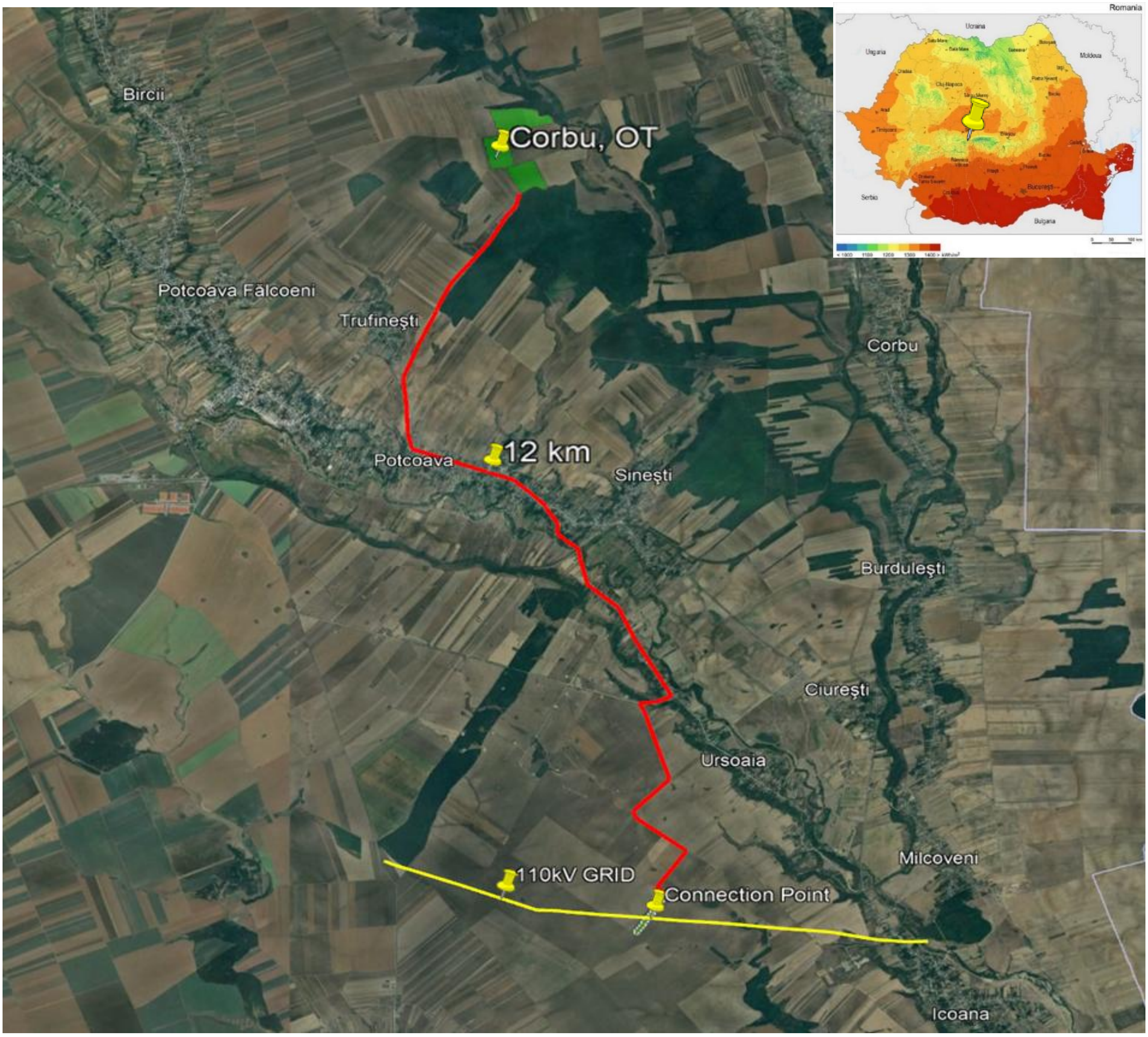
PV Park + BESS

Project: Corbu, OT
Land Surface: 47 Ha
Installed PV Power: 42.9 MWp
BESS - Storage Capacity: 169.94 MWh



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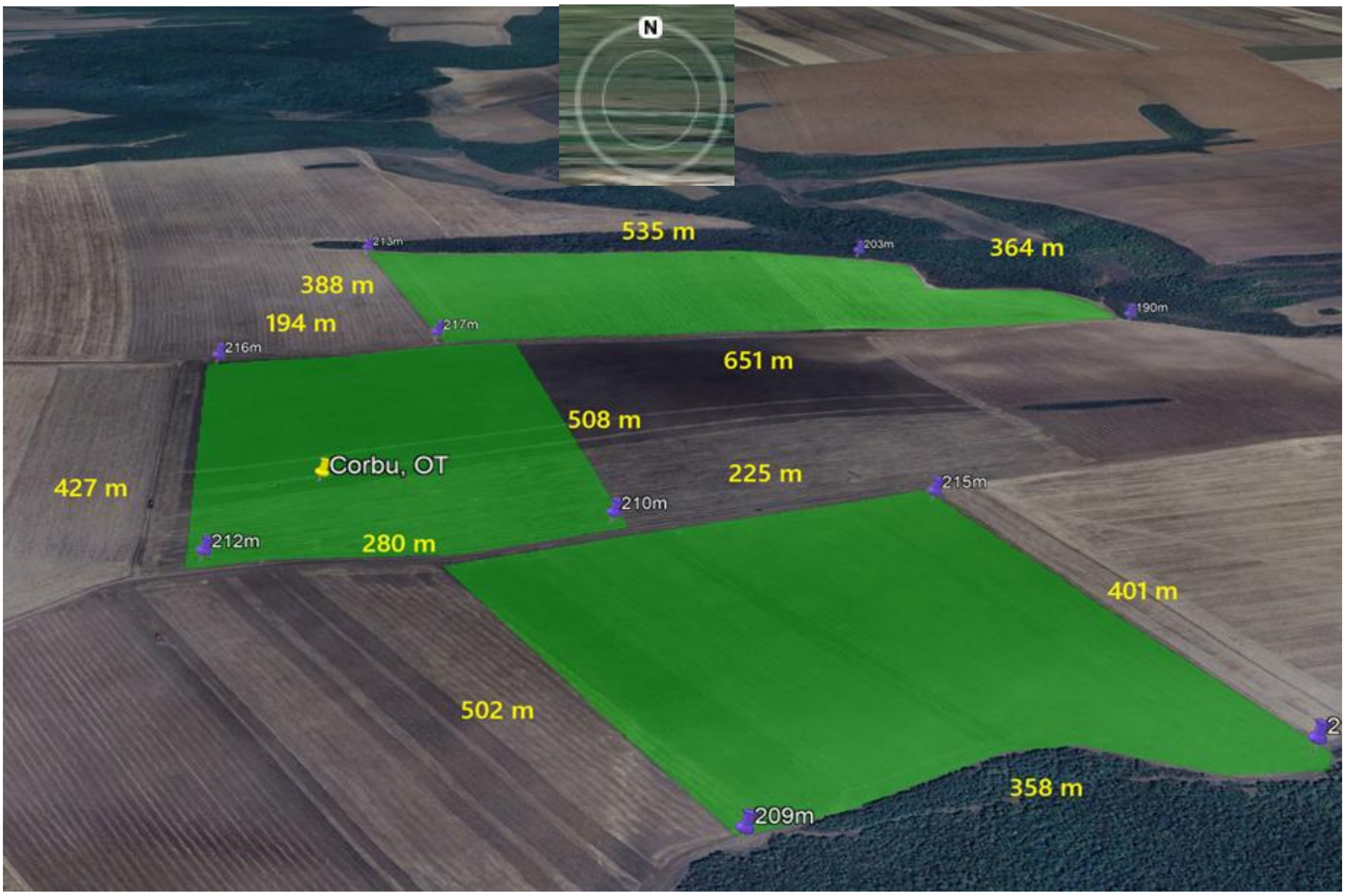
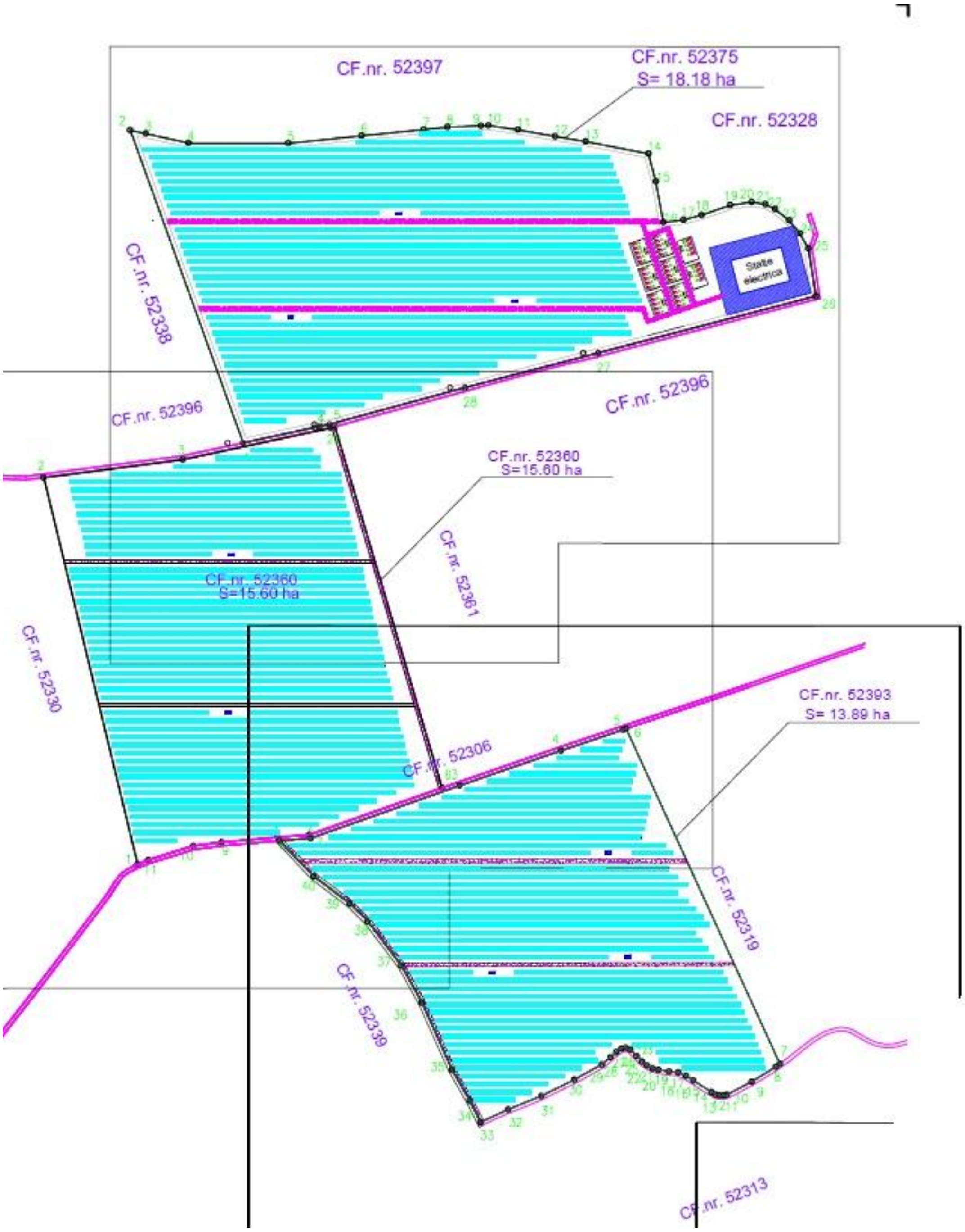
Curves Level



Layout Photovoltaic Park + Storage Capacity



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PV Productions

Peak power: 42.9 MWp

Module surface: 175 577.2 m²

Total number of modules: 65 000

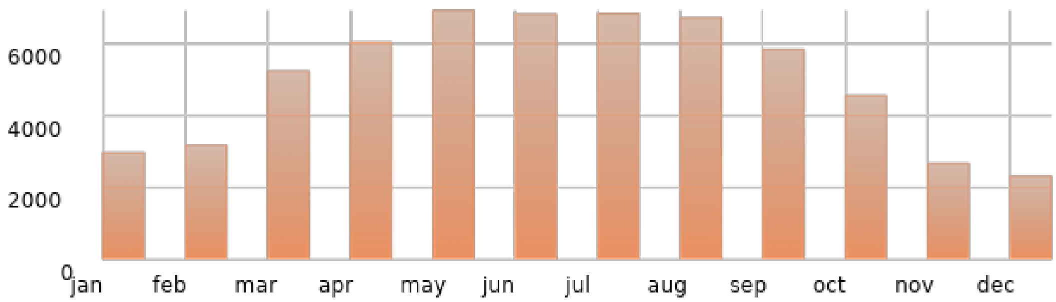
Total number of inverters: 409

Average values:

Annual production (DC) : 63 797 MWh

Annual production (AC) : 60 181 MWh

Monthly AC production (MWh/month):



Months	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec
MWh	2 974	3 183	5 242	6 054	6 930	6 833	6 843	6 724	5 850	4 555	2 673	2 319

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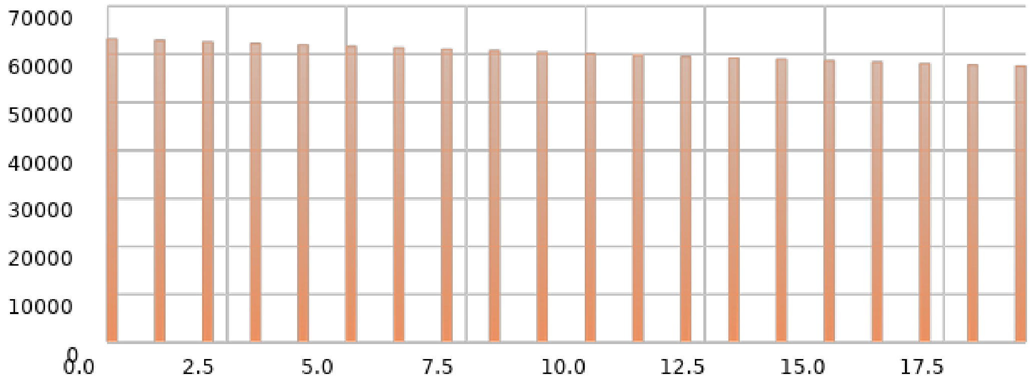
AC production year by year (MWh):



Years	1	2	3	4	5	6	7	8	9	10
MWh	63 056	62 746	62 437	62 129	61 823	61 517	61 213	60 909	60 607	60 306

Years	11	12	13	14	15	16	17	18	19	20
MWh	60 007	59 708	59 411	59 116	58 821	58 529	58 237	57 947	57 657	57 370

EMISSIONS AVOIDED: 24 071 CO_2 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 CO_2/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.

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Costs:

Investment: 25.526 million EUR

Inverter renewal: 2.857 million EUR

Maintenance: 1.00 %

Bank loan:

Amount: 25 525 500 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: 4.338 million EUR/year

Cumulated revenues: 86.753 million EUR

Maintenance cost: 316 303 EUR/year

LCOE: 0.032 EUR/kWh

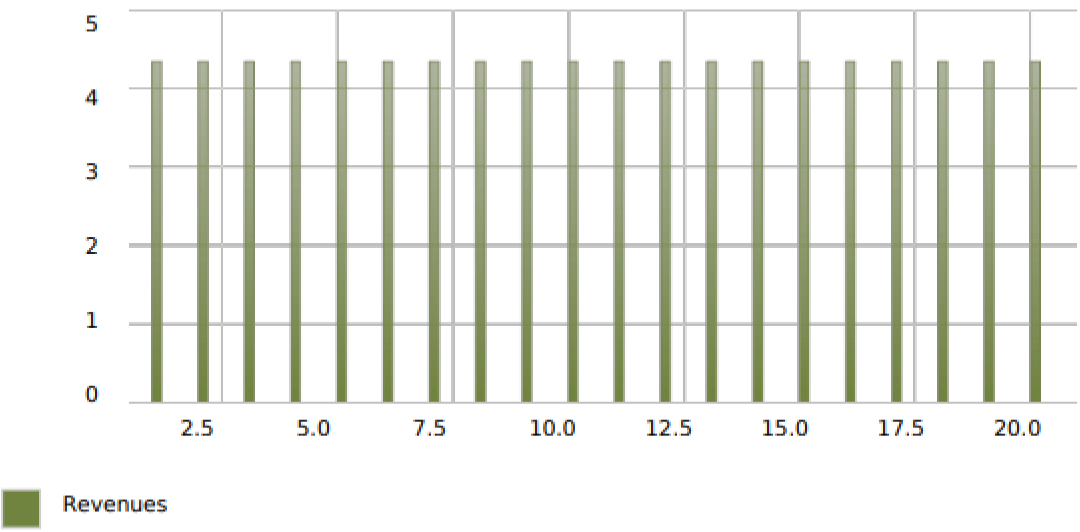
Net present value: 29.771 million EUR

Payback period: 7 year(s)

Discounted payback period: 8 year(s)

Internal rate of return: 14.50 %

Revenues year by year (million EUR):



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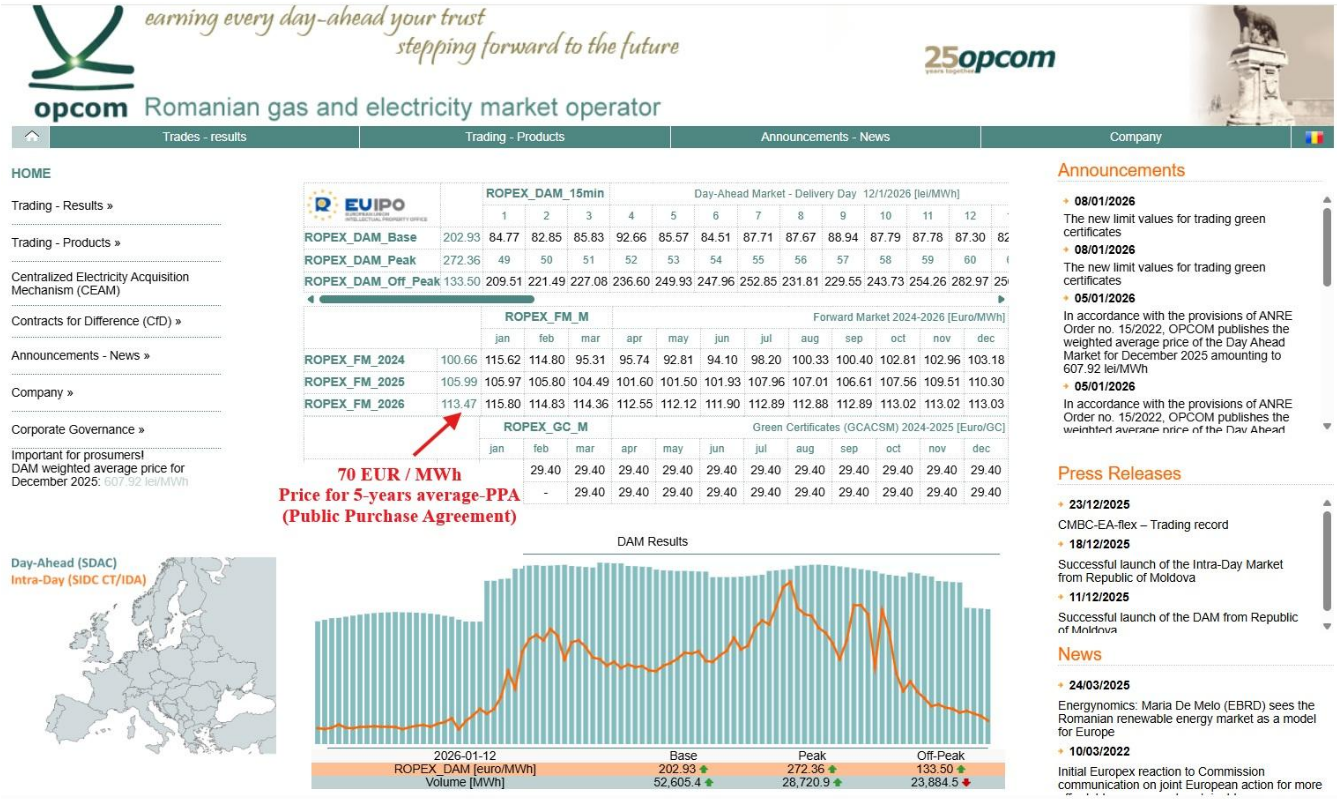
**According to www.opcom.ro



		ROPEX_DAM_15min			Day-Ahead Market - Delivery Day 12/1/2026 [lei/MWh]									
		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	82
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	25

		ROPEX_FM_M			Forward Market 2024-2026 [Euro/MWh]								
		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

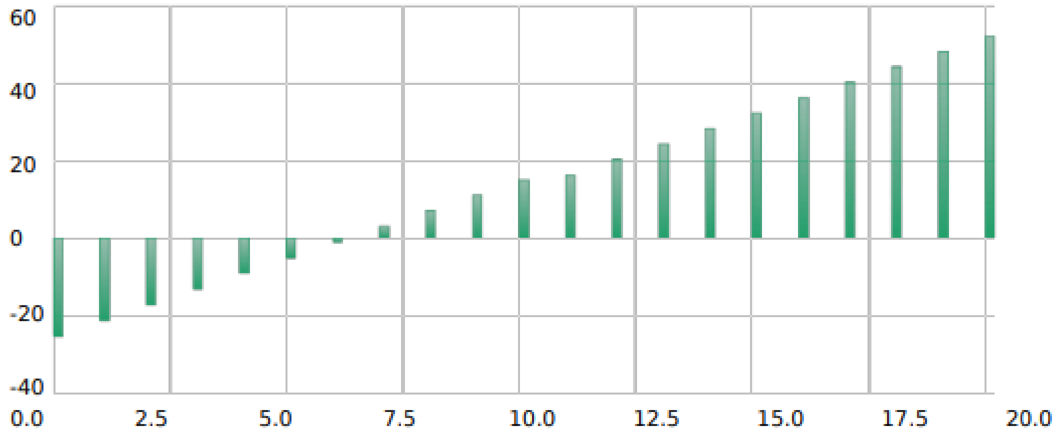
	ROPEX_GC_M			Green Certificates (GCACSM) 2024-2025 [Euro/GC]								
	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
		29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40
		-	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40

2026-01-12	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

Year	1	2	3	4	5	6	7	8	9	10
Production (kWh)	61 650 862	61 346 000	61 042 349	60 739 926	60 439 013	60 139 299	59 840 962	59 543 996	59 248 291	58 953 823
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)	4 337 138.1	4 337 269.5	4 337 379.9	4 337 470.6	4 337 562.1	4 337 632.7	4 337 695.3	4 337 749.9	4 337 789.0	4 337 811.1
Total (EUR)										
Revenues	**4 337 138.1**	**4 337 269.5**	**4 337 379.9**	**4 337 470.6**	**4 337 562.1**	**4 337 632.7**	**4 337 695.3**	**4 337 749.9**	**4 337 789.0**	**4 337 811.1**
Maintenance	260 360.1	265 567.3	270 878.6	276 296.2	281 822.1	287 458.6	293 207.8	299 071.9	305 053.4	311 154.4
Inverter renewal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Results	**4 076 778.0**	**4 071 702.2**	**4 066 501.3**	**4 061 174.4**	**4 055 740.0**	**4 050 174.1**	**4 044 487.5**	**4 038 678.0**	**4 032 735.6**	**4 026 656.6**

Year	11	12	13	14	15	16	17	18	19	20
Production (kWh)	58 660 630	58 368 828	58 078 486	57 789 584	57 501 717	57 215 095	56 929 878	56 646 086	56 363 714	56 082 608
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)	4 337 819.2	4 337 822.3	4 337 826.0	4 337 829.4	4 337 802.6	4 337 761.3	4 337 718.3	4 337 675.5	4 337 633.1	4 337 579.8
Total (EUR)										
Revenues	**4 337 819.2**	**4 337 822.3**	**4 337 826.0**	**4 337 829.4**	**4 337 802.6**	**4 337 761.3**	**4 337 718.3**	**4 337 675.5**	**4 337 633.1**	**4 337 579.8**
Maintenance	317 377.5	323 725.1	330 199.6	336 803.6	343 539.6	350 410.4	357 418.6	364 567.0	371 858.3	379 295.5
Inverter renewal	2 856 824.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Results	**1 163 617.5**	**4 014 097.2**	**4 007 626.4**	**4 001 025.9**	**3 994 262.9**	**3 987 350.9**	**3 980 299.6**	**3 973 108.5**	**3 965 774.8**	**3 958 284.3**

Cash flow illustration (million EUR):

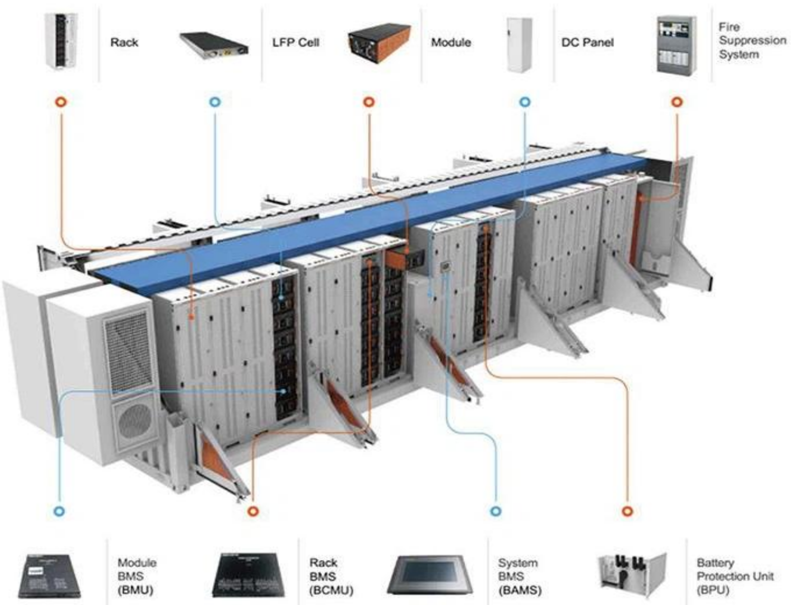


Years	1	2	3	4	5	6	7	8	9	10
million EUR	-21	-17	-13	-9	-5	-1	3	7	11	15

Years	11	12	13	14	15	16	17	18	19	20
million EUR	16	20	24	28	32	36	40	44	48	52

Technical description of the storage facility

- **(Battery container)**



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

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Economic Data Storage Facility

1. Investment cost

	Storage Capacity 169,94 MWh	
Investment	EUR	33.988.000,00

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
169,94 MWh 2.75 Cycles Charge/Discharge	Income	EUR 22.281.173,28	EUR 21.835.549,81	EUR 21.389.926,35	EUR 20.944.302,88	EUR 20.498.679,42	EUR 20.053.055,95	EUR 19.215.283,84	EUR 19.161.809,02	EUR 18.716.185,56	EUR 18.270.562,09
	Operational costs	EUR 1.559.682,13	EUR 1.528.488,49	EUR 1.497.294,84	EUR 1.466.101,20	EUR 1.434.907,56	EUR 1.403.713,92	EUR 1.345.069,87	EUR 1.341.326,63	EUR 1.310.132,99	EUR 1.278.939,35
	Profits	**EUR 20.721.491,15**	**EUR 20.307.061,33**	**EUR 19.892.631,50**	**EUR 19.478.201,68**	**EUR 19.063.771,86**	**EUR 18.649.342,04**	**EUR 17.870.213,97**	**EUR 17.820.482,39**	**EUR 17.406.052,57**	**EUR 16.991.622,74**

Cashflow

An	1	2	3	4	5	6	7	8	9	10
169,94 MWh 2.75 Cycles Charging/Discharging	-13.266.508,85 €	7.040.552,48 €	26.933.183,98 €	46.411.385,66 €	65.475.157,52 €	84.124.499,56 €	101.994.713,53 €	119.815.195,91 €	137.221.248,48 €	154.212.871,22 €

Economics PV + BESS

Project assumptions		
Project name	Corbu, Olt	
PV Installed Capacity	42,9	MWp
Annual energy production AC/MWp	1.398	MWh/Mwp/year
Annual PV pannel degradation	0,5%	p.a.
Installed Storage Capacity	169,94	MWh
Charge-Discharge Battery cycles/days	4	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)	33.988.000	€
Cost PV park	25.525.500	€
Customer-Side Works T_u	1.612	€
Grid Connection Installations T_r	-	€
Grid Reinforcement T_i specific	-	€
Grid Connection Route	480.000	€
TOTAL COST PV park + Storage	59.995.112	€
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
Utlities (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	17.998.534	€
Loan Amount	41.996.578	€
Leverage	70%	%
VAT credit line (21% of CAPEX hard cost)	12.598.974	€
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	24%	%
IRR equity	72%	%
NPV project	34.273.976	€
Payback period	4	years

According to the approved Engineering Solution Study, the indicative cost of grid reinforcement works (TI) is estimated at approximately 5.816.608,07€. This value will be reassessed at the commissioning stage, and experience from similar projects shows that the final reinforcement costs tend to decrease significantly.

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