Appliance Electricity Use and Monthly Cost

Energy use and cost of an appliance or group of appliances from power rating, quantity, hours of use, days per month and electricity price.

Method: Energy = power × time × duty cycle

Input parameters

Unit system: SI

Parameter	Value	Unit
Power rating of one appliance	1,500.0	W
Number of appliances	1.0000	
Hours of use per day	8.0000	h
Days of use per month	30.000	
Average load as a share of rating (duty cycle)	60.000	%
Electricity price per kWh	7.0000	

Calculated results

Parameter	Value	Unit
Energy per day	7.2000	kWh
Energy per month	216.00	kWh
Cost per month	1,512.0	
Cost per year	18,144	

Notes for this case

• Energy is power × time: a 1.5 kW air conditioner running 8 hours a day uses 12 kWh at full rating. Appliances with thermostats (air conditioners, refrigerators, water heaters, irons) run only part of the time, so multiply by the duty cycle. One unit of electricity on the bill is one kWh.

Formula and method

$$E_d = P n\, f_l\, h, \quad E_m = E_d\, d, \quad C_m = E_m c$$

Variables

P	Power rating of one appliance	W
n	Number of appliances	-
h	Hours of use per day	s
d	Days of use per month	-
f_l	Average load as a share of rating (duty cycle)	-
c	Electricity price per kWh	-
E_d	Energy per day	J
E_m	Energy per month	J
C_m	Cost per month	-
C_y	Cost per year	-

Method and standards

Appliance energy.

Assumptions and limits

- Constant average load.

References

Energy = power × time × duty cycle

Report details

Report reference	FCC-0TY2-H9H1 (the same inputs always give the same reference)
Generated	23 November 2026, 17:50 UTC
Calculator	Appliance Electricity Use and Monthly Cost
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Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/electrical/power/appliance-energy-consumption

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.