Executive Summary of Rooftop Solar PV Analysis

Location: Stockholm, Sweden **Date of analysis**: Dec/2023

***Recommendation**: install 26 solar photovoltaic (PV) panels (47.7 sqm), for a net present value (NPV) of 11,701 Euros (133,730 Swedish krona), with a payback period of 10.2 years.*

Main economic results

Financing	NPV (EUR)	NPV (SEK)	Payback (years)	IRR (%/year)	LCOE (EUR/kWh)	LCOE (SEK/kWh)
Gov. subsidies, 75% bank debt	11,701	133,730	10.2	16.2%	0.0663	0.7577
Gov. subsidies, 100% supplier's credit	11,267	128,766	12.2	25.3%	0.0683	0.7809
Gov. subsidies, 100% equity	13,004	148,622	8.9	11.6%	0.0602	0.6882
No gov. subsidies, 100% equity	926	10,584	16.5	4.0%	0.0791	0.8181

(All rows are for the same number of panels)

Main inputs and assumptions

Household and Economics

Electricity Consumption	9000	kWh/year	Inflation	2023	6.9%	per year
Electricity price – buy	1.81	SEK/kWh		2024	3.6%	per year
Electricity price – sell	0.44	SEK/kWh		2025	2.7%	per year
Bank loan interest rate	6.15%	per year		2026	2.3%	per year
Bank loan maturity	12	years		2027+	2.0%	per year
Equity cost of capital	3.36%	per year	Exchange rate SEK-EUR		0.0875	SEK/EUR

PV panels

Peak power	375	W/panel	System losses	13.5%	of output
Panel area	1.83	m^2/panel	Degradation with age	0.5%	Per year
Useful life	25	Years	Fixed O&M cost system	480	SEK/year
Variable O&M cost	0	SEK/year	Fixed O&M cost/panel	40	SEK/year
Total cost of optimal installation size (without subsidies)			12,551 EUR	143,442	SEK
Total cost of optimal installation size (after subsidies)			10,116 EUR	115,614	SEK

Government subsidies

There are two main subsidies, the green deduction (grön teknik) and ROT (Repairs, Conversion, Extension) deduction. Generally, one can avail either one, but not both. Since the green deduction is often larger and therefore more recommended, it was the one assumed in this project. For solar panels, green deduction covers 19.4% of complete cost (material and installation costs). For batteries for storing self-produced electricity, green deduction covers 50% of material and labor costs. There is also an income tax reduction of 0.60 SEK/kWh for electricity fed back to the grid.

Some PV panel suppliers

- https://hemsol.se/
- https://www.solarpowersolutions.se/
- https://www.ecokraft.se/

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