

Lighting Energy Savings Calculator

Estimates annual energy use, electricity-cost savings, and simple payback for a lighting retrofit from fixture wattage, operating schedule, electricity rate, and project cost.

Generated October 10, 2026

<https://www.elecatrix.com/lighting/lighting-energy-savings-calculator/>

Inputs

Input	Value	Unit
Existing fixture watts	100	W
Replacement fixture watts	60	W
Fixture count	10	fixtures
Operating hours per day	8	h/day
Operating days per year	365	days/year
Electricity rate	0.15	\$/kWh
Project cost	700	\$

Results

Result	Value	Unit
Existing annual energy	2920	kWh/year
Replacement annual energy	1752	kWh/year
Annual energy saved	1168	kWh/year
Annual cost saved	175.2	\$/year
Simple payback	3.9954	years

Calculation details

Detail	Value	Unit
Calculation basis	Annual energy uses fixture wattage, fixture count, average daily hours, and operating days. Cost uses the entered electricity rate.	

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Energy boundary

No light-level, controls, maintenance, demand-charge, tax, rebate, tariff, HVAC, photometric, energy-code, or project-approval result is made.

Formulas

Existing annual energy (kWh) = (existing watts x fixture count x hours/day x days/year/1000)

Replacement annual energy (kWh) = (replacement watts x fixture count x hours/day x days/year/1000)

Annual energy saved = existing annual energy - replacement annual energy

Annual cost saved = annual energy saved x electricity rate

Simple payback (years) = (project cost/annual cost saved)quadwhen annual cost saved > 0

Warnings and limitations

This lighting energy-savings estimate uses entered wattage, schedule, and electricity-rate assumptions. It does not model light levels, controls, maintenance, demand charges, taxes, rebates, HVAC interaction, utility tariffs, or project approval.