CA · AUGUST 2026

Home Energy Cost Workbook

California Edition

Electricity price: 29.75¢ per kilowatt-hour (California residential average, August 2026)

50 appliances costed at this state's rate

Worksheets for auditing, tracking and payback

Every figure is computed from published U.S. government data.

Sources and formulas are on the last page.

What this is

A worked reference for one state. The tables are already costed at California's average residential electricity price, so you are not converting anything in your head, and the worksheets are laid out for a pen.

Use it in three passes: read what things cost here, walk the house and fill in the audit, then track the meter for a few months to see whether what you changed actually moved the bill.

California at a glance

RATE	A YEAR AGO	U.S. AVERAGE	RANK
29.75¢	**30.92¢**	**18.16¢**	**4Th**

Households in California paid an average of 29.75¢ per kilowatt-hour in August 2026. That is 64% above the national average, and the 4th most expensive of the 51 U.S. jurisdictions the Energy Information Administration reports. Year over year the rate is down 3.8% from August 2025.

WHAT THE AVERAGE INCLUDES

This is revenue divided by sales: every fixed charge, tier, tax and rate plan in the state is already blended in. No individual household pays exactly this number, which is why the worksheets ask for yours.

What a kilowatt-hour buys here

Running all 50 appliances in this workbook for a year would cost $8,395 at this rate. No household runs all of them, but the ranking is the useful part: the top five items are usually most of the bill.

Largest single loads	kWh/yr	Per year	Share of the list
Electric car	3.800	$1.130	13.5%
Electric water heater	3,500	$1,041	12.4%
Hot tub	2.500	$744	8.9%
Central air conditioner	2,352	$700	8.3%
Heat pump	2,160	$643	7.7%

Ten changes, ranked for California

Each row is the energy a change avoids, priced at 29.75¢/kWh. The order is specific to this state: at a high rate the big thermal loads dominate, at a low rate the cheap habit changes climb the list.

#	Change	kWh avoided	Worth per year
1	Switch to a heat-pump water heater	2,300	$684
2	Run the pool pump at half speed for twice as long	1,296	$386
3	Swap the 10 most-used bulbs to LED	931	$277
4	Retire the second refrigerator in the garage	900	$268
5	Replace an old refrigerator with an ENERGY STAR model	500	$149
6	Line-dry half your laundry	390	$116
7	Drop the water heater setpoint from 140F to 120F	280	$83.30
8	Raise the cooling setpoint by 2 degrees	235	$69.91
9	Cut standby load from 45 W to 20 W	219	$65.15
10	Skip the dishwasher's heated dry	104	$30.94

- 1. Switch to a heat-pump water heater — A resistance tank uses roughly 3,500 kWh a year; a heat-pump model does the same job for about a third of that.
- 2. Run the pool pump at half speed for twice as long — Pump power scales with the cube of speed, so the same water turnover costs about a quarter of the energy. Only applies if you have a pool.
- 3. Swap the 10 most-used bulbs to LED — Ten 60 W incandescent bulbs at 5 hours a day against 9 W LEDs of the same light output.
- 4. Retire the second refrigerator in the garage — An older garage fridge running year-round in an unconditioned space. Removing it entirely beats replacing it with anything.
- 5. Replace an old refrigerator with an ENERGY STAR model — A 2000s side-by-side against a current top-freezer, on the manufacturers' own annual figures.

Not every line applies to every house. Skip the pool pump if you have no pool; the rest of the ranking is unaffected.

Every appliance, costed for California

Sorted by annual cost. The assumption column is the usage profile behind the number — if yours differs, scale the result directly.

Appliance	Category	Assumption	kWh/yr	Month	Year
Electric car	Outdoor & hobby	3,800 kWh/yr	3,800	$94.21	$1,130
Electric water heater	Laundry & water	3,500 kWh/yr	3,500	$86.77	$1,041
Hot tub	Outdoor & hobby	2,500 kWh/yr	2,500	$61.98	$744
Central air conditioner	Heat & cool	3,500W @70%, 8h x 120d	2,352	$58.31	$700
Heat pump	Heat & cool	2,400W @60%, 10h x 150d	2,160	$53.55	$643
Pool pump	Outdoor & hobby	1,200W, 8h x 180d	1,728	$42.84	$514
Electric baseboard heater	Heat & cool	1,500W @50%, 12h x 150d	1,350	$33.47	$402
Garage refrigerator	Kitchen	900 kWh/yr	900	$22.31	$268
Space heater	Heat & cool	1,500W @60%, 8h x 120d	864	$21.42	$257
Portable air conditioner	Heat & cool	1,100W @80%, 8h x 120d	845	$20.94	$251
Electric clothes dryer	Laundry & water	3.00 kWh x 5/wk	780	$19.34	$232
Window air conditioner	Heat & cool	900W @80%, 8h x 120d	691	$17.14	$206
Aquarium	Outdoor & hobby	150W @45%, 24h x 365d	591	$14.66	$176
Gaming pc	Electronics	400W, 4h x 365d	584	$14.48	$174
Well pump	Outdoor & hobby	1,000W, 1.5h x 365d	548	$13.57	$163
Dehumidifier	Heat & cool	500W @60%, 12h x 150d	540	$13.39	$161
Air purifier	Heat & cool	50W, 24h x 365d	438	$10.86	$130
Refrigerator	Kitchen	400 kWh/yr	400	$9.92	$119
Desktop computer	Electronics	200W, 8h x 250d	400	$9.92	$119
Electric oven	Kitchen	1.60 kWh x 4/wk	333	$8.25	$99.01
Dishwasher	Kitchen	1.20 kWh x 5/wk	312	$7.73	$92.82
Chest freezer	Kitchen	300 kWh/yr	300	$7.44	$89.25
Game console	Electronics	200W, 3h x 365d	219	$5.43	$65.15
Coffee maker	Kitchen	900W, 0.5h x 365d	164	$4.07	$48.86
55-inch led tv	Electronics	90W, 5h x 365d	164	$4.07	$48.86
Washing machine	Laundry & water	0.50 kWh x 5/wk	130	$3.22	$38.67
Air fryer	Kitchen	1,500W @70%, 0.4h x 300d	126	$3.12	$37.48
Laptop	Electronics	60W, 8h x 250d	120	$2.97	$35.70
Box fan	Heat & cool	75W, 10h x 150d	112	$2.79	$33.47
Microwave	Kitchen	1,200W, 0.2h x 365d	110	$2.71	$32.58
Electric kettle	Kitchen	1,500W, 0.2h x 365d	110	$2.71	$32.58
Incandescent bulb	Lighting	60W, 5h x 365d	110	$2.71	$32.58
Treadmill	Outdoor & hobby	700W, 0.8h x 200d	105	$2.60	$31.24
Slow cooker	Kitchen	200W, 8h x 60d	96	$2.38	$28.56
Hair dryer	Laundry & water	1,800W, 0.1h x 350d	94	$2.34	$28.11
Wi-fi router	Electronics	10W, 24h x 365d	88	$2.17	$26.06
Ceiling fan	Heat & cool	60W, 8h x 180d	86	$2.14	$25.70
3d printer	Outdoor & hobby	120W @60%, 6h x 150d	65	$1.61	$19.28
Computer monitor	Electronics	30W, 8h x 250d	60	$1.49	$17.85
Security camera	Electronics	5W, 24h x 365d	44	$1.09	$13.03
Electric pressure cooker	Kitchen	1,000W @35%, 1h x 120d	42	$1.04	$12.49
Rice cooker	Kitchen	700W @40%, 0.8h x 200d	42	$1.04	$12.49

Appliance	Category	Assumption	kWh/yr	Month	Year
Electric lawn mower	Outdoor & hobby	0.80 kWh x 1/wk	42	$1.03	$12.38
Electric blanket	Heat & cool	80W @50%, 8h x 120d	38	95.2¢	$11.42
Vacuum cleaner	Outdoor & hobby	1,200W, 0.3h x 100d	36	89.2¢	$10.71
Toaster	Kitchen	1,200W, 0.1h x 365d	35	86.9¢	$10.42
Smart speaker	Electronics	3W, 24h x 365d	26	65.2¢	$7.82
Clothes iron	Laundry & water	1,100W @50%, 0.3h x 100d	16	40.9¢	$4.91
Led bulb	Lighting	9W, 5h x 365d	16	40.7¢	$4.89
String of christmas lights	Lighting	25W, 6h x 45d	7	16.7¢	$2.01

Audit worksheet

Walk the house once. For each device write the wattage from its label or power brick, then the hours a day it genuinely runs — not the hours it is plugged in. Cost per year = watts ÷ 1000 × hours × days × 29.8¢.

ROOM	DEVICE	WATTS	HOURS/DAY	DAYS/YR	COST/YR

Meter log

Read the meter on the same day each month. The point is not the reading, it is the difference between readings: that is the only number that tells you whether a change worked.

MONTH	METER READING	KWH USED	DAYS	KWH/DAY	COST AT 29.75¢

A FAIR COMPARISON

Compare a month against the same month last year, not against last month. Heating and cooling swamp everything else seasonally, and a mild August will flatter any change you made.

Replacement payback worksheet

Before replacing a working appliance, check that the energy saving repays the purchase inside a sensible share of the new unit's life. Both kWh figures are on the yellow EnergyGuide label.

Annual saving = (old kWh/yr ? new kWh/yr) × 29.8¢. Payback years = price ÷ annual saving.

APPLIANCE	OLD KWH/YR	NEW KWH/YR	PRICE	SAVING/YR	PAYBACK

RULE OF THUMB

Under five years is usually worth doing on an appliance with a 12-to-15 year life. Past ten, the old unit will fail on its own schedule and the decision is really about convenience. Subtract any rebate from the price before you divide.

Sources, formulas and limits

Where the price comes from

U.S. Energy Information Administration, Electric Power Monthly, Table 5.6.A (Form EIA-861M): average price of electricity to ultimate customers by end-use sector, by state. Residential column, August 2026, compared against August 2025. A work of the U.S. government, in the public domain.

The formulas

kWh per year = watts ÷ 1000 × duty cycle × hours per day × days per year. Cost = kWh × (cents per kWh ÷ 100).

Duty cycle is the share of “on” time a device actually draws power. Thermostatic appliances — heaters, refrigerators, hot tubs — reach their setpoint and cycle. Ignoring that is the most common way running-cost estimates come out far too high.

Appliances better described per load (dishwashers, dryers) use kWh per cycle × cycles per week × 52. Always-on thermostatic appliances (refrigerators, water heaters) use a whole-year kWh figure directly.

What these numbers are not

They are estimates from a statewide average price and stated typical usage. They are not a bill, a quote, or professional advice. Your utility, rate plan, tier, time-of-use window and local taxes can each move your real cost well away from a state average — which is exactly what the meter log is for.

Wattages are typical figures for mainstream consumer models and will not match your model exactly. A plug-in energy monitor costs about $25 and settles the question for any 120 V appliance in a week.

Edition: August 2026 rates. Regenerated whenever EIA publishes new data.