Summary of rooftop solar analysis

Location: Portimão, Portugal **Date of analysis**: Dec/2022

***Recommendation**: install 9 solar panels (16.7 m^2), for a net present value of 7256 euros, with a payback of 4.19 years.*

Main economic results

Financing	NPV (EUR)	Payback (years)	IRR (%/year)	LCOE (EUR/kWh)
Gov. subsidies and 75% debt	7256	4.19	38.75	0.0209
Gov. subsidies and 100% equity	7301	4.36	24.03	0.0206
No gov. subsidies and 100% equity	4801	9.52	10.26	0.0384

(All rows are for the same number of panels)

Additional results

Under current market conditions, the additional installation of a battery storage cannot be justified from an economic perspective. Only when prices decrease, a battery adds value.

The NPV of installing solar panels may vary depending on the future developments of input parameters, and it is highly sensitive to the total annual consumption, and electricity price (buy and sell).

Currently, the applications for the government subsidy are closed. This can significantly impact the economic value of the installation.

Main inputs and assumptions

Household and Economics					
Electricity Consumption	3600	kWh/year	Inflation	2.2%	per year
Electricity price – buy	0.19	EUR/kWh	Bank loan interest rate	4.1%	per year
Electricity price – sell	0.03	EUR/kWh	Bank loan maturity	5	years
			Equity cost of capital	3%	per year

PV panels					
Peak power	380	W/panel	System losses	13.5%	of output
Panel area	1.86	m^2/panel	Degradation with age	0.5%	Per year
Useful life	25	Years	Maintenance costs	1%	of installation costs
Total cost of optimal installation size (without subsidies)				4402	EUR
Total cost of optimal installation size (after subsidies)				1902	EUR

Government subsidies

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

Some PV panel suppliers

- https://goldenergy.pt/paineis-solares/
- https://www.edp.pt/particulares/servicos/energia-solar/
- https://www.iberdrola.pt/casa/energia-solar/paineis-solares

Author of this report

Bruno Lázaro

48230@novasbe.pt

https://www.linkedin.com/in/lazarobruno29/