

Solar Panels, Insulation, ASHP (& Batteries)

Electrifying a Victorian Semi

Solar Panels

- 16 panels, all separate microinverters
- 4kW peak
- Installed 2014
- Lifetime 29MWh

Front West Roof

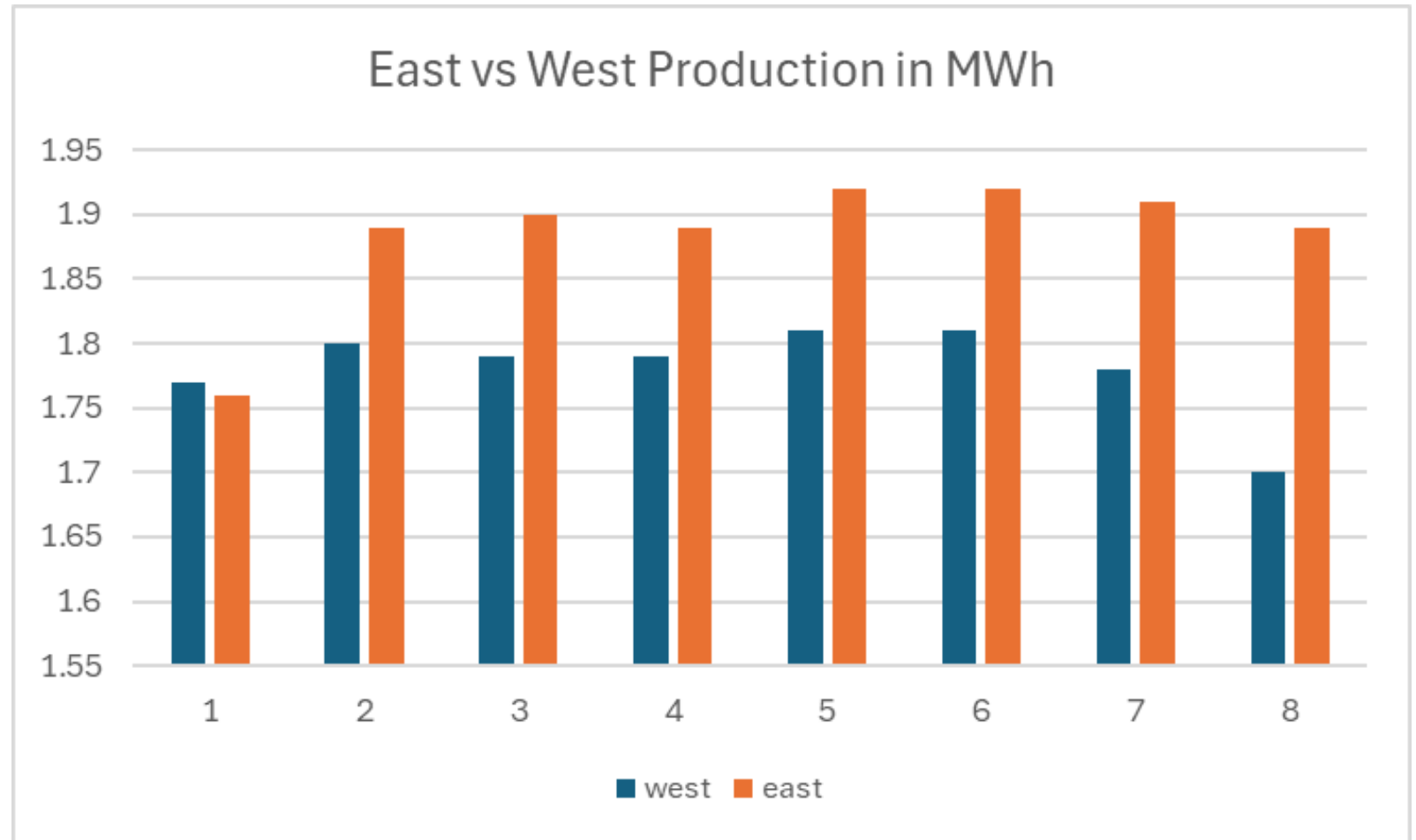


Back East Roof



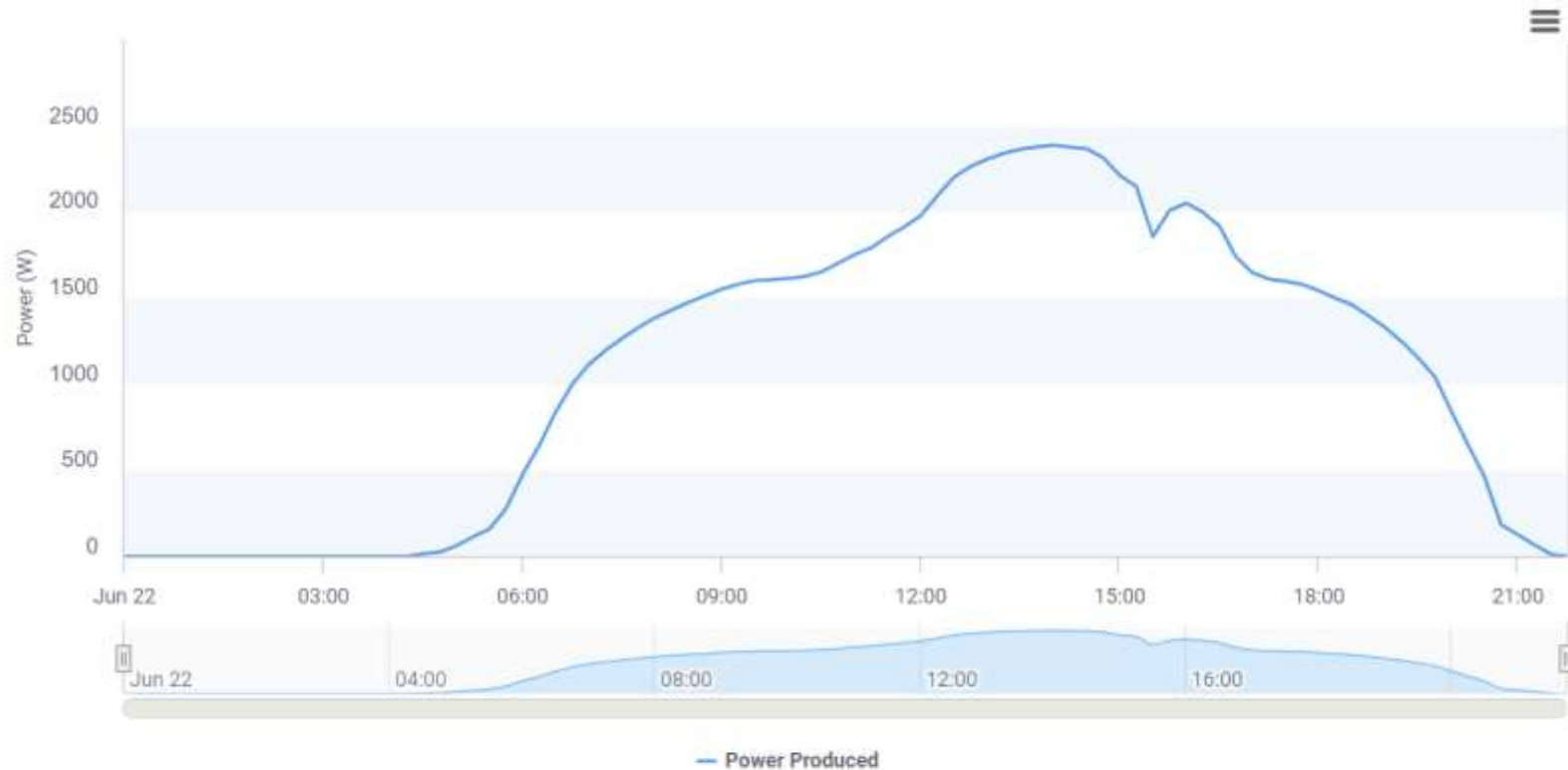
Solar Panels

- East doing slightly better than west (51.4 to 48.6%)



Power profile – a perfect day!

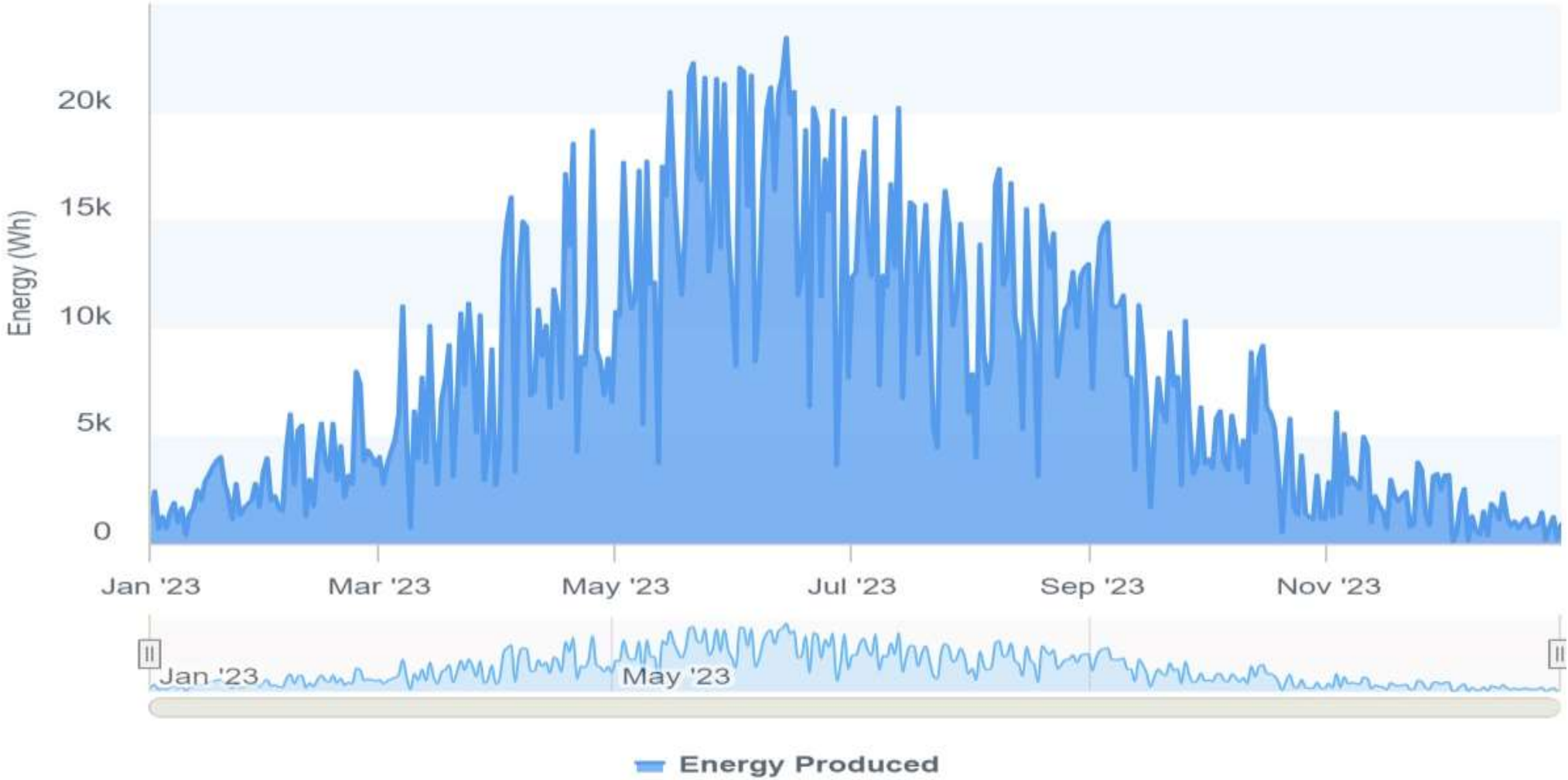
22/06/2018



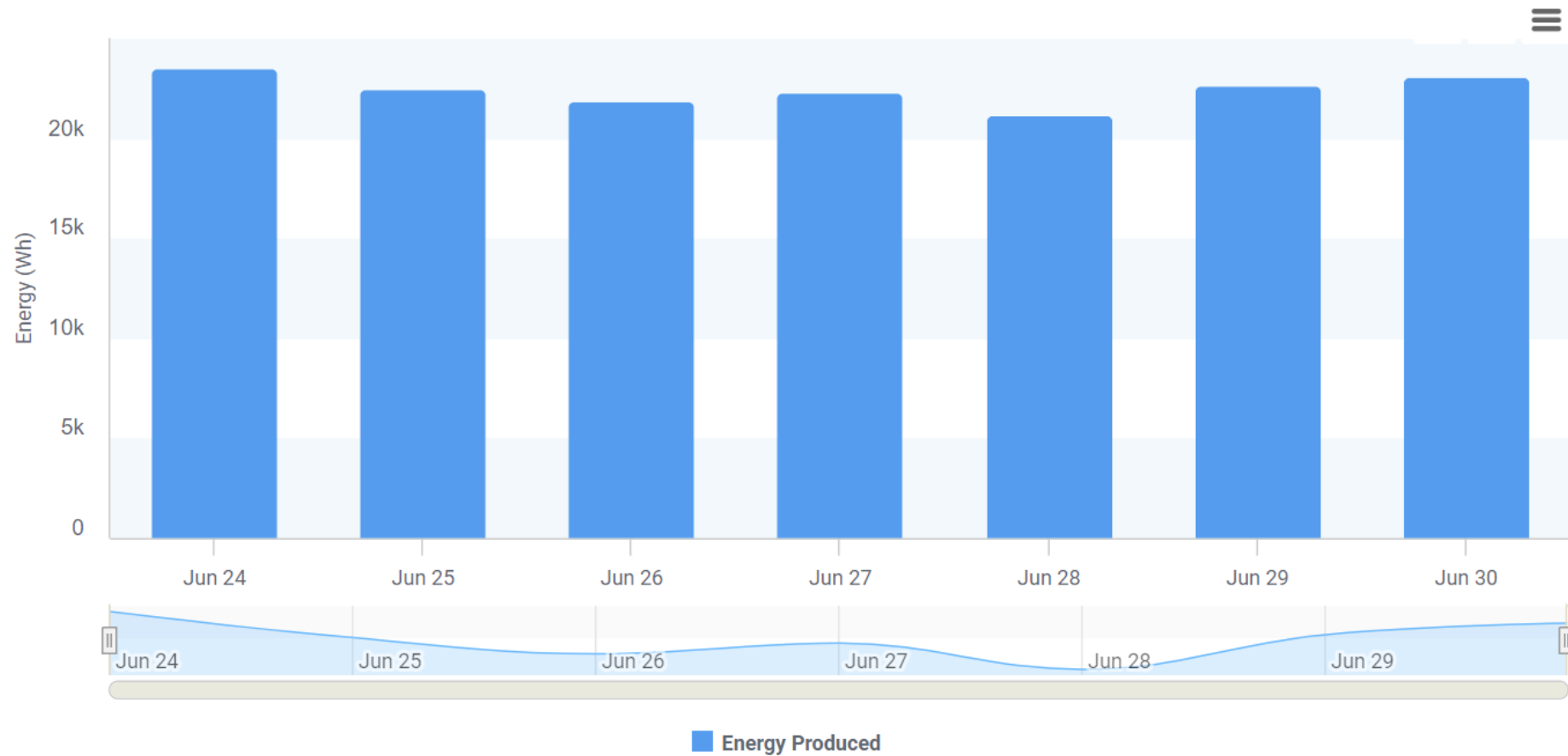
— Power Produced

Maximum
Produced
2.39 kW

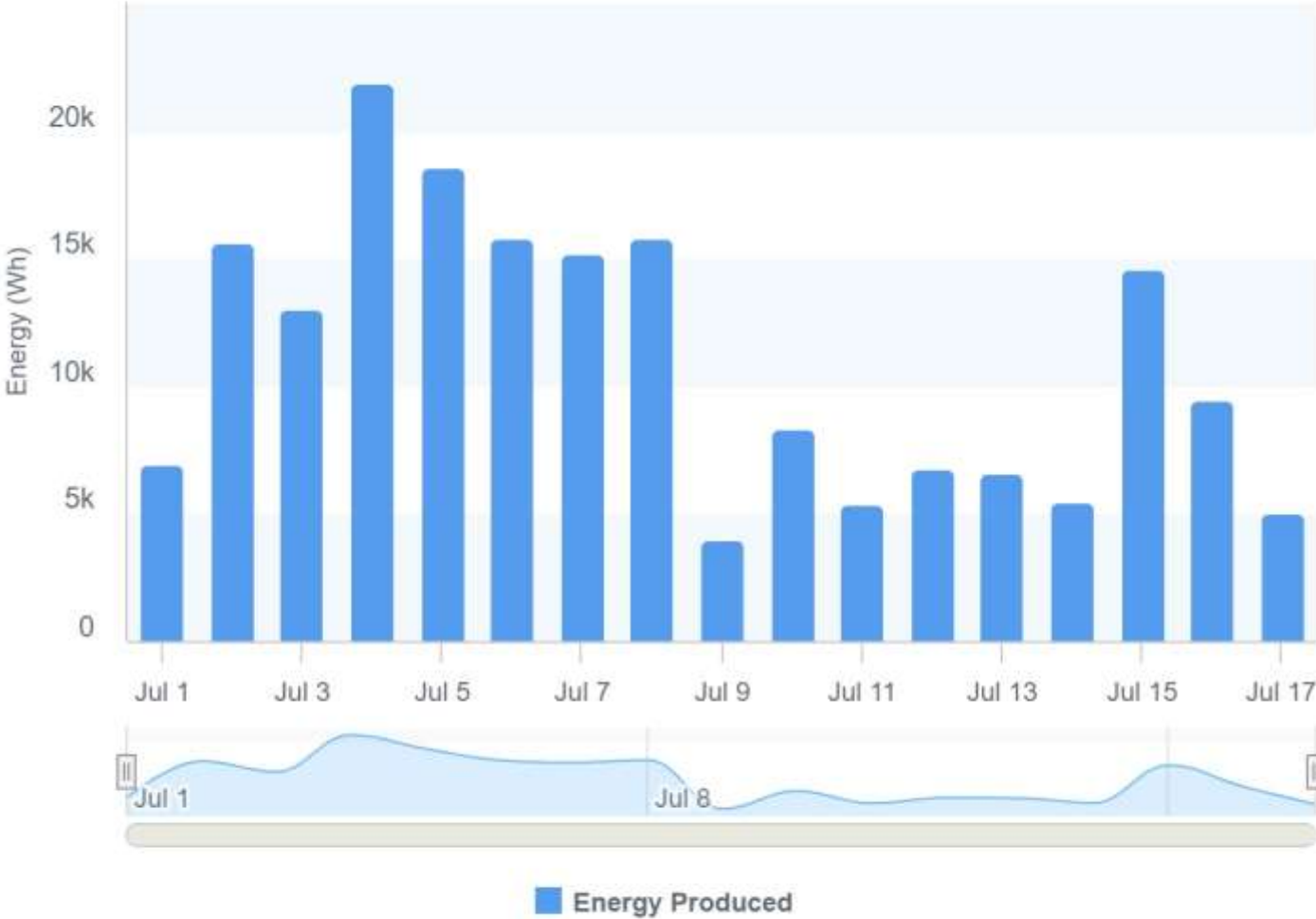
Annual Energy Production (2023)



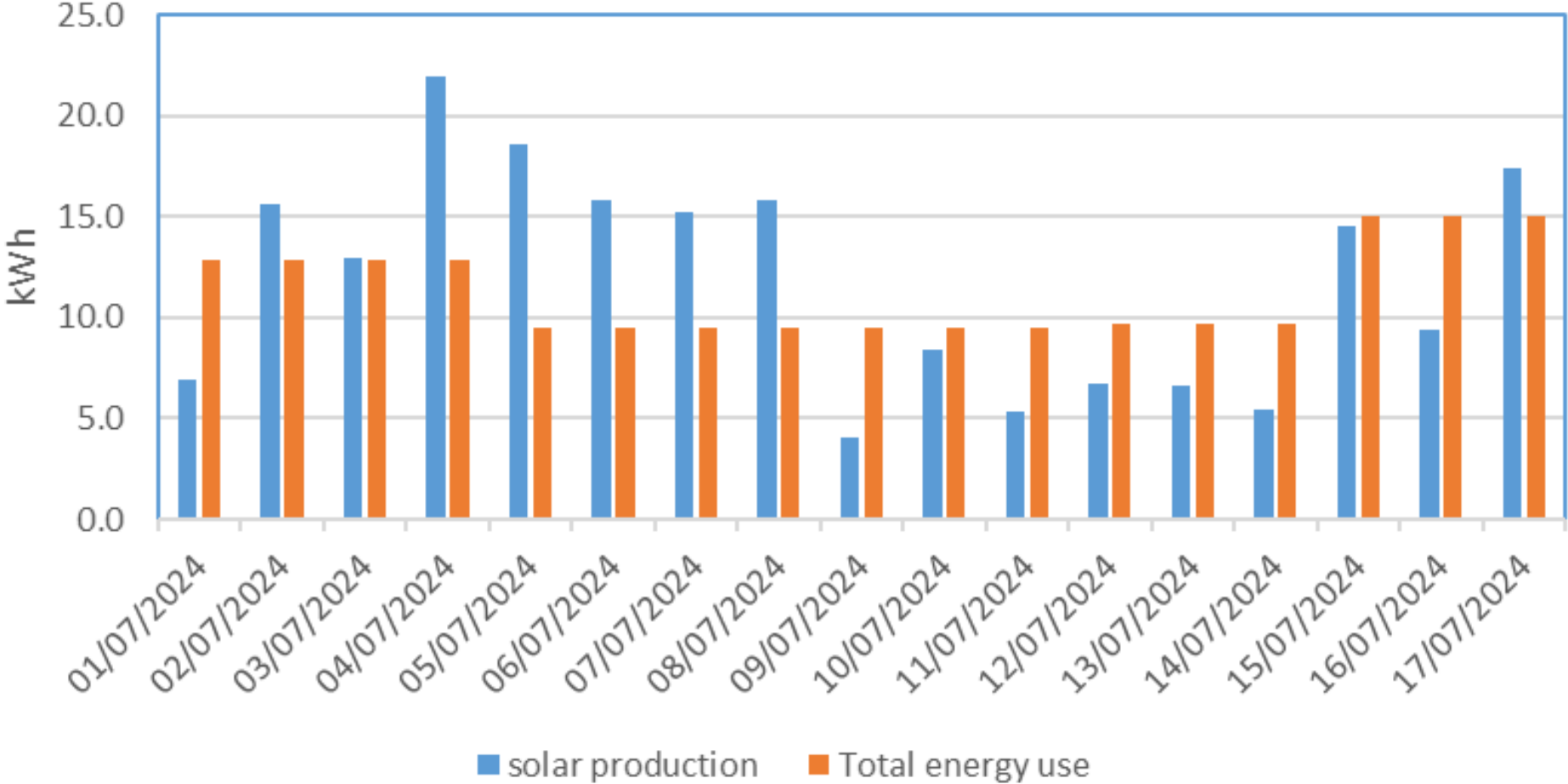
24th to 30 June 2018



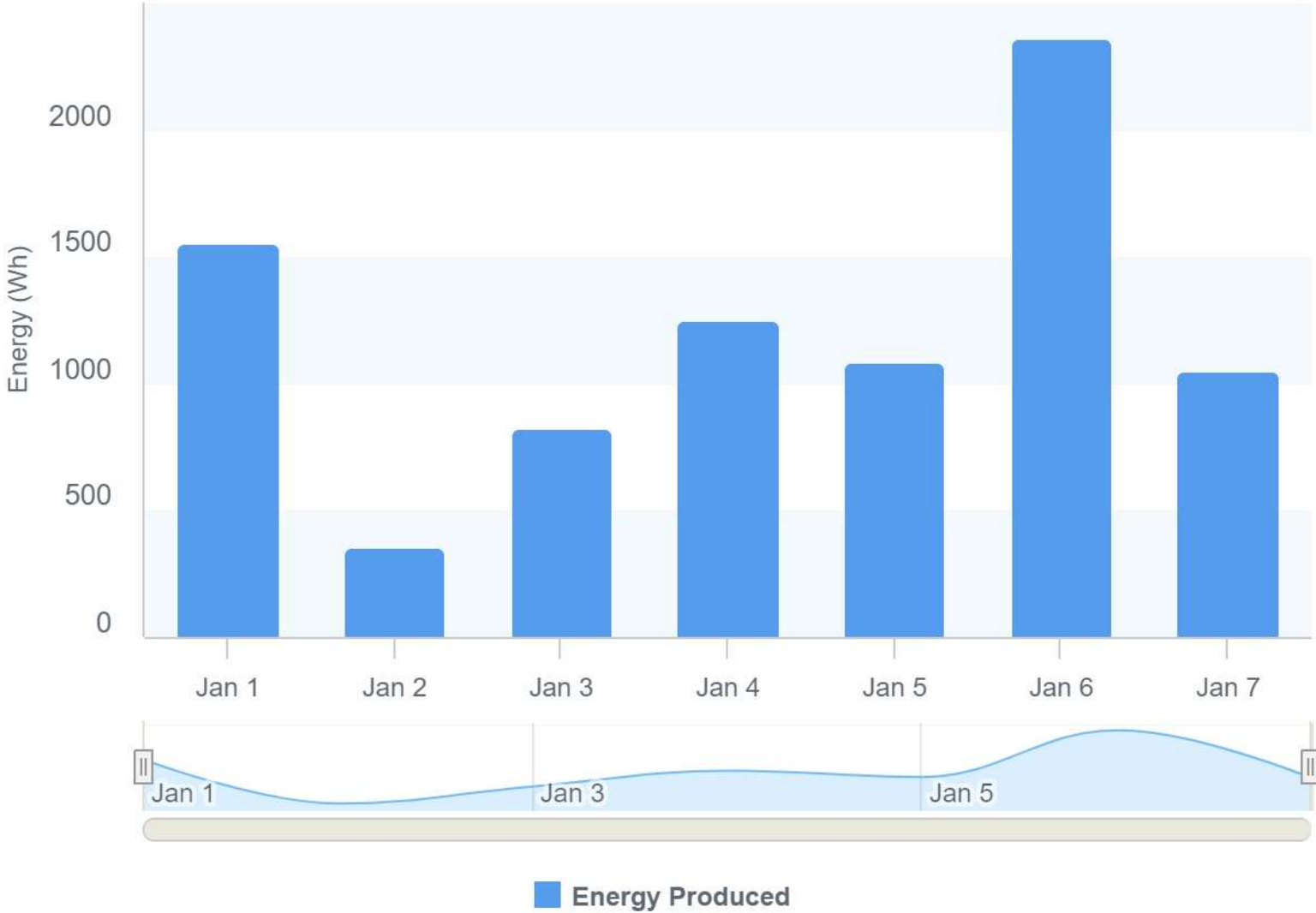
July 2024



Solar production vs Total Energy use



A week in Jan 2024



Solar Panels summary

- Installed 4kW peak in May 2014
- East/West configuration
- Produced 29MWh to date – life expectancy 20y
- Immersun – saved 12600kWh in Hot Water heating
 - @7p/kWh gas = £882 savings over 10 years

Insulation

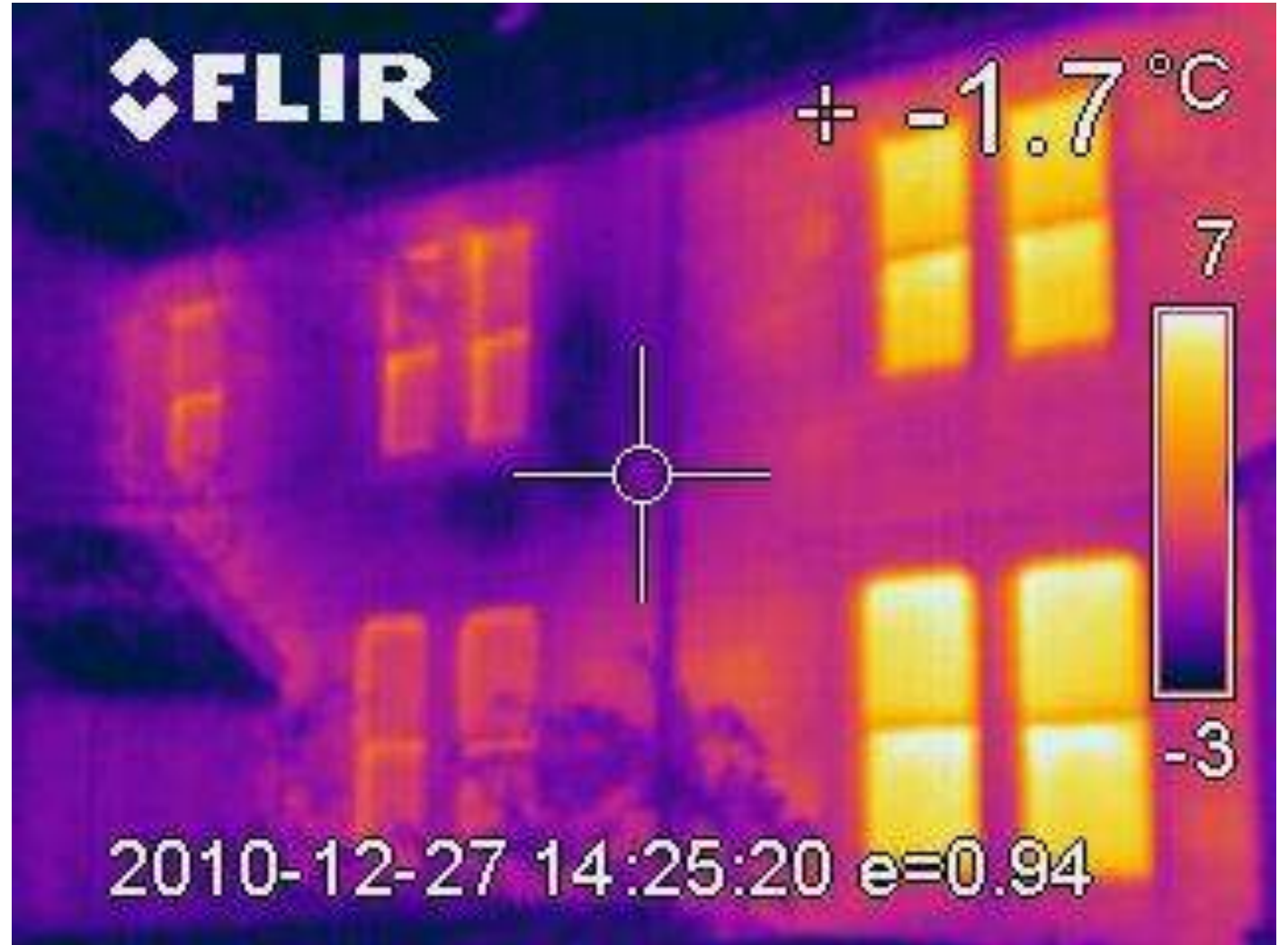
Internal Wall
Insulation

Kingspan



Insulation

- Insulation – internal walls
- Our house on left – top room insulated

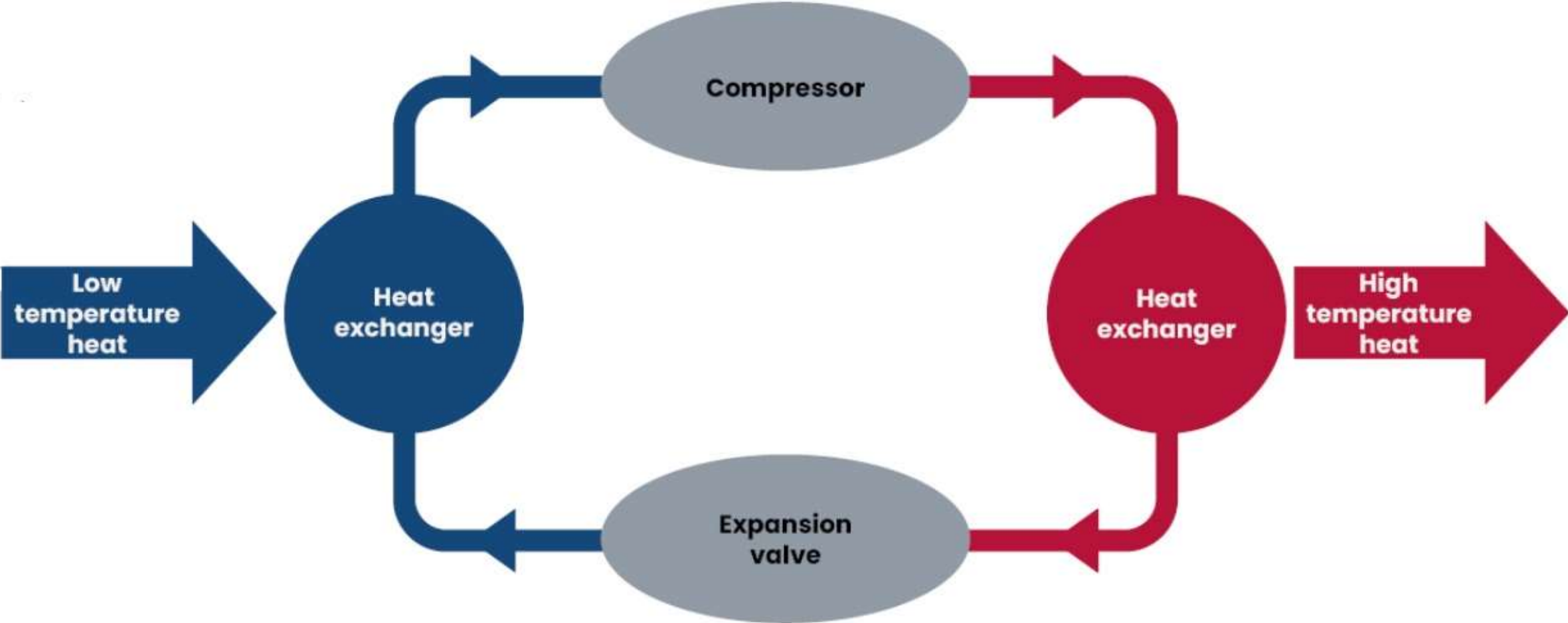


Insulation

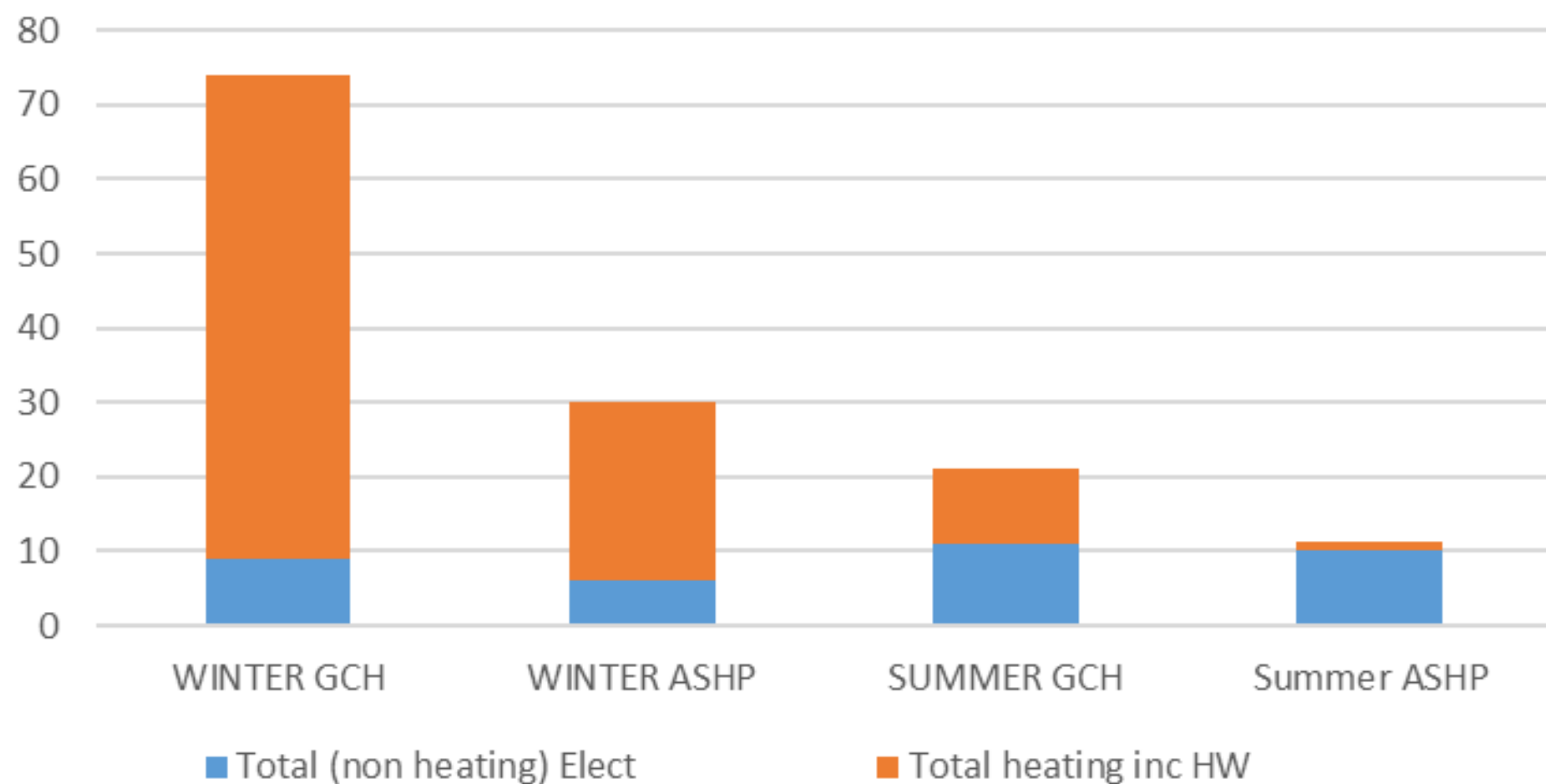
- Insulation – Underfloor
- Attic
- Sheepswool



ASHP



Energy (kWh) for Heating & Other Use



ASHP Summary

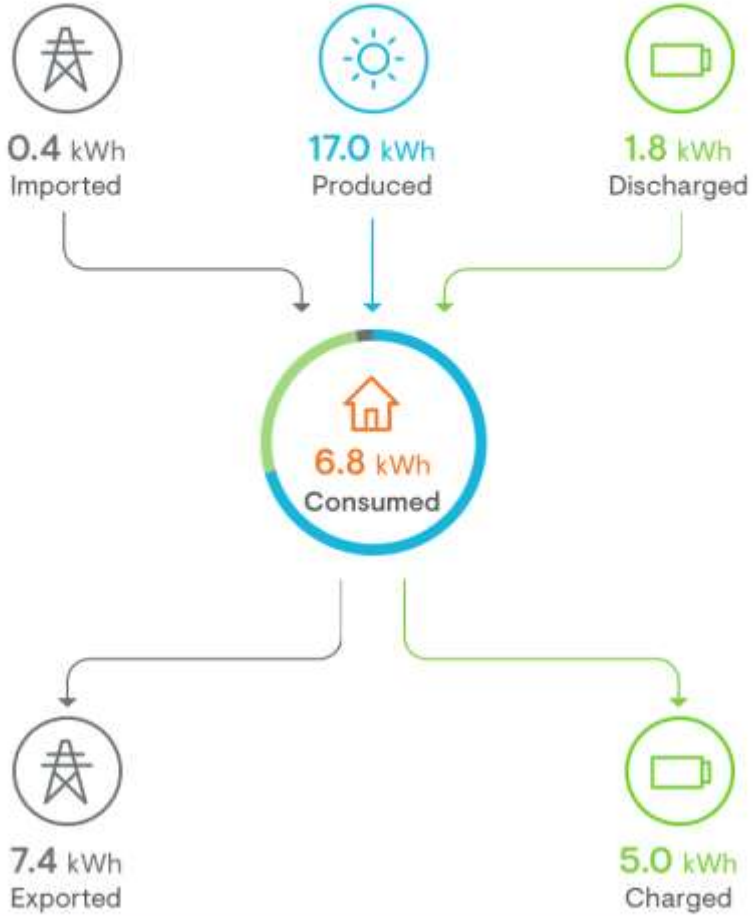
- House warm – more consistently than before
- At least as quiet as a gas boiler
- Our data – every 1kWh input = 2.8kWh output
- Running costs about the same
- Our system approx. £12,500- £7,500 subsidy = £5000

Battery

- Installed July 2024
- $2 \times 5\text{kWh} = 10\text{kWh}$
- Input/output 6.4kW
- Can be installed outside
- Cost £7,625

CHARGE
94%

PROFILE ⚙️
Self - Consumption



SITE ID - 5313979



STATUS



ENERGY



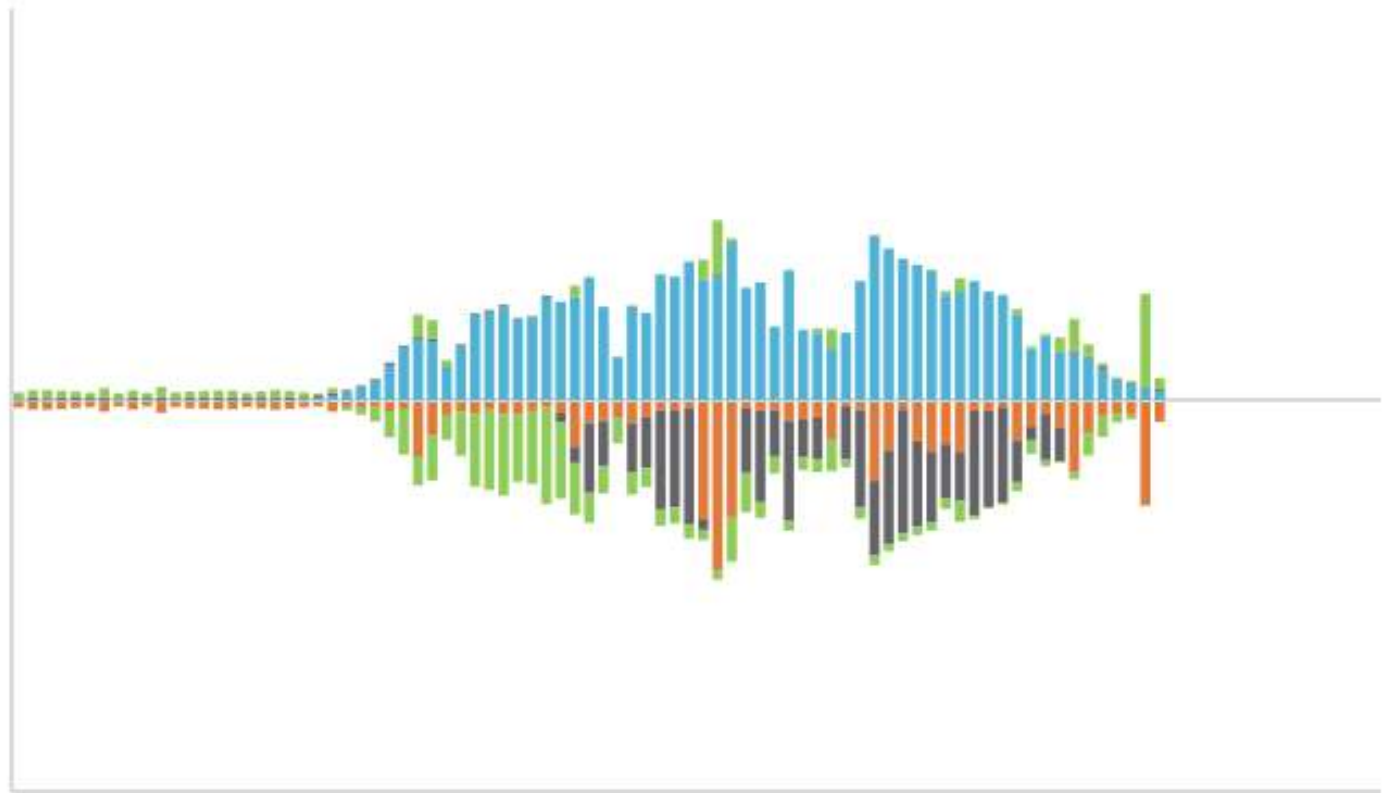
MENU

Energy Use & Storage Wednesday 17th July

kWh

1.20
1.00
0.80
0.60
0.40
0.20
0
0.20
0.40
0.60
0.80
1.00
1.20

12 am 3 6 9 12 pm 3 6 9



Future way of working

- Variable rates – sell back...



Payback

Monetary

After 10 years	SOLAR		BANK
Initial outlay	£7,000	Initial investment	£7,000
Free electricity	£4,119	Interest @4%	£3,436
Export payment	£700		
Total return	£4,819	Total return	£3,436
% return	69%	% return	49%
Next 10y @ 20p/kWh	£7,300	Interest @4% next 10y	£5,122.25
Total return 20y	£12,119	Total return 20y	£8,558.08
% return 20y	173%	% return 20y	73%

Current prices £2300 to £5000 (inc battery) plus installation

Payback

29.0MWh = 20.8 tons CO₂

= 361 trees

= 2 stadiums for 1 day

= **a warm glowing feeling**