INTERFLEX · NEXT IN FLEX 2026

The strange case of disappearing baseload

Evolution of the Belgian transmission grid load, and why flexibility matters

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ETF InterFlex project

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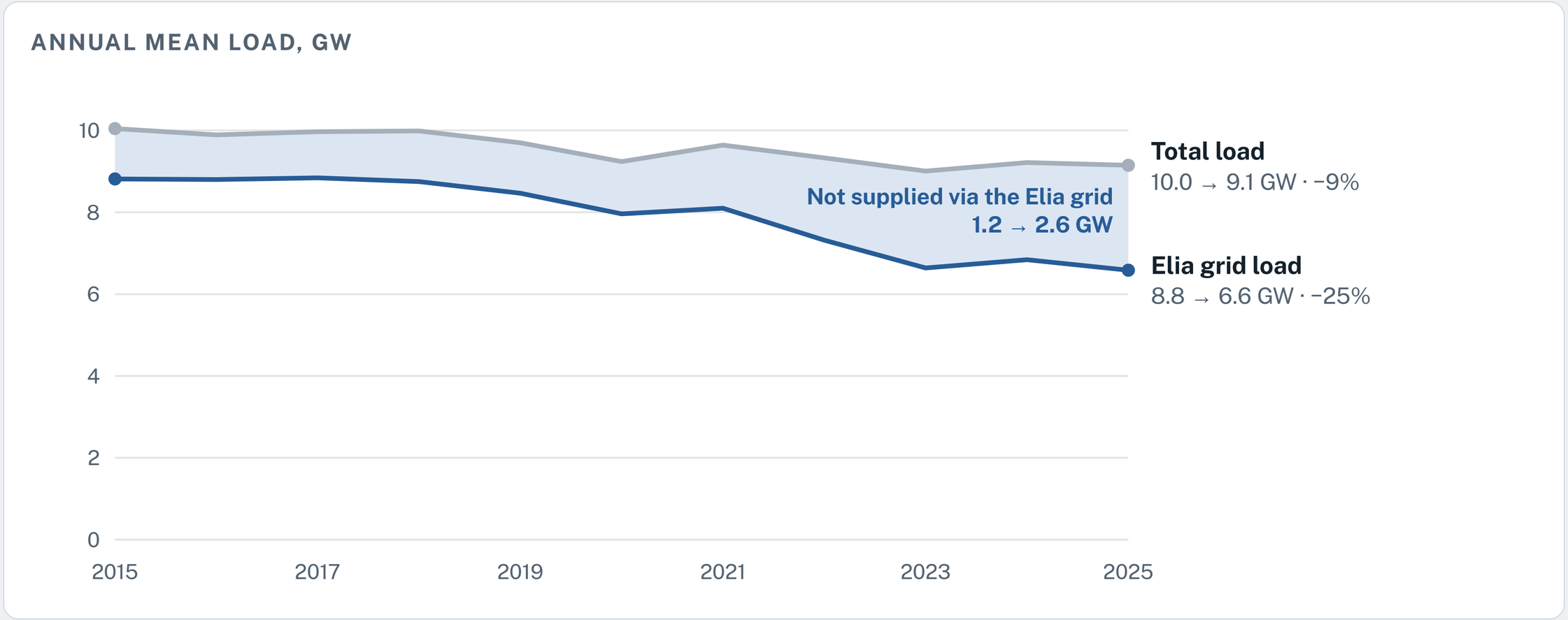
FPS Economy, S.M.E.s, Self-employed and Energy

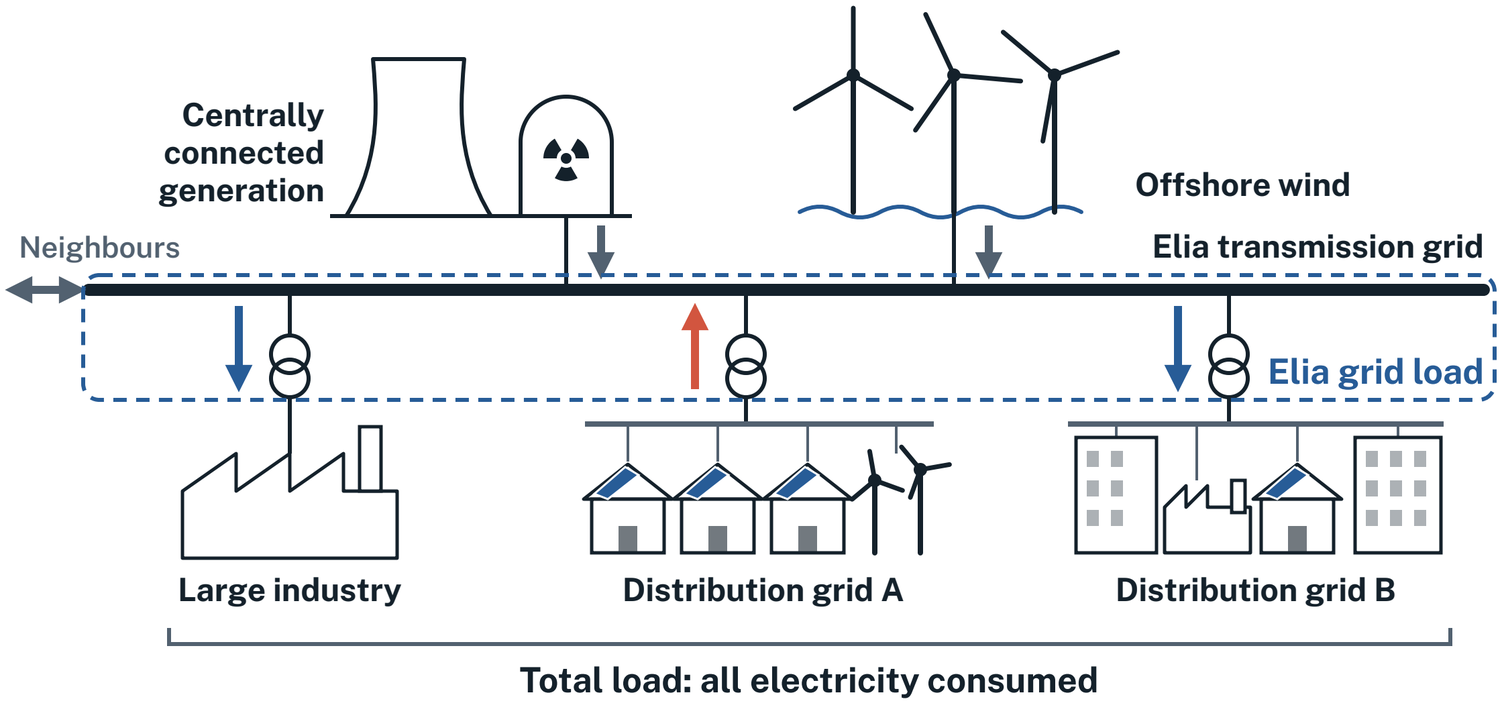
Belgian electricity consumption stagnated, but grid load fell drastically



Elia open data · annual means of 15-minute values

InterFlex · Disappearing baseload

What does “Elia grid load” mean?



TOTAL LOAD

All electricity consumed in Belgium

Elia’s estimate, from measurements, generation data and weather.

DISTRIBUTION GRIDS

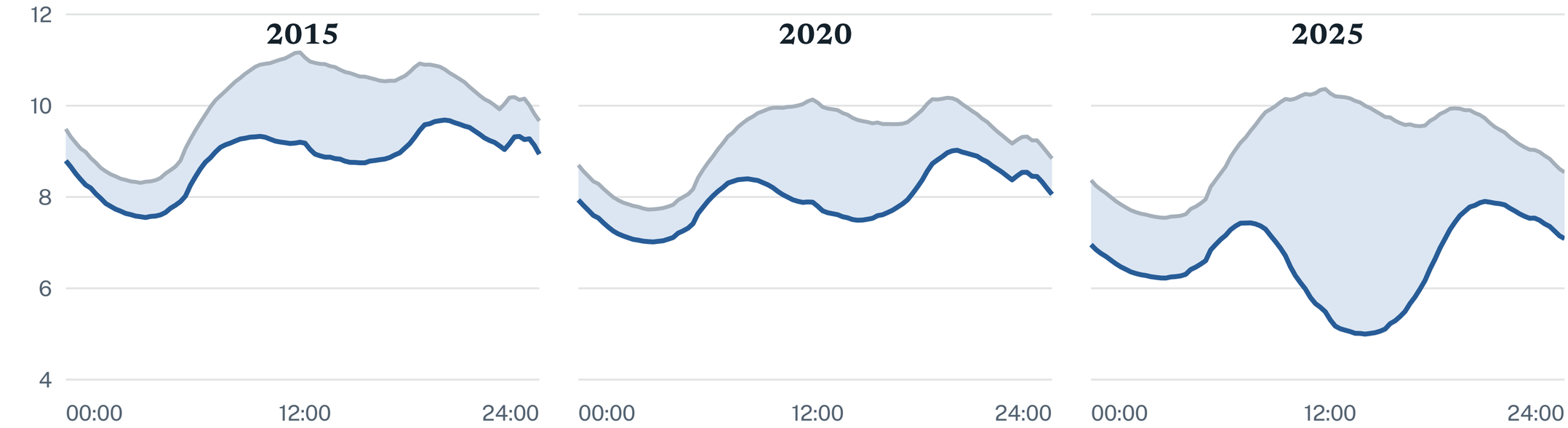
Contain their own generation

This can sometimes cause infeed into the transmission grid.

ELIA GRID LOAD

The amount of (remaining) total consumption supplied via the Elia grid

Less demand, or a different shape?

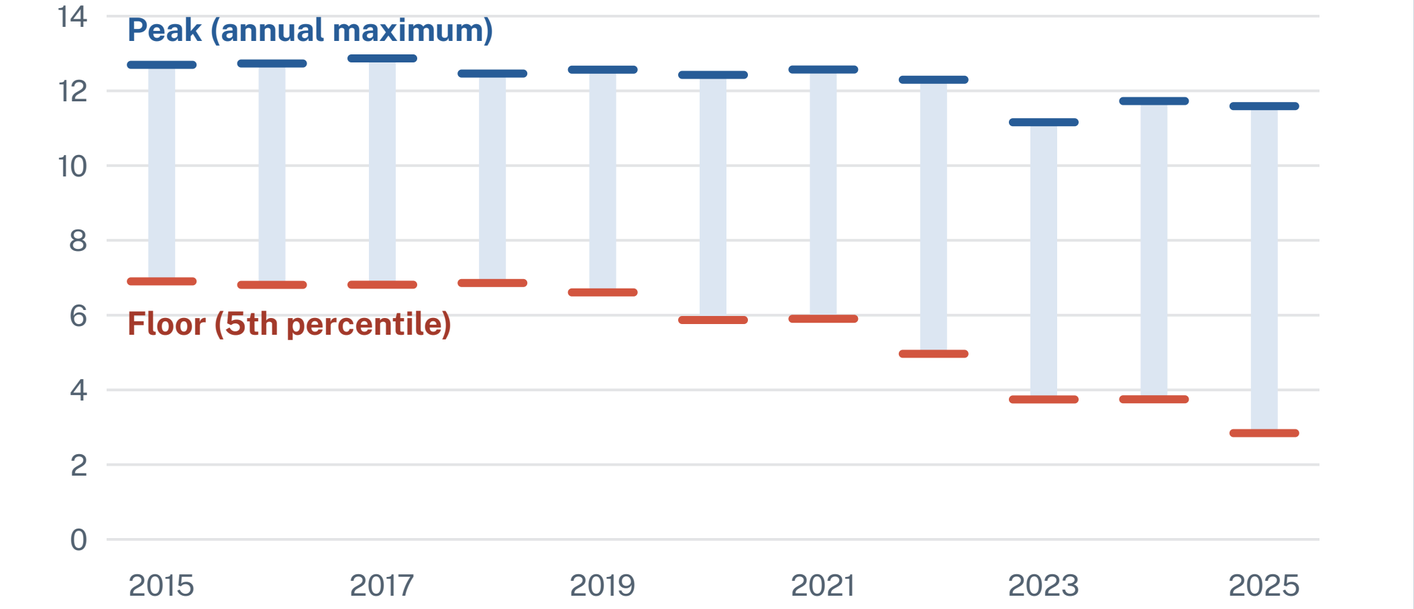


SHAPE, NOT LEVEL

Annual consumption fell by only 9%, but the daily profile of residual grid load changed significantly.

Elia open data · annual mean profiles

Where did the floor go?



PEAK

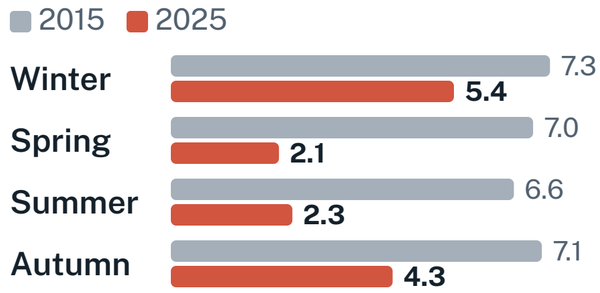
12.7 → 11.6 GW

−9% · annual maximum, 2015 → 2025

FLOOR

6.9 → 2.8 GW

−59% · 5th percentile, 2015 → 2025



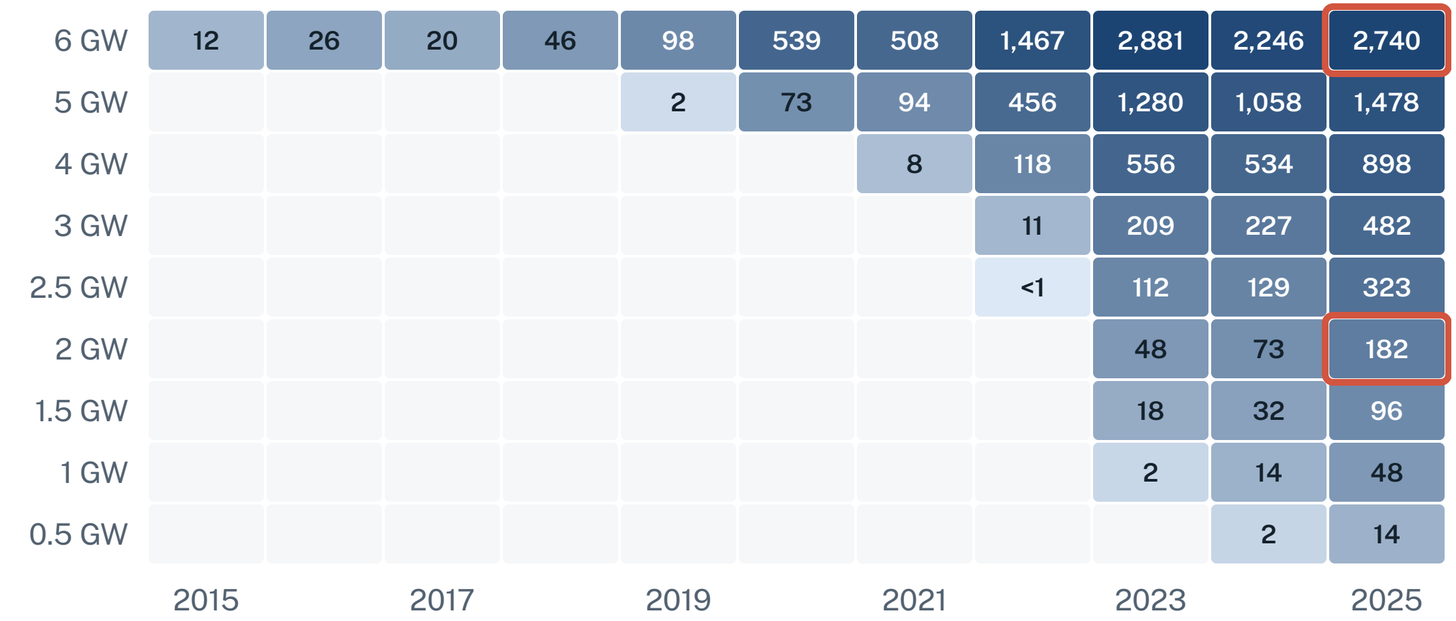
FOOD FOR THOUGHT

Generation that wants to run around the clock has to fit under this floor. In spring and summer, that floor is now about 2 GW.

Elia open data · 15-minute values · 5th percentile per calendar year / meteorological season

What room is left for inflexible central generation?

HOURS PER YEAR THAT GRID LOAD FELL BELOW A CONSTANT BLOCK



2 GW BLOCK, 2025

182 h

below grid load; never happened before 2023

6 GW BLOCK, 2025

2,740 h

≈ 31% of the year below grid load

SPREAD OVER

432 episodes

6 GW block; median 5.8 h, none longer than a day

FOOD FOR THOUGHT

Not a seasonal shutdown, but a daily cycle: hundreds of times a year.

Constant blocks vs observed 15-min Elia grid load

Can’t we just export the surplus?

SHARE OF BELGIUM’S CHEAPEST 10% OF HOURS IN WHICH THE NEIGHBOUR WAS ALSO IN ITS OWN CHEAPEST 10%, 2025



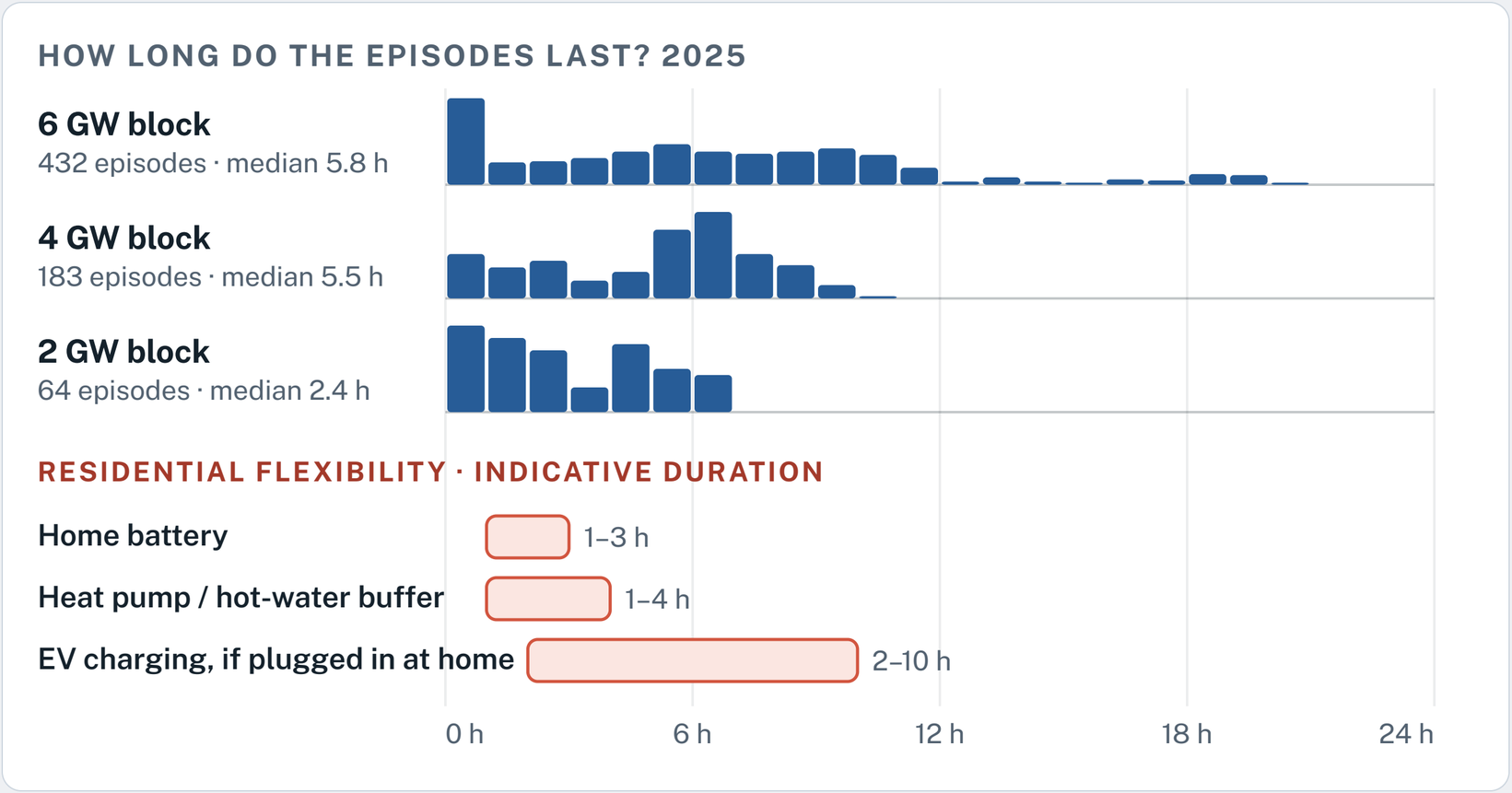
Netherlands: 74% in 2016 → 93% in 2025.

FOOD FOR THOUGHT

When Belgian prices are at their lowest, its neighbours’ usually are too.

Day-ahead prices (SDAC), 2016–2025 · Germany from 2019

Who can follow this shape?



WHEN

Midday

mostly spring and summer days

HOW MUCH

≈ 1.9 GWh

per episode (2 GW block): roughly 190,000 home batteries of 10 kWh, as an illustration

THEN

0.9 → 2.9 GW

evening ramp: what is soaked up at midday can ease the evening

FOOD FOR THOUGHT

The episodes last hours, not days: the timescale on which homes can shift.

Elia open data · episode = consecutive quarter-hours in which centralised generation exceeds Elia grid load

Three questions to take home

1

Can homes fill the midday dip?

The episodes last hours, at midday, in spring and summer: the timescale of home batteries, EV charging and hot-water tanks. But most home batteries serve their own panels today, and most residential solar (≈ 60% of all PV) does not respond to prices.

2

What should firm capacity look like?

Still needed for winter evenings. But hundreds of deep daily cycles a year, not 8,000 flat-out hours.

3

Who pays for a grid sized for the peak?

Less energy via the grid, a similar peak. And when network charges rise, firms that can generate their own buy less from the grid, without using less.

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