

You have a **20-watt** limit

That is your whole brain, running everything, all day.



Your brain's energy statement

at rest, adult average

Share of your body weight

about 2%

Share of your body's energy

about 20%

Power draw (one bright LED bulb)

about 20 W

Extra cost when you think really hard

often 5% or less

Where the watts go: mostly keeping the network alive and predicting what happens next. Focused thinking only adds a little on top. The budget barely moves.

Always on: running and predicting

Extra

Illustration, not exact shares. Sources: Raichle & Gusnard, PNAS 2002; Raichle, default mode research (Washington University).

Fixed budget. No top-ups.

Your brain is not lazy. **It is frugal.**

Quotation

Vendor: Silicon & Sons
Valid until: physics changes
Delivery: unknown

Replace one human brain with computers

Thinking and sensing unit

10,000x
at least

Simulate all your brain cells. Even brain-like computers would need at least 10,000 times more energy than a real brain. Today's global benchmark simulates a patch of cortex smaller than 1 mm².

Ostrau et al., Frontiers in Neuroscience 2022; Senk et al., Neuromorphic Computing and Engineering 2026

Body controller

16x
per metre walked

Walk, balance, grip a cup. Honda's ASIMO robot used about 16 times more energy per metre walked than a human.

Collins et al., Science 2005 (Cornell, MIT, TU Delft)

Consciousness module

???
no design exists

Feel, be aware, know you are you. Science has over 20 theories and no agreement. A 7-year international test challenged the two leading ones.

Cogitate Consortium, Nature 2025

Total for the machines

far more power, still not you

Your brain, all of it at once

20 W

**All of this, at the same time,
on the energy of about one sandwich a day.**

Request for change #4,217



Change: "Start working in the new way"
Raised by: You, Monday morning, full of hope
Budget: 20 watts, already allocated

1 "The old way runs on autopilot. It is cheap."

About 43% of what we do each day is habit: same place, almost daily, often while thinking about something else.

Wood, Quinn & Kashy, 2002

2 "New means conscious control. Control is our most expensive department."

Doing things differently needs the prefrontal cortex to override the routine. That effort is what feels hard.

3 "It is 5 pm. Control is closed."

After about six hours of hard mental work, glutamate built up in the lateral prefrontal cortex and people chose more impulsively.

Wiehler et al., Current Biology 2022

4 "Resubmit in roughly 66 days."

A new daily habit took a median of 66 days to feel automatic. The range: 18 to 254 days. Not 21.

Lally et al., UCL, 2010

Appeals are possible. **Bring repetition, not willpower.**

Operating manual for a 20-watt brain

Model: Human v1.0

No upgrades planned.
Use it wisely.

Plan

Decide once, with if-then plans

"If it is Monday 9:00, then I open the new dashboard first." The decision is made before the tired moment comes.

94 tests, medium-to-large effect on goals. Gollwitzer & Sheeran, 2006

Timing

Spend your best watts first

Put new and hard work early. Avoid big decisions at the end of a draining day.

Based on Wiehler et al., 2022

Move

Move your body

Walk, run, cycle. A year of aerobic exercise grew the hippocampus (memory centre) by about 2% in older adults.

Erickson et al., PNAS 2011

Cue

Change the cue, not your willpower

Habits start from context. Change the place, the time and the default, and the old routine loses its trigger.

Habit research, Wendy Wood and colleagues

Patience

Think months, forgive a missed day

Missing one day did not spoil habit forming. Being very inconsistent did.

Lally et al., 2010

AI

Let AI train your brain, not replace it

Use it to question, explain and practise. Keep your watts for real thinking.

My view, from 30+ years of change work

Think about this

- ? Where do my best 20 watts go on a normal day?
- ? Which one habit, if automated, would free the most energy?
- ? What could I change in my environment instead of trying harder?