



POWER
FOR
GOOD

New Solar Economics: Navigating Low Prices, Rising Costs & the Shift to Hybrid Thinking

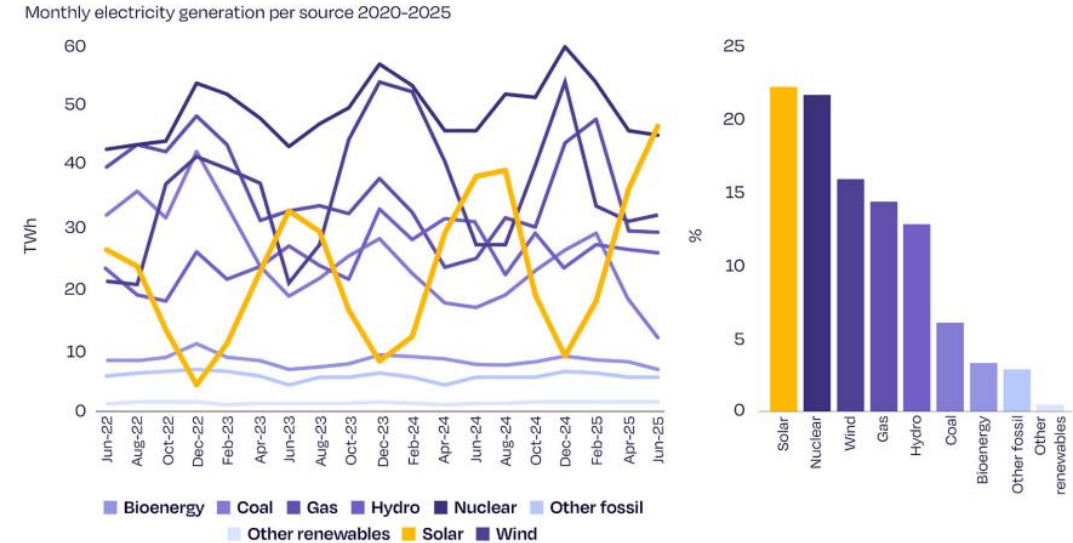
Ksenia Dray
Global Solar Lead

Solar as main technology – Yet Growth is slowing

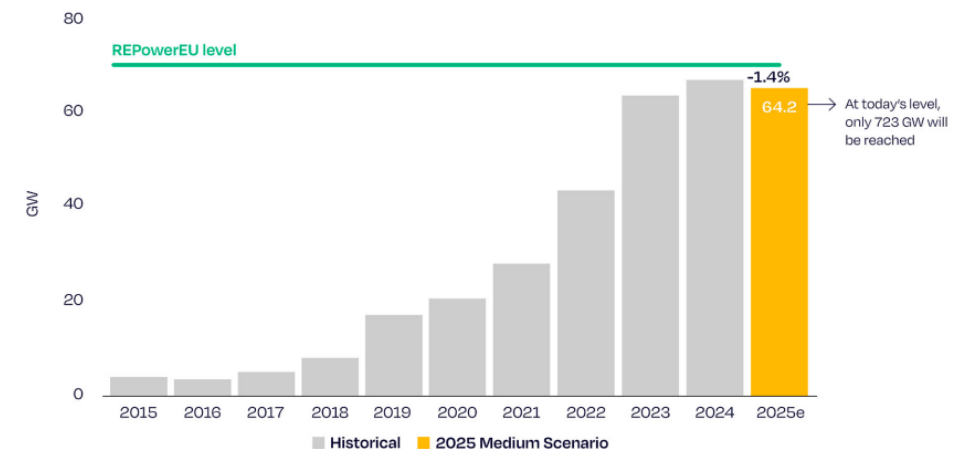
- Solar takes over as Europe's main technology
- June 2025: the biggest electricity source in the EU (22,1% generation)
- Strong Solar Penetration across all European Markets

Solar Growth 2025:

- Medium Scenario => contracting to -1,4%
- High Scenario: only +1,1% growth
- Low Scenario : growth falls to -2,3%



Annual solar PV market 2015-2025 and average market size required to reach 2030 REPowerEU target

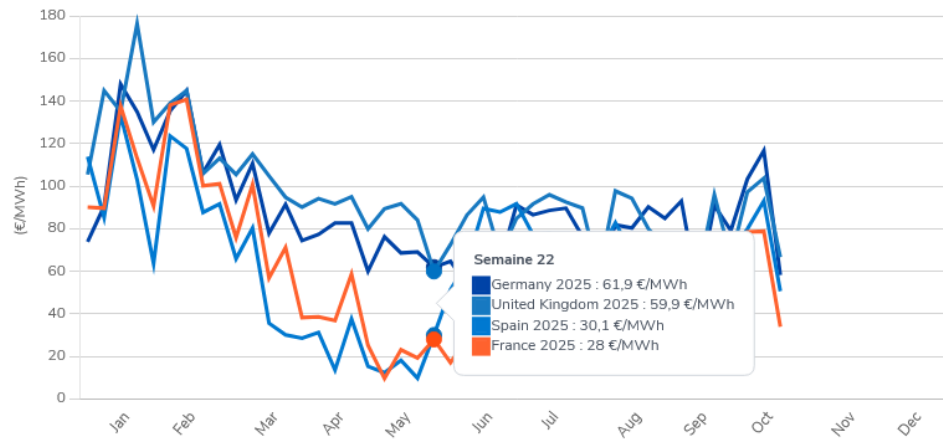


Low Wholesale Electricity prices and Cannibalisation

- Low wholesale electricity prices
- Price cannibalisation
- Grid Saturation => Curtailment
- Halt of insensitive schemes

Spot electricity prices in France and on European markets

Source : EPEX and OMIE's data



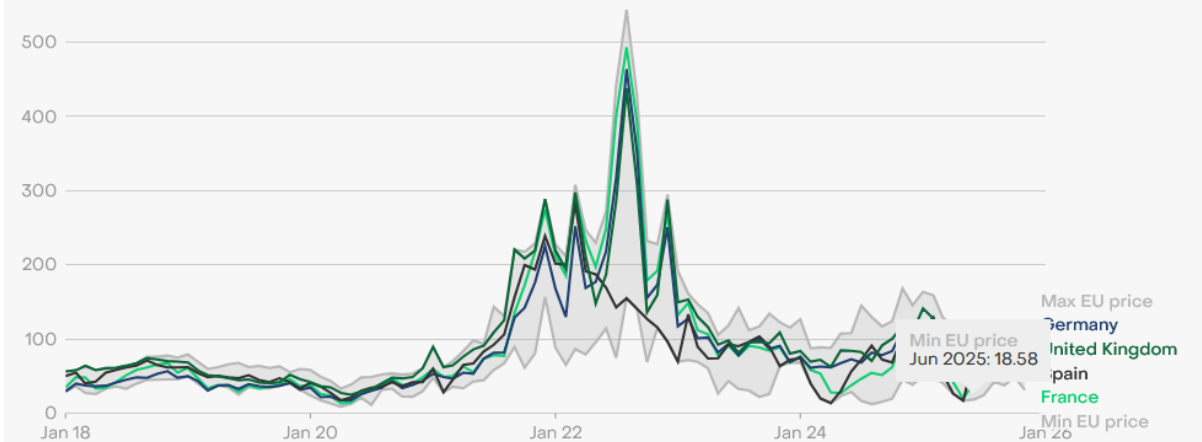
Last update: 17 November 2025 at 16:20

Wholesale electricity prices in Europe

€/MWh

Monthly Daily (1 year) Daily (3 months)

Germany Spain France Max EU price Min EU price United Kingdom Enter countries to show



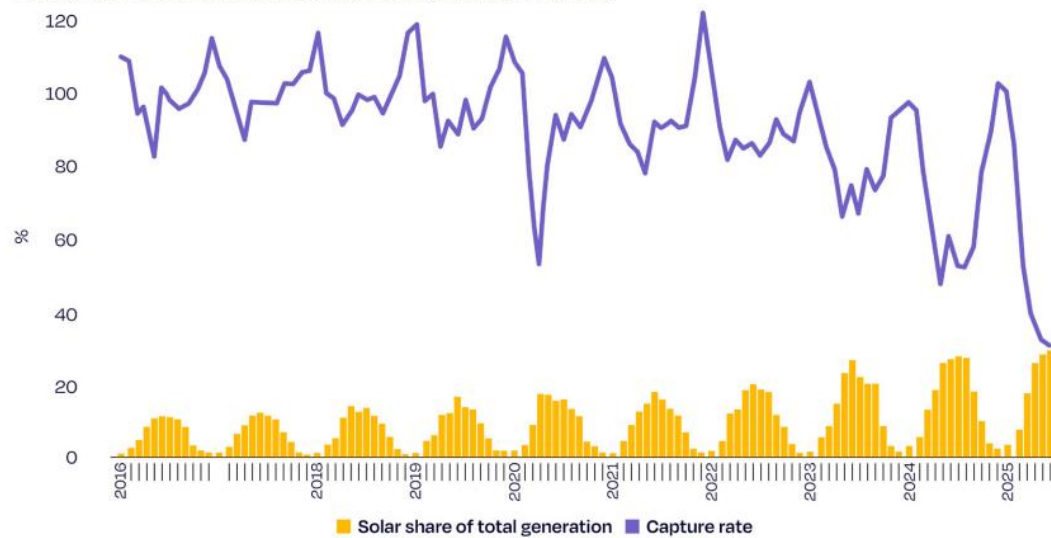
Source: [LCCC \(UK\)](#), [semopx \(Ireland\)](#), [ENTSO-e \(all other EU countries\)](#) · Prices are average day-ahead spot prices per MWh sold per time period; Max and min prices refer to the highest and lowest average values of any country in the EU in that period; Prices converted from £/MWh to €/MWh for the UK. Download data [here](#).

EMBER

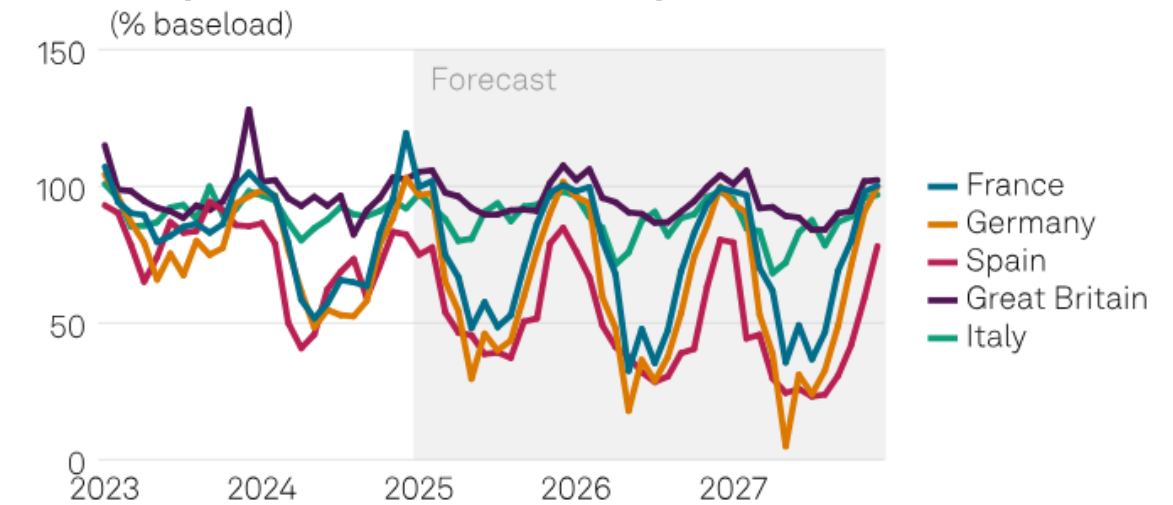
Low Solar Capture rates across Europe

- Germany June 2025: solar represents 30% of monthly electricity generation for capture rates of 31%

Monthly solar PV capture rates and share of solar generation in Germany

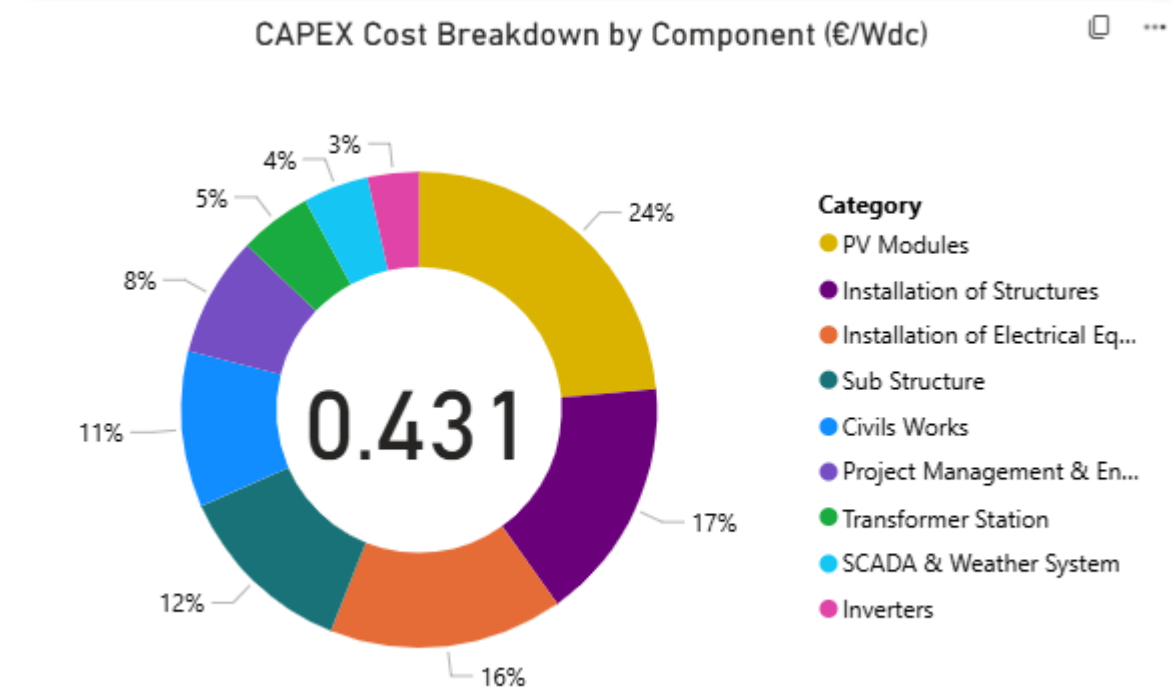
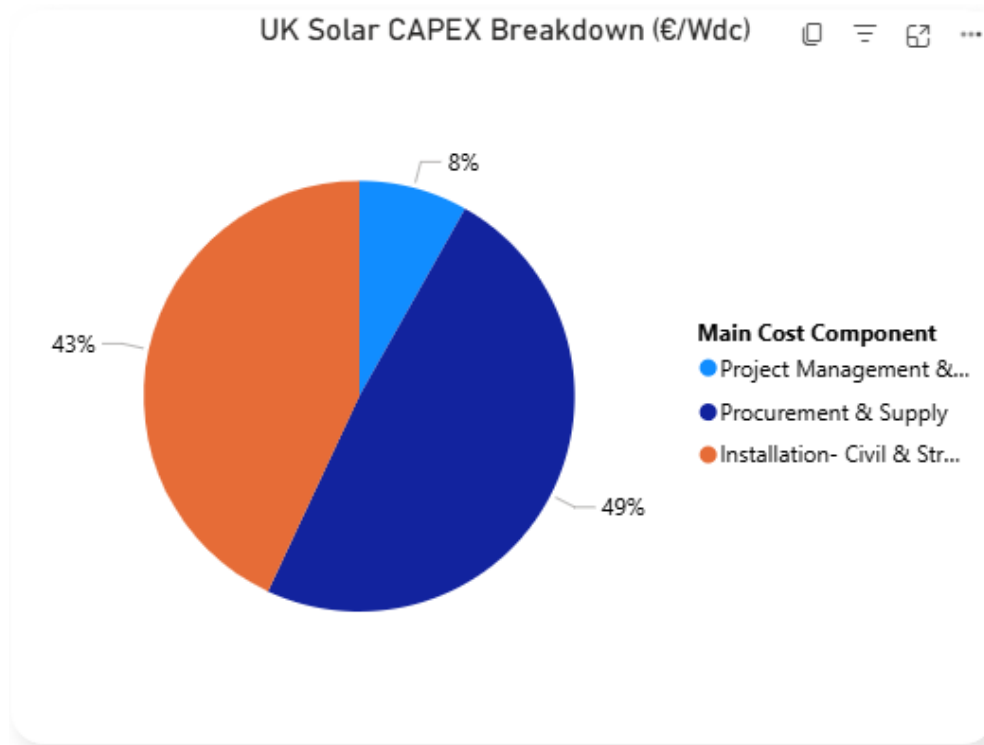


Solar capture ratios across Europe



Source: S&P Global Commodity Insights (Jan. 2025 report)

PV Capex in 2025: Where the real Levers are



Rising Module Costs: Which Optimizations?

- › Efficiency-based module optimization → yield, PR
 - › New Technologies: Back Contact , Topcon high efficiency
 - › Better degradation
 - › Depends on climate/ site conditions
 - › Layout optimisation rather component only
-
- › Module choice alone cannot rescue project economics



BOS & Soft costs: further optimisation?

- Civil works : foundation and drainage, excavation
 - Structure optimisation : capex and Yield improvement
 - Electrical Design and Inverter sizing: DC/AC ratio, string vs. central
 - Grid connection strategy
 - Procurement Strategy
-
- Hybridisation: BOS cost lever



Hybridisation: A tool to rebuild Project Economics

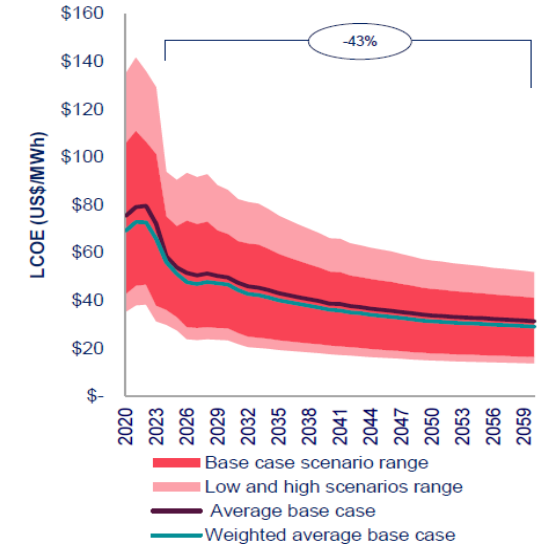
- › Stabilise Revenues by capturing high price windows
- › Energy arbitrage
- › Access to grid services/ancillary markets
- › Uplift in IRR
- › Optimise Capex



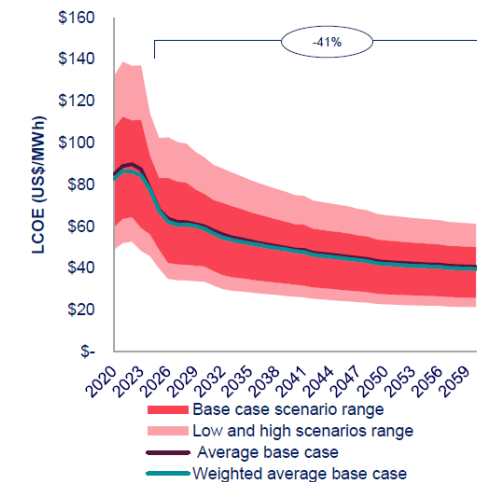
Solar PV versus Hybrid (fix tilt)

Regional average values	Unit	2025	2030	2040	2060	% change from 2025
Weighted LCOE	US\$/MWh	51	47	36	29	-43%
Weighted capital costs	US\$/kW	605	664	586	486	-20%
Weighted O&M costs	US\$/kW-yr	6	5	5	4	-25%
Weighted capacity factor	%	15.0%	15.9%	17.8%	18.6%	23%
Fuel costs	US\$/mmBtu	0.0	0.0	0.0	0.0	N/A
Target after-tax IRR	%	7.7%	7.0%	6.7%	6.7%	-13%
Project WACC	%	4.2%	3.1%	3.0%	3.0%	-28%

Average LCOE



Regional average values	Unit	2025	2030	2040	2060	% change from 2025
Weighted LCOE	US\$/MWh	67	59	48	40	-41%
Weighted capital costs	US\$/kW	947	963	864	732	-23%
Weighted O&M costs	US\$/kW-yr	14	12	11	10	-30%
Weighted capacity factor	%	N/A	N/A	N/A	N/A	N/A
Fuel costs	US\$/mmBtu	0.0	0.0	0.0	0.0	N/A
Target after-tax IRR	%	8.8%	8.0%	7.6%	7.6%	-14%
Project WACC	%	5.6%	4.1%	4.0%	4.0%	-28%



Hybrid projects remain complex

- Revenue complexity: merchant revenue is volatile
- Regulatory frameworks unclear in several EU markets
- Bankability requires clarity + track record
- Hybrid PPA models emerging but still early stage



The background features a teal gradient with large, semi-transparent circular shapes. Several green leaves of various shapes are scattered across the scene, appearing to float or drift. A large, solid orange shape with a rounded corner is positioned on the left side of the slide.

Thank you