute to most of the EU-27 renewable targets for 2030

EU-27 Top 5 PV Markets in 2023 (Annual PV Installations with Q4 estimations)



EU-27 Top 5 PV Markets in 2023 (Annual PV Installations with Q4 estimations)



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EU-27 Top 5 PV Markets in 2023 (Annual PV Installations with Q4 estimations)



EU-27 Top 5 PV Markets in 2023 (Annual PV Installations with Q4 estimations)

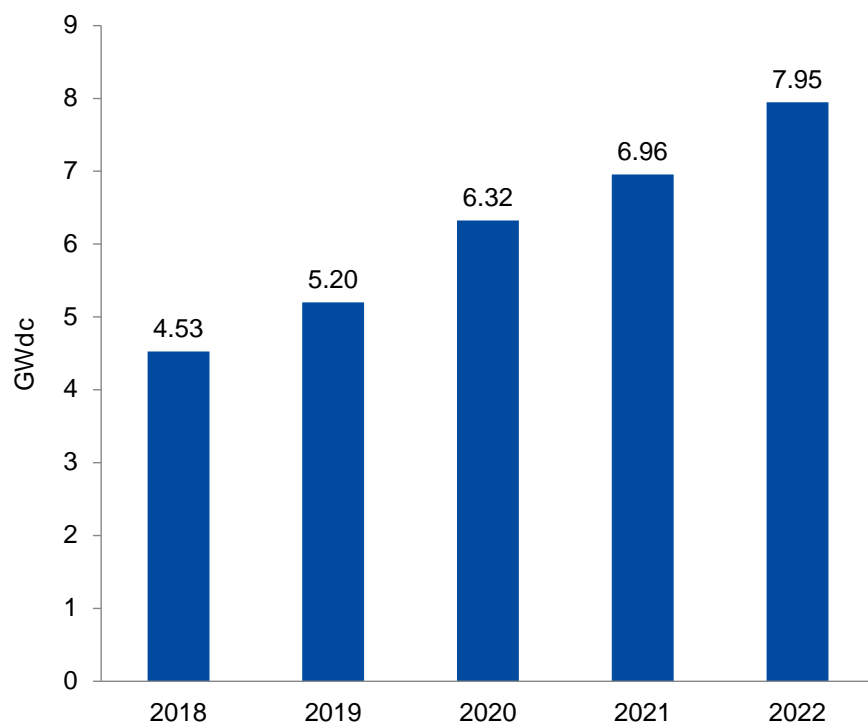


A close-up photograph of several solar panels. The panels are dark with a grid of thin white lines. A semi-transparent blue rectangular box with rounded corners is positioned in the middle-left of the frame, containing white text. The background shows more panels receding into the distance.

PV market overview: Belgium

Market overview – PV market information

Cumulative PV capacity Belgium (2018-2022)



YoY growth rate (2021-2022): 14%

PV status

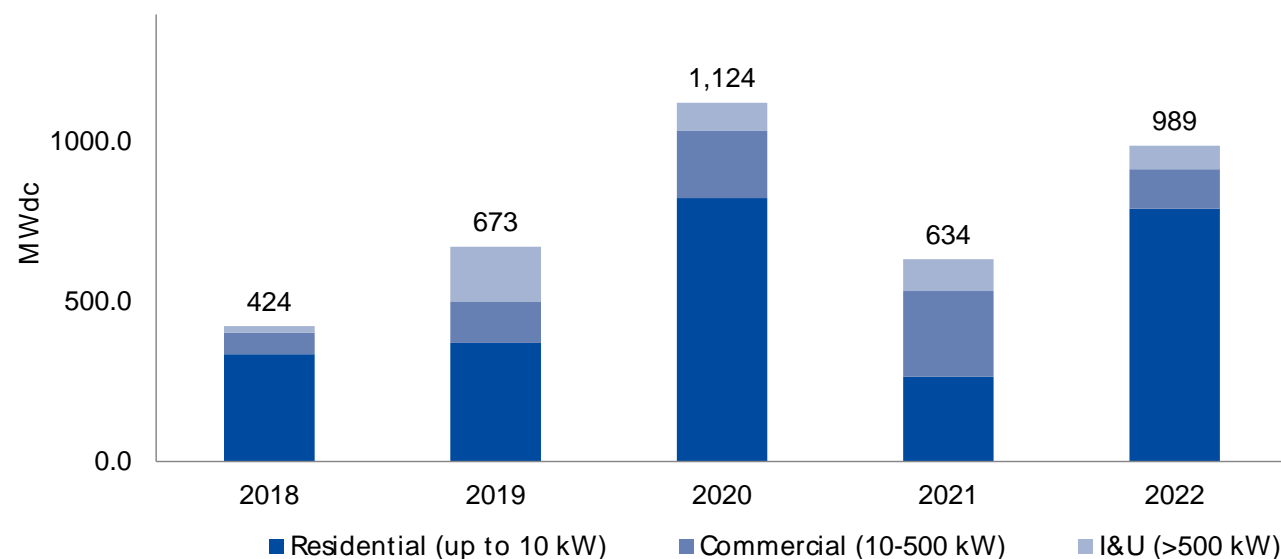
From a cumulative installed base of 4.5 GWdc in 2018, Belgium's solar PV capacity reached 6.9 GWdc at the end of 2022

Belgium is estimated to reach a cumulative PV capacity of **9.1 GWdc** by New Year's Eve

Among the EU-27 member states, Belgium was ranked **7th** regarding cumulative PV capacity and is expected to keep this rank in the coming years

Market overview – PV market information

Newly installed PV capacity Belgium (2018-2022)



PV status segment-wise

The country added around 989 MWdc of solar PV capacity in the year 2022, which shows that Belgium is recovering from the 2021 PV crash

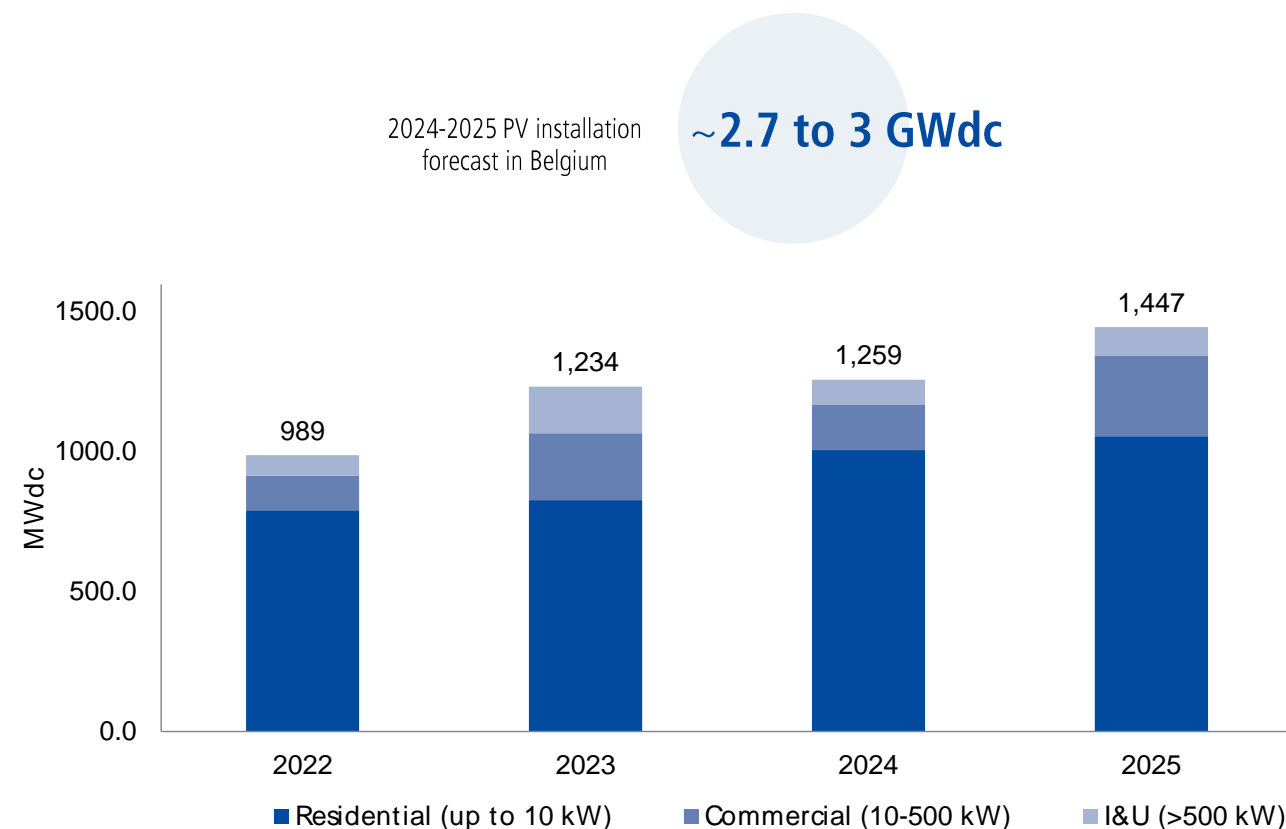
During 2021, and mainly due to unfavorable regulatory changes in Flanders (Belgium's PV hub), the residential PV capacity decreased drastically

Among the EU-27 member states, Belgium was ranked **11th** regarding newly installed PV capacity in 2022.

The 2023 estimations, however, show even healthier PV pulses compared to 2022

Market overview – PV market information

Newly installed PV Belgium (2023-2025)



PV developments

The outlook shows a constant and steady upward trend for residential and commercial PV segments in Belgium due to the favorable funding schemes and regulatory environment

By the end of August 2023, Flanders alone have installed 712 MWdc and is expected to become the 1 GWdc region of Belgium by the end of the year

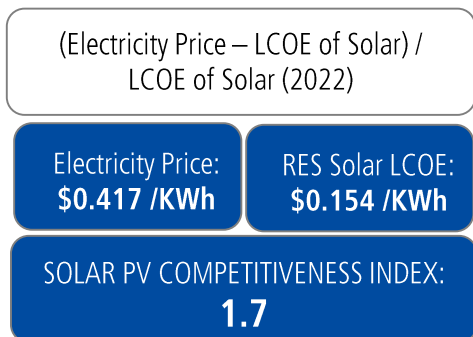
By the end of 2023, Belgium is estimated to install **1.2 GW**, with the lion's share in Flanders (~1 GW) and the rest humbly shared between Wallonia and Brussels

Belgium is expected to be an approximately **3 GW** PV market in the next 2 years

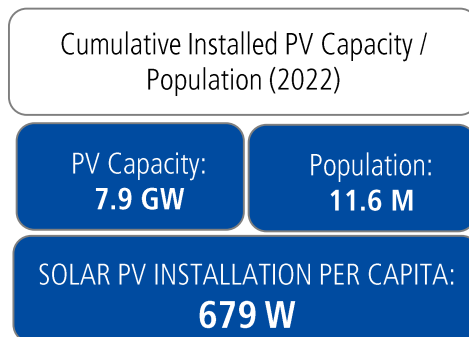
Belgium's PV Key Performance Indicators (KPIs)

Based on the parameters tracked within the Belgian PV market, smart key performance indicators (KPIs) are developed, which indicate the potential of markets and the expected future developments.

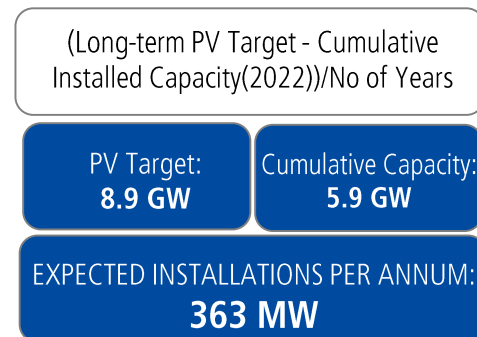
SOLAR PV COMPETITIVENESS INDEX (Residential)



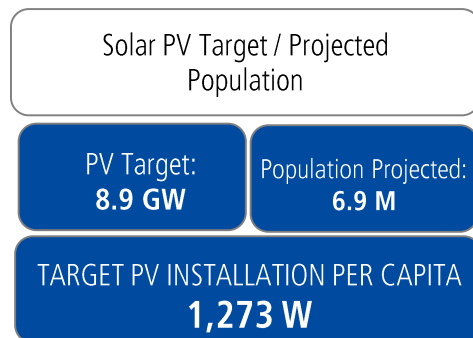
SOLAR PV INSTALLATION PER CAPITA



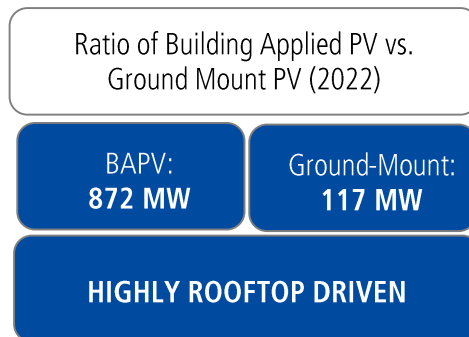
FLANDERS* PV INSTALLATIONS PER ANNUM BASED ON TARGET



FLANDERS* TARGET PV INSTALLATION PER CAPITA



MARKET SEGMENTATION 2022



*As Flanders is the most important PV region in Belgium and as there are no certain targets in other regions, Flanders is taken for the above calculations (note that it should not be confused with the Belgium's data on a national level).

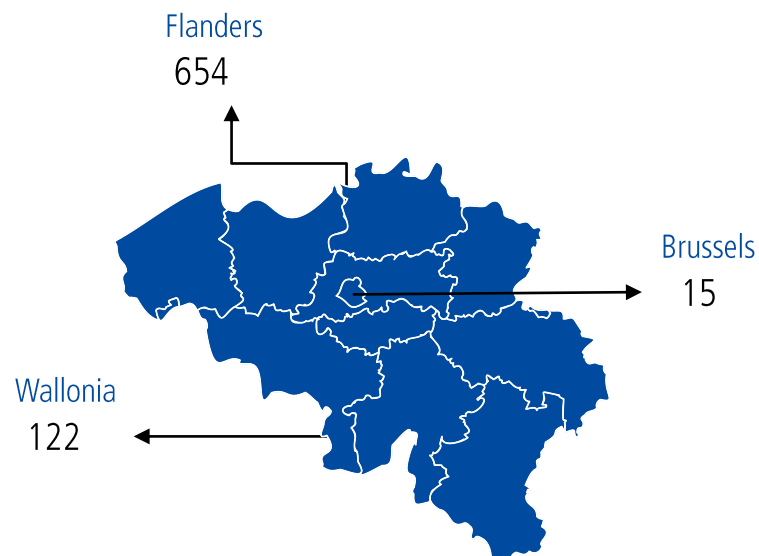


What is the residential PV status like in each region?

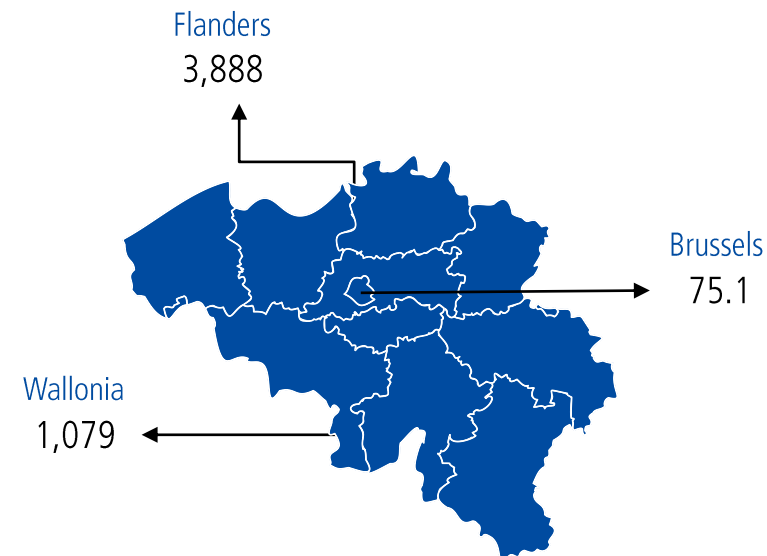
Belgium's Residential PV Installations in Each Region

Belgium's most important region with regard to residential PV installation is Flanders followed by Wallonia and Brussels

Annual Regional Residential Installations-MWdc (2022)



Cumulative Regional Residential Installations-MWdc (2022)

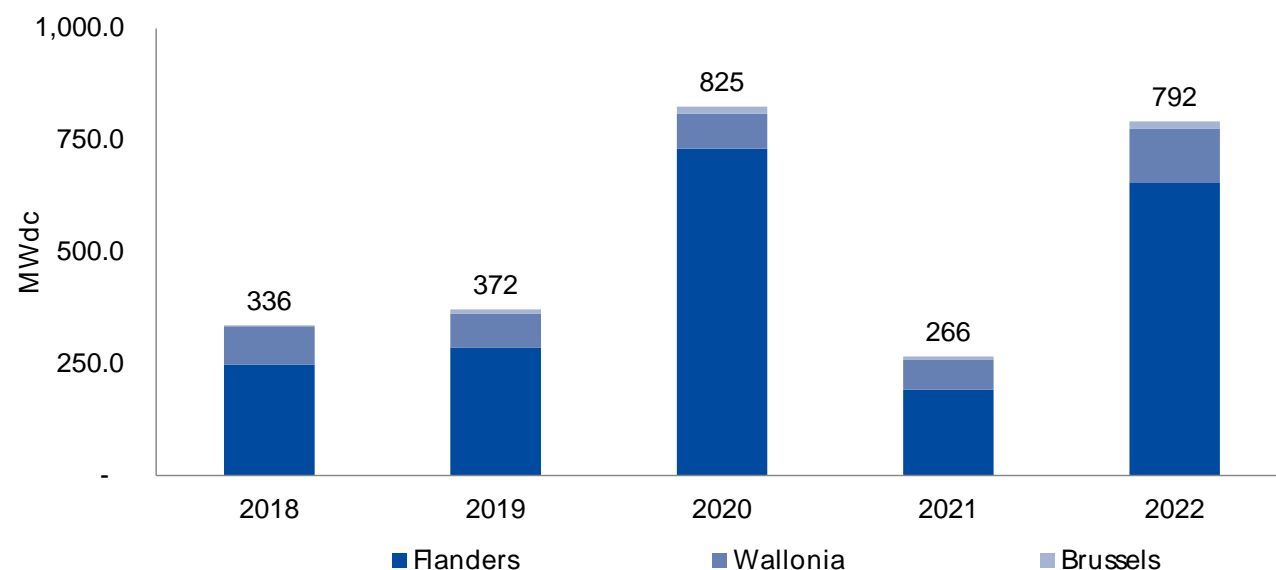


Source: EUPD Research 2023 (GET Matrix), Flemish Energy and Climate Agency, Brussels Regulatory Authority, energie commune.

Belgium's Residential PV Capacity

Three regions 2018-2022 (in MWdc)

End of 2023 residential PV rank 6th in the EU



Residential PV Capacity

- Belgium is a rooftop driven market where a lion's share of PV systems are installed in the residential segment
- Flanders is the most important region regarding both cumulative and residential PV installations
- Flanders was single handedly responsible for **654 MWdc** of residential installations in Belgium in 2022
- Wallonia was the second important region with **122 MWdc**, while Brussels/Brussels Metropolitan Area installed only **16 MWdc** of residential PV in 2022

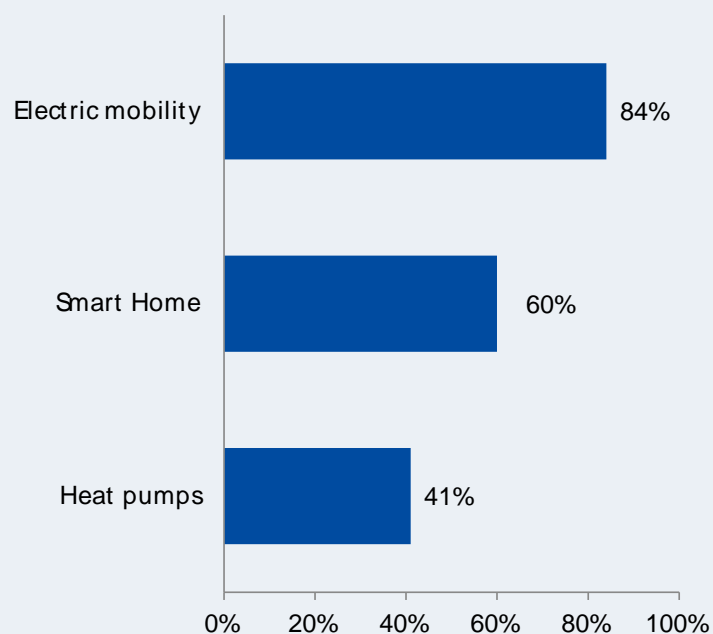
Source: EUPD Research 2023 (GET Matrix), Flemish Energy and Climate Agency, Brussels Regulatory Authority, energie commune.

Sector Coupling in Belgium: Unlocking Synergies for Clean Energy Transition

Sector coupling is actively taking place in Belgium, aligning with the trend observed in most European markets. According to EUPD Research survey PV InstallerMonitor© 2022/2023, a significant number of local PV installers in Belgium are engaging in sector coupling initiatives.

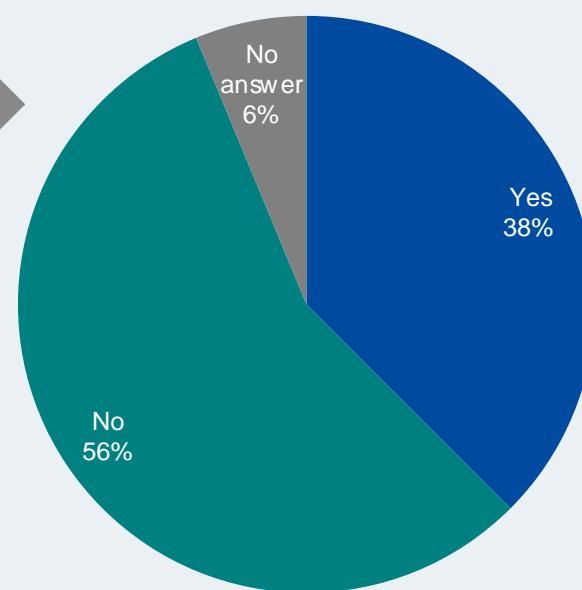
Additional Applications Offered By Installers

In addition to photovoltaic, do you also install products in the following sectors?
(multiple answers, n=100)



If no electric mobility in portfolio

Do you plan to include electric mobility solutions in your portfolio by the end of 2023?
(n=16)



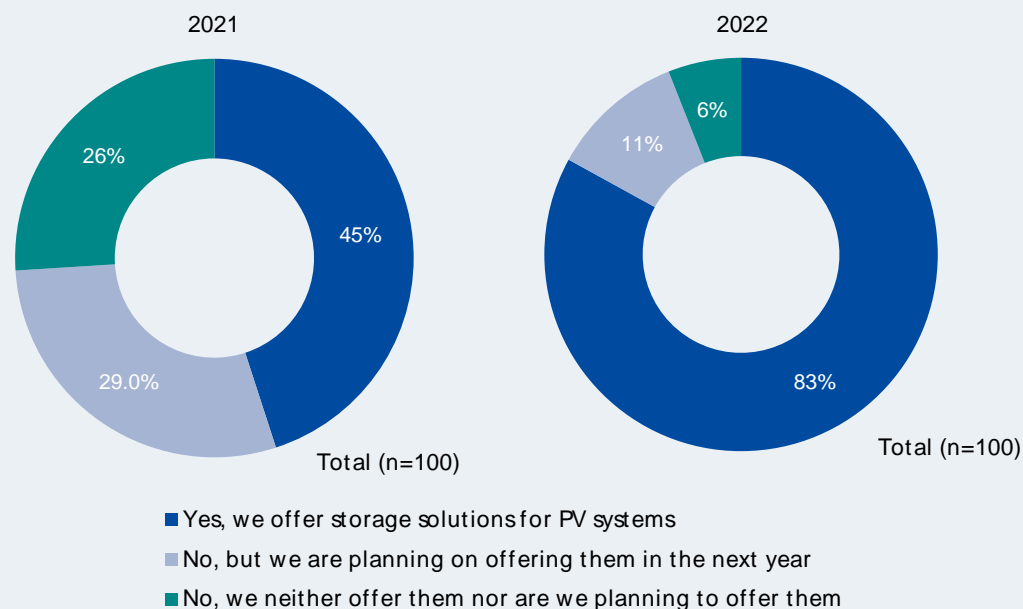
- Approximately 84% of the surveyed installers offer solutions for electric mobility. Out of the remaining 16%, more than half do not plan to include electric mobility solutions in their portfolio by the end of 2023.
- Additionally, 60% of the installers surveyed provide HEMS solutions, and 41% of the installers stated that they offer heat pumps.
- The survey results heralded a strong sector coupling that is and will be taking place in Belgium.

Source: EUPD Research 2023

Sector Coupling in Belgium: Unlocking Synergies for Clean Energy Transition

Following the trend in Europe, the number of storage installations in Belgium has also increased.

Do you offer storage solutions? | Total & grouped by trade



- In 2022, 83% of the survey (EUPD Research survey PV InstallerMonitor® 2022/2023) participants in Belgium offered storage solutions.
- While the percentage of solar installers offering storage systems is slightly lower than in 2021, the percentage of general installers offering storage solutions increased from 28 to 81% (in a similar survey conducted in the previous year, only 28% of the general installers stated that they offer storage).

Source: EUPD Research 2023

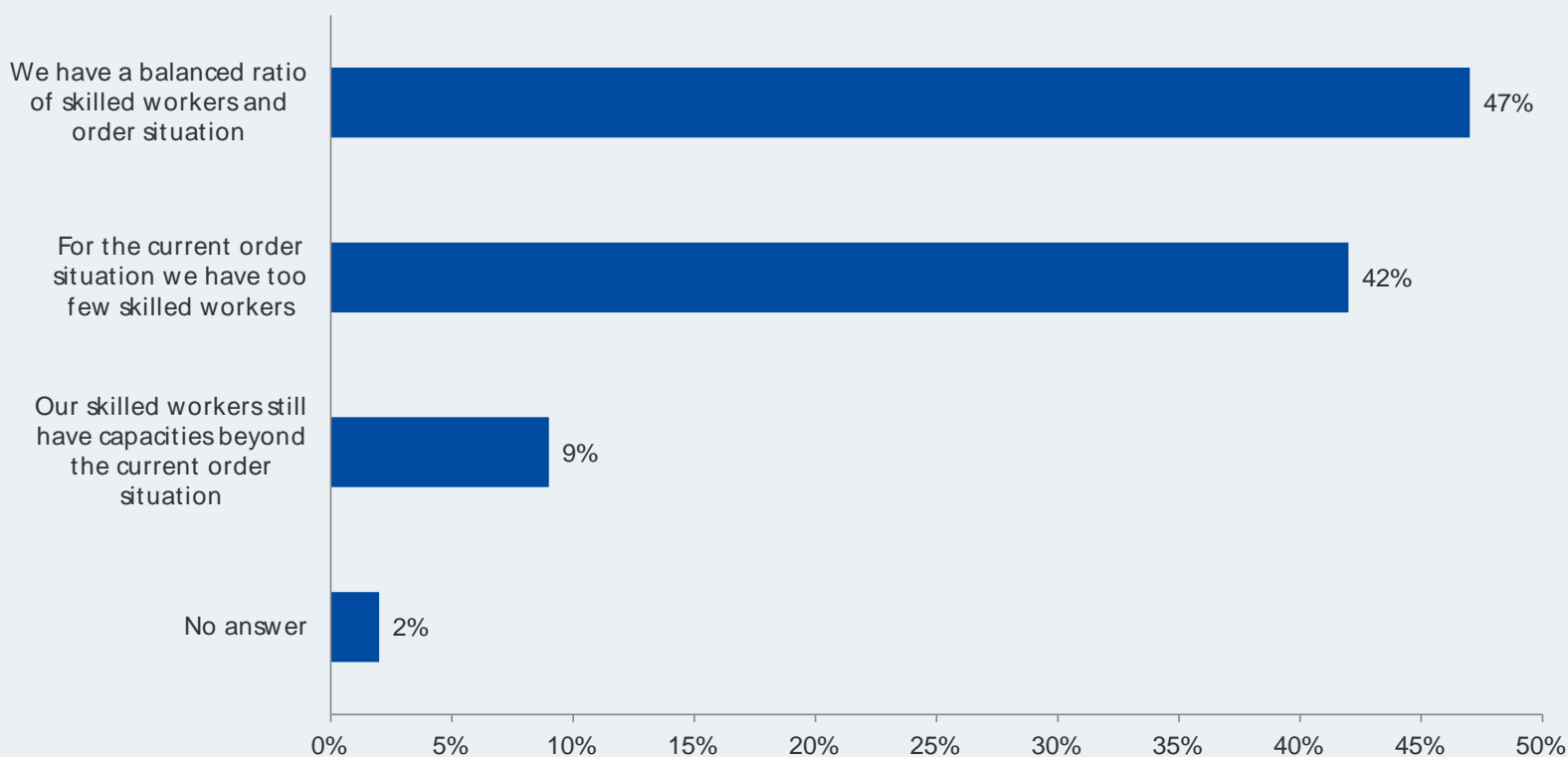
The background of the slide is a close-up, angled view of a solar panel. It features a grid of dark, rectangular cells separated by thin, light-colored lines. A semi-transparent blue rectangular box with rounded corners is positioned in the upper-left quadrant of the image. Inside this box, the text "What are the barriers?" is written in a white, sans-serif font.

What are the barriers?

Shortage of Specialist Staff in Belgium

One of the most important barriers of the residential solar PV development in Belgium is the shortage of skilled workers for meeting the current demand.

Availability of Specialist Staff for the Installation of PV Systems



- According to EUPD Research survey PV Installer Monitor© 2022/2023 of local PV installers in Belgium, about half (47%) of installers reported that they have a balanced ratio of skilled workers and order situation.
- 42% said they have too few skilled workers for the current demand.
- And only 9% stated that their employees have capacities beyond the current order levels.

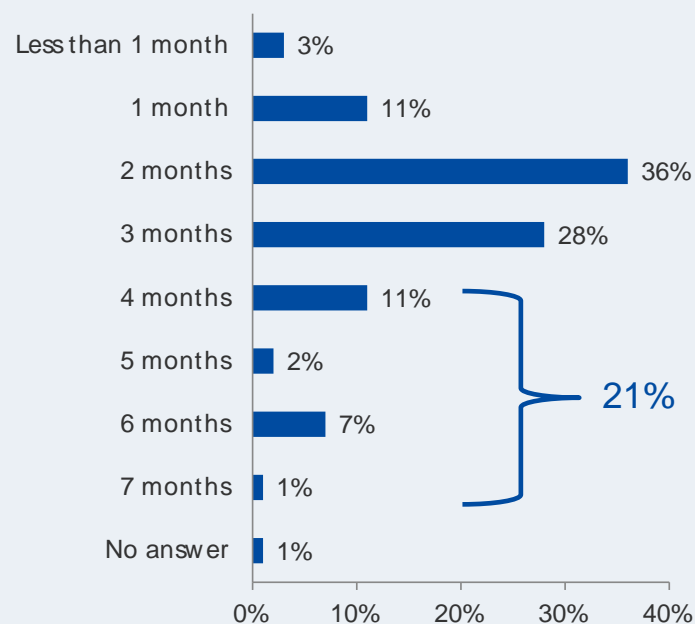
Source: EUPD Research 2023

High Waiting Period for Customers in Belgium

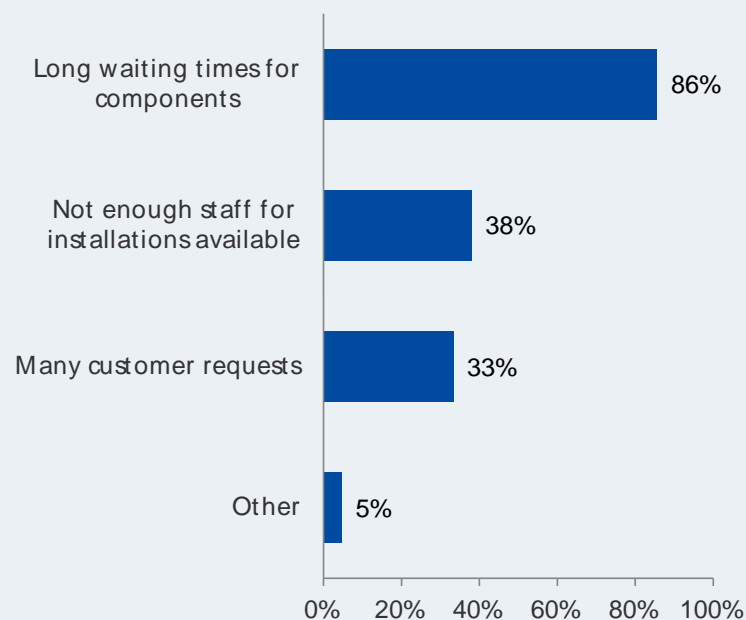
Another important obstacle in the development of the PV sector in Belgium is the long waiting periods mainly due to the components long waiting time.

Average Waiting Periods For Customers

On average, how long did a new customer in 2022 have to wait for the installation of a residential PV system after initial contact with your company? (n=100)



If the waiting time was longer than 4 months: What are the reasons for the waiting period? (multiple answers, n=21)



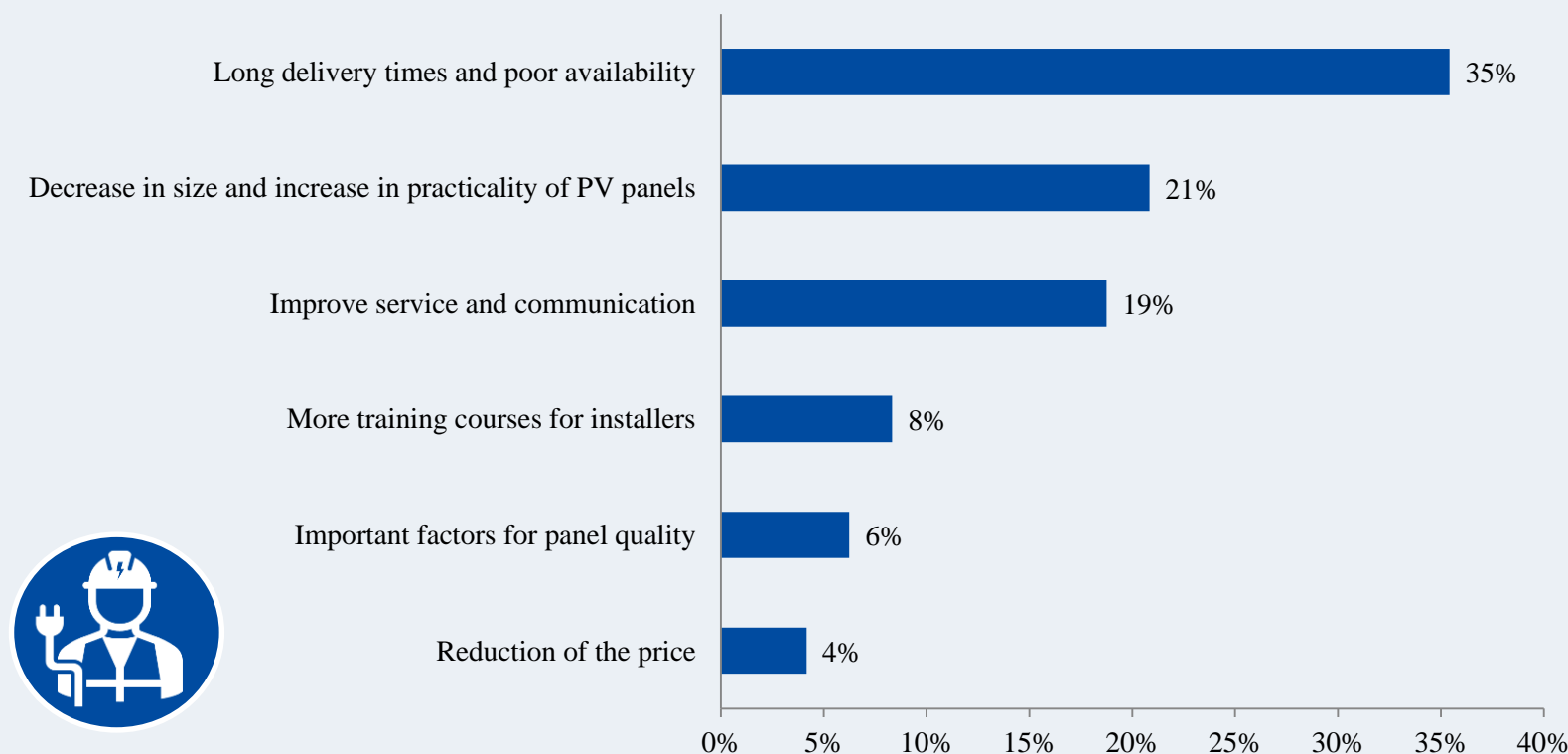
- According to EUPD Research survey PV Installer Monitor® 2022/2023 in Belgium, 21% of the installers stated that customers had to wait at least four months for the installation after the initial contact.
- These installers were asked about the reasons for the waiting period. The long waiting times for components are the most frequently mentioned reason.
- Additionally 38% said they do not have enough workers to manage the current demand.
- And 33% said they have too many customer requests.

Source: EUPD Research 2023

Voice of installers – Installer remarks

Installers in Belgium are also concerned about the availability of manufacturer components and they think the size of the PV panels could be reduced and the efficiency increased.

Is there anything you would like to say to the manufacturers?



- Most of the surveyed installers in Belgium (35%) stated to the manufacturers that the delivery times are long and the products are not readily available
- 21% stated that the efficiency of a PV panel has priority over the size of it.
- And 19% said that the service and communication need to be improved
- Further, installers demand more training courses, important factors for panel quality and lower prices

*Grouping of text responses, voluntary specification, n=67, multiple answers possible
EUPD Research 2023



Executive Summary

Summary of the key facts and figures

PV

~1.2 GWdc

Estimated newly installed PV capacity
in 2023

~828 MWdc

Newly installed residential PV capacity
in 2023

~2.7 to 3 GWdc

Newly installed PV capacity in 2024-
2025

End of 2023 newly residential PV
rank 6th in the EU



Main barriers:

- **Shortage of skilled staff**
 - **High waiting period**
 - **Long delivery times**

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