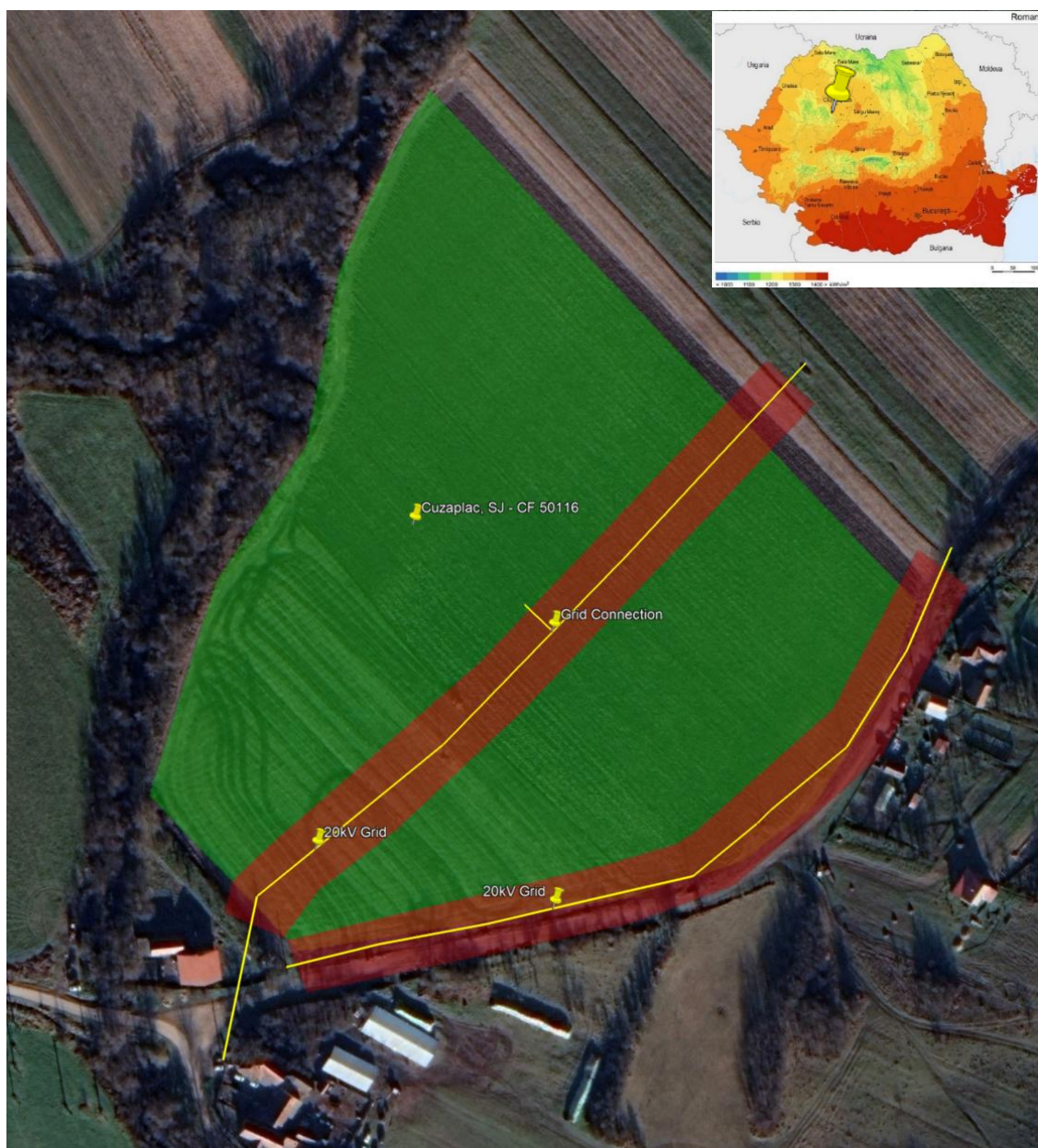




PV Park + BESS

Project: Cuzaplac, SJ
Land Surface: 5.34 Ha
Installed PV Power: 1.3 MWp
BESS - Storage Capacity: 4.472 MWh



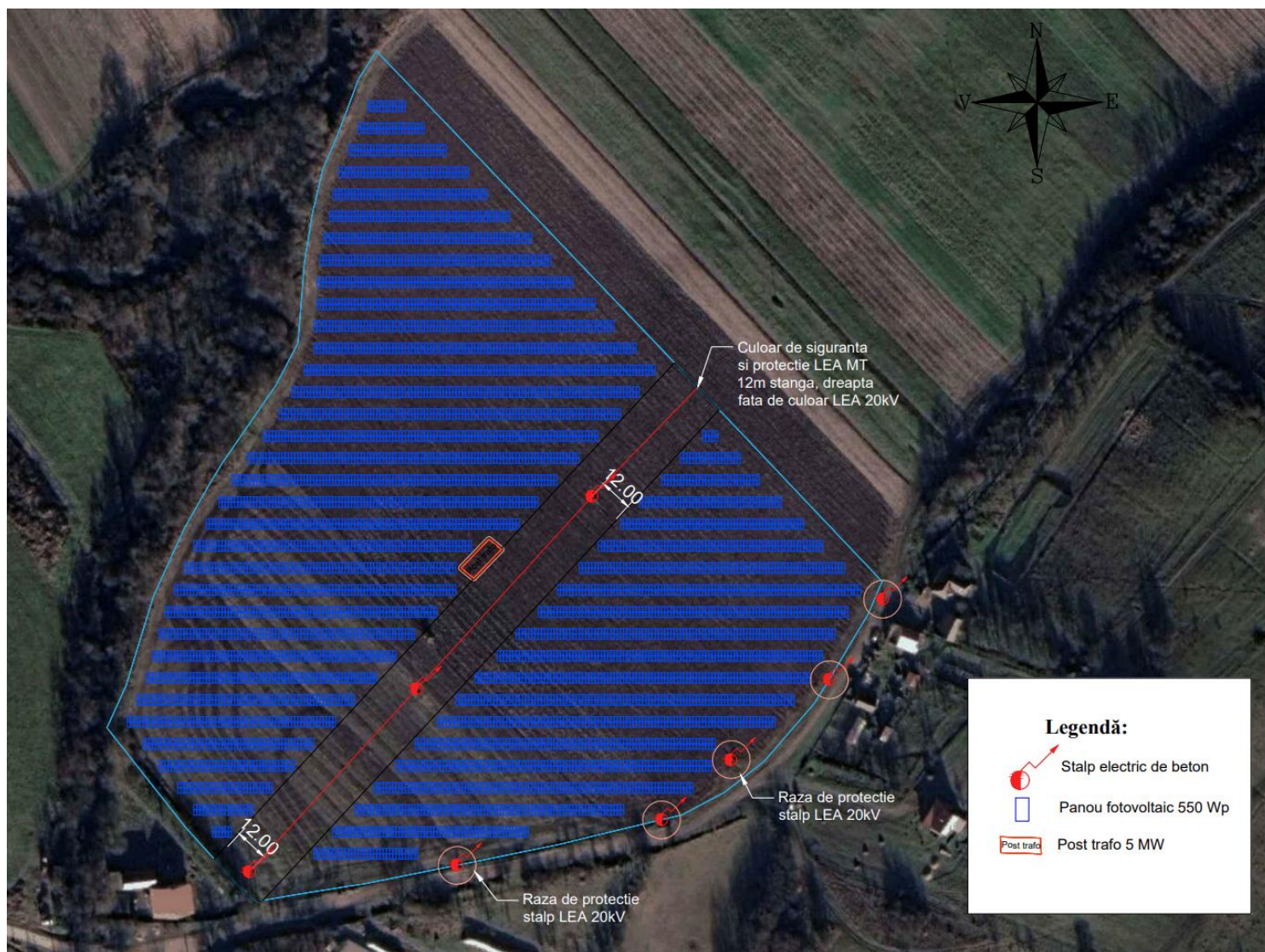


Curves Level





Layout Photovoltaic Park





Layout BESS





PV Productions

Peak power: 1.3 MWp

Module surface: 5 321.3 m²

Total number of modules: 1 970

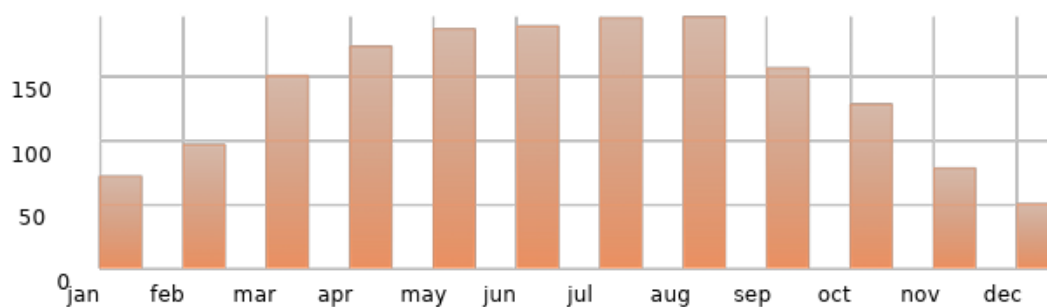
Total number of inverters: 13

Average values:

Annual production (DC) : 1 786 MWh

Annual production (AC) : 1 682 MWh

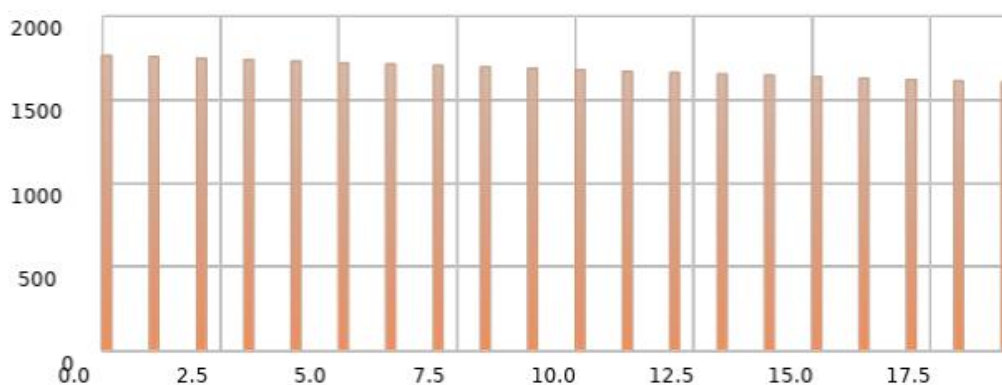
Monthly AC production (MWh/month):



Months	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec
MWh	72	97	151	174	188	190	196	197	157	129	79	51



AC production year by year (MWh):



Years	1	2	3	4	5	6	7	8	9	10
MWh	1 763	1 754	1 745	1 737	1 728	1 719	1 711	1 702	1 694	1 685

Years	11	12	13	14	15	16	17	18	19	20
MWh	1 677	1 669	1 660	1 652	1 644	1 635	1 627	1 619	1 611	1 603

EMISSIONS AVOIDED: 673 CO₂ equivalent (ton) *

* Quantity of greenhouse gases that would have been emitted during the observation period if this electricity had been generated through conventional means (20 g eq CO₂/kWh)

* Important: this does not mean that all the emissions would be avoided, since the process of manufacturing and transporting PV modules also generates greenhouse gas emissions.



Costs:

Investment: 773 500 EUR
Inverter renewal: 90 804 EUR
Maintenance: 1.00 %

Bank loan:

Amount: 773 500 EUR
Interest rate: 3.50 %

Discounting:

Inflation rate: 2.00 %
Equity rate: 3.00 %

Project type:

Total sale

Energy sales price produced:

0.0700 EUR/kWh

Price evolution:

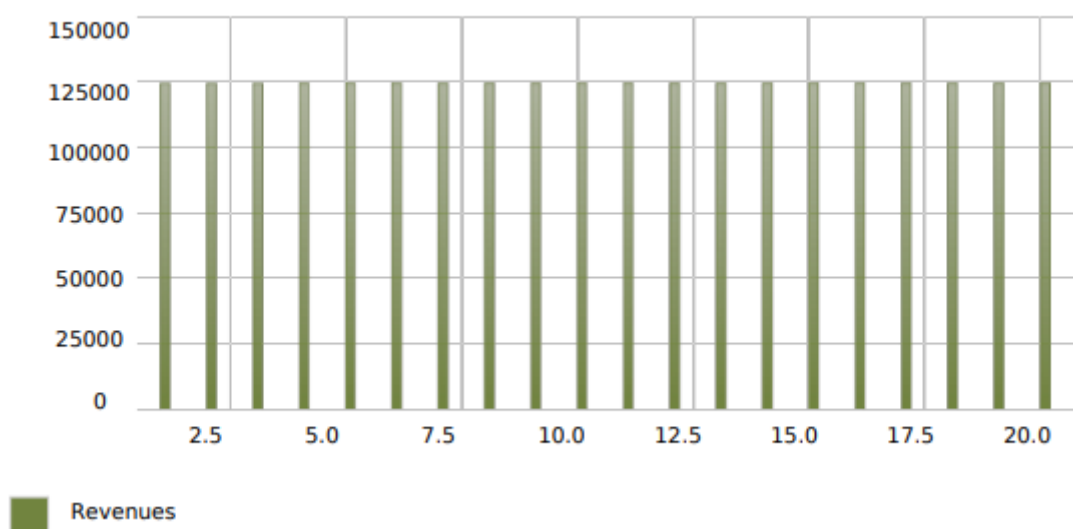
+ 0.5 %/year

Economic results:

Annual revenue: 124 408 EUR/year
Cumulated revenues: 2.488 million EUR
Maintenance cost: 9 585 EUR/year

LCOE: 0.034 EUR/kWh
Net present value: 799 215 EUR
Payback period: 7 year(s)
Discounted payback period: 8 year(s)
Internal rate of return: 13.40 %

Revenues year by year (EUR):





****According to www.opcom.ro**



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opcom Romanian gas and electricity market operator

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Important for prosumers!
DAM weighted average price for December 2025: 607.92 lei/MWh

	ROPEX_DAM_15min												
	1	2	3	4	5	6	7	8	9	10	11	12	
ROPEX_DAM_Base	202.93	84.77	82.85	85.83	92.66	85.57	84.51	87.71	87.67	88.94	87.79	87.78	87.30
ROPEX_DAM_Peak	272.36	49	50	51	52	53	54	55	56	57	58	59	60
ROPEX_DAM_Off_Peak	133.50	209.51	221.49	227.08	236.60	249.93	247.96	252.85	231.81	229.55	243.73	254.26	282.97

	ROPEX_FM_M												
	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	
ROPEX_FM_2024	100.66	115.62	114.80	95.31	95.74	92.81	94.10	98.20	100.33	100.40	102.81	102.96	103.18
ROPEX_FM_2025	105.99	105.97	105.80	104.49	101.60	101.50	101.93	107.96	107.01	106.61	107.56	109.51	110.30
ROPEX_FM_2026	113.47	115.80	114.83	114.36	112.55	112.12	111.90	112.89	112.88	112.89	113.02	113.02	113.03

	ROPEX_GC_M											
	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
ROPEX_GC_2024	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40
ROPEX_GC_2025	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40
ROPEX_GC_2026	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40

Announcements

- 08/01/2026
The new limit values for trading green certificates
- 08/01/2026
The new limit values for trading green certificates
- 05/01/2026
In accordance with the provisions of ANRE Order no. 15/2022, OPCOM publishes the weighted average price of the Day Ahead Market for December 2025 amounting to 607.92 lei/MWh
- 05/01/2026
In accordance with the provisions of ANRE Order no. 15/2022, OPCOM publishes the weighted average price of the Day Ahead Market for December 2025 amounting to 607.92 lei/MWh

Press Releases

- 23/12/2025
CMBC-EA-flex – Trading record
- 18/12/2025
Successful launch of the Intra-Day Market from Republic of Moldova
- 11/12/2025
Successful launch of the DAM from Republic of Moldova

News

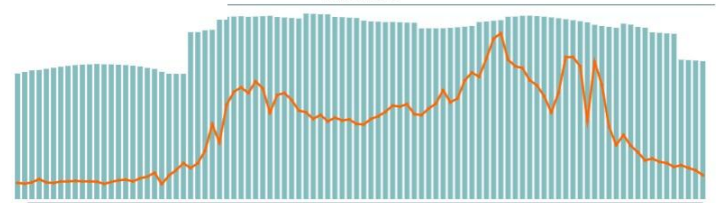
- 24/03/2025
Energynomics: Maria De Melo (EBRD) sees the Romanian renewable energy market as a model for Europe
- 10/03/2022
Initial Europex reaction to Commission communication on joint European action for more

Day-Ahead (SDAC)

Intra-Day (SIDC CT/IDA)



DAM Results



	Base	Peak	Off-Peak
ROPEX_DAM [euro/MWh]	202.93	272.36	133.50
Volume [MWh]	52,605.4	28,720.9	23,884.5



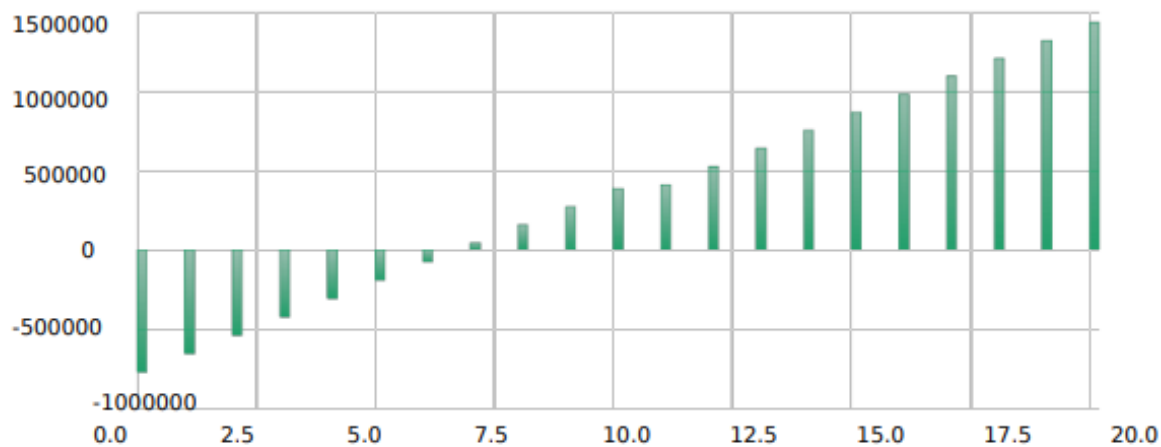
Estimated results

Year	1	2	3	4	5	6	7	8	9	10
Production (kWh)	1 767 822	1 759 152	1 750 518	1 741 913	1 733 344	1 724 800	1 716 284	1 707 800	1 699 354	1 690 938
Selling										
Prices (EUR/kWh)	0.0704	0.0707	0.0711	0.0714	0.0718	0.0721	0.0725	0.0728	0.0732	0.0736
Sales revenue (EUR)	124 366.3	124 375.1	124 383.5	124 390.9	124 397.9	124 403.6	124 408.4	124 412.4	124 416.1	124 418.9
Total (EUR)										
Revenues	124 366.3	124 375.1	124 383.5	124 390.9	124 397.9	124 403.6	124 408.4	124 412.4	124 416.1	124 418.9
Maintenance	7 889.7	8 047.5	8 208.4	8 372.6	8 540.1	8 710.9	8 885.1	9 062.8	9 244.0	9 428.9
Inverter renewal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Results	116 476.6	116 327.6	116 175.0	116 018.3	115 857.9	115 692.8	115 523.3	115 349.6	115 172.0	114 990.0

Year	11	12	13	14	15	16	17	18	19	20
Production (kWh)	1 682 546	1 674 185	1 665 865	1 657 574	1 649 311	1 641 084	1 632 898	1 624 753	1 616 648	1 608 580
Selling										
Prices (EUR/kWh)	0.0739	0.0743	0.0747	0.0751	0.0754	0.0758	0.0762	0.0766	0.0770	0.0773
Sales revenue (EUR)	124 420.4	124 421.2	124 421.9	124 421.6	124 420.4	124 418.7	124 417.1	124 415.5	124 413.9	124 411.9
Total (EUR)										
Revenues	124 420.4	124 421.2	124 421.9	124 421.6	124 420.4	124 418.7	124 417.1	124 415.5	124 413.9	124 411.9
Maintenance	9 617.5	9 809.9	10 006.0	10 206.2	10 410.3	10 618.5	10 830.9	11 047.5	11 268.4	11 493.8
Inverter renewal	90 803.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Results	23 999.2	114 611.3	114 415.8	114 215.4	114 010.1	113 800.2	113 586.2	113 368.0	113 145.4	112 918.1



Cash flow illustration (EUR):



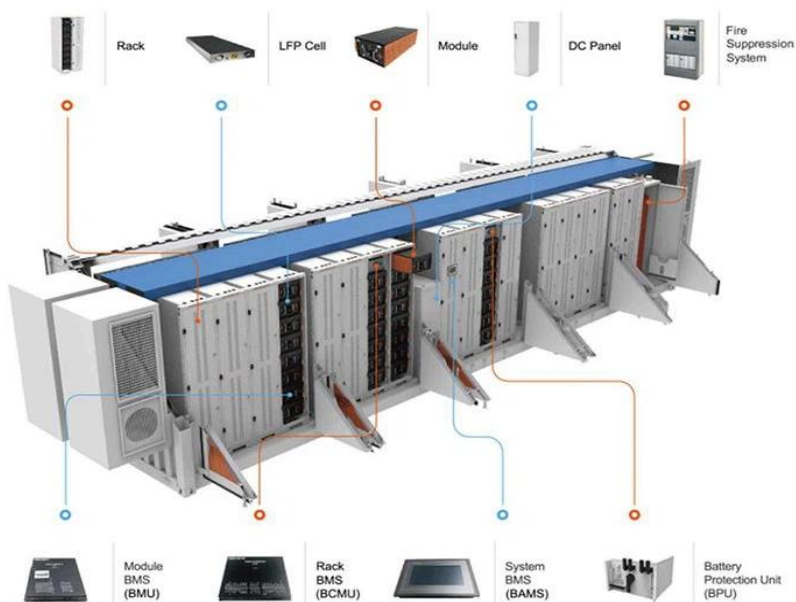
Years	1	2	3	4	5	6	7	8	9	10
EUR	-657 023	-540 695	-424 520	-308 502	-192 644	-76 951	38 572	153 922	269 094	384 084

Years	11	12	13	14	15	16	17	18	19	20
EUR	408 083	522 694	637 110	751 325	865 335	979 135	1 092 721	1 206 089	1 319 234	1 432 152



Technical description of the storage facility

- **(Battery container)**



- **Transformation unit - (MV SKID)**





Economic Data Storage Facility

1. Investment cost

	Storage Capacity 4,472 MWh	
Investment	EUR	894.400,00

2. Income

For an energy storage facility, there are several opportunities to utilize its electricity storage capacity, including:

- Balancing Market:
 - Revenues: €800–1,000/MWh
 - Charge/discharge cycles per day: ~0.2
- Day-Ahead Market (DAM) Arbitrage:
 - Revenues: ~€100/MWh
 - Charge/discharge cycles per day: ~1
- Intra-Day Market (IDM) Arbitrage:
 - Revenues: ~€200/MWh
 - Charge/discharge cycles per day: ~0.5–1
- Peak Production Curtailment Reduction:
 - Revenues: ~€100/MWh
 - Charge/discharge cycles per day: ~0.3–0.5
- Imbalance Compensation:
 - Revenues: ~€65/MWh
 - Charge/discharge cycles per day: ~1

For a combined scenario of using the storage facility, the following calculation will result, per MWh:

Combined scenario usage per MWh of storage			
	Cycles per day	Price [€/MWh]	Daily income [€]
Balancing market arbitrage	0,2	600	120
DAM arbitrage	0,7	100	70
IDM Arbitrage	0,75	132	99
Reduction of peak production losses	0,3	80	24
Imbalance compensation	0,8	64	51,2
Total			364,2



Revenues produced by the storage facility

Year		1	2	3	4	5	6	7	8	9	10
4,472 MWh 2.75 Cycles Charge/Discharge	Income	EUR 586.332,86	EUR 574.606,21	EUR 562.879,55	EUR 551.152,89	EUR 539.426,23	EUR 527.699,58	EUR 505.653,46	EUR 504.246,26	EUR 492.519,61	EUR 480.792,95
	Operational costs	EUR 41.043,30	EUR 40.222,43	EUR 39.401,57	EUR 38.580,70	EUR 37.759,84	EUR 36.938,97	EUR 35.395,74	EUR 35.297,24	EUR 34.476,37	EUR 33.655,51
	Profits	EUR 545.289,56	EUR 534.383,77	EUR 523.477,98	EUR 512.572,19	EUR 501.666,40	EUR 490.760,61	EUR 470.257,72	EUR 468.949,02	EUR 458.043,23	EUR 447.137,44

Cashflow

An	1	2	3	4	5	6	7	8	9	10
4,472MWh 2.75 Cycles Charging/Discharging	-349.110,44 €	185.273,34 €	708.751,32 €	1.221.323,51 €	1.722.989,90 €	2.213.750,51 €	2.684.008,23 €	3.152.957,26 €	3.611.000,49 €	4.058.137,93 €



Economics PV + BESS

Project assumptions		
Project name	Cuzaplac, Salaj	
PV Installed Capacity	1,3	MWp
Annual energy production AC/MWp	1.398	MWh/Mwp/year
Annual PV pannel degradation	0,5%	p.a.
Installed Storage Capacity	4,472	MWh
Charge-Discharge Battery cycles/days	2	hours
Annual BESS degradation	3%	a
Energy produced base price	70	€/MWh
Balancing Market energy price	900	€/MWh
DAM energy price	100	€/MWh
IDM energy price	200	€/MWh
Inflation rate	3%	p.a.
Project cost		
Storage equipment cost	150.000	€/MWh
Other cost related to storage (connection et	50.000	€/MWh
Cost PV park per MWp	595.000	€/MWp
Cost Storage Batteries (BESS)	894.400	€
Cost PV park	773.500	€
Customer-Side Works Tu	741	€
Grid Connection Installations Tr	157.791	€
Grid Reinforcement Ti specific	-	€
Grid Connection Route	-	€
TOTAL COST PV park + Storage	1.826.432	€
Operational cost		
Land lease	3.000	€/MWp/year
Insurance/ MW/year	3.000	€/MWp/year
Operation& Maintenance/ MW/year	3.000	€/MWp/year
Balancing & forecasting services	1.000	€/MWp/year
Accounting, bank, legal, Opcom fees etc	6.000	€/year
Utilities (energy and water)	2.000	€/MWp/year
Contingencies/year	5%	p.a.
Security services	1.000	€/MWp/year
Tax on land and construction	2.500	€/year
Financial assumptions		
Equity	547.929	€
Loan Amount	1.278.502	€
Leverage	70%	%
VAT credit line (21% of CAPEX hard cost)	383.551	€
Interest rate loan - Euribor 1 M	2,68	%
Interest Margin	4,00	%
Loan Maturity	10	years
Grace period	12	months
Monthly Instalments	108	months
Nominal cost of equity	15%	% p.a.
Cost of debt	6,4%	% p.a.
Tax rate	16%	% p.a.
WACC	8,3%	% p.a.
Financial ratios project		
IRR project	19%	%
IRR equity	55%	%
NPV project	725.103	€
Payback period	4	years

According to the approved Engineering Solution Study, the indicative cost of grid reinforcement works (TI) is estimated at approximately 177.515€. This value will be reassessed at the commissioning stage, and experience from similar projects shows that the final reinforcement costs tend to decrease significantly.

