Summary of rooftop solar analysis

Location: Montijo, Portugal **Date of analysis**: March/2024

Recommendation*: install 6 solar panels (9.6 m^2), for a net present value of 5614 euros, with a payback of 6.1 years.*

Main economic results

Financing	NPV (EUR)	Payback (years)	IRR (%/year)	LCOE (EUR/kWh)
Gov. subsidies and 75% bank debt	5254	7.2	21.4	0.045
Gov. subsidies and 100% supplier's credit	5614	6.1	23.6	0.041
Gov. subsidies and 100% equity	5500	6.1	16.1	0.042
No gov. subsidies and 100% equity	4524	8.7	8.8	0.054

(All rows are for the same number of panels)

Additional results

The NPV is expected to change based on input parameters. In the best-case scenario, for the same number of 6 panels the NPV is 14840 euros whereas in the worst-case scenario it is negative 636 euros.

Main inputs and assumptions

Household and Economics

Electricity Consumption	3500	kWh/year	Inflation	2%	per year
Electricity price – buy	0.236	EUR/kWh	Bank loan interest rate	6.8%	per year
Electricity price – sell	0.019	EUR/kWh	Bank loan maturity	4	years
			Equity cost of capital	2.53%	per year

PV panels

Peak power	380	W/panel	System losses	14%	of output
Panel area	1.65	m^2/panel	Degradation with age	0.5%	Per year
Useful life	25	Years	Maintenance costs	2% of installation cost	EUR/year
Total cost of optimal installation size (without subsidies)				3128.4	EUR
Total cost of optimal installation size (after subsidies)				2128.4	EUR

Government subsidies

Refund of 85% of initial investment, up to a maximum of 1000 (1100 depending on geographical location) euros without battery and 3000 (3300) euros with battery.

Some PV panel suppliers

- https://www.iberdrola.pt/casa/energia-solar/smart-solar
- https://www.edp.pt/particulares/servicos/energia-solar/

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