

PART 2 · MEASURE

Where the energy goes

42%

of US home energy use is space heating (EIA, 2020 survey)

9%

is air conditioning; the rest goes to water heating, appliances, lighting, and electronics

Read your bills

- **Electricity** is billed in **kWh** (kilowatt-hours). 1 kWh runs a 1,000-watt heater for one hour.
- **Natural gas** is billed in **therms** or **CCF**. 1 therm = 100,000 BTU, roughly 1 CCF of gas.
- Your **all-in rate** = total bill ÷ kWh (or therms). Include delivery charges, because those scale with use too.

Plot 12 months. Your lowest months are your **baseload**: fridge, water heater, electronics, cooking. The rise above it in winter and summer is heating and cooling. That's usually the biggest target.

MONTH	KWH	THERMS	\$	MONTH	KWH	THERMS	\$
Jan				Jul			
Feb				Aug			
Mar				Sep			
Apr				Oct			
May				Nov			
Jun				Dec			

The always-on test

Some devices draw power around the clock: cable boxes, game consoles in standby, chargers, old dehumidifiers, a forgotten second fridge.

Each always-on watt ≈ 8.76 kWh per year (24 h × 365 d ÷ 1,000)

Method: late at night, with the heating/cooling and the fridge compressor idle, read your smart meter's instant demand (many utility apps show it), or measure devices one at a time with a plug-in watt meter (about \$20–30, also lent by many libraries).

WORKED EXAMPLE

A home idles at 120 watts. $120 \times 8.76 = 1,051$ kWh a year. At an all-in rate of \$0.17/kWh, that's about **\$179 a year** before anyone switches anything on. Trim 50 watts with smart power strips and unplugging: about \$75 a year, every year.

Low-cost moves with known payoff

- Set the water heater to **120°F**, the setting the US Department of Energy recommends: less energy and lower scald risk.
- Change or clean furnace and AC filters on schedule.
- Seal obvious drafts at doors and windows. A professional **home energy assessment** (often subsidized by utilities) finds the hidden ones.

Idle load (W)		× 8.76 = kWh/yr	
All-in rate \$/kWh		= \$/yr standby	



FREE SAMPLE PAGE · HOMESTEAD SYSTEMS MAP

Audit your whole household

This energy page is page 8 of a 21-page workbook for mapping how your home really runs.

- ✓ Water: gallons per person, leak tests, shutoffs, emergency reserve
- ✓ Power outages: critical loads and food-safety timelines
- ✓ Food and waste audits that show where money leaks out
- ✓ The 72-hour disruption test and three scored actions

Get the full workbook on Etsy →

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