

LED Retrofit Payback Calculator

Estimate annual energy savings and simple payback from fixture wattage, count, operating schedule, electricity rate, and project cost.

Generated October 10, 2026

<https://www.elecatrix.com/lighting/led-retrofit-payback-calculator/>

Inputs

Input	Value	Unit
Existing fixture watts	100	W/fixture
LED fixture watts	40	W/fixture
Fixture count	50	fixtures
Operating hours per day	10	h/day
Operating days per year	260	days/year
Electricity rate	0.12	\$/kWh
Project cost	6000	\$

Results

Result	Value	Unit
Existing annual energy	13000	kWh/year
LED annual energy	5200	kWh/year
Annual energy saved	7800	kWh/year
Annual cost saved	936	\$/year
Simple payback	6.4103	years

Calculation details

Detail	Value	Unit
Calculation basis	Existing and LED annual kWh use the same fixture count and schedule. Simple payback divides project cost by annual energy-cost savings.	

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Screening boundary

LED retrofit payback arithmetic only; no rebate, maintenance, labor escalation, financing, demand, compatibility, photometric, warranty, or approval result is made.

Formulas

$$\text{existing annual kWh} = \text{existing watts} \times \text{fixture count} \times \text{hours/day} \times \text{days/year} / 1000$$
$$\text{LED annual kWh} = \text{LED watts} \times \text{fixture count} \times \text{hours/day} \times \text{days/year} / 1000$$
$$\text{annual kWh saved} = \text{existing annual kWh} - \text{LED annual kWh}$$
$$\text{annual cost saved} = \text{annual kWh saved} \times \text{electricity rate}$$
$$\text{simple payback years} = \text{project cost} / \text{annual cost saved}$$

Warnings and limitations

This is a simple energy-payback screen. It does not include rebates, maintenance, labor escalation, financing, demand charges, compatibility, photometric equivalence, warranty, or approval.