Summary of rooftop solar analysis

Location: Carcavelos, Portugal **Date of analysis**: Dec/2021

***Recommendation**: install 4 solar panels (6.9 m^2), for a net present value of 7109 euros, with a payback of 1.8 years.*

Main economic results

Financing	NPV (EUR)	Payback (years)	IRR (%/year)	LCOE (EUR/kWh)
Gov. subsidies and 75% debt	7109	1.8	160	0.0114
Gov. subsidies and 100% equity	7167	1.7	59	0.0105
No gov. subsidies and 100% equity	4749	10.6	8.9	0.0450

(All rows are for the same number of panels)

Main inputs and assumptions

Household and Economics

Electricity Consumption	3600	kWh/year	Inflation	1.7%	per year
Electricity price – buy	0.1777	EUR/kWh	Bank loan interest rate	6%	per year
Electricity price – sell	0	EUR/kWh	Bank loan maturity	5	years
			Equity cost of capital	0.17%	per year

PV panels

Peak power	350	W/panel	System losses	14%	of output
Panel area	1.71	m^2/panel	Degradation with age	0%	Per year
Useful life	25	Years	Maintenance costs	10	EUR/year per panel
			Total cost of optimal installation size (without subsidies)	2844	EUR
			Total cost of optimal installation size (after subsidies)	427	EUR

Government subsidies

Refund of 85% of initial investment, up to a maximum of 2500 euros.

Some PV panel suppliers

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

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