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PAPER

SOLAR ENERGY OUTLOOK IN THE
MEDITERRANEAN REGION



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SOLAR ENERGY OUTLOOK IN THE MEDITERRANEAN REGION

Introduction

Thanks to abundant solar irradiation, the Mediterranean region holds great potential for solar PV energy generation. With very high solar exposure levels, countries in this area are well-positioned to harness solar power as a primary energy source. EU policies are accelerating renewable energy deployment, with Mediterranean countries making significant strides in PV capacity expansion.

This paper explores the policies shaping solar energy growth, ongoing and planned infrastructural projects, and market trends across the region. By examining national strategies and cooperation between the European Union (EU) and the Mediterranean region and delivering future forecasts, this study provides a comprehensive outlook on the role of solar energy in achieving sustainability goals in the Mediterranean.

Only countries with a Mediterranean coastline have been included in the analysis. These are: Albania, Algeria, Bosnia Herzg, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Libya, Malta, Montenegro, Morocco, Palestine, Slovenia, Spain, Syria, Tunisia, Turkey. Certain countries have been covered in more detail, both because of better data availability and the importance of the PV market. For example, estimates and forecasts of installed capacity for the period 2024-2028 are provided only for Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Malta, Slovenia, Spain, and Turkey. In general, more emphasis has been placed on the four main EU Mediterranean markets, namely France, Greece, Italy, and Spain.

POLICIES & INFRASTRUCTURAL PROJECTS

EU Policies

The European Green Deal

The European Green Deal is the EU's key climate policy framework, aiming to cut greenhouse gas emissions by 55 percent by 2030 as compared to its 1990 levels and achieve carbon neutrality by 2050. It mobilizes funds through key subpolicies, primarily the Clean Energy for All Europeans package and REPowerEU.

The Clean Energy for All Europeans package focuses on transitioning to renewables, enhancing energy efficiency, and ensuring energy security. It includes the Renewable Energy Directive, setting a binding target of at least 42.5 percent renewable energy consumption by 2030, and the Energy Performance of Buildings Directive (EPBD), which mandates higher energy efficiency and renewable integration in buildings through the EU Solar Standard.

REPowerEU, launched in 2022, aims to increase renewables to 45 percent of the energy mix by 2030. It also supports the deployment of 385 GWdc of solar PV by 2025 and nearly 720 GWdc by 2030. €300 billion has been allocated, including €225 billion in loans and €75 billion in grants for renewables, efficiency, and infrastructure. Additional funding comes from the Innovation Fund and Emissions Trading System allowances.

Other EU Policies JTM, Horizon Europe, and EIB Initiatives

Alongside the European Green Deal, several EU policies support the clean energy transition, focusing on funding, innovation, and fairness. The Just Transition Mechanism (JTM) ensures a fair shift to a climate-neutral economy by mobilizing €55 billion (2021-2027) to support regions most affected by the transition: it funds renewable energy projects, including distributed solar, while mitigating socio-economic impacts. At the same time, Horizon Europe, the EU's main research and innovation program, is allocating €95.5 billion (2021-2027) for projects in advanced solar technologies, energy storage, and distributed solar applications like building-integrated photovoltaics (BIPV).

In addition, the European Investment Bank (EIB) finances renewable energy and efficiency projects through loans, guarantees, and technical assistance. It invested €21 billion in REPowerEU (2022-2023) and aims to mobilize €150 billion for renewables, including solar infrastructure, grid integration, and storage. Together, these initiatives drive the EU's clean energy transition while fostering innovation and economic resilience.

EU-Mediterranean Cooperation

The EU is actively partnering with Mediterranean and Middle Eastern countries to develop solar energy projects, strengthening regional energy integration and sustainability. In May 2023, nine EU Mediterranean countries signed the Malta Statement, committing to joint renewable energy projects and green energy corridors linking Europe with North Africa. Italy is also leading regional initiatives, including a €1 billion agreement signed in January 2025 with Albania and the UAE to develop renewable energy projects in Albania, with electricity transmission to Italy via an underwater cable. The Great Sea Interconnector, a high-voltage submarine cable linking Israel, Cyprus, and Greece, is expected to be operational by 2028/29: designated as a Project of Common Interest by the EU, the interconnector will facilitate the integration of solar PV energy into the European grid. Meanwhile, the EU is backing Tunisia's EL-MED interconnection with Italy, committing €472.6 million to enhance energy security and facilitate renewable energy exports from North Africa. At the EU-Egypt Investment Conference in June 2024, a €1 billion financial package and €40 billion in private investments were announced to support Egypt's renewable energy sector, including solar PV and hydrogen, reinforcing EU-Egypt energy cooperation.

Policy Implementation & Milestones

Policy Adoption in the EU Countries & Ongoing Projects

In line with the EU policy framework, European countries of the Mediterranean area are making significant efforts in renewable energy development, with a strong focus on solar PV expansion and grid improvements.

France is expanding its solar PV capacity, with the Cestas Solar Park – one of Europe’s largest – continuing to increment its capacity; nearly 50 GW of wind and solar projects await grid connection, highlighting the country’s renewable energy ambitions. Greece is advancing solar energy projects, too: a large-scale photovoltaic park launched in 2023 in Ptolemaida is set to enhance the country’s solar capacity. Additionally, in July 2024, Greek gas supplier DEPA secured a €390 million EIB loan to construct solar parks across the country which are expected to generate around 800 MW of power.

Italy is improving energy infrastructure, upgrading 4,648 km of power grid and constructing 514 km of submarine cables to better integrate renewables.¹ In December 2024, state railway company Ferrovie dello Stato announced a €1.3 billion PV project with an initial 1 GW capacity, aiming to cover 40 percent of its energy needs by 2034. Italy also secured a €243 million loan from the EIB for wind and solar projects, aligning with REPowerEU goals.

Spain is aiming for 76 GW of capacity by 2030 as part of its target to achieve 100 percent renewable electricity by 2050.² In October 2024, Plenitude began constructing a 220 MW solar plant in Salamanca, expected to generate 400,000 MWh annually. Both Spain and Italy have nearly 200 GW of wind and solar projects awaiting grid connection.

Solar PV in the Energy Mix of Mediterranean Countries

EU policies, and in particular the REPower EU package, boosted the adoption of PV in the EU and particularly in the Mediterranean countries: around 45 GW of new solar PV capacity have been installed in the past two years in the EU Mediterranean area alone – almost 36 percent of the total. It also ensured that 47.4 percent of the EU’s electricity is sourced from renewables, with solar PV accounting for more than 11 percent of the generated electricity.³

In 2024, Greece's electricity generation saw a strong shift toward low-carbon sources, which accounted for approximately 51 percent of the total mix.⁴ Solar PV played a crucial role, contributing almost 22 percent – the highest share in Europe.⁵ Similarly, Spain experienced a record-high renewable electricity generation, reaching 56 percent, with solar PV providing 21 percent, making it the third-largest source after wind and nuclear.⁶

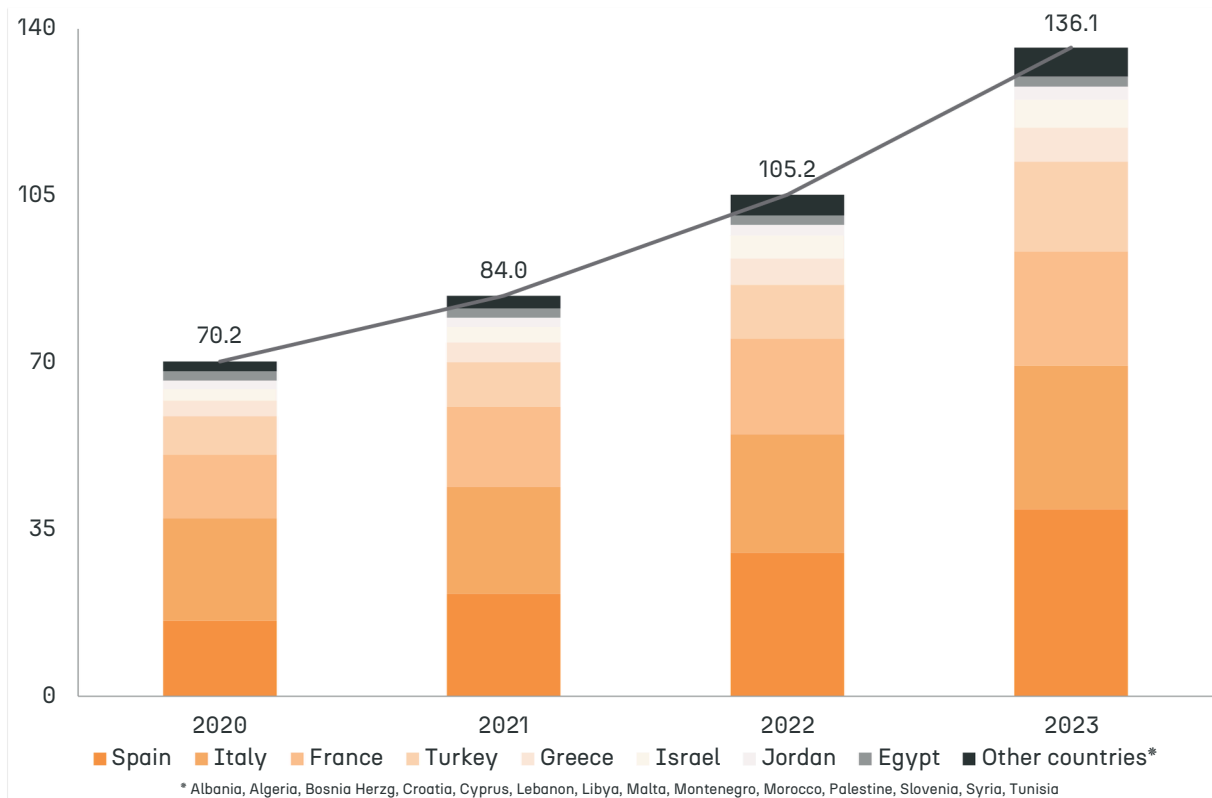
In Italy, renewables surpassed fossil fuels for the first time, making up nearly 44 percent of the electricity mix.⁷ Solar PV accounted for almost 14 percent, reflecting its growing role in the country's energy transition.⁸ France maintained its leadership in clean electricity, with over 96 percent coming from low-carbon sources, though solar PV's share remained relatively low at around 4 percent.⁹

Other European countries showed varying levels of solar PV penetration in 2024: Cyprus generated 20 percent of its electricity from solar PV; in Slovenia, solar reached a share of around 8 percent, while Croatia lagged behind at just 1.5 percent.¹⁰ Renewables are expanding in extra-EU Mediterranean countries, too, though solar remains a minor player: in Egypt, fossil fuels accounted for over 88 percent of electricity in 2023, with solar PV at just 2 percent; Israel relied on fossil fuels for over 90 percent in 2022, but solar PV grew to 9.7 percent; meanwhile, Turkey saw steady progress, with low-carbon sources providing nearly half of its electricity and solar PV increasing to 8.4 percent in 2024.¹¹

DEPLOYED SOLAR PV CAPACITY BY COUNTRY

Consolidated Figures: 2020-2023

Cumulative PV Capacity In 2023, countries of the Mediterranean region achieved a cumulative PV capacity of more than 136 GW, marking a growth of 29.4 percent on 2022. The rate is significantly higher than the average in the 2020-2024 period, 22.3 percent. Spain and Greece have seen the strongest increase in deployed capacity, by respectively 30 and 28 percent with respect to their national 2022 levels. Outside of the EU block, Jordan stood out in terms of new solar PV additions. The country achieved around 2.8 GW of cumulative PV capacity in 2023 – around 21 percent more than the cumulative capacity installed until the end of 2022.¹²



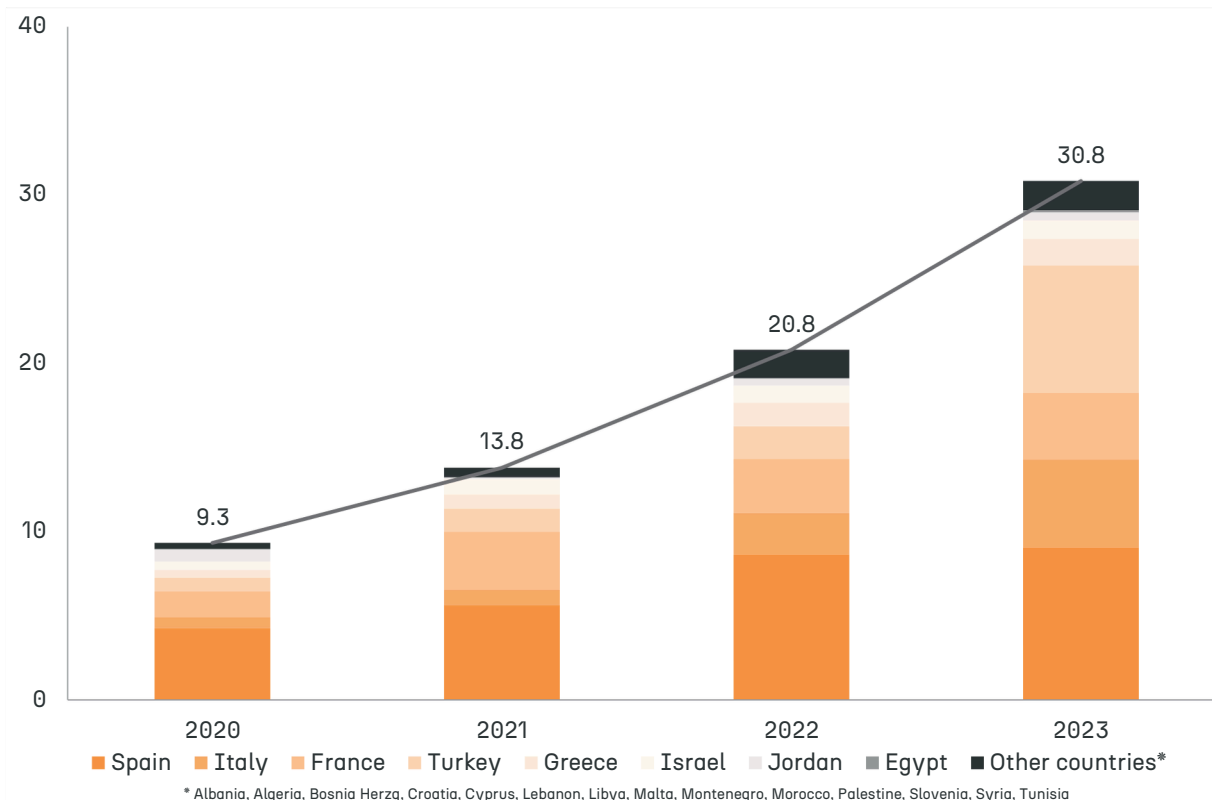
Cumulative PV Capacity | 2020-2023 | Source: EUPD Research 2025

Annual Installations

The yearly developments are more visible in the graph below, displaying the annually installed capacity by market: 30.8 GW of new PV capacity were added in 2023 in the entire Mediterranean region, some 48 percent more than the 2022 deployments. Overall, the area has seen a quite steady growth in the period 2020-2023, with an average growth rate in annual additions of 49 percent.

Despite leading the Mediterranean region in both cumulative installed capacity and new additions in 2023 – surpassing 9 GW – Spain’s annual installations grew by only 5 percent compared to 2022. Among the EU’s major markets, Italy stood out, deploying 5.2 GW in 2023, marking an impressive 111 percent increase over its 2022 installations.

Higher growth rates were achieved by Croatia (178 percent) and Cyprus (123 percent), although corresponding to minor capacity additions in absolute terms. In the wider Mediterranean region, in 2023 Egypt installed almost four times the capacity deployed in 2022. Similarly, Tunisia passed from around 122 MW of new PV capacity in 2022 to almost 371 MW in 2023, marking a growth rate of around 200 percent.

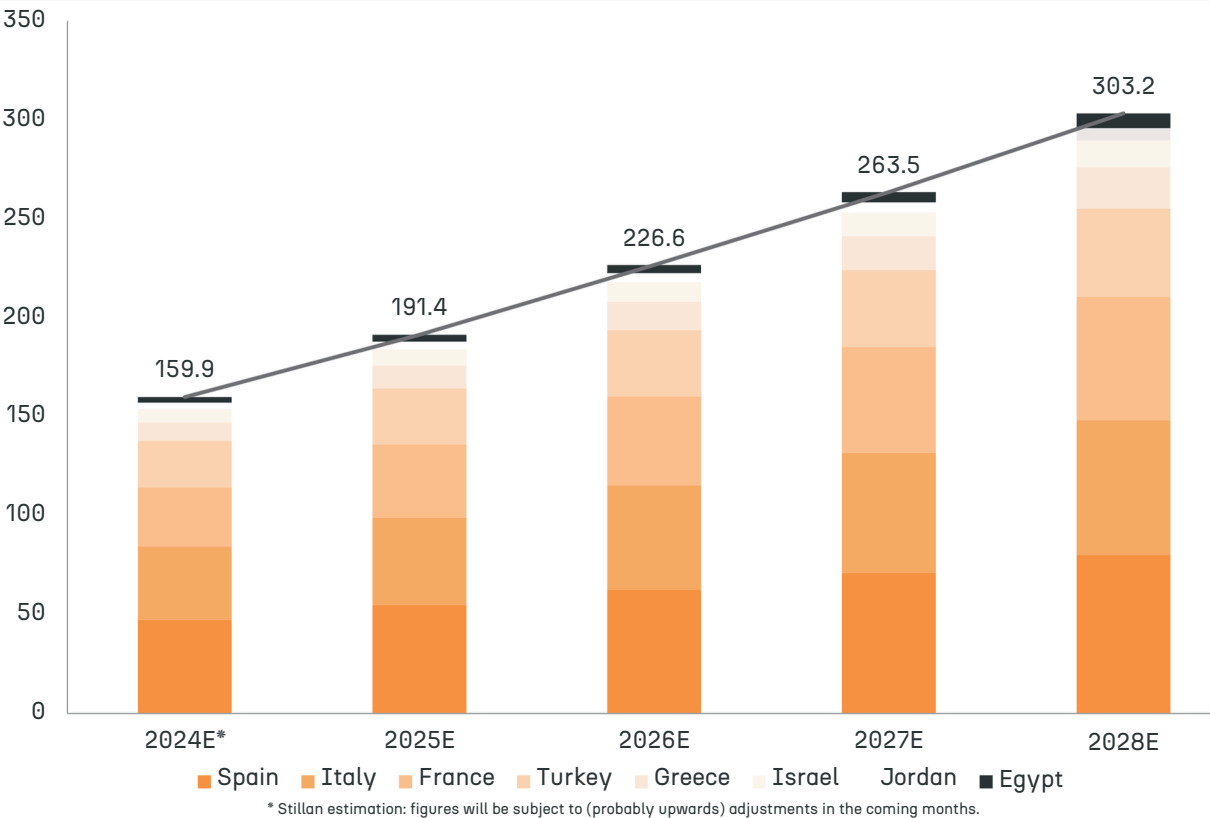


Annually Installed PV Capacity | 2020-2023 | Source: EUPD Research 2025

Market Update & Forecasts: 2024-2028

Cumulative PV Capacity Due to the lack of early, preliminary data for 2024, here and in the rest of the chapter figures refer to a limited set of Mediterranean countries: Egypt, France, Greece, Israel, Italy, Jordan, Spain, and Turkey. In this group, solar PV is expected to keep growing steadily in the next few years: according to EUPD Research estimates, the cumulative installed PV capacity will increase by an average yearly rate of around 18.5 percent in the period 2024-2028, surpassing a total of 300 GW in the whole area at the end of 2028. According to the available statistics, cumulative PV capacity in the given area grew from more than 130 GW in 2023 to almost 160 GW in 2024. This translates into a growth rate of 23 percent, the highest in the period 2020-2024 in the selected countries. The top three markets are still Spain, Italy, and France, which make up for more than two-thirds of the total capacity installed in the mentioned countries at the end of 2024 (114 GW).

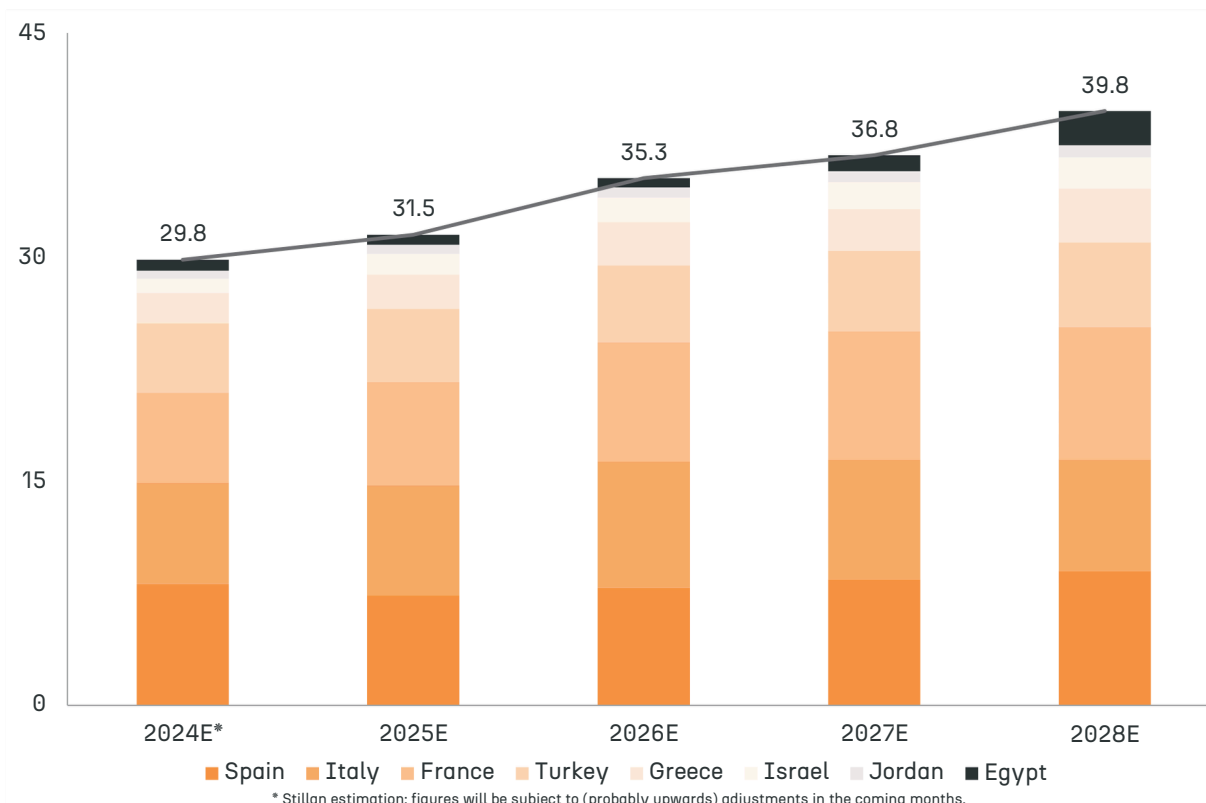
The strongest growth was recorded in Egypt, which jumped from around 2.1 GW in 2023 to 2.9 GW at the end of 2024. Turkey recorded a strong growth, too: the country achieved a cumulative capacity of around 23.5 GW in 2024 from around 18.8 in 2023, recording a 25-percent growth. Among the EU Mediterranean markets, Greece marked the sharpest increment in PV capacity, reaching 9.1 GW at the end of last year.



Cumulative PV Capacity | 2024-2028 | Forecast | Source: EUPD Research 2025

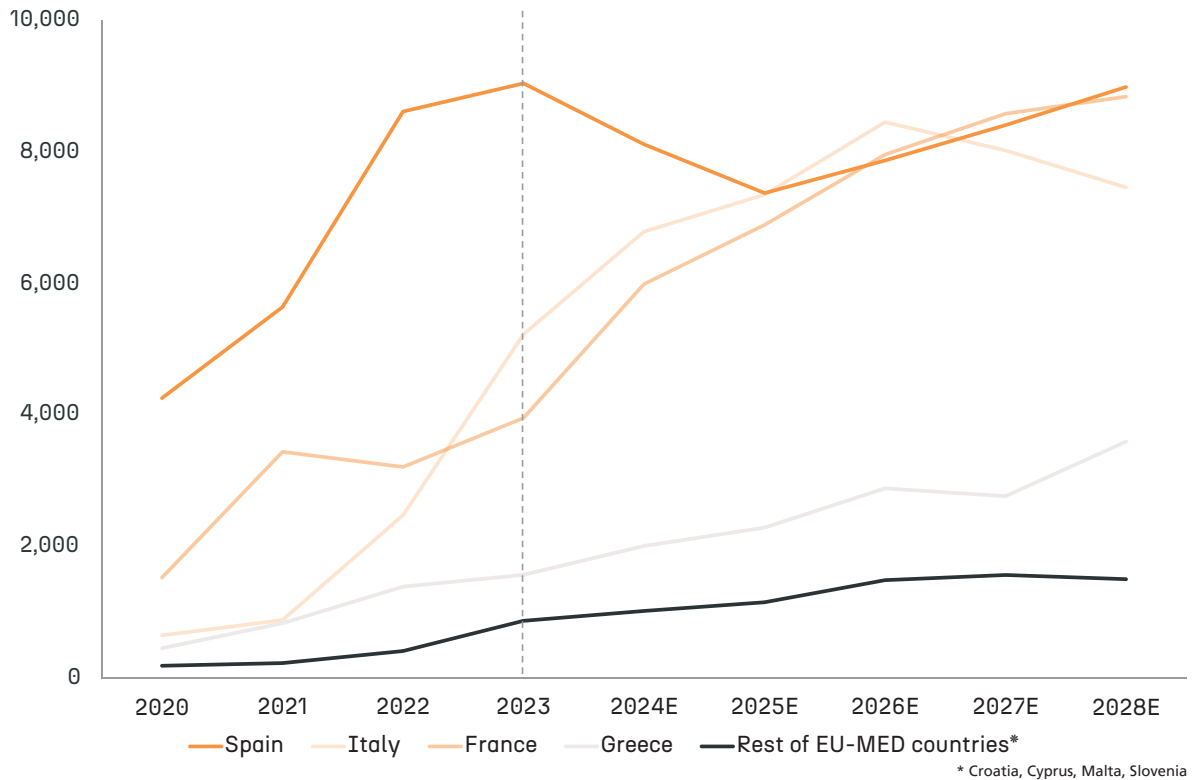
Annual Installations & Growth Trends

In terms of yearly installations, EUPD Research expects that growth in the given countries over the period 2024-2028 will stabilize at an average of around 34.6 GW of new PV capacity and an average growth rate of 7 percent per year. The forecast takes into account the progressive deceleration of the past few years, from a year-on-year growth rate in annual installed capacity of 47 percent in 2021 to the 3 percent recorded at the end of 2024.



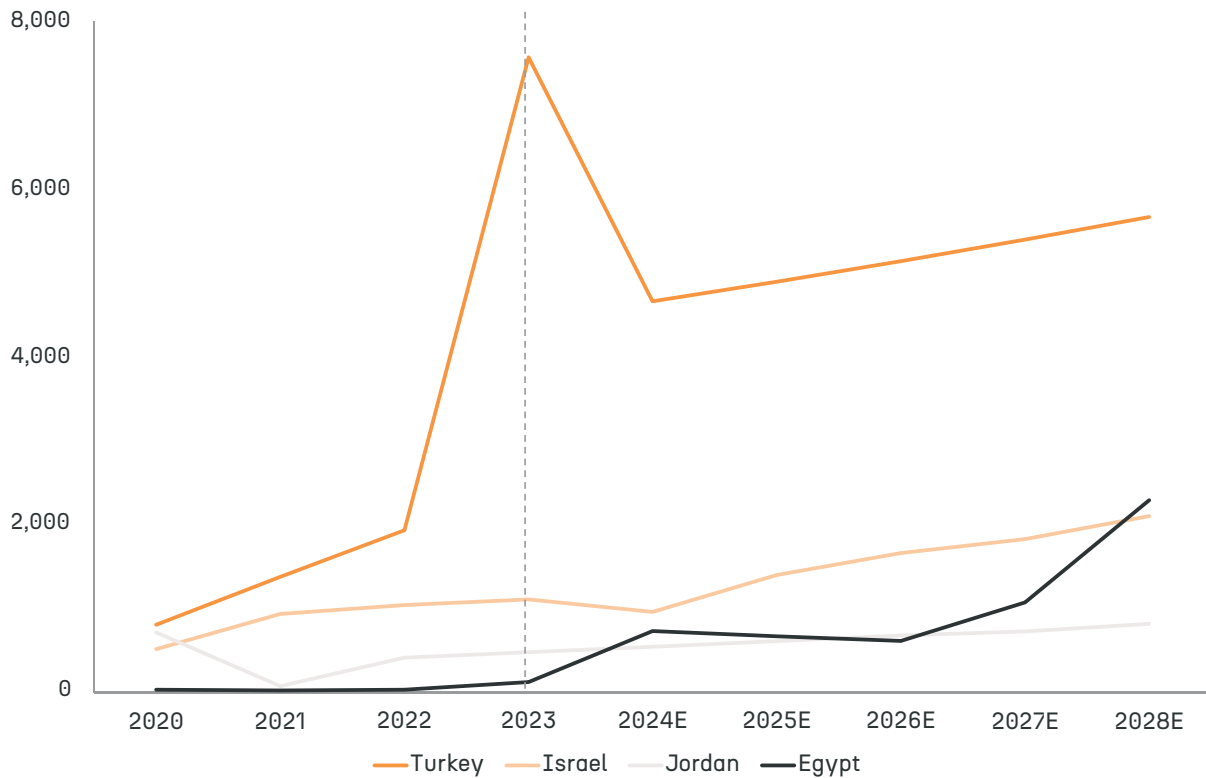
Annually Installed PV Capacity | 2024-2028 | Forecast | Source: EUPD Research 2025

Spain, in particular, has seen its pace in new installations decrease by around 10 per cent in 2024 – from around 9 GW of new PV capacity in 2023 to the approximately 8.1 GW recorded at the end of last year; the country is expected to keep on this downward trend before reverting back to a steady growth. On the other end, both Italy and especially France have registered a positive variation, with respectively 30 and 51 percent increments in 2024 as compared to the capacity deployed in 2023.



Annually Installed PV Capacity | 2020-2028 | Trends in EU Countries | Source: EUPD Research 2024

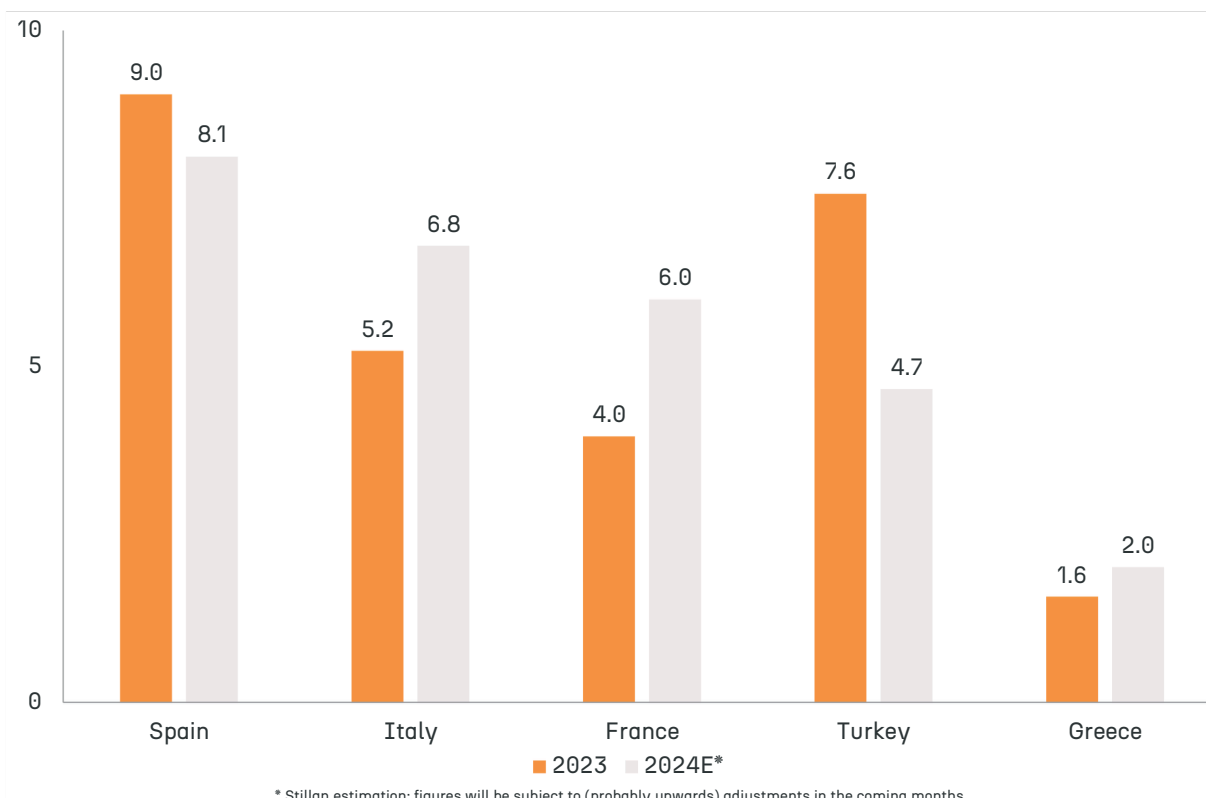
Outside of the EU, Turkey made register an impressive spike in the deployed PV capacity in 2023 – with around 7.6 GW installed, four times the 2022 figure – followed by a sharp decline and stabilization in 2024: the country is indeed expected to stabilize at a level of approximately 5.3 GW of new capacity per year from 2025. In relative terms, Egypt also stands out: according to early-year statistics, the country deployed around 732 MW of new capacity in 2024, marking an almost 500-percent increase as compared to 2023 (around 122 MW).



Annually Installed PV Capacity | 2020-2028 | Trends in Non-EU Countries | Source: EUPD Research 2024

2023-2024 Trend in the Top 5 Countries

The chart below depicts the annual PV capacity installed in 2023 and 2024 in the top 5 countries by cumulative PV capacity in the entire Mediterranean region. The graph provides a clearer picture of the short-term trend of installations in the individual markets and a cross-country comparison. Annual installed capacity increased in 2024 compared to 2023 in France, Greece, and Italy, while it declined in Spain and especially Turkey. Even counting in Spain's negative growth and Turkey's drop, the average year-over-year variation in the given group of countries is around 12 percent, especially but not only thanks to France's strong performance in 2024 – 51 percent on 2023.



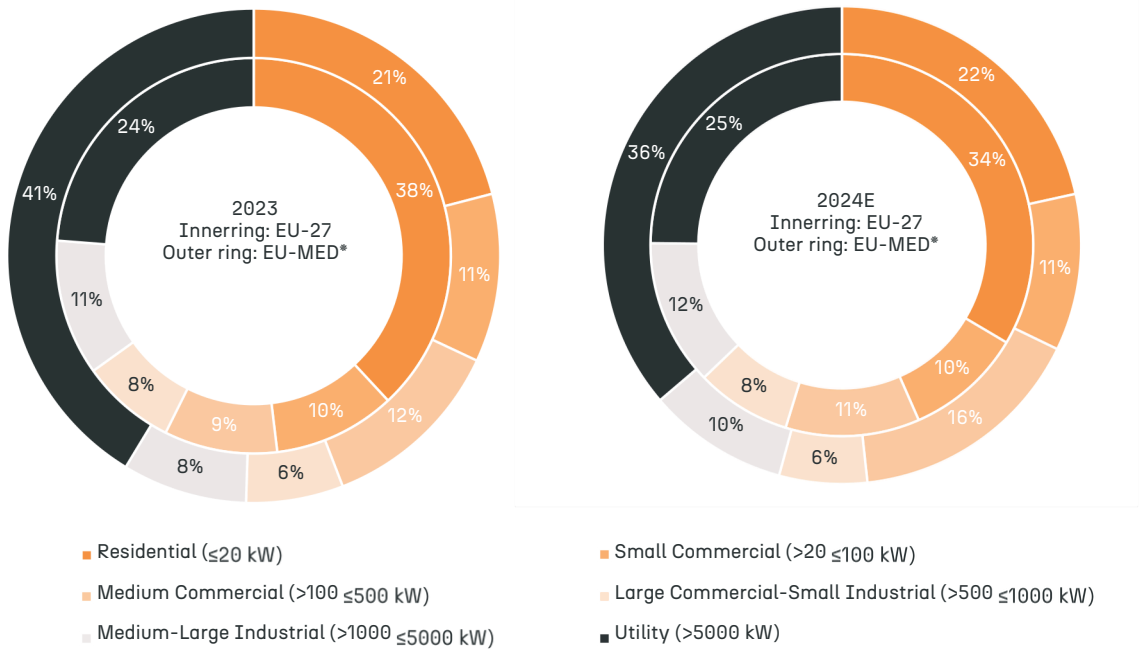
Annually Installed PV Capacity | 2023-2024 | Top 5 Mediterranean Markets | Source: EUPD Research 2025

COMPARISON OF EU MARKETS BY SEGMENTATION

EU Mediterranean Markets vs. EU-27

The EU Mediterranean markets contributed to around 38 percent of the PV capacity deployed in 2024 by the whole EU-27 block – up by around 5 percentage points from 2023. Almost 24 GW of approximately 63 GW were deployed by Spain, Italy, France, and Greece. Differences emerge when comparing the EU Mediterranean countries and the whole EU-27 block with respect to the distribution of the installed PV capacity by segment. As illustrated in the graph below, in 2024 the residential segment (20 kW or less) represented just 22 percent of the installed capacity in the EU Mediterranean block, while the utility segment (systems of more than 5000 kW) accounted for more than one-third.

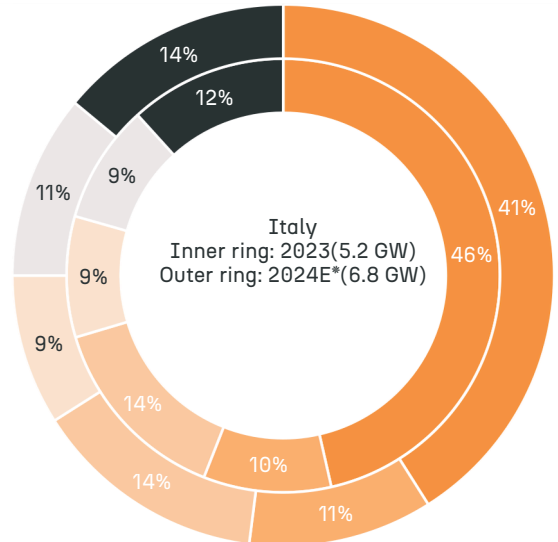
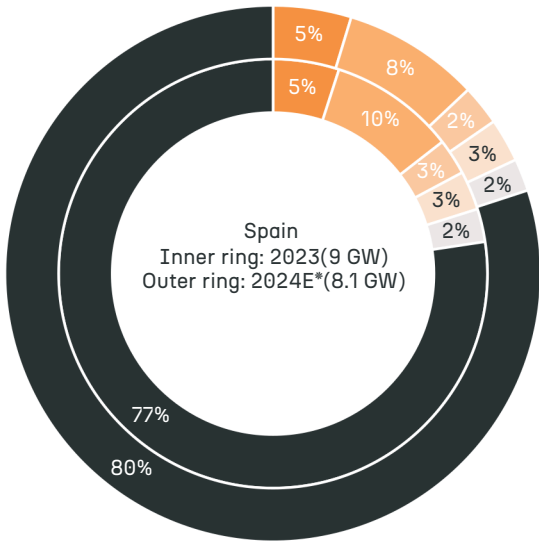
Shares are almost perfectly swapped when looking at the average segmentation in the whole EU-27 area: residential systems represented 34 percent of the PV capacity installed in 2024, while larger utility plants made up for 25 percent. Part of the difference can be attributed to the strong German residential segment, but also to Spain’s considerably utility-oriented market.



Annually Installed PV Capacity by Segment | 2023-2024 | EU-Med vs. EU-27 | Source: EUPD Research 2024

Spain & Italy

Significant differences in the segmentation focus can be observed also across the single EU Mediterranean markets. The graphs below illustrate the distribution of the deployed PV capacity in 2023 and 2024 by segment in Spain and Italy, the top two countries for total PV capacity in the Mediterranean area. In Spain, utility-scale systems make up for 80 percent of the PV capacity installed in the country in 2024, up by around 3 percentage points from 2023. Italy’s distribution is more balanced and reliant on residential systems, which covered around 41 percent of the capacity deployed in 2024. The utility segment went up slightly, although it still represents only 14 percent of the new PV capacity: as mentioned earlier, there is great potential for growth related to pending permits for PV power plants in Italy.



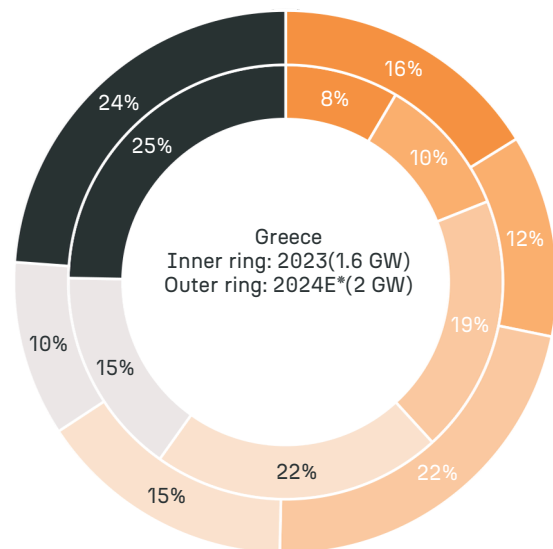
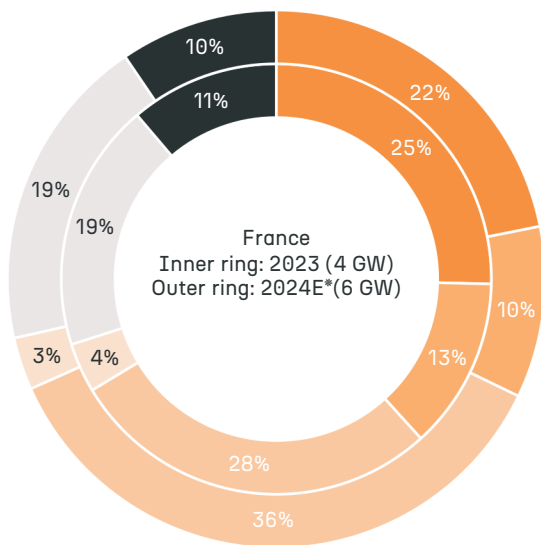
- Residential (≤20 kW)
- Small Commercial (>20 ≤100 kW)
- Medium Commercial (>100 ≤500 kW)
- Large Commercial-Small Industrial (>500 ≤1000 kW)
- Medium-Large Industrial (>1000 ≤5000 kW)
- Utility (>5000 kW)

* Stillan estimation: figures will be subject to adjustments in the coming months.

Annually Installed PV Capacity by Segment | 2023-2024 | Spain vs. Italy | Source: EUPD Research 2024

France & Greece

Both in France and Greece, the commercial & industrial (C&I) segment plays a more relevant role than both the EU-27 and the EU-Mediterranean average. In France, the medium commercial segment – systems between 100 and 500 kW – occupied the largest share both in 2023 and in 2024, growing to 36 percent in the past year. The residential segment accounted for approximately 22 percent in 2024, but the medium-large industrial segment follows close, making up for almost one-fifth of the capacity deployed in 2024. In Greece, the utility segment plays a more significant role – around one-fourth of the new installed capacity in 2023 and 2024. However, the second-largest segment is represented by the medium-commercial one, with 22 percent of the capacity installed in 2024. The large-commercial and small-industrial segment – from 500 to 1000 kW – is also fairly developed in the country, though declining in 2024; the residential segment, on the other hand, saw its share double in 2024, rising from 8 to 16 percent of the newly installed capacity.



- Residential (≤20 kW)
- Medium Commercial (>100 ≤500 kW)
- Medium-Large Industrial (>1000 ≤5000 kW)
- Small Commercial (>20 ≤100 kW)
- Large Commercial-Small Industrial (>500 ≤1000 kW)
- Utility (>5000 kW)

* Stillan estimation: figures will be subject to adjustments in the coming months.

Annually Installed PV Capacity by Segment | 2023-2024 | France vs. Greece | Source: EUPD Research 2024

CONCLUSION

The Mediterranean region is poised to become a global leader in solar PV energy, with strong policy support, expanding infrastructure, and increasing investments driving growth. The European Green Deal, REPower EU, and various EU-backed initiatives have propelled solar PV deployment, particularly in countries like Spain, Italy, and Greece. The region's strategic location and abundant solar resources further enhance its potential to meet both domestic energy demands and export clean electricity to high electricity demand countries through green corridors and interconnections. However, several hurdles remain. One of the most pressing challenges is grid congestion and the slow permitting process, which has left nearly 200 GW of solar and wind projects awaiting connection in Spain and Italy alone. Bureaucratic inefficiencies continue to delay project implementation, limiting the pace of expansion. Additionally, the region faces technical constraints in energy storage and grid flexibility, which are crucial for integrating large-scale solar PV capacity into the energy system.

Investment disparities across Mediterranean countries also pose a challenge. While EU states benefit from substantial funding through mechanisms like REPowerEU and Horizon Europe, non-EU Mediterranean nations, such as Egypt and Tunisia, still struggle with financial and regulatory barriers to scaling up solar PV deployment. In these markets, fossil fuels continue to dominate the energy mix, with solar PV representing only a small fraction of electricity generation. Looking ahead, overcoming these barriers will be essential to fully unlocking the Mediterranean's solar potential. Streamlining permitting processes, modernizing grid infrastructure, and expanding energy storage solutions will be key to accelerating the transition. If these challenges are addressed, the Mediterranean region could play a central role in Europe's clean energy future, reinforcing its position as a hub for solar PV development and cross-border energy cooperation. For more information visit our website at www.eupd-group.com

EUPD Research

Footnote Register:

¹

² European Commission, REPower EU.

³ GET Matrix 2025.

⁴ Ember 2025.

⁵ LowCarbonPower, ENTSO-E.

⁶ Ember 2025.

⁷ Red Eléctrica, Ember 2025.
Ember 2025.

⁸ Ember 2025. LowCarbonPower, ENTSO-E,

⁹ Ember 2025. LowCarbonPower, ENTSO-E,

¹⁰ Ember 2025.

¹¹ LowCarbonPower, IEA, Ember.

¹² EUPD Research GET Matrix, IEA.

¹³ EUPD Research GET Matrix, IEA.

CONTACT



Exhibition Manager
ITALIAN EXHIBITION GROUP S.P.A.
CHRISTIAN PREVIATI
Phone: +39 0541 74 4882
christian.previati@iegexpo.it



International Sales account
ITALIAN EXHIBITION GROUP S.P.A.
FABIO MATTEO ROCCO
Phone: +39 0541 74 4339
fabiomatteo.rocco@iegexpo.it



Events office
ITALIAN EXHIBITION GROUP S.P.A.
MARIA LUCIA DI GIROLAMO
marialucia.digirolamo@iegexpo.it

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