Final report of rooftop solar analysis

Location: Munich, Germany **Date of analysis**: Dec/2025

***Recommendation**: Install 35 solar panels (70 m^2), for a net present value of 13,409 EUR, with a payback of 10.1 years.*

Main economic results

Financing	NPV (EUR)	Payback (years)	IRR (%/year)	LCOE (EUR/kWh)
Gov. subsidies and 75% bank debt	13,409	10.1	11.6	0.052
Gov. subsidies and 100% equity	14,740	8.8	10.2	0.049
No gov. subsidies and 100% equity	-8,573	-	-1.8	0.058

(All rows are for 35 panels)

Main inputs and assumptions

Household and Economics

Electricity consumption	4,500	kWh/year	Inflation	2%	per year
Electricity price – buy	0.35	EUR/kWh	Bank loan interest rate	6.5%	per year
Electricity price – sell	0.0736	EUR/kWh	Bank loan maturity	5	years
			Equity cost of capital	2.65%	per year

PV panels

Peak power	450	W/panel	System losses	13.5%	of output
Panel area	2	m^2/panel	Degradation with age	0.5%	per year
Useful life	25	Years	Maintenance costs	1.5%	of installation cost
			Total cost of optimal installation size (without subsidies)	18,668	EUR
			Total cost of optimal installation size (after subsidies)	15,688	EUR

Additional results

System	NPV (EUR)	Payback (years)	IRR (%/year)	Autarky (%)
PV	14,740	8.8	10.2	46
PV + 9.5 kWh battery	23,276	8.6	11.0	95
PV + 22.5 kWh battery + heat pump	24,866	10.3	7.5	76
PV + 20 kWh battery + EV	30,958	9.4	8.7	97
PV + 29 kWh battery + heat pump + EV	28,795	10.5	6.7	74

(All rows are for 35 panels, including gov. subsidies and full equity funding)

Government subsidies

Fixed 20-year feed-in tariffs are granted such as 0.08 EUR/kWh for systems up to 10 kWp, provided that part of the electricity generated is self-consumed. PV systems up to 30 kWp are exempt from the 19% Value Added Tax on purchase and installation.

Some PV panel suppliers

- https://soly-energy.de/produkte/pv-anlage
- https://solarwerke-deutschland.de/kontakt/#solarkonfigurator
- https://mehr-ampere.de/loesungen

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