Summary of rooftop solar analysis

Location: Padova, Italy   **Date of analysis**: May/2024

__Recommendation__: install 12 solar panels (23.4 m^2), for a net present value of 7070 euros, with a payback of 13.39 years.

Main economic results

Financing	NPV (EUR)	Payback (years)	IRR (%/year)	LCOE (EUR/kWh)
Gov. subsidies and 75% bank debt				
PV System w/o Battery	7070	13.39	9.44%	0.069
PV System w/ Battery (4.6 kWh capacity)	7262	13.09	8.88%	0.084
Gov. subsidies and 100% equity	8072	11.82	9.44%	0.064
No gov. subsidies and 100% equity	6658	14.04	7.71%	0.075

(All rows are for the same number of panels)

Additional results

A system of 13 panels, together with a battery of 4.6 kWh, requires an initial investment of 13135€, but provides an NPV of 8072 euros, with a payback of 13.09 years.

Main inputs and assumptions

Household and Economics

Electricity Consumption	3970	kWh/year	Inflation	2.0%	per year
Electricity price – buy	0.2724	EUR/kWh	Bank loan interest rate	7.6%	per year
Electricity price – sell	0.061	EUR/kWh	Bank loan maturity	5	years
			Equity cost of capital	2.74%	per year

PV panels

Peak power	430	W/panel	System losses	14%	of output
Panel area	1.95	m^2/panel	Degradation with age	0.5%	Per year
Useful life	25	Years	Maintenance costs	15	EUR/ panel

Total cost of optimal installation size (without subsidies)	9360	EUR
Total cost of optimal installation size (after subsidies)	5160	EUR

Government subsidies

Government subsidies for photovoltaic panels include a deduction of 50% of the costs for the installation of the panels, up to a maximum of 96,000 EUR. This amount will be redistributed over 10 years in 10 equal installments.