

# Summary of rooftop solar analysis

**Location:** Évora, Portugal

**Date of analysis:** Dec/2025

**Recommendation:** install 5 solar panels ( $9,8 \text{ m}^2$ ), for a net present value of €1.786, with a payback of 13,9 years.

## Main economic results

Financing	NPV (EUR)	Payback (years)	IRR (%/year)	LCOE (EUR/kWh )
No gov. subsidies and 75% bank debt	1.786	13,9	9,3	0,066
No gov. subsidies and 100% equity	1.882	13,0	8,2	0,065

(All rows are for the same number of panels)

## Additional results

The possibility of the installation of a battery was analyzed and although it yielded a positive NPV, which only occurs for small installations, the standalone NPV sits at €1.715 for a 2,5 kWh installation and converges to negative values at higher capacities

## Main inputs and assumptions

### *Household and Economics*

Electricity Consumption	3.708	kWh/year	Inflation	2,00%	per year
Electricity price – buy	0,197	EUR/kWh	Bank loan interest rate	4,60%	per year
Electricity price – sell	0.000	EUR/kWh	Bank loan maturity	5	years
			Equity cost of capital	2,78%	per year

### *PV panels*

Peak power	465	W/panel	Performance Ratio	80,0%	of output
Panel area	1,95	$\text{m}^2/\text{panel}$	Degradation with age	0,35%	Per year
Useful life	25,0	Years	Maintenance costs	79	EUR/year
	Total cost of optimal installation size (without subsidies)			2415	EUR

## Some PV panel suppliers

- <https://sunmac.pt>

- <https://www.otovo.pt/a/home>

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