

# Summary of rooftop solar analysis

**Location:** Florence, Italy

**Date of analysis:** Nov/2021

**Recommendation:** install 12 solar panels (26.5 m<sup>2</sup>), for a net present value of 5,781.05 euros, with a payback of 3.08 years.

## Main economic results

Financing	NPV (EUR)	Payback (years)	IRR (%/year)	LCOE (EUR/kWh)
[Gov. subsidies and] 75% debt	5,781.05	3.08	2.5	0.048
[Gov. subsidies and] 100% equity	6,988.07	7.8	12	0.019
[No gov. subsidies and] 100% equity	-3,311.66	Never	-3.84	0.038

(All rows are for the same number of panels)

## Additional results

A system with 12 panels requires an initial investment of ~4,380€ but provides a NPV of ~5,780€. If the household operates a smart use of the main appliances, by setting the load time during day hours, the NPV rises to ~7,225€.

## Main inputs and assumptions

<i>Household and Economics</i>					
Electricity Consumption	3020	kWh/year	Inflation	2%	per year
Electricity price – buy	0.24	EUR/kWh	Bank loan interest rate	4.5%	per year
Electricity price – sell	0.03	EUR/kWh	Bank loan maturity	15	years
			Equity cost of capital	0.091%	per year
<i>PV panels</i>					
Peak power	445	W/panel	System losses	15%	of output
Panel area	2.21	m <sup>2</sup> /panel	Degradation with age	1%	Per year
Useful life	30	Years	Maintenance costs	0	EUR/year per panel
			Total cost of optimal installation size (without subsidies)	8756.5	EUR
			Total cost of optimal installation size (after subsidies)	4378.25	EUR

## Government subsidies

The state offers a 50% discount on the invoice which brings the price down to 4,378.25€. It also offers an energy exchange service via the GSE agency at which the household can exchange the electricity it produces at a discount and can sell the energy it will not consume to the grid.



### **Some PV panel suppliers**

- <https://www.otovo.it/>
- <http://www.testenergia.it/>

### **Author of this report**

Lupo Steinhauslin

[lupomsteinhauslin@gmail.com](mailto:lupomsteinhauslin@gmail.com)

<https://www.linkedin.com/in/lupo-steinhauslin/>