Romania solar and storage, the last twelve months.

Prices, solar capture, storage revenues and grid access, October 2025 to September 2026, with a hybrid project case study and what it means for investors and equipment suppliers.

Day-ahead market · Solar · Battery storage · Grid access · Case study

Key findings

Prices were high, evenings cost more than twice as much as middays, and the grid has no free capacity until 2037.

Twelve months of market data, 1 October 2025 to 30 September 2026.

EUR/MWh, evening vs midday

182 / 75

The evening premium

Average day-ahead price between 18:00 and 22:00 against 10:00 to 16:00. Solar pushes midday prices down; the evening peak stays high.

EUR/MWh

124.5

Average day-ahead price

Up 15 % on calendar 2025 (108.2). Second only to Hungary among eight European zones compared.

of the baseload price

60 %

What solar captures

Fixed-tilt plant in Dobrogea; 40 % in April. 12 % of its output came at zero or negative prices.

EUR/MWh per day

152

Daily 4-hour spread

Average gap between the 16 most and least expensive quarter-hours of each day; 175 for 2 hours.

MW, all zones, 2028-2037

0

Free grid capacity

Transmission capacity available without reinforcement, as published by Transelectrica in June 2026. An approved connection is the scarce asset.

EUR per kWh-year

33

Value of the 3rd and 4th hour

Extra revenue from extending a 350 MW battery from 2 to 4 hours, after a 15 % haircut for imperfect forecasting. Our estimate for turnkey 4-hour storage is 120 to 140 EUR/kWh.

Executive summary

Midday power was cheap and evening power expensive, so storage added most of the value.

What the last twelve months show.

Prices are high and volatile. Romania's day-ahead market averaged 124.5 EUR/MWh between October 2025 and September 2026, 15 % above calendar 2025. Of the eight bidding zones we compared, only Hungary was higher (127.1). Germany averaged 104.0 and Spain 73.3. Prices rose sharply from August 2026: September averaged 176.2 EUR/MWh and the first half of October 206. We do not use these months as a base case.

Solar keeps midday prices low. Metered solar output reached 3,395 MW at its peak and covered 38 % of generation between 11:00 and 14:00 from April to August. Midday prices averaged 75.5 EUR/MWh, while the 18:00 to 22:00 window averaged 182.4. A fixed-tilt solar plant in Dobrogea captured 60 % of the baseload price over the year and 40 % in April, when 38 % of its output fell in quarter-hours priced at zero or below.

Storage earns from the gap. The average daily spread between the 16 most and least expensive quarter-hours was 152 EUR/MWh. Romania's evening-to-midday gap (107 EUR/MWh) is among the widest in the region. Balancing capacity adds income, but that market is small: Transelectrica buys about 125 MW of frequency containment reserve (FCR) and about 175 MW of automatic frequency restoration reserve (aFRR) in each direction. Compared with the first half of 2025, aFRR capacity prices fell by 44 % (up) and 73 % (down), and the number of FCR providers nearly doubled in 2026.

There is no free grid capacity. Transelectrica shows no capacity available without reinforcement in any zone for 2028 to 2037. New capacity is allocated through annual auctions. Projects that already hold firm connection rights are therefore the scarce asset.

The hybrid case. For a 350 MWp solar plant with 350 MW / 1,400 MWh of storage in Dobrogea, dispatched every 15 minutes on actual prices, storage lifts annual net revenue from 39 M EUR (solar alone) to 132 M EUR, as a perfect-foresight ceiling. With conservative assumptions the project still returns 11.8 % unlevered after tax, before any payment for the project rights.

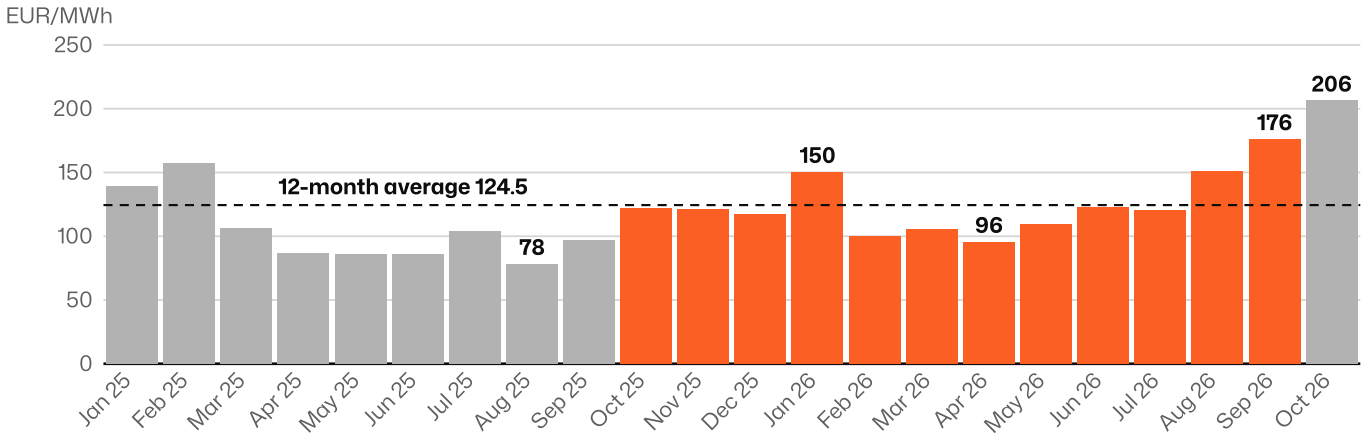
For equipment suppliers, the numbers favour high-yield modules and longer-duration batteries. A bifacial TOPCon module yields 8.6 % more energy than mono PERC on the same site, worth about 9.7 EUR per kWp each year at this year's solar prices. Extending storage from 2 to 4 hours earned about 38 EUR per added kWh a year (33 after a 15 % haircut for imperfect forecasting), against our estimate of 120 to 140 EUR/kWh for turnkey 4-hour storage.

Romanian prices averaged 124.5 EUR/MWh, second only to Hungary among the markets compared.

Day-ahead market, 15-minute resolution.

The day-ahead market (PZU, operated by OPCOM) moved to 15-minute products on 1 October 2025, so the twelve months covered here are the first full year at that resolution. The baseload average was 124.5 EUR/MWh, with a minimum of -99.8 and a maximum of 1,015.6 EUR/MWh. Monthly averages ranged from 95.6 in April to 176.2 in September.

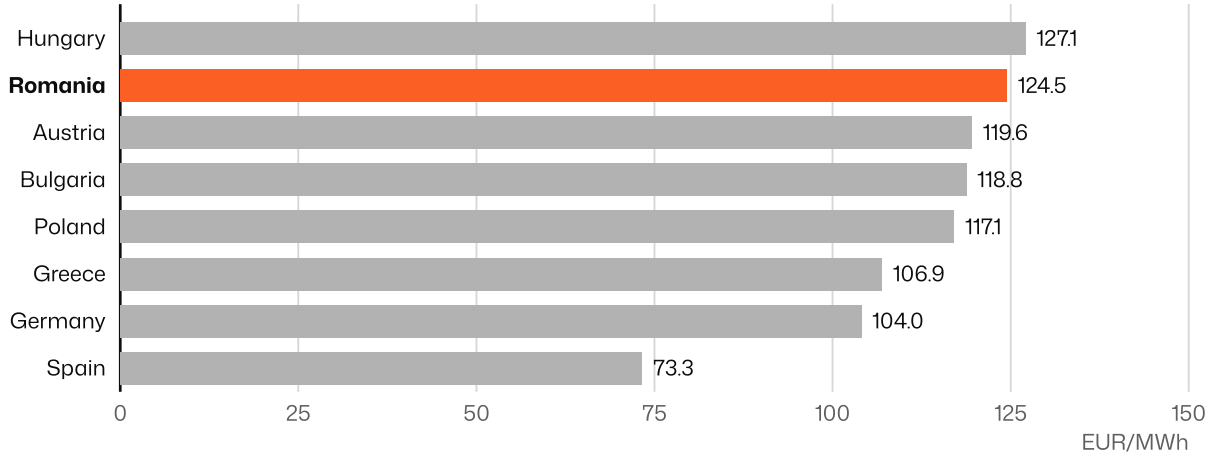
Figure 1. Monthly average day-ahead price, January 2025 to October 2026 (EUR/MWh). The twelve months studied are highlighted; October 2026 covers 1 to 15 October.



Source: OPCOM day-ahead market (PZU) results, 15-minute clearing prices; Quadrant analysis

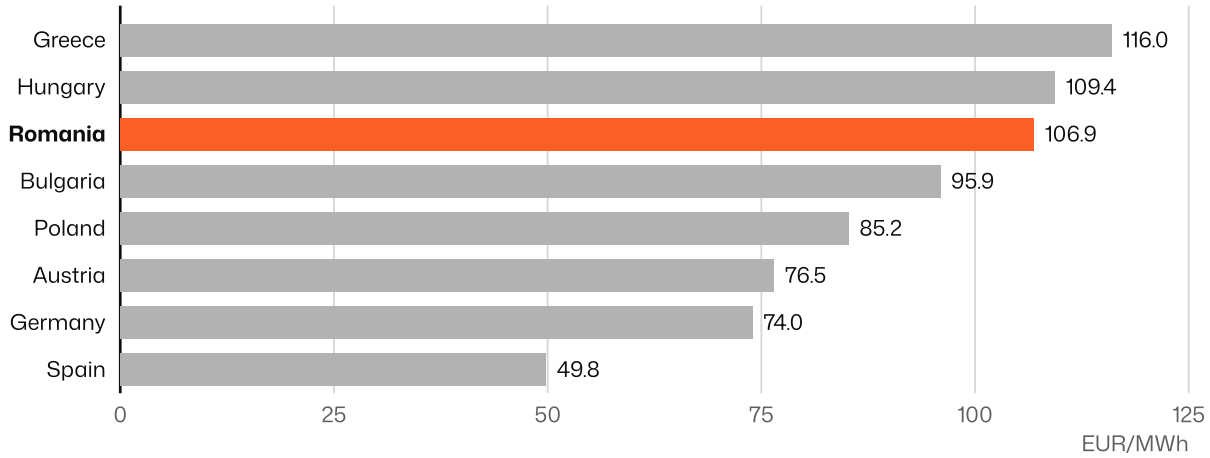
Romania is coupled with Hungary and Bulgaria, and prices in the three markets move together. Romania's average was 124.5 EUR/MWh, against 127.1 in Hungary, 118.8 in Bulgaria, 119.6 in Austria and 104.0 in Germany. The evening premium is what sets the region apart: in Romania the 18:00 to 22:00 average was 107 EUR/MWh above the 10:00 to 16:00 average, compared with 74 in Germany and 50 in Spain.

Figure 2. Average day-ahead price, October 2025 to September 2026 (EUR/MWh)



Source: energy-charts.info (Fraunhofer ISE), from ENTSO-E Transparency data; Quadrant analysis

Figure 3. Evening (18:00-22:00) minus midday (10:00-16:00) average price (EUR/MWh)



Source: energy-charts.info (Fraunhofer ISE), from ENTSO-E Transparency data; Quadrart analysis

What it means for investors

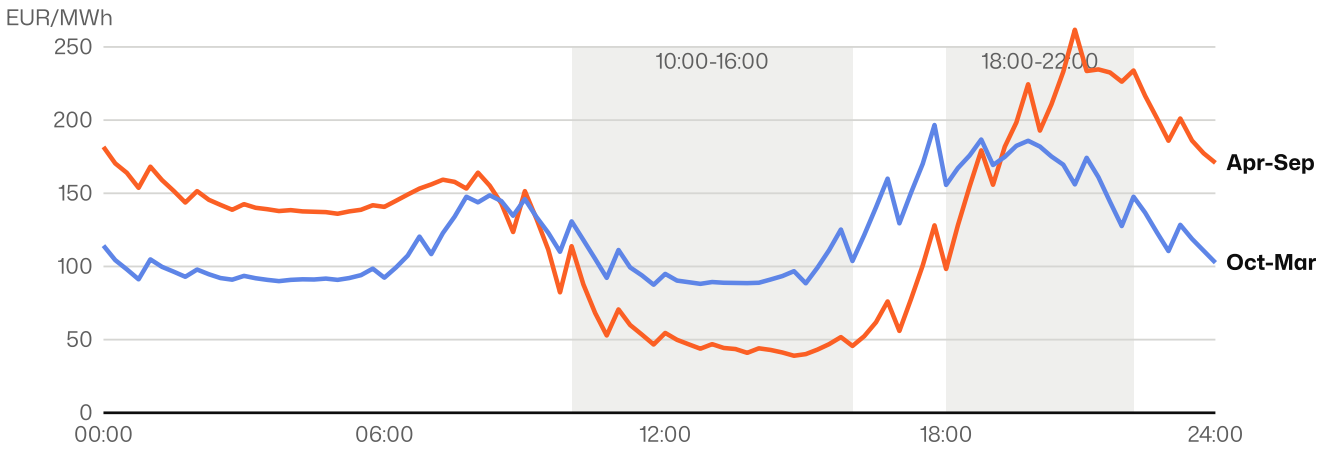
Romania's prices are at or above Western European levels, with a wider gap between midday and evening. Revenue models should not extrapolate the August to October 2026 peak; the financial model in Chapter 5 reduces spreads over time.

A solar plant in Dobrogea earned 60 % of the average price, and 40 % in April.

Capture rates, zero-price hours and metered output.

Over the twelve months, 3.4 % of quarter-hours cleared at zero or below and 2.0 % below zero. All of them fell between February and September, and 13 % of April's quarter-hours were at or below zero. The daily price curve now has the shape familiar from Germany and Spain: a deep midday trough in the sunny half of the year and a steep evening ramp.

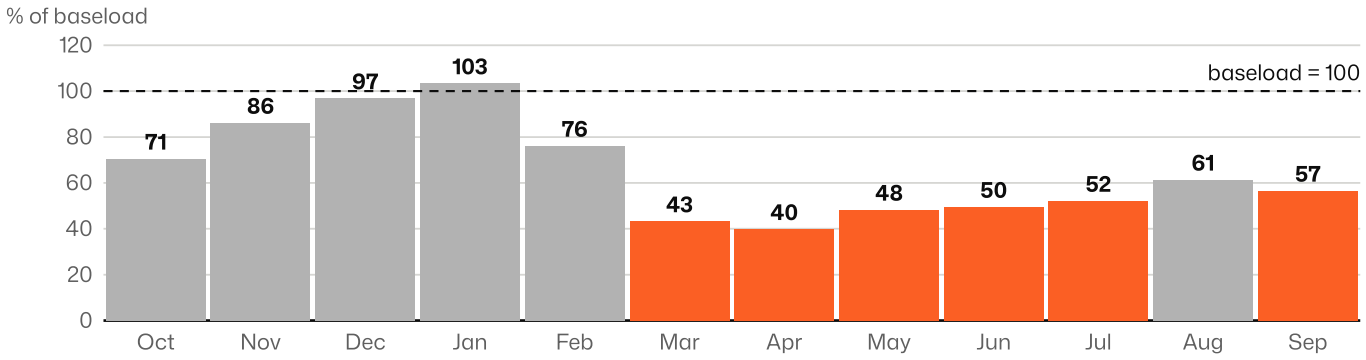
Figure 4. Average price by quarter-hour of the day, April to September and October to March (EUR/MWh)



Source: OPCOM day-ahead market (PZU) results, 15-minute clearing prices; Quadrart analysis

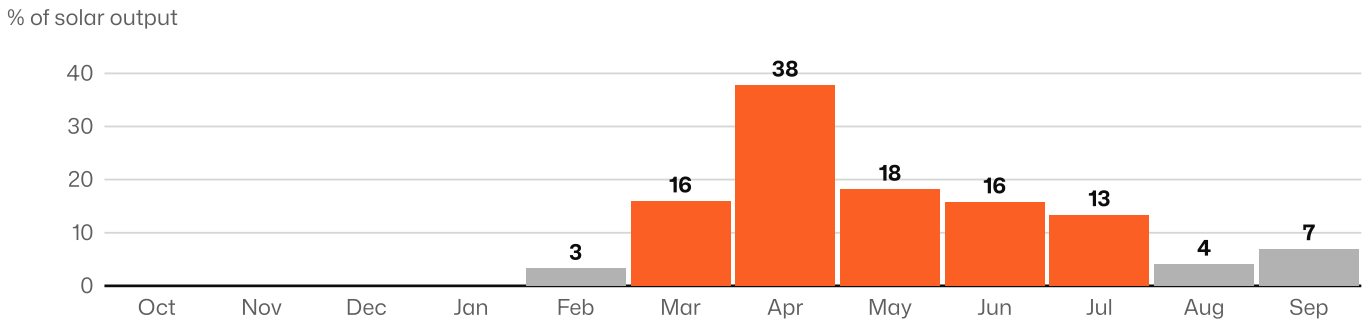
We measured what a solar plant actually earns using the 15-minute output of a 350 MWp fixed-tilt plant in Dobrogea, modelled on the weather of the same twelve months. Its capture price was 74.5 EUR/MWh, 60 % of the baseload price. From March to September the capture rate stayed between 40 % and 61 %. Curtailing output whenever the price is negative lifts the realised price to 81.2 EUR/MWh.

Figure 5. Solar capture rate by month (% of the baseload price)



Source: OPCOM day-ahead market (PZU) results, 15-minute clearing prices; Quadrart analysis; PV output simulated with PVGIS 5.3 and ERA5 weather

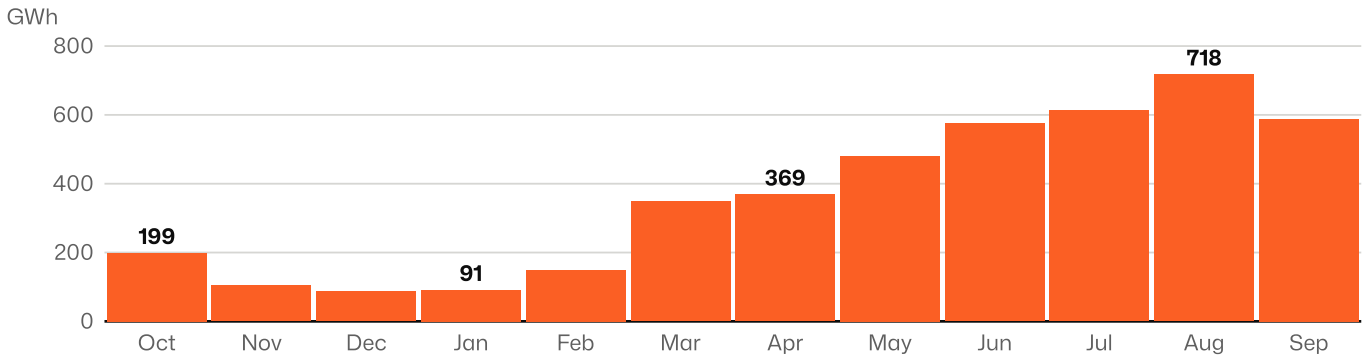
Figure 6. Share of solar output produced at zero or negative prices (%)



Source: OPCOM day-ahead market (PZU) results, 15-minute clearing prices; Quadrart analysis; simulated PV output

Metered solar generation reached 4.3 TWh over the period, 9 % of national generation, and rose from 199 GWh in October 2025 to 718 GWh in August 2026. The record was 3,395 MW on 20 August 2026 at 13:00. These figures exclude most rooftop output, which is consumed behind the meter. Transelectrica connected 1,331 MW of new solar between 1 January and 20 August 2026, and dispatchable solar capacity stood at about 3.8 GW on 1 July 2026. Prosumer capacity reached 4.0 GW on 30 June 2026, up from about 2.9 GW in mid-2025 (ANRE).

Figure 7. Metered solar generation in Romania by month (GWh)



Grid-metered output reported to ENTSO-E; most prosumer output is consumed on site and is not included.

Source: energy-charts.info (Fraunhofer ISE), from ENTSO-E Transparency data; Quadrart analysis

What it means for investors

A stand-alone merchant solar plant now earns well under the headline price, and the discount is deepest in spring. New solar capacity needs storage, a fixed-price contract (a power purchase agreement, PPA, or a contract for difference, CfD), or both.

03 · Storage

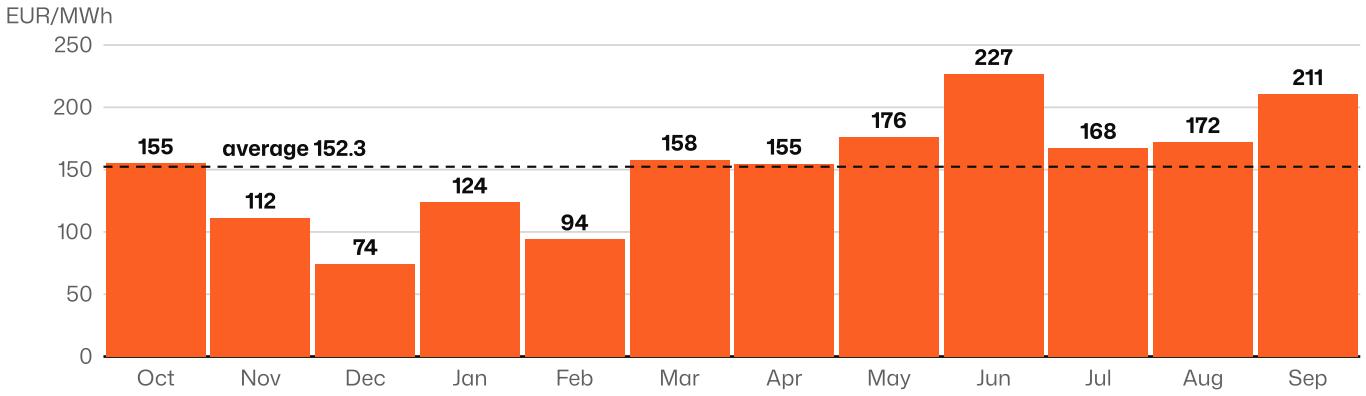
Daily spreads averaged 152 EUR/MWh, while balancing-capacity prices fell as more batteries joined.

Daily spreads, balancing-capacity prices and competition.

A battery earns in three ways: it buys energy when it is cheap and sells it when it is dear (arbitrage), it is paid for keeping capacity available to Transelectrica (FCR, aFRR and the manual frequency restoration reserve, mFRR), and it is paid for the balancing energy it delivers when called.

Arbitrage is the base. The average daily spread between the 16 most and the 16 least expensive quarter-hours, a simple proxy for one full cycle of a 4-hour battery, was 152 EUR/MWh; for 2 hours it was 175. Nine days out of ten, the 4-hour spread was above 62 EUR/MWh. It was lowest in winter (74 in December) and highest in June (227) and September (211).

Figure 8. Average daily 4-hour spread by month (EUR/MWh)

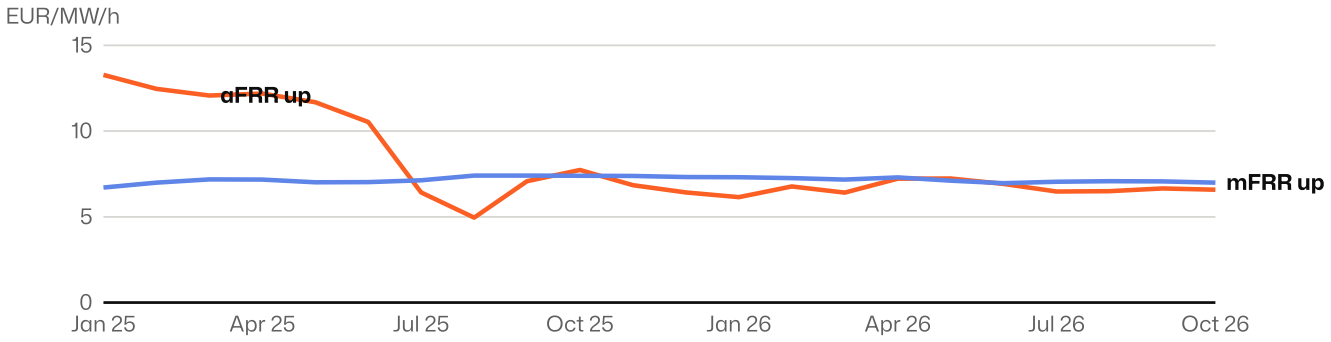


Mean of the 16 highest minus mean of the 16 lowest quarter-hour prices of each day. Before efficiency losses and fees.

Source: OPCOM day-ahead market (PZU) results, 15-minute clearing prices; Quadrart analysis

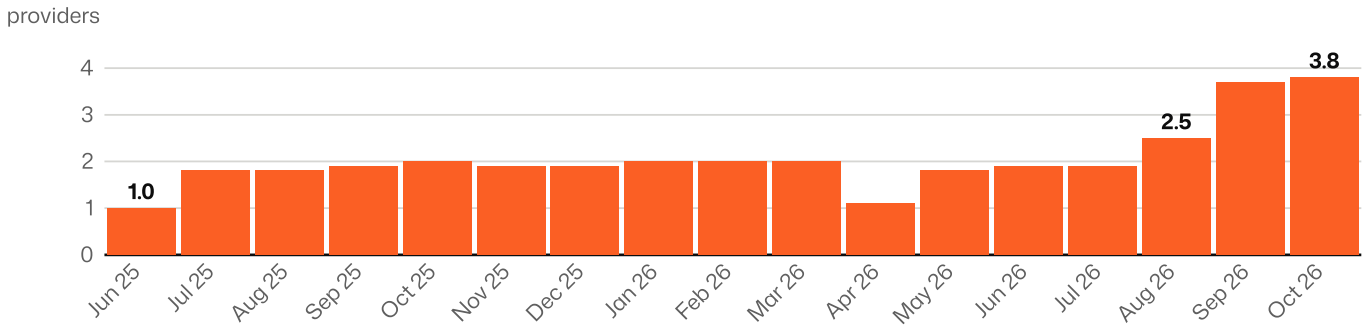
Balancing capacity paid well but is a thin market. Over the twelve months Transelectrica bought on average 125 MW of FCR at 66.6 EUR/MW/h, 176 MW of aFRR in each direction at 6.8 (up) and 3.4 EUR/MW/h (down), and 448 MW of mFRR up at 7.2. A single 350 MW battery could cover the entire FCR need. Competition is already visible: aFRR-up capacity averaged 12.0 EUR/MW/h in the first half of 2025 and 6.8 over the period studied, while the number of FCR providers rose from about 2 to almost 4 in the autumn of 2026.

Figure 9. Monthly average accepted capacity price, aFRR up and mFRR up (EUR/MW/h)



Source: Transelectrica daily balancing-capacity auctions; BNR exchange rates; Quadrart analysis

Figure 10. FCR: average number of providers with accepted capacity



Source: Transelectrica daily balancing-capacity auctions; BNR exchange rates; Quadrart analysis

Installed storage grew from about 0.5 GW / 0.9 GWh at the start of 2026 (RPIA) to 1.1 GW / 2.3 GWh on 1 September 2026 (Transelectrica), and ANRE and the wind association RWEA expect about 2 GW by the end of 2026 and at least 4 GW by the end of 2027 (RWEA). Batteries already moved up to about 770 MW in a single quarter-hour in the period studied. Energy withdrawn from the grid and later re-injected by a storage facility is exempt from the transmission withdrawal tariff, distribution tariffs and the system-services tariff, as well as from the green-certificate and cogeneration contributions, until ANRE sets a dedicated tariff regime for storage (Law No. 123/2012, Art. 66^3; ANRE Order No. 56/2025). The market will change again in 2027: ENTSO-E's accession roadmap of October 2026 shows Transelectrica joining PICASSO, the European platform for aFRR balancing energy, in 2027 (most recently notified for April 2027), after which aFRR energy is priced against a much larger pool of bids.

What it means for investors

Base storage cases on arbitrage and treat balancing capacity as a declining upside. With an evening peak of four hours or more, the third and fourth hours of storage still earned 38 to 41 EUR per kWh in the year studied (Chapter 5).

04 · Grid access

Transelectrica shows no free grid capacity for 2028 to 2037.

Transmission capacity, allocation and holding costs.

Transelectrica publishes, for each of its ten network zones and for each year from 2028 to 2037, the capacity available for new generation and storage without additional network reinforcement. In the edition of 26 June 2026 the figure is **0 MW in every zone and every year**. ANRE's capacity allocation methodology (Order No. 53/2024, as amended) sets, for each network zone, the capacity available without additional grid development works. Where requests from projects of 5 MW or more exceed it, an annual auction is held: if demand fits within the capacity that includes additional development works, all bids are accepted at the starting price; otherwise capacity is awarded up to the available limit and each winner pays its own bid.

Demand for connection far exceeds what the network can take. In Dobrogea (zone A, which includes the Cernavodă, Medgidia, Rahman and Tulcea substations), Transelectrica's informative connection map shows 3,000 MW of capacity for 2030 against 12,556 MW in the pipeline: 1,758 MW with connection contracts, 3,359 MW with connection permits (ATR), 3,539 MW in solution studies and 3,900 MW of requests.

Table 1. Connection pipeline and capacity in zone A (Dobrogea), 2030, MW

Stage	MW
Connection contracts	1,758
Connection permits (ATR)	3,359
Solution studies	3,539
Requests	3,900
Total in the pipeline	**12,556**
Network capacity, 2030	3,000

Source: Transelectrica, informative map of connection capacity (data file of 10 September 2026), https://web.transelectrica.ro/harti_crd_tel/; available capacity: https://licitatii.transelectrica.ro/page.php?slug=capacitate-disponibila (26 June 2026).

Holding rights has also become more demanding. Under ANRE Orders No. 15/2026 and No. 16/2026, in force since 25 May 2026, generation and storage sites above 1 MW must provide a connection guarantee of 20 % of the connection tariff excluding VAT (previously 5 %), a guarantee of EUR 30/kW when applying for the ANRE establishment authorisation and, in the 2026 grid-capacity auction, a participation guarantee of EUR 20,000/MW. The establishment authorisation must be obtained within 12 months of the connection contract (and no later than 18 months after the connection permit), failing which the permit lapses and the contract terminates; for connection contracts already in progress on 25 May 2026, the 12-month period runs from that date. Holding a permit without moving to construction has become more expensive.

What it means for investors

The cheapest route into the market is a project that already holds a connection contract or a firm ATR without reinforcement works. Buying such rights costs more per MW than early-stage pipeline, but it avoids the capacity auction and its timetable.

05 · Case study

A 350 MWp solar and 1.4 GWh storage plant in Dobrogea.

Production, dispatch and returns of a hybrid project in development.

The case study is a hybrid project in development in Dobrogea: 350 MWp of fixed-tilt solar and 350 MW / 1,400 MWh of lithium-ion storage behind a single 400 kV connection with about 340 MW of firm export capacity (about 145 MW in a first stage) and no reinforcement works. We modelled its production and its dispatch on the market data presented in this report.

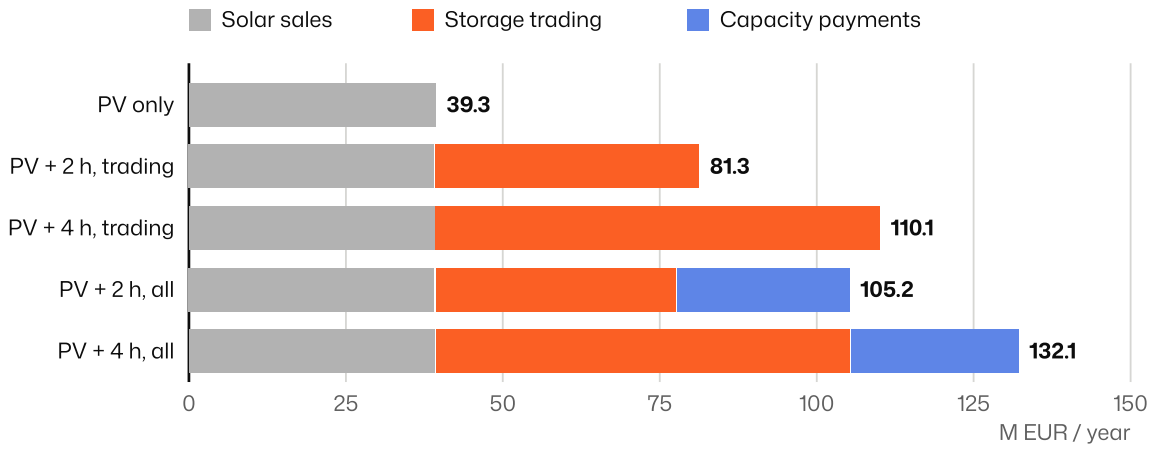
Production

Simulated hour by hour on PVGIS data (2005 to 2023 average), the plant produces 528 GWh a year at P50 with bifacial TOPCon modules (1,510 kWh/kWp, performance ratio 90.5 %), and 487 GWh with the mono PERC modules of the original design (1,390 kWh/kWp). The actual weather of the twelve months studied gave 522 GWh, 98.9 % of P50.

Dispatch

We optimised the plant every 15 minutes over the twelve months: how much solar goes straight to the grid, how much is stored, when the battery buys from the grid and how much capacity it offers to Transelectrica. Export never exceeds the approved limit. The model includes the battery's own effect on the day-ahead price (from OPCOM's aggregated bid curves), limits each balancing product to 25 % of Transelectrica's hourly need, and caps cycling at 1.5 full cycles a day.

Figure 11. Annual net revenue by configuration, October 2025 to September 2026 (M EUR)



Perfect foresight: prices are known in advance, so the figures are a ceiling. The financial model assumes that 85 % of the arbitrage value is captured.

Source: Quadrart dispatch model on OPCOM and Transelectrica data

Table 2. Case-study dispatch on actual prices, October 2025 to September 2026 (perfect foresight)

Configuration	Net revenue, M EUR/yr	of which storage	Storage cycles/yr	Avg. sale / purchase price, EUR/MWh
Solar only (stops at negative prices)	39.3	n/a	n/a	81.2
PV + 350 MW / 700 MWh (2 h), trading only	81.3	42.2	509	206 / 71
PV + 350 MW / 1,400 MWh (4 h), trading only	110.1	71.0	460	195 / 70
PV + 2 h, trading and balancing capacity	105.2	66.2	472	206 / 73
PV + 4 h, trading and balancing capacity	132.1	93.1	413	198 / 69

Storage more than triples the plant's revenue. With 4 hours of storage and access to balancing capacity, net revenue reaches 132 M EUR a year, of which 93 M EUR comes from the battery. Balancing capacity contributes 27 M EUR, two thirds of it from FCR, which is the least durable part of the stack. Moving from 2 to 4 hours adds 26.9 M EUR a year with balancing capacity and 28.8 M EUR with trading only, or 38 to 41 EUR a year for each added kWh.

Cost and returns

Table 3. Construction cost assumed in the financial model

Item	M EUR	Basis
Solar PV, turnkey EPC	140.0	0.40 EUR/Wp; Romanian EPC contracts 2026: 0.39-0.46 EUR/Wp incl. high-voltage substation
Battery storage, turnkey	168.0	120 EUR/kWh; Romanian 2-hour contracts Sep 2026: 151-165 EUR/kWh
400/33 kV transformers and 33 kV network	18.0	two 400/33 kV transformers
Transelectrica connection tariff	8.5	ATR
Owner's costs and contingency	10.0	about 3 %
Interest during construction	6.0	
Total	**350.5**	

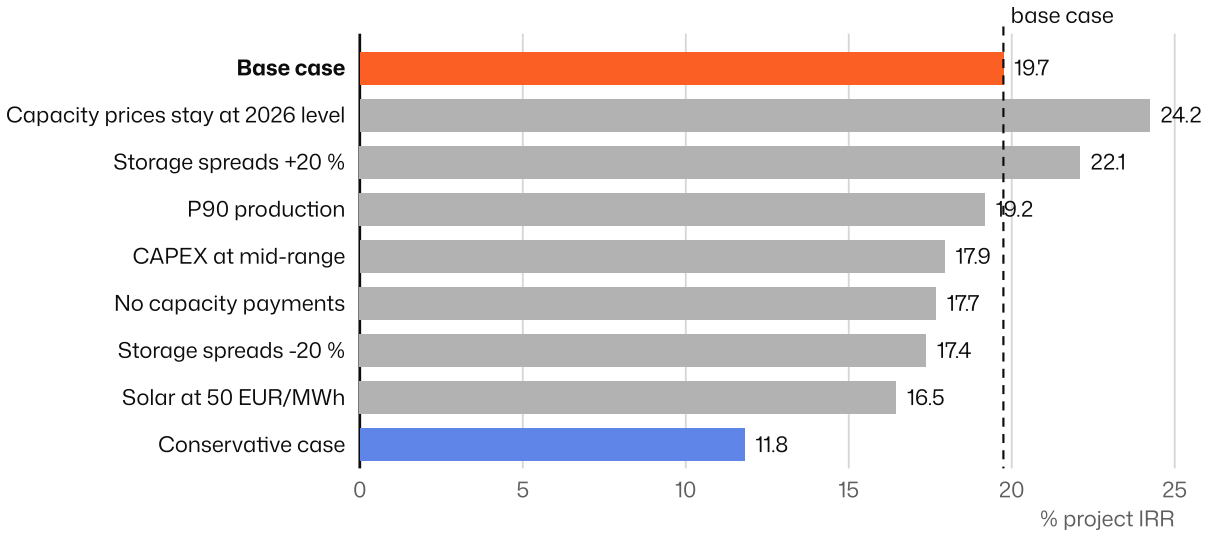
The financial model runs for 30 years with 2 % inflation and 16 % corporate tax, and assumes 70 % debt at 6M Euribor plus 200 bp over 17 years (Romanian project loan terms are not published). It already assumes a weaker market: the battery captures 85 % of the arbitrage value, spreads fall to 70 % of today's level by 2034, balancing-capacity prices fall to 25 % by 2031 and solar prices to 80 % by 2034. The conservative case combines all of: solar prices 25 % lower, spreads at 55 %, 80 % capture, capacity prices halved again, 2 % battery fade a year, mid-range construction cost and higher storage opex.

Table 4. Indicative returns, 30 years, after tax, before any payment for the project rights

	Base case	Conservative case
Project internal rate of return (IRR), unlevered	19.7 %	11.8 %
Equity IRR (70 % debt)	46.2 %	22.6 %
Minimum debt service coverage ratio (DSCR)	2.49	1.32

A rise of 1 percentage point in interest rates lowers the equity IRR of the base case to 45.1 % and the minimum DSCR to 2.33; the project IRR does not depend on financing.

Figure 12. Project IRR under the sensitivity cases (%)



Source: Quadrant financial model

Reading the numbers

The returns exclude the price of acquiring the project rights, which depends on the transaction. Dispatch revenue assumes perfect foresight and is a ceiling; the financial model applies the haircuts described above. This is not investment advice.

06 · Costs, finance, deals

Modules cost about 0.12 EUR/Wp, and lenders fund about three quarters of large projects.

Benchmarks published between May and October 2026.

Module prices in Europe have settled near 0.11 to 0.12 EUR/Wp for TOPCon. Romanian solar engineering, procurement and construction (EPC) contracts signed in 2026 came in at 0.39 to 0.46 EUR/Wp including the high-voltage substation. Romanian storage contracts for 2-hour systems came in at 151 to 165 EUR/kWh in September 2026; 4-hour systems cost less per kWh, and Chinese export prices for complete 4-hour systems were around 81 USD/kWh FOB in the summer.

Table 5. Cost benchmarks, 2026

Item	Value	Source, date
Modules, TOPCon, EU spot (sun.store index)	0.114-0.120 EUR/Wp	PV Tech, 7 Oct 2026
Modules, high-efficiency, EU (pvXchange)	0.130-0.150 EUR/Wp	Solarserver, Oct 2026
String inverters above 20 kW (sun.store index)	0.022 EUR/W	pv Europe, 12 Oct 2026
Solar EPC, Romania, 50.9 MWp incl. 110 kV substation	0.39 EUR/Wp	Allview Energy, Jul 2026
Solar EPC, Romania, 62.5 MWp incl. 110 kV substation and 3 years O&M	0.45 EUR/Wp	Electrica, Jun 2026
Storage turnkey, Romania, 70 MW / 141 MWh	151 EUR/kWh	Econergy via ESS News, 10 Sep 2026
Storage EPC, Romania, 20 MW / 40 MWh	165 EUR/kWh	OMV Petrom, 11 Sep 2026
Storage system, China export, 4 h, FOB	81 USD/kWh	InfoLink, Aug 2026
Storage all-in, global median, 4 h	201 USD/kWh	Modo Energy, 9 Sep 2026

International lenders are active. Two large 2026 financings, Părău 2 and Dama, were each about 76 to 77 % debt-funded, with EBRD, EIB, IFC and commercial banks, and Părău 2 used an InvestEU guarantee to cover merchant risk. Six-month Euribor stood at 2.98 % on 26 October 2026.

Table 6. Selected transactions and financings, 2026

Who	What	Size	Date
Econergy (Părău 2)	Project finance for solar and storage, EBRD, Exim Banca Românească and others; InvestEU first-loss guarantee up to EUR 115 M	342 MWp + 150 MW / 300 MWh; EUR 229 M debt of EUR 300 M	Aug 2026
Rezolv (Dama)	Project finance from 14 lenders including EIB, EBRD, IFC and BSTDB; two CfDs plus PPA and merchant	1.3 GWp; about 77 % debt	Oct 2026
Phoenix Financial	Equity into Econergy's Romanian holding (16 projects)	up to EUR 160 M	Sep 2026
Alcemi	Majority stakes in two 4-hour storage projects (Medgidia, Constanța county; Șura Mare, Sibiu county)	575 MW / about 2.3 GWh	Aug 2026
ENNA Solar	Acquisition of a solar and storage project in Medgidia	166 MWp + 612 MWh	Oct 2026
Nuvve	Acquisition of a storage project before licensing	42 MW, about EUR 40k/MW before the payment due at commercial operation	Jul 2026

Sources: company announcements and trade press (ESS News, PV Tech, Romania Insider, Renewable Energy Magazine, Proximo, Economedia, EBRD project disclosure), May to October 2026. Per-MW values are derived where the source gives totals.

Romania applies a 16 % corporate income tax and, for dividends distributed from 1 January 2026, a 16 % dividend tax (up from 10 %, Law No. 141/2025), subject to exemptions such as the EU parent-subsidiary regime (holding of at least 10 % for at least one year). The minimum turnover tax applies only to companies with turnover above EUR 50 million, is 0.5 % for 2026 and, under current law, applies only until 31 December 2026. Romania's two-sided CfD scheme for onshore wind and solar (Government Decision No. 318/2024, Ministry of Energy Order No. 1120/2024) has OPCOM as counterparty and difference payments for up to 15 years; in the second round (2025) solar was awarded at 35.50 to 45.20 EUR/MWh, and the third round, launched in October 2025, was limited to onshore wind.

07 · Equipment suppliers

Bifacial modules and 4-hour batteries earned the most on Romanian prices.

What the data mean for manufacturers.

Modules. In Dobrogea a bifacial TOPCon module yields 8.6 % more energy than mono PERC with the same area and nameplate (1,510 against 1,390 kWh/kWp). At this year's realised solar price of 81.2 EUR/MWh, the extra energy is worth about 9.7 EUR per kWp each year, or about 97 EUR per kWp over ten years, undiscounted: more than 80 % of today's module price of 114 to 120 EUR/kWp. The gain already includes the lower temperature losses of TOPCon (-0.29 %/°C) and a bifaciality factor of 80 %, which matter in Dobrogea's hot summers.

Storage duration. The Romanian evening peak lasts four hours or more, so longer batteries earned more. In the case study, the extra 700 MWh that turn a 2-hour battery into a 4-hour one earned 38 to 41 EUR per kWh in the year studied, or about 33 to 35 EUR after a 15 % haircut for imperfect forecasting, against our estimate of 120 to 140 EUR/kWh for turnkey 4-hour systems. Connection permits limit power (MW), not energy (MWh), so adding hours of storage does not take more grid capacity.

Volumes. Romania added about 1.3 GW of grid-connected solar in the first eight months of 2026 and about 1.1 GW of prosumer capacity in a year, and its battery fleet more than doubled in 2026. The pipeline behind it is large: ANRE counted 87.2 GW of valid connection permits on 1 May 2026, of which 51.0 GW with connection contracts and 10.2 GW with an ANRE establishment authorisation. The 2026 Modernisation Fund call for stand-alone storage (applicant guide approved by Ministry of Energy Order No. 915/2026) capped aid at EUR 69,000 per installed MWh and EUR 15 million per undertaking and excluded combined generation-and-storage projects; according to press reports it had a EUR 150 million budget and closed on 30 October 2026.

Sourcing rules. Since 30 December 2025, Article 26 of the Net-Zero Industry Act (Regulation (EU) 2024/1735) requires Member States to apply non-price pre-qualification or award criteria, including resilience, to at least 30 % of the renewable volume auctioned each year (or at least 6 GW a year). The resilience criterion targets net-zero technologies or main components originating from a single non-EU country that supplies more than 50 % of EU demand. Origin of modules, inverters and cells therefore becomes a factor in future Romanian auctions, next to price.

What it means for suppliers

Romania is a volume market for 4-hour storage and high-yield modules, with buyers who need financing and grid-connected projects. Suppliers who can offer equipment together with financing, long warranties or a stake in projects with secured connections are best placed.

08 · Risks and outlook

The main risks are low solar capture prices, shrinking balancing payments and rule changes.

What could change the numbers.

Solar capacity is growing, midday prices stay far below evening prices, and the grid cannot take much more capacity without investment. All three favour storage and projects that already hold connection rights. Table 7 lists the main risks and how the case study treats them.

Table 7. Main risks

Risk	What we see	How it is handled
Solar cannibalisation	Capture rate 60 % over the year, 40 % in April	Storage, PPA or CfD; tracker or east-west designs (not modelled)
Balancing-capacity saturation	aFRR capacity prices down 44 % (up) and 73 % (down) since the first half of 2025; FCR providers nearly doubled in 2026	Capacity prices cut to 25 % by 2031 in the base case
Market design	PICASSO accession expected in 2027	Balancing-energy income not counted in the case study
Price normalisation	August to October 2026 well above the yearly average	Twelve-month window; spreads reduced over time
Grid and regulation	No free capacity to 2037; higher guarantees for permits	Focus on projects with firm connection rights
Battery degradation	Cycling of 410 to 510 full cycles a year	1.5 cycles a day cap; fade and augmentation in the model
Rates and currency	Euribor rising; revenues in EUR, part of costs in RON	Sensitivity of +1 pp on interest

Appendix

Method and sources

How the numbers were produced.

Period. 1 October 2025 00:00 to 30 September 2026 24:00, Romanian time; 35,040 quarter-hours. Exchange rate: BNR daily rate (period average 5.1555 RON/EUR).

Prices. OPCOM day-ahead (PZU) clearing prices, 15 minutes (the first hour of the period, still hourly, is spread over four quarter-hours). Averages are arithmetic over quarter-hours. Other bidding zones: energy-charts.info (Fraunhofer ISE), from ENTSO-E Transparency data. The two sources agree exactly for Romania.

Balancing capacity. Transelectrica daily auction results (FCR, aFRR, mFRR): average accepted price and hourly requirement, converted to EUR at the BNR rate of the day.

Solar. PVGIS 5.3 (European Commission JRC), typical year 2005 to 2023, and ERA5 weather for the period; 350 MWp, fixed tables at 30°, south, ground cover ratio 0.40, total losses of about 8 %. Capture price: output-weighted average price. Metered national output: energy-charts.info.

Spreads. For each day, mean of the 16 (or 8) highest quarter-hour prices minus mean of the 16 (or 8) lowest.

Dispatch model. Linear optimisation for each day with a 48-hour look-ahead (HiGHS solver), 15-minute steps; round-trip efficiency 90.25 %; 1.5 full cycles a day; 1 MW auxiliary load; export limit about 340 MW, import limit about 360 MW; balancing products limited to 25 % of the hourly requirement; price impact from OPCOM aggregated bid and offer curves; transmission injection tariff 3.63 RON/MWh. Perfect foresight.

Financial model. 30 years, 2 % inflation, construction cost as in Table 3, solar O&M 7 EUR/kW/yr, storage 20 EUR/kW/yr, insurance 0.3 % of cost, augmentation of the battery, 16 % corporate tax; assumed financing of 70 % debt over 17 years at 6M Euribor + 200 bp. Returns exclude the acquisition of the project rights.

Grid. Transelectrica, available capacity by zone (26 June 2026) and informative connection map (10 September 2026).

Law and regulation. Law No. 123/2012 on electricity and natural gas, Art. 66^3; ANRE Order No. 56/2025; ANRE Order No. 53/2024, capacity allocation methodology, Art. 5, 6, 16 to 18; ANRE Orders No. 15/2026 and No. 16/2026 and the connection regulation approved by ANRE Order No. 59/2013, Art. 31(1), (3) and (3^1) and Art. 36(5^2) to (5^8); Government Decision No. 318/2024 and Ministry of Energy Order No. 1120/2024 (CfD); Regulation (EU) 2024/1735, Art. 26; Fiscal Code (Law No. 227/2015), Art. 17, Art. 18^1(16) and (17), Art. 43(2) and Art. 229(1)(c); Ministry of Energy Order No. 915/2026. ENTSO-E, PICASSO accession roadmap (15 October 2026).

Limits. Historical data for one year; perfect-foresight dispatch; the case study is one project and other sites will differ.

Quadrart

Engineering and permitting for renewable energy, storage, substations and grid connections in Romania.

Data

OPCOM, Transelectrica, BNR, ENTSO-E via energy-charts.info, PVGIS, company announcements.

Date

Data to 30 September 2026; October 2026 prices to 15 October. Published November 2026.

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