

# Summary of rooftop solar analysis

**Location:** Ravello, Italy

**Date of analysis:** January/2024

**Recommendation:** install 15 solar photovoltaic (PV) panels (31.21 m<sup>2</sup>), for a net present value (NPV) of €10,297.05, with a payback of 10.72 years.

## Main economic results

Financing	NPV (EUR)	Payback (years)	IRR (%/year)	LCOE (EUR/kWh)
Gov. subsidies and 75% bank debt	10,297.05	10.72	11.31	0.05
Gov. subsidies and 100% supplier's credit	9,563.34	11.10	11.56	0.05
Gov. subsidies and 100% equity	11,674.57	9.09	11.33	0.04
No gov. subsidies and 100% equity	9,960.34	10.77	9.62	0.05

(All rows are for the same number of panels)

## Additional results

The final recommendation is robust to alternative electricity prices evolutions – only in the most extreme scenarios evaluated (with energy prices plummeting below reasonable levels), the NPV turns negative. Adding to the system a battery is not monetarily advantageous.

## Main inputs and assumptions

<i>Household and Economics</i>					
Electricity Consumption	2700	kWh/year	Inflation	2%	per year
Electricity price – buy	0.27	EUR/kWh	Bank loan interest rate	7%	per year
Electricity price – sell	0.04	EUR/kWh	Bank loan maturity	5	years
			Equity cost of capital	2.54%	per year
<i>PV panels</i>					
Peak power	435	W/panel	System losses	13.5%	of output
Panel area	2.08	m <sup>2</sup> /panel	Degradation with age	0.6%	Per year
Useful life	25	Years	Maintenance costs	150	EUR/year per panel
			Total cost of optimal installation size (without subsidies)	11,217.75	EUR
			Total cost of optimal installation size (after subsidies)	9,254.64	EUR

## Government subsidies

Tax deduction calculated at 50% of the installation costs and subject to a maximum of €96,000 per housing unit (receivable in equal installments over 10 years). This incentive does not represent a direct cash rebate but rather a reduction in taxable income.

### **Some PV panel suppliers**

- <https://www.enelxstore.com/it/it/prodotti/fotovoltaico/pannelli-fotovoltaici>
- <https://www.irenlucegas.it/prodotti/fotovoltaico-casa>
- <https://fotovoltaico.sorgenia.it>

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