 FusionSolar / SmartDesign

NL-Farm-Demo-CP



PV+ESS Solution

Address [REDACTED] Barendrecht, Netherlands



Project Period 2024 - 2049

Project Overview

System Capacity

 <p>PV System 600.08 kWp AC Power 450 kW Oversizing Ratio 133.35%</p>	 <p>ESS 193.6 kWh Total PCS Power 200 kW</p>
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Devices

Device Name	Manufacturer/Model	Quantity
PV Module	 LONGi/LR5-72HBD-520	1,154
Inverter	 SUN2000-150K-MG0	3
ESS Cabinet	 LUNA2000-97KWH-1H1	2

ESS Configuration Policy

Operating Mode : Maximum Self-Consumption+ TOU+ Peak Shaving

Configuration1 (Jan , Feb , Mar , Apr , May , Jun , Jul , Aug , Sep , Oct , Nov , Dec)

No.	Start Time	End Time	Charge/Discharge	Repeat On
1	00:00	12:00	Discharge	Sun , Mon , Tue , Wed , Thur , Fri , Sat
2	12:00	16:00	Charge	Sun , Mon , Tue , Wed , Thur , Fri , Sat
3	16:00	24:00	Discharge	Sun , Mon , Tue , Wed , Thur , Fri , Sat

Economic Benefits

Accumulated Net Profits of 25 Years: **120,834.23** EUR

ROI Overview

75,504 EUR
Initial Investment Cost

75,504 EUR
Own Funds

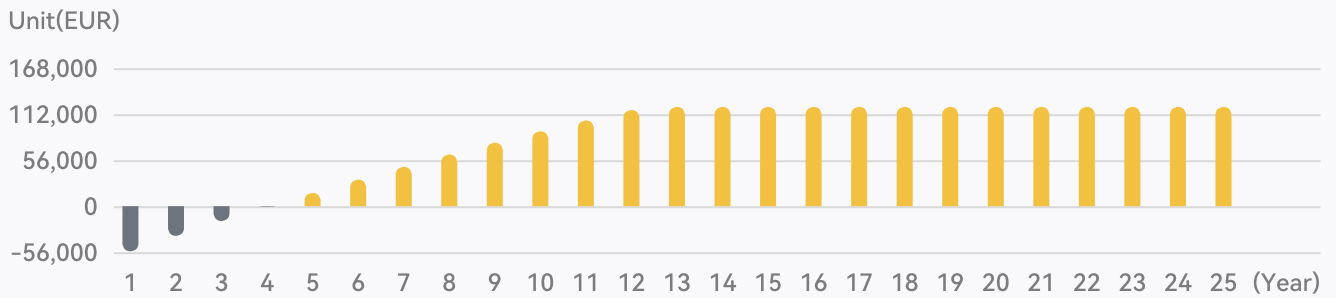
18,585 EUR
O&M Cost

51,524.73 EUR
NPV

14.77 %
IRR

5.17 years
Payback Period

0.19 EUR/kWh
LCOE



Economic Benefits – Details

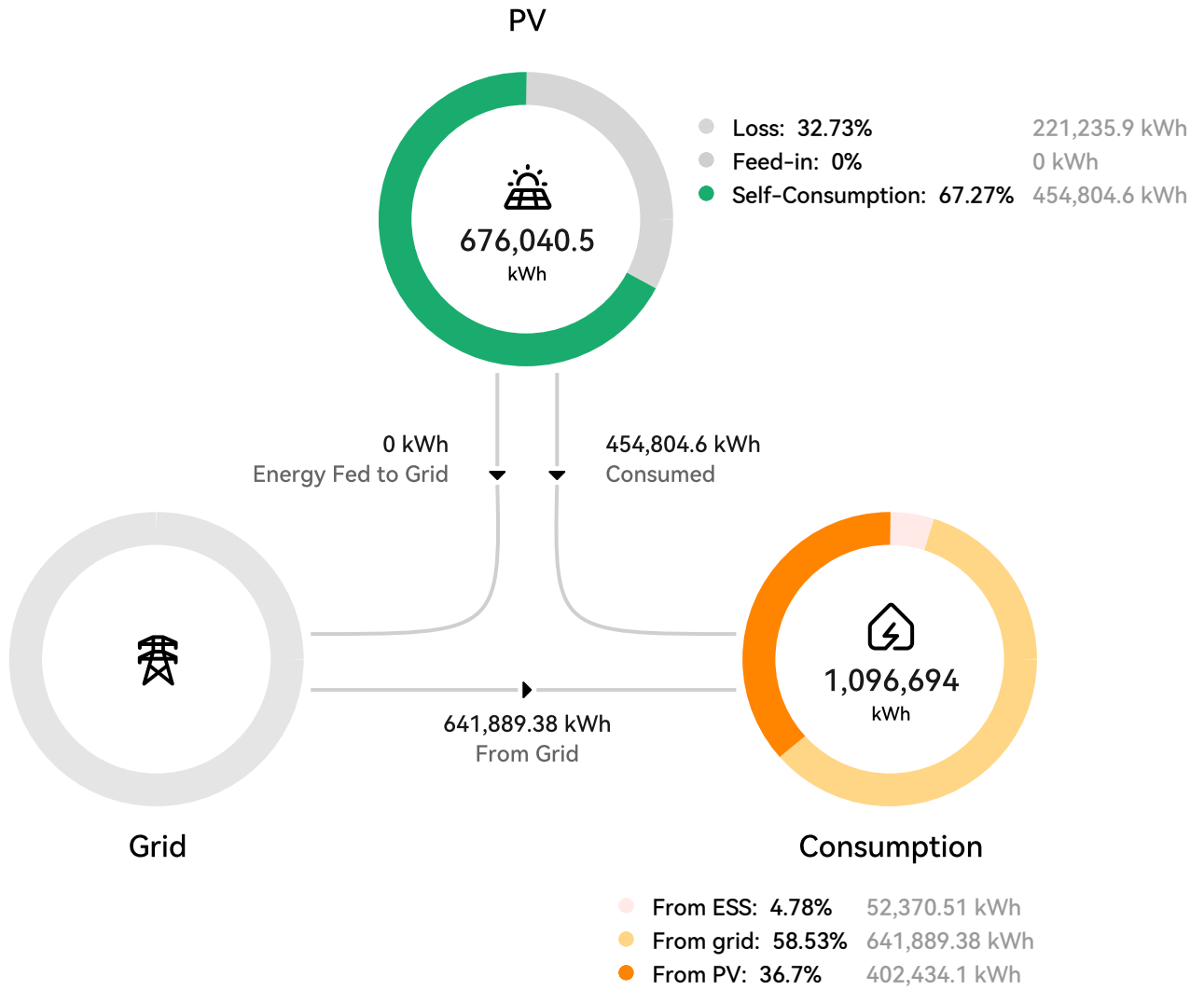
Year	Equipment Investment (EUR)	O&M Cost (EUR)	Feed-in Revenue (EUR)	Savings (EUR)	Cumulative Cash Flow (EUR)
0	-75,504	--	--	--	-75,504
1	0	-1,548.8	0	22,153.35	-54,899.45
2	0	-1,548.8	0	20,355.32	-36,092.93
3	0	-1,548.8	0	19,611.35	-18,030.38
4	0	-1,548.8	0	18,952.13	-627.05
5	0	-1,548.8	0	18,327.04	16,151.19
6	0	-1,548.8	0	17,720.95	32,323.34
7	0	-1,548.8	0	17,123.61	47,898.15
8	0	-1,548.8	0	16,538.12	62,887.47
9	0	-1,548.8	0	15,957.41	77,296.08
10	0	-1,548.8	0	15,380.58	91,127.86
11	0	-1,548.8	0	14,804.17	104,383.23
12	0	-1,548.8	0	14,224.6	117,059.03
13	3,775.2	0	0	0	120,834.23
14	0	0	0	0	120,834.23
15	0	0	0	0	120,834.23
16	0	0	0	0	120,834.23
17	0	0	0	0	120,834.23
18	0	0	0	0	120,834.23
19	0	0	0	0	120,834.23
20	0	0	0	0	120,834.23
21	0	0	0	0	120,834.23
22	0	0	0	0	120,834.23
23	0	0	0	0	120,834.23
24	0	0	0	0	120,834.23

Economic Benefits - Details

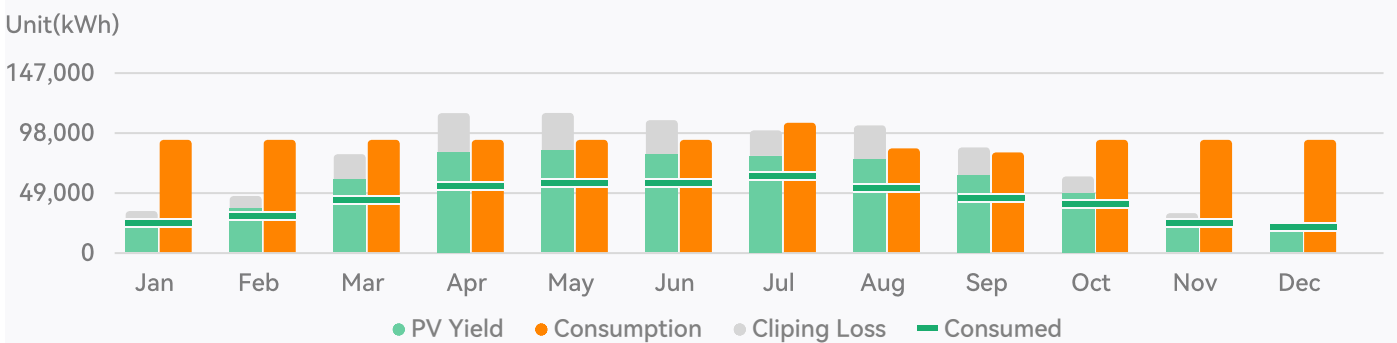
Year	Equipment Investment (EUR)	O&M Cost (EUR)	Feed-in Revenue (EUR)	Savings (EUR)	Cumulative Cash Flow (EUR)
25	0	0	0	0	120,834.23

Energy Management

First-Year Data



Monthly Energy Consumption in the First Year

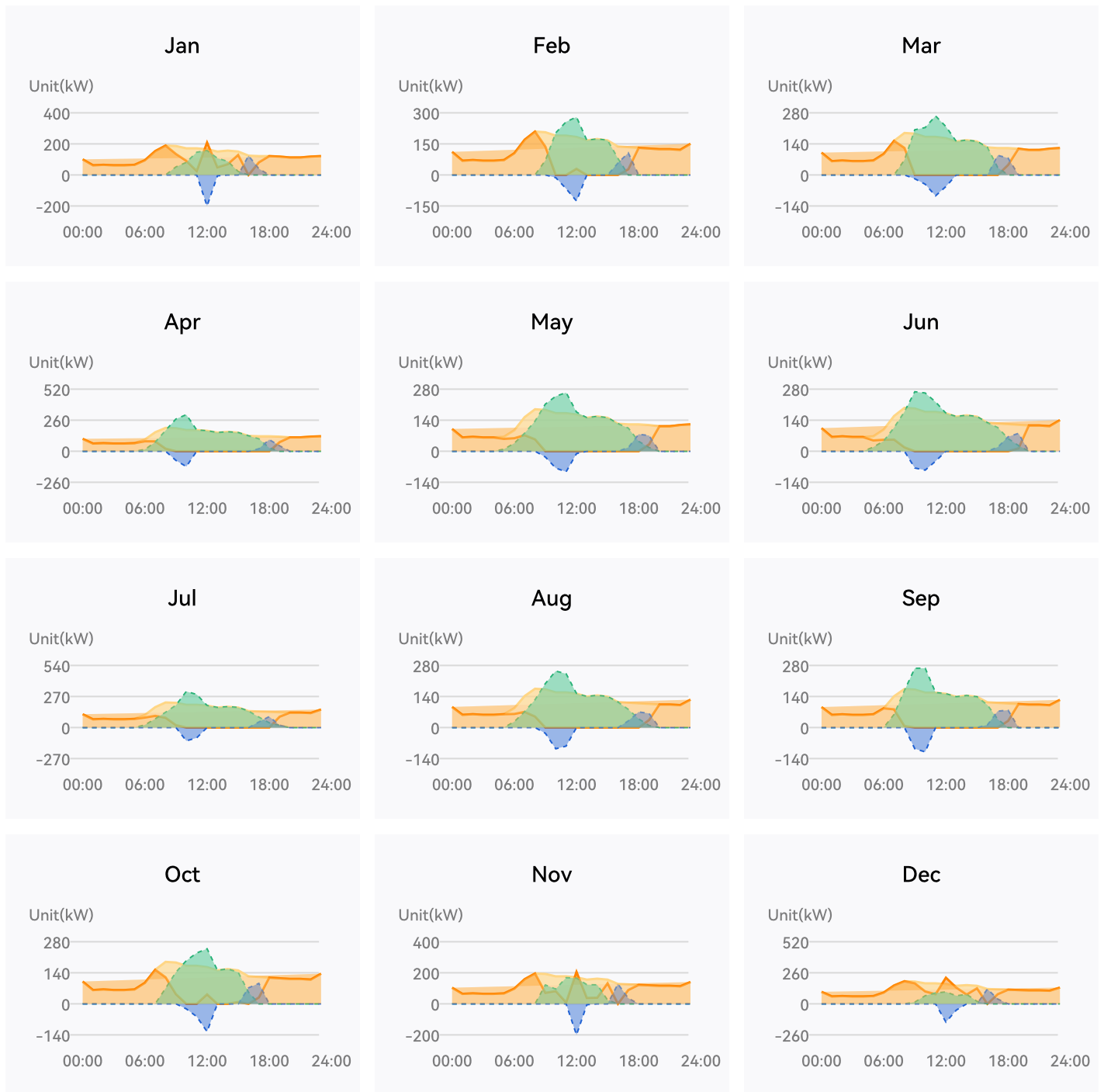


Energy Management

Month	PV Yield(kWh)	Consumption (kWh)	Clipping Loss(kWh)	Self-consumption (kWh)	Self-consumption Rate (%)
Jan	26,430.38	91,666	7,093.9	19,336.48	73
Feb	35,534.53	91,666	10,291.91	25,242.62	71
Mar	59,266.73	91,666	20,697.49	38,569.24	65
Apr	81,792.41	91,666	31,697.36	50,095.05	61
May	83,152.8	91,666	30,473.62	52,679.18	63
Jun	80,020.32	91,666	27,724.97	52,295.35	65
Jul	78,556.11	105,600	20,861.58	57,694.53	73
Aug	75,679.7	84,700	27,786.88	47,892.82	63
Sep	62,934.01	81,400	22,539.82	40,394.19	64
Oct	48,316.86	91,666	13,475.17	34,841.69	72
Nov	25,695.19	91,666	6,114.76	19,580.43	76
Dec	18,661.46	91,666	2,478.44	16,183.02	87

Power Curve

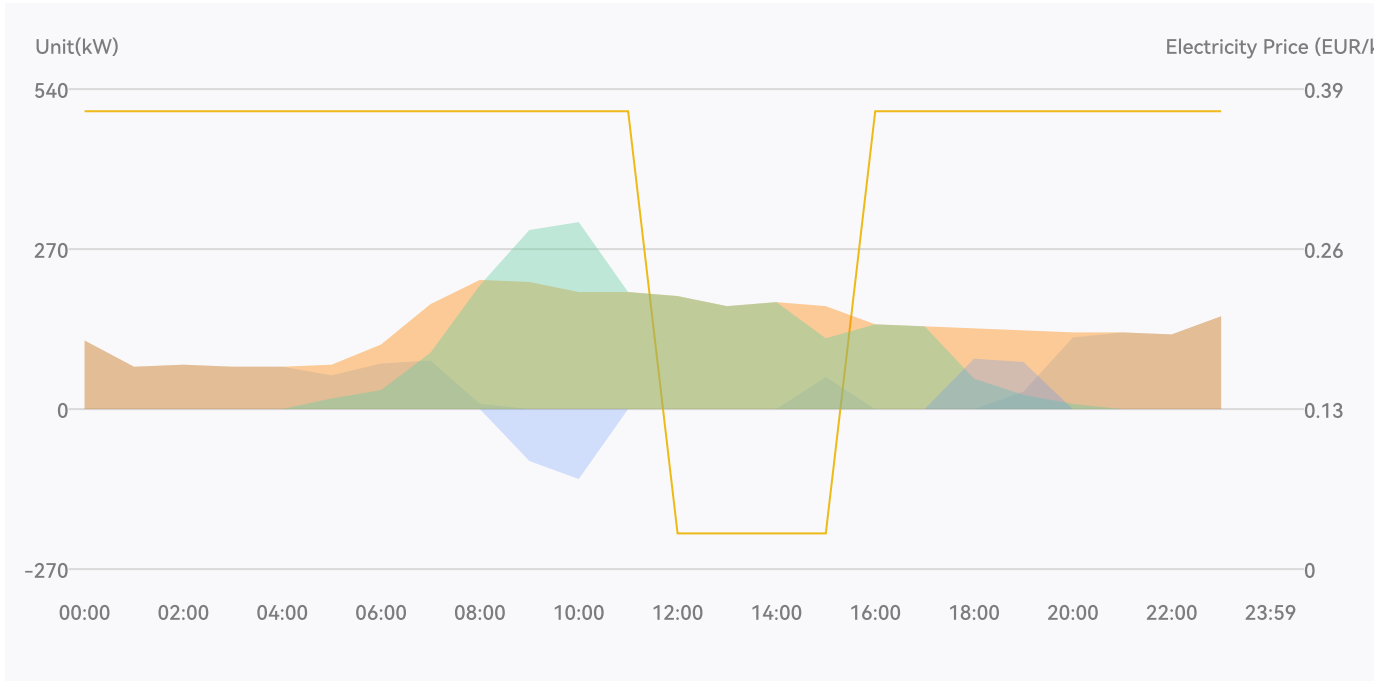
■ Load Power
 ■ +Mains Power/-Feed-in Power
 ■ PV Power
 ■ +ESS Discharge Power/-ESS Charge Power



Daily Energy Consumption

07-01

■ Load Power
 ■ +Mains Power/-Feed-in Power
 ■ PV Power
 ■ +ESS Discharge Power/-ESS Charge Power
 ■ Electricity Price Curve



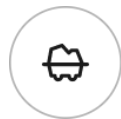
First-Year Environmental Benefits



200.44 tons
CO₂ Reduced



274
Equivalent Trees Planted



169 tons
Standard Coal Saved

Simulation Parameters

Time Zone	UTC +1:00
Weather Station	Rotterdam NL
Meteorological Data	Meteonorm
Plant Altitude	0 m