GREEN HOME FESTIVAL

BROUGHT TO YOU BY THE CICV

Unlocking Home Efficiency: The Value of Multiple Technologies

With Alex Butcher, WARMUR

Wednesday 14 August @ 2.00pm

GREEN HOME FESTIVAL

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greenhomefestival.co.uk

#GHF24

Unlocking Home Efficiency: The Value of Multiple Technologies

With Barry Sharp, Renewable Heat

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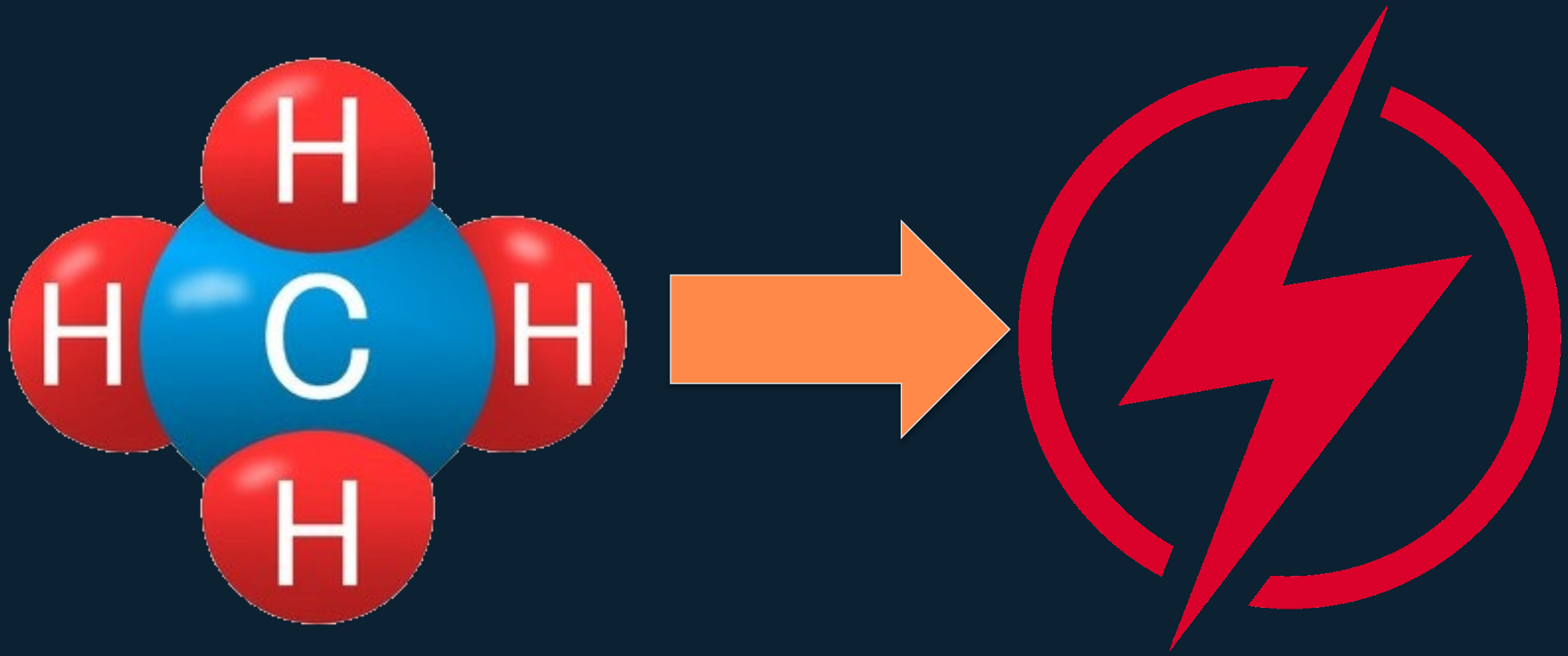
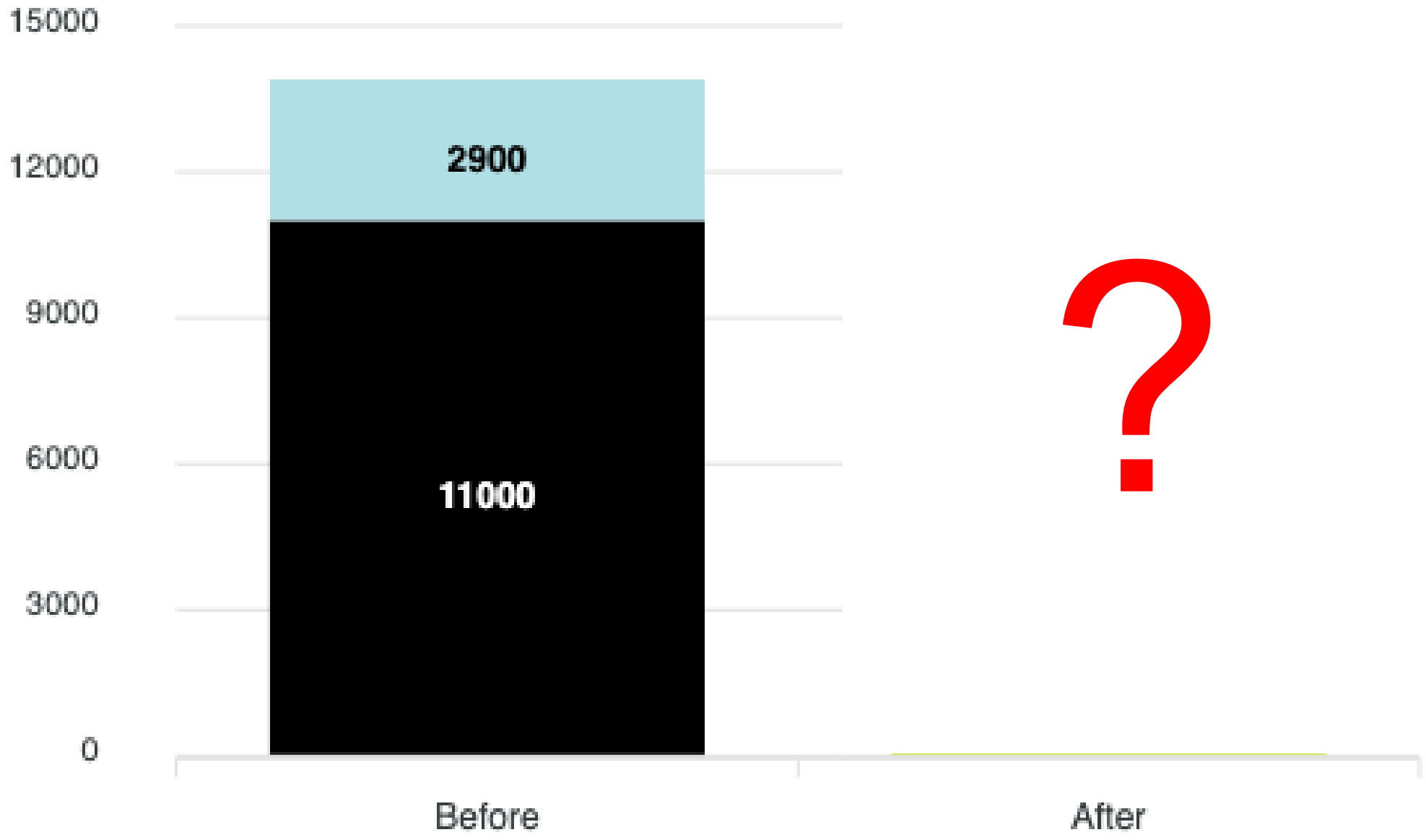
#GHF24


2017

Could electrifying my home save me money?

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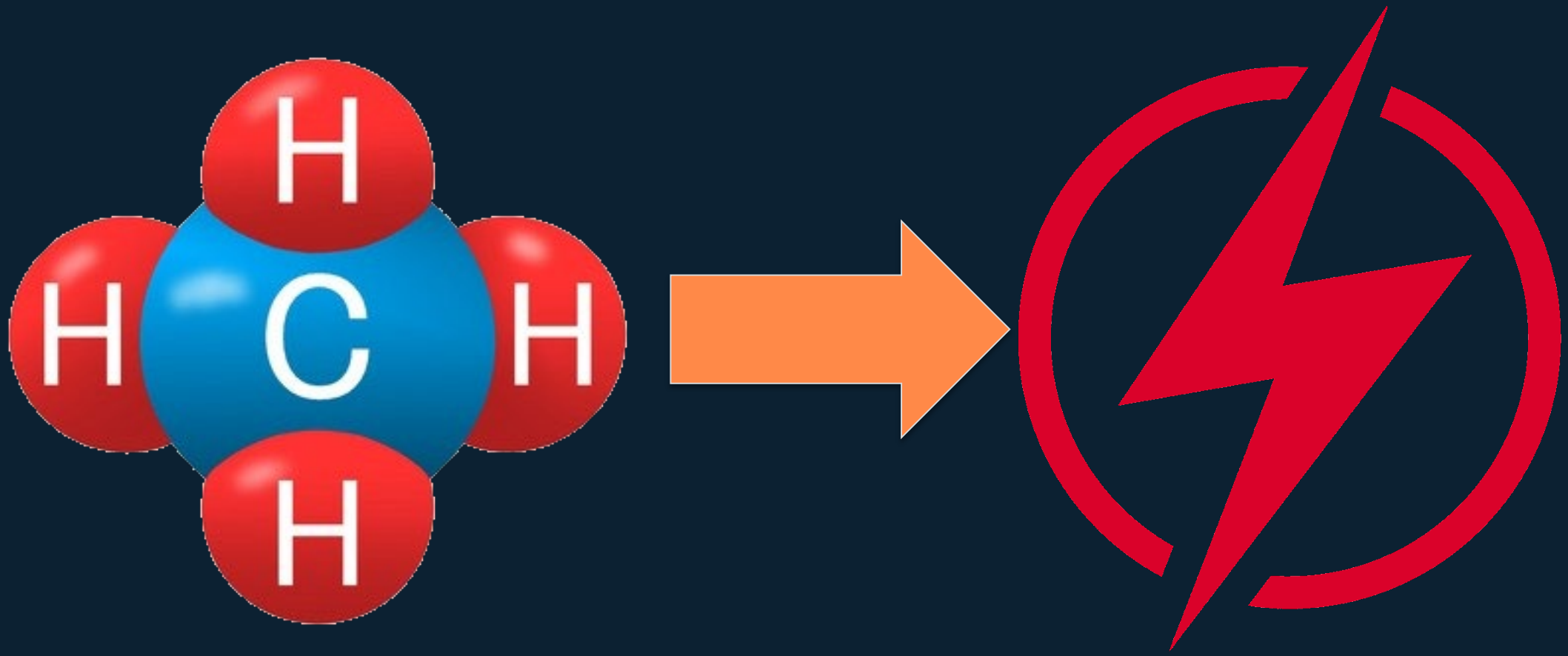
2900
11000
?
Before
After

Could electrifying my home save me money?

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with warmur
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Start →

Could electrifying my home save me money?

Could electrifying my home save me money?

EDF GoElectric Overnight Mar25 tariff	Best Price Smart Export Guarantee	£1,033
Octopus Cosy Octopus	Octopus Outgoing Octopus 12M Fixed	~£995
Standard Electricity Variable Tariff	Best Price Smart Export Guarantee	~£862
Octopus Octopus Flux Import	Best Price Smart Export Guarantee	~£777
Octopus Flexible Octopus	Octopus Agile Outgoing Octopus	~£711

Could electrifying my home save me money?

Heating & HW

Appliances

Driving 10k / year

~~£430 / month~~

~£130 / month

1. Tech & Tariffs
2. My Home
3. Upgrade Recipe
4. Questions

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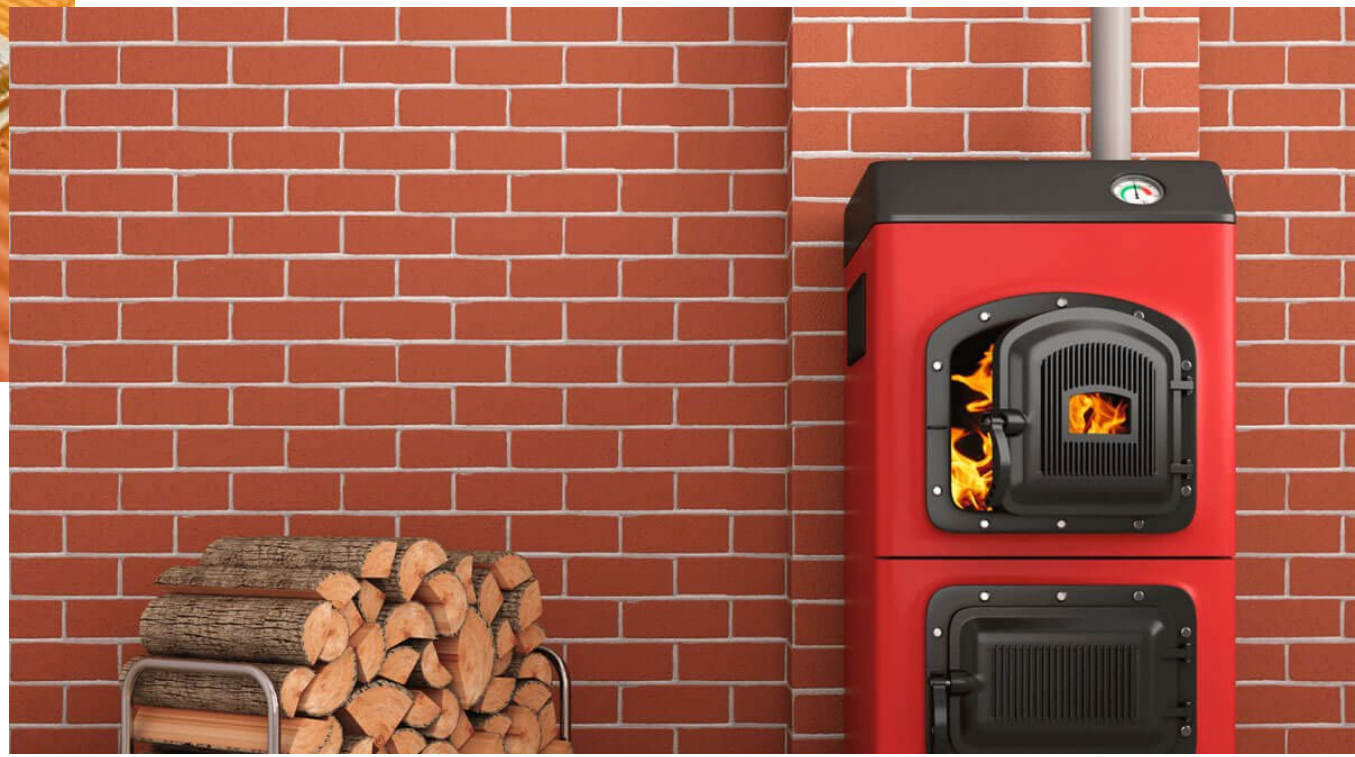
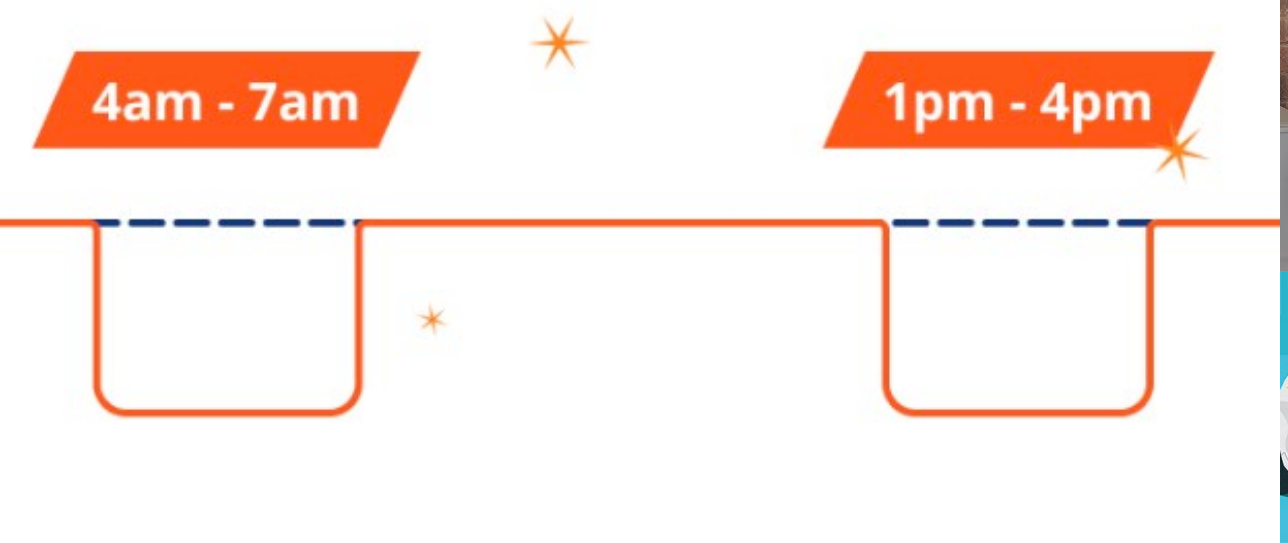


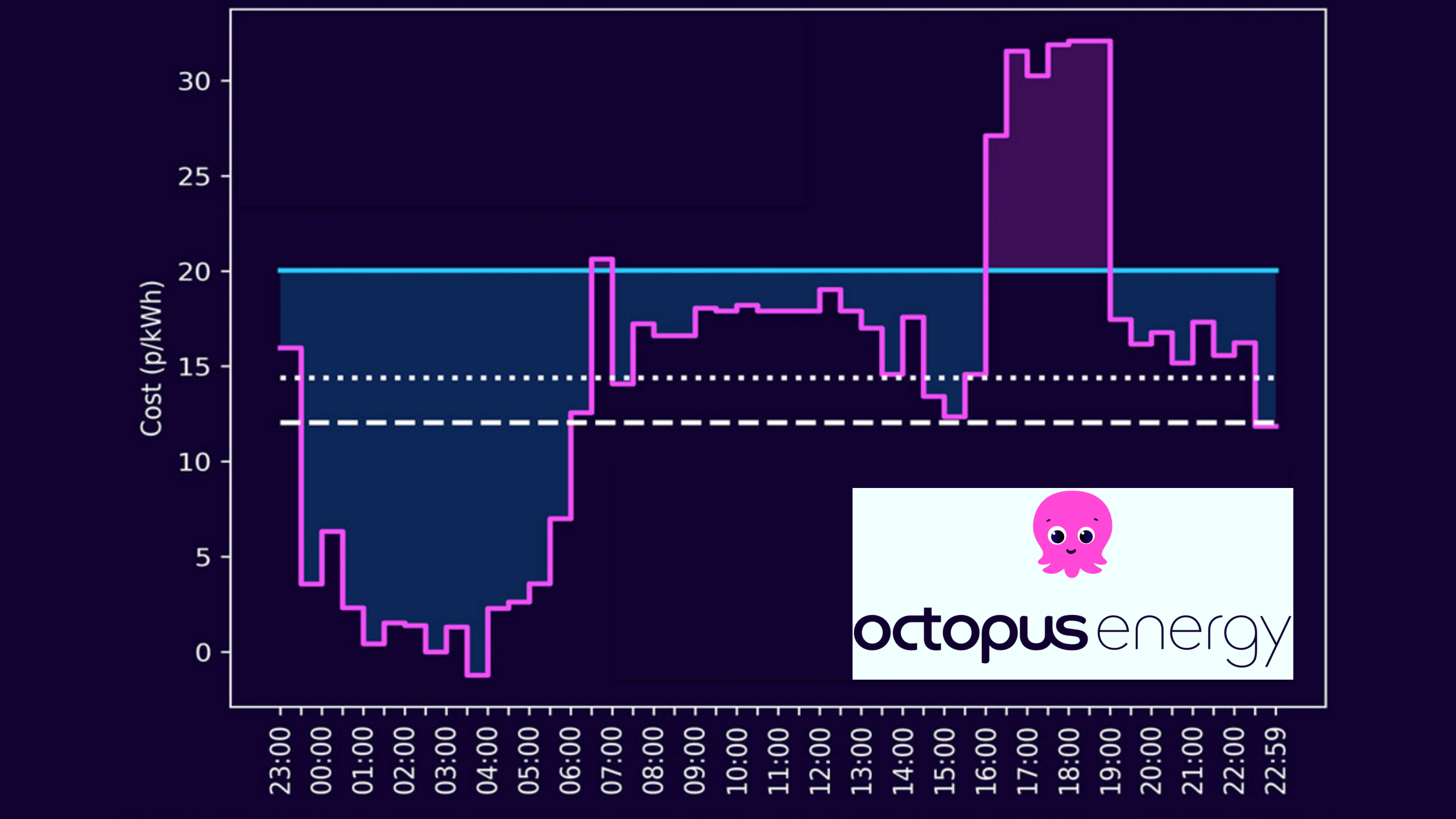

4am - 7am
1pm - 4pm


GROWATT
GROWATT
GROWATT
GROWATT

Import (buy)	Export (sell)

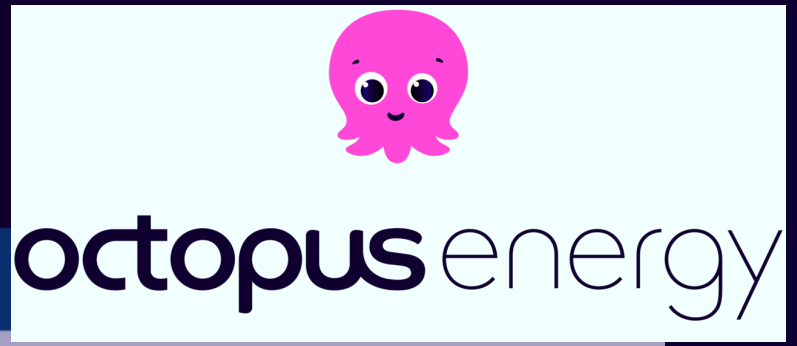

4am - 7am
1pm - 4pm
Standard Variable tariff
Heat Pump Tracker tariff

Import (buy)	Export (sell)
Time of use	SEG (bad)
Variable / Trackers	Fixed Export Tariff (FIT)
Type of use	Variable Export Tariff


Cost (p/kWh)
30
25
20
15
10
5
0
23:00
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
22:59
octopus energy

	EV Tariffs	Heat Pump Tariffs	Solar PV / Battery Tariffs
octopus energy	✓	✓	✓
ovo energy	✓	✓	✓
SCOTTISHPOWER	✓	✓	SEG Only
EDF	✓	✓	SEG Only
E.ON	✓		SEG Only
British Gas	✓	✓	✓

Which smart tariff is right for me?



Your low carbon tech	Your best tariff
Heat pump	Cosy Octopus
Electric car (EV)	Intelligent Octopus Go
Solar panels	Outgoing Fixed
Solar, battery storage	Octopus Flux
Battery storage	Agile + Outgoing Octopus
EV, solar	Intelligent Octopus Go
EV, heat pump	Intelligent Octopus Go
EV, solar, heat pump	Intelligent Octopus Go
Heat pump and solar	Cosy Octopus + Outgoing Fixed
Nothing yet	Agile Octopus or Octopus Tracker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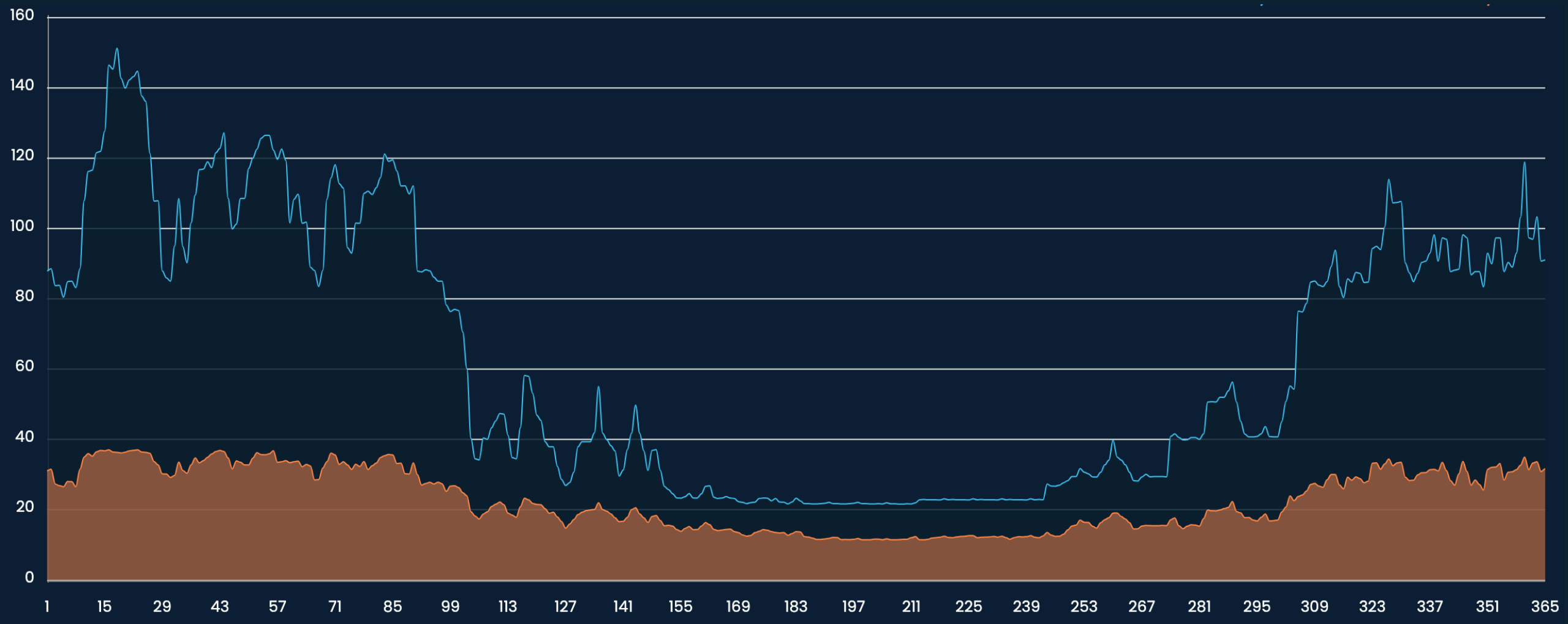

160
140
120
100
80
60
40
20
0
1
15
29
43
57
71
85
99
113
127
141
155
169
183
197
211
225
239
253
267
281
295
309
323
337
351
365

Bills

Save up to £1,085 /year

By installing a heat pump, a large solar array and a battery as well as adopting a time of use energy tariff, we estimate that you could save around £1,085 annually.

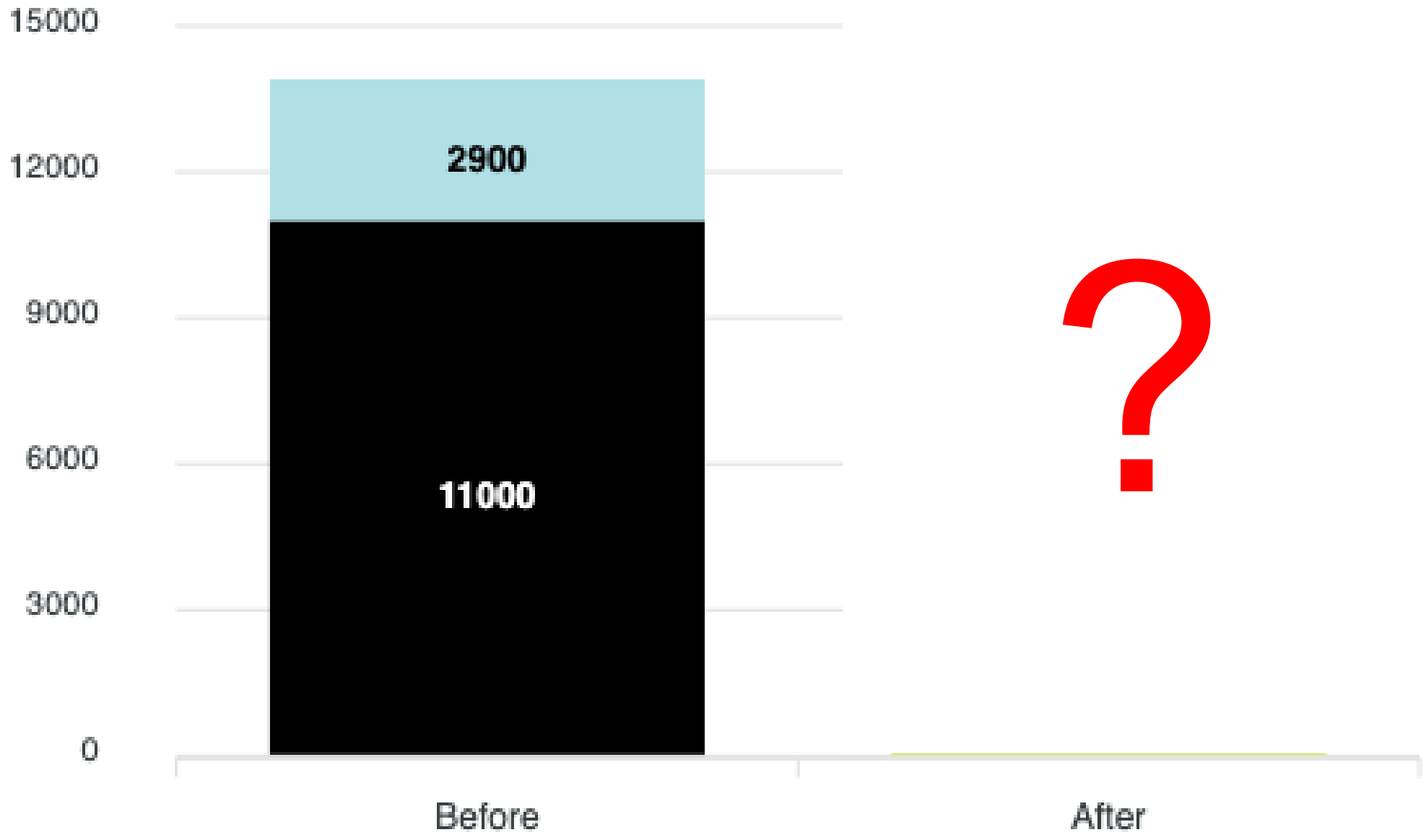
CO2 Savings

77%

Reduction in your annual household emissions

Moving to a heat pump will have a significant impact on your household carbon emissions, as heat pumps use around one third the amount of energy as a fossil fuel boiler.

Where do the savings come from?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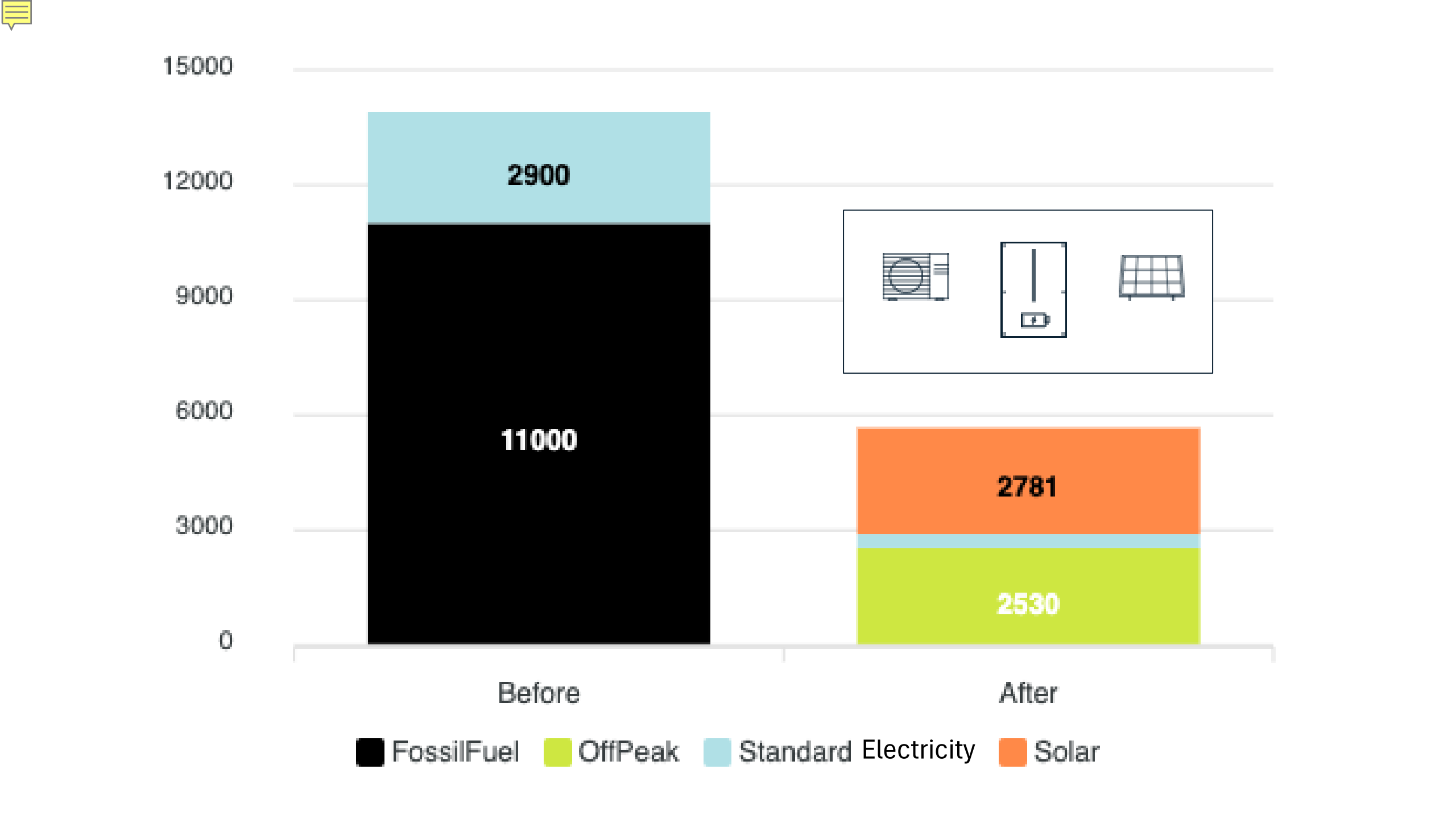
?
Before
After


15000
12000
9000
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0
2900
11000
2781
2530
Before
After
FossilFuel
OffPeak
Standard Electricity
Solar

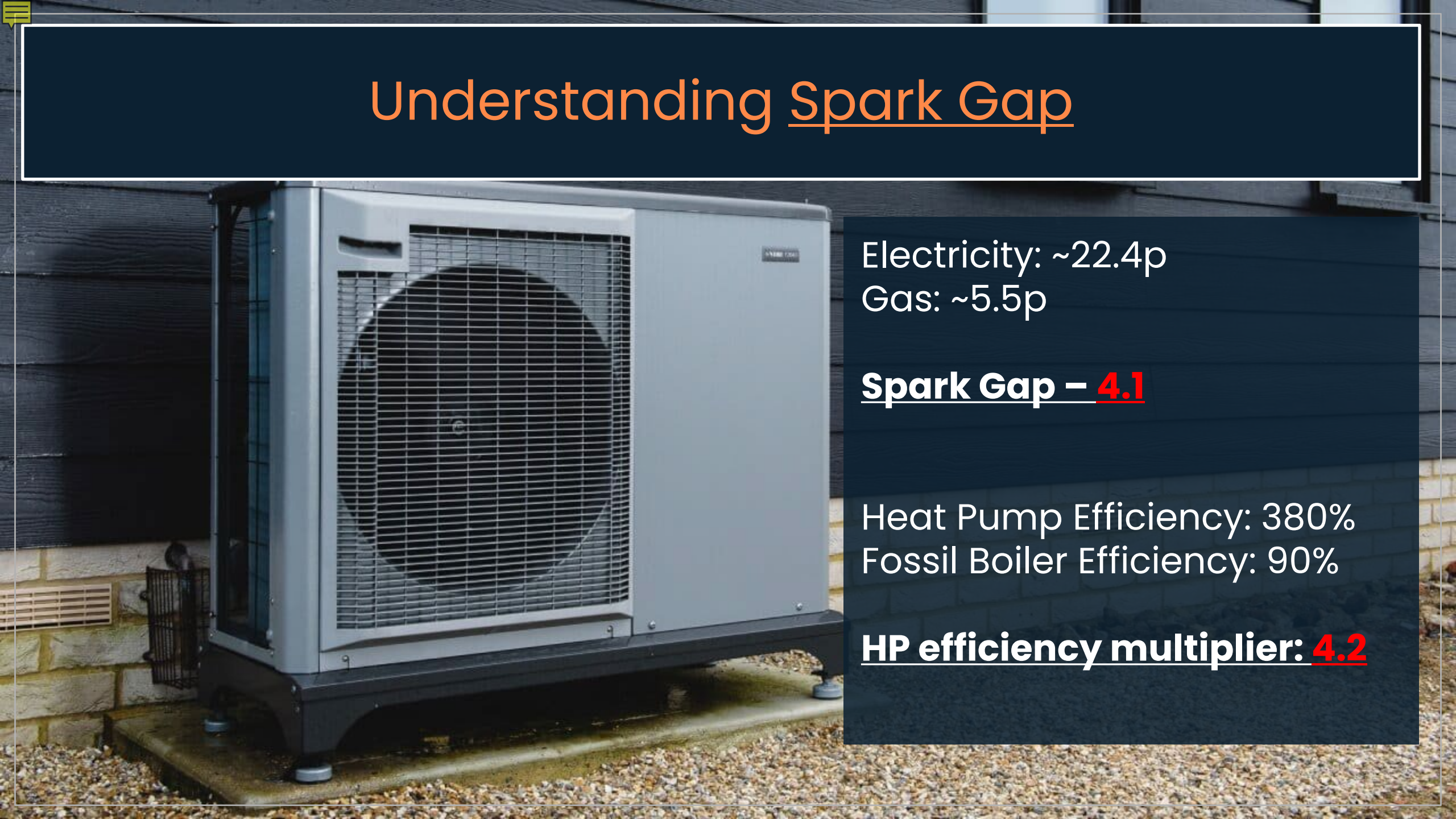
Understanding Spark Gap

Understanding Spark Gap

Electricity: ~22.4p
Gas: ~5.5p

Spark Gap – 4.1

Understanding Spark Gap



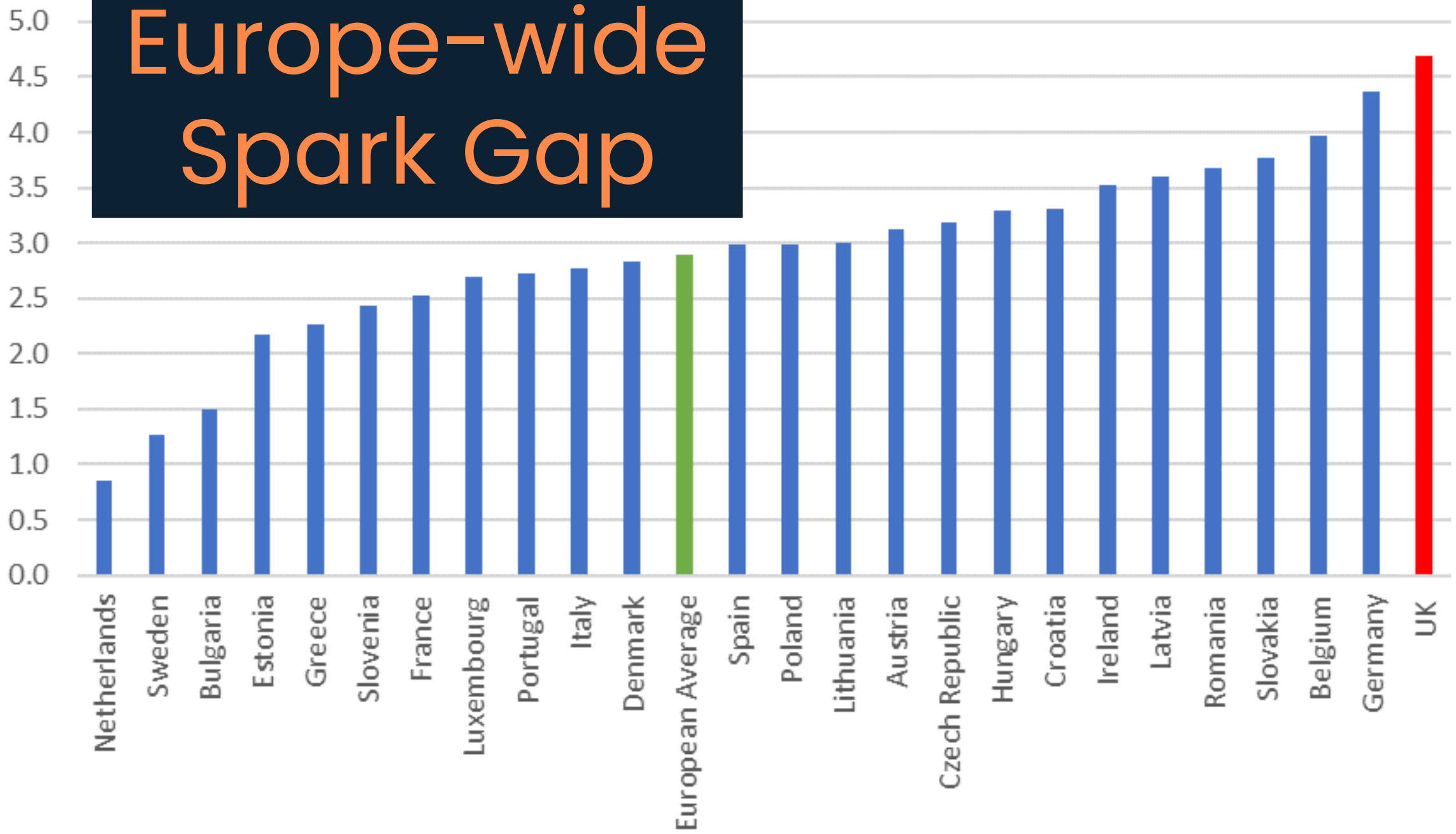
Electricity: ~22.4p
Gas: ~5.5p

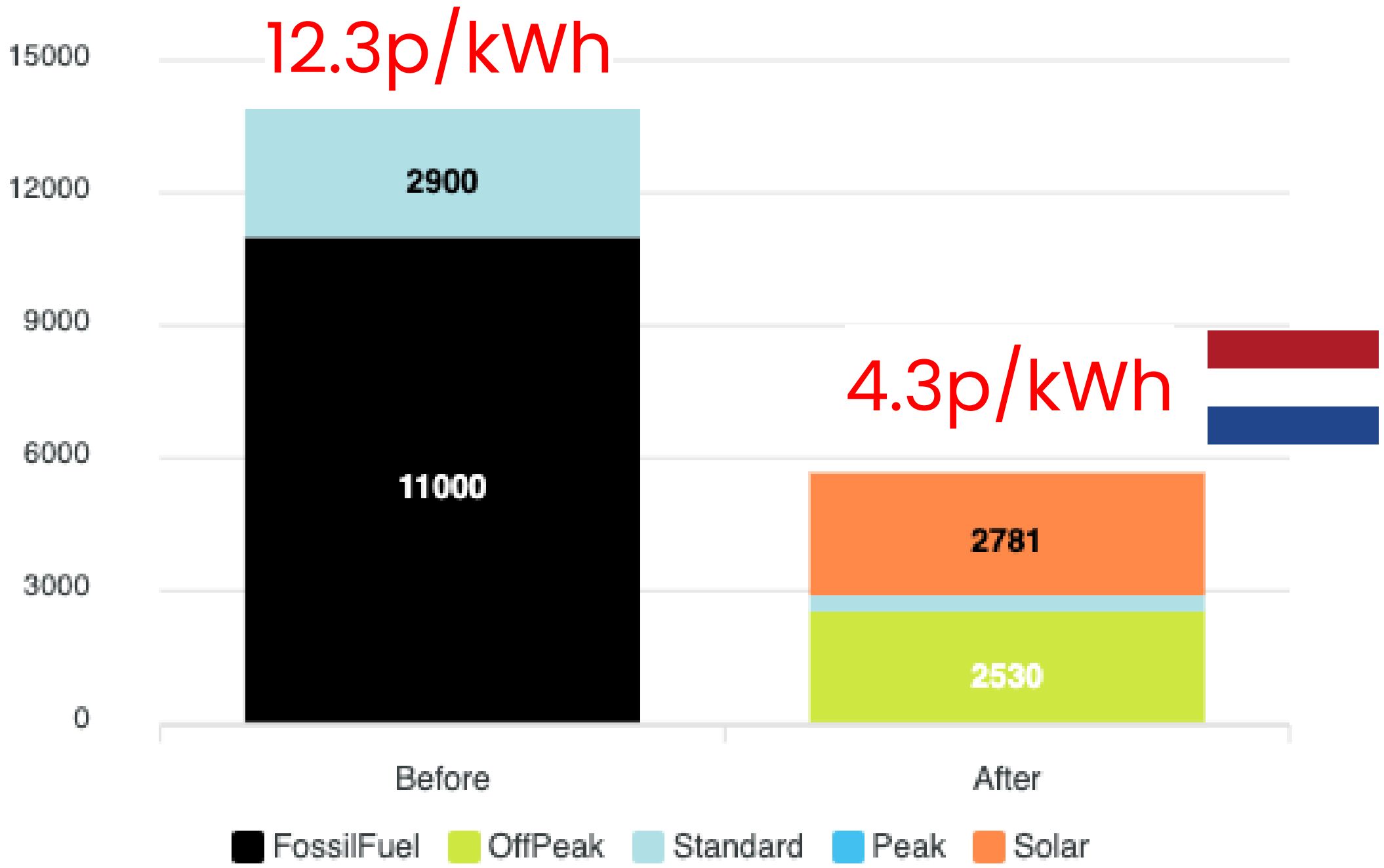
Spark Gap – 4.1

Heat Pump Efficiency: 380%
Fossil Boiler Efficiency: 90%

HP efficiency multiplier: 4.2

Europe-wide Spark Gap




12.3p/kWh
15000
12000
9000
6000
3000
0
2900
11000
2781
2530
4.3p/kWh
Before
After
FossilFuel
OffPeak
Standard
Peak
Solar

1. Tech & Tariffs
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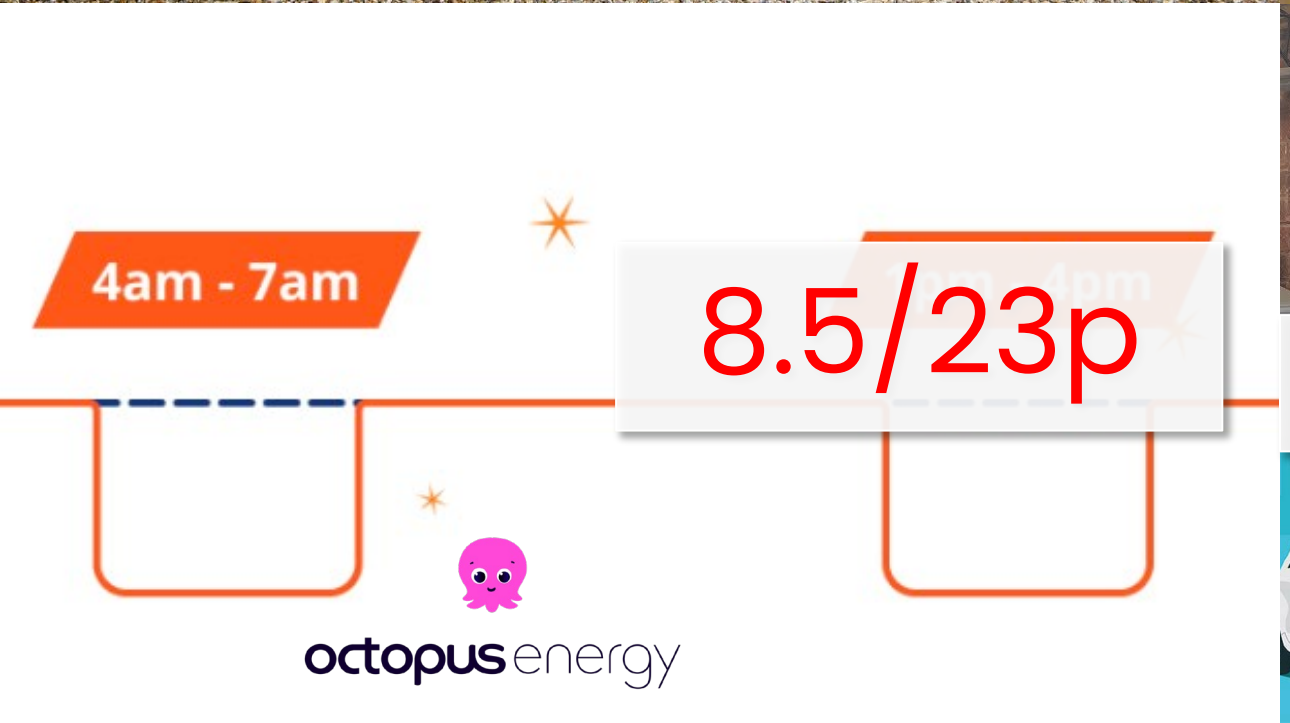
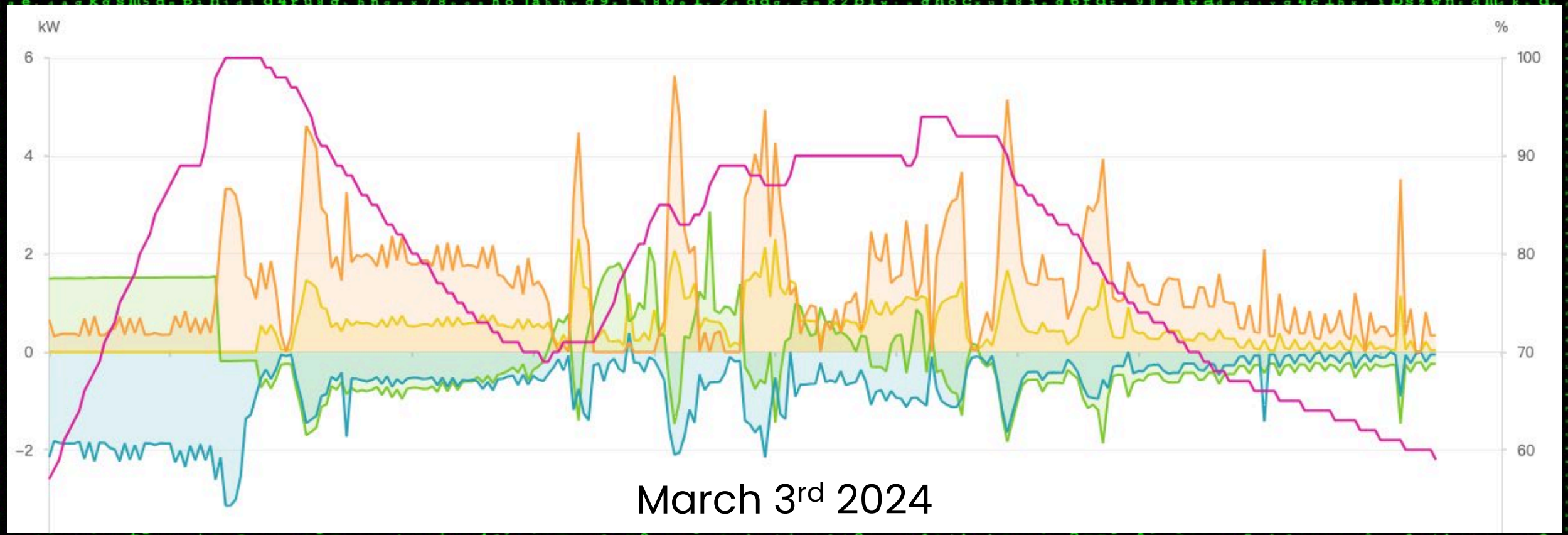
350%


7kWp

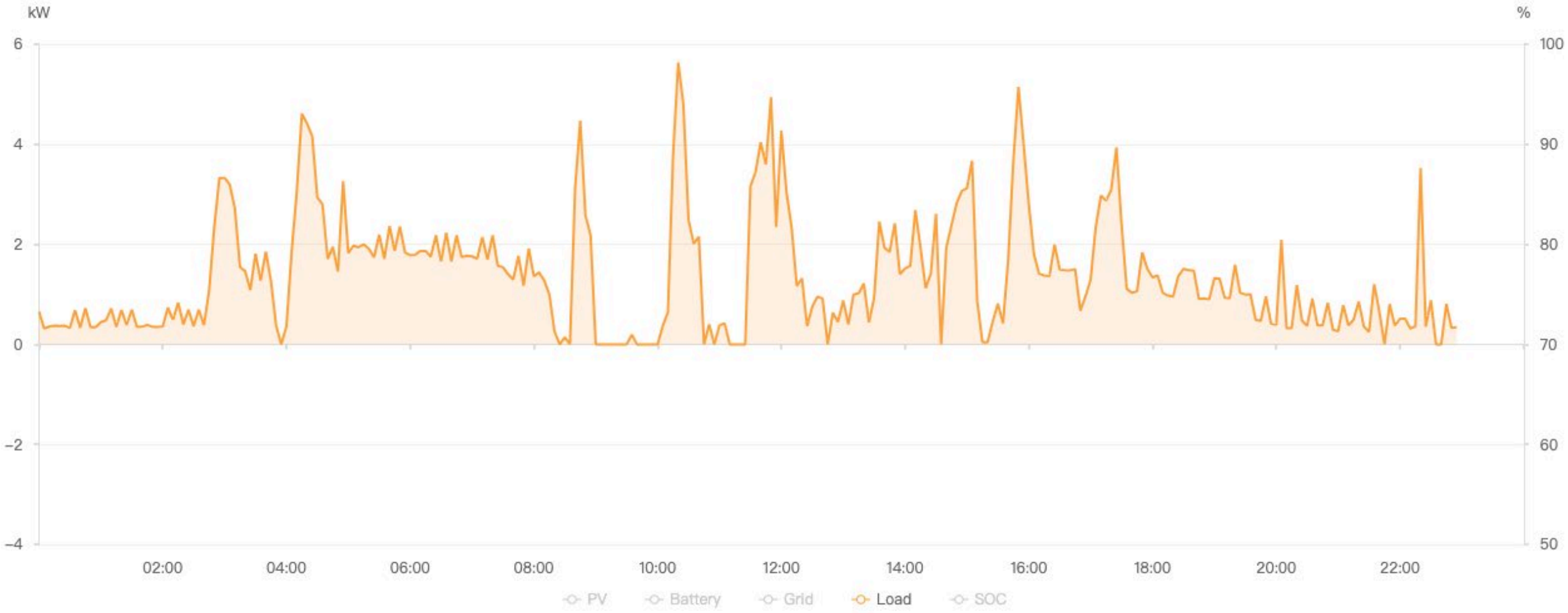

4am - 7am
8.5/23p
octopus energy


10,000m
GROWATT
GROWATT
10kWh



March 3rd 2024

Household “Load”



...including heating

March 3rd 2024

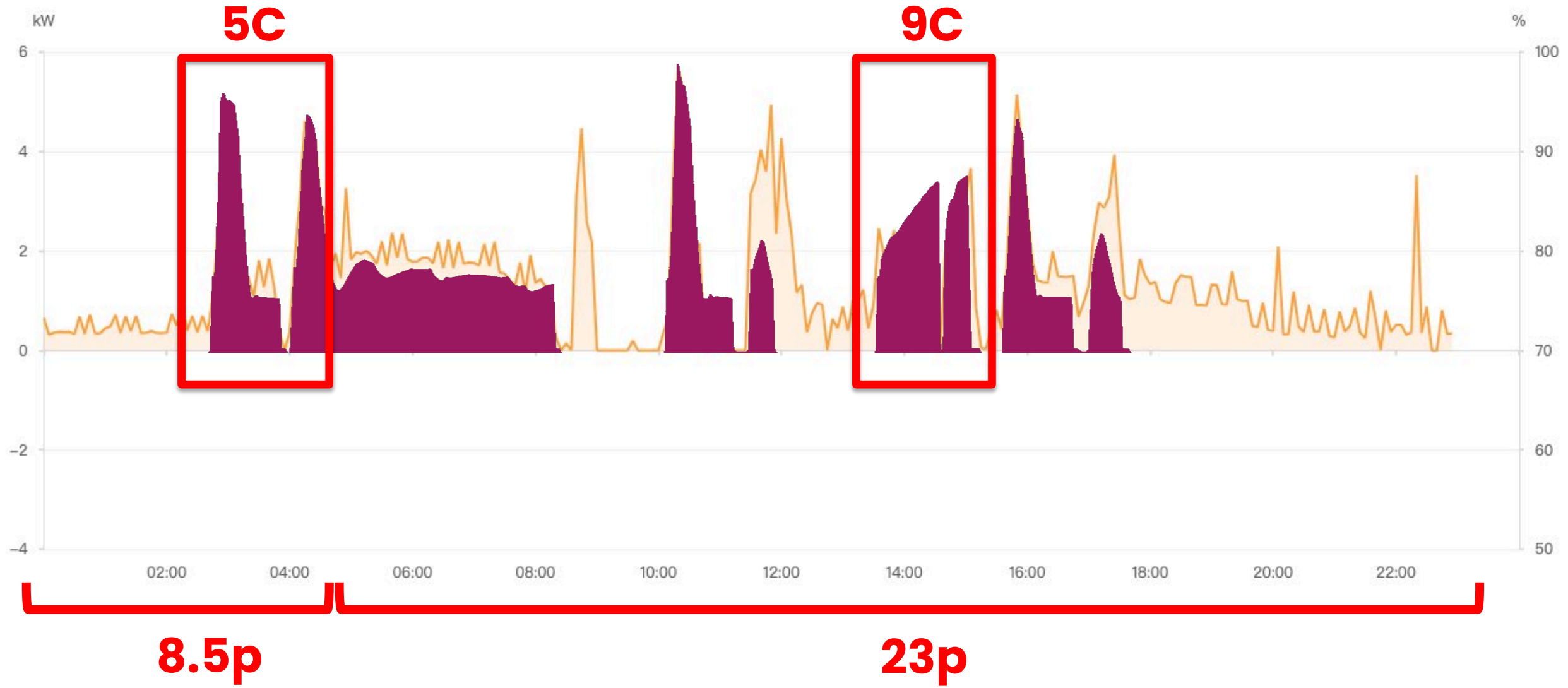
6.7C Outside, 21C Inside

Heating = ~50%

	SOLAR	BATTERY ESS	GRID	TOTAL
Household	926	1,582	392	2,900
Heating System	596	1,368	496	2,460
Electric Vehicles	0	0	0	0
Total	1,521	2,950	889	5,360

warmur

Heating = ~50%


5C
9C
kW
%
6
4
2
0
−2
−4
100
90
80
70
60
50
02:00
04:00
06:00
08:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
8.5p
23p

Battery


kW
%
6
4
2
0
−2
−4
100
90
80
70
60
50
02:00
04:00
06:00
08:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
PV
Battery
Grid
Load
SOC

Battery Charges All Night

8.5p

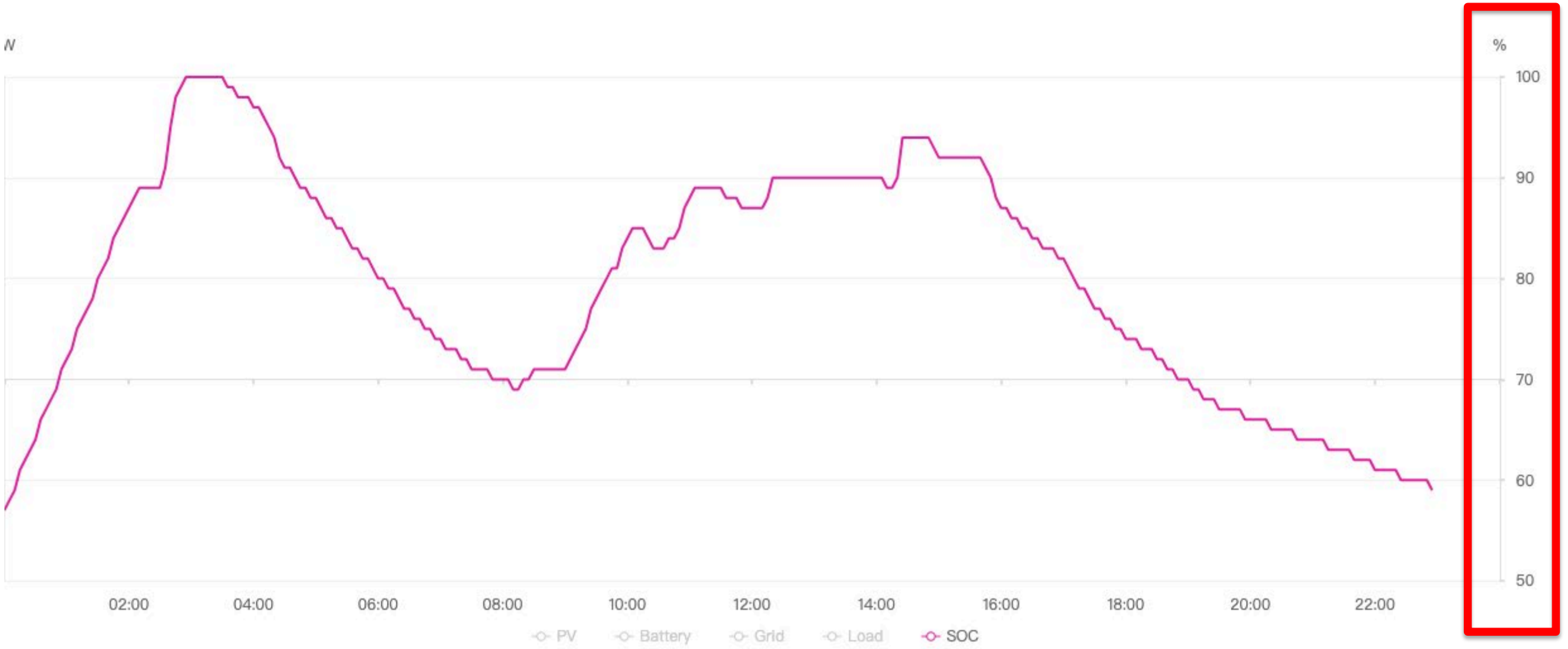
23p

Battery Charges All ~~Night~~ Day

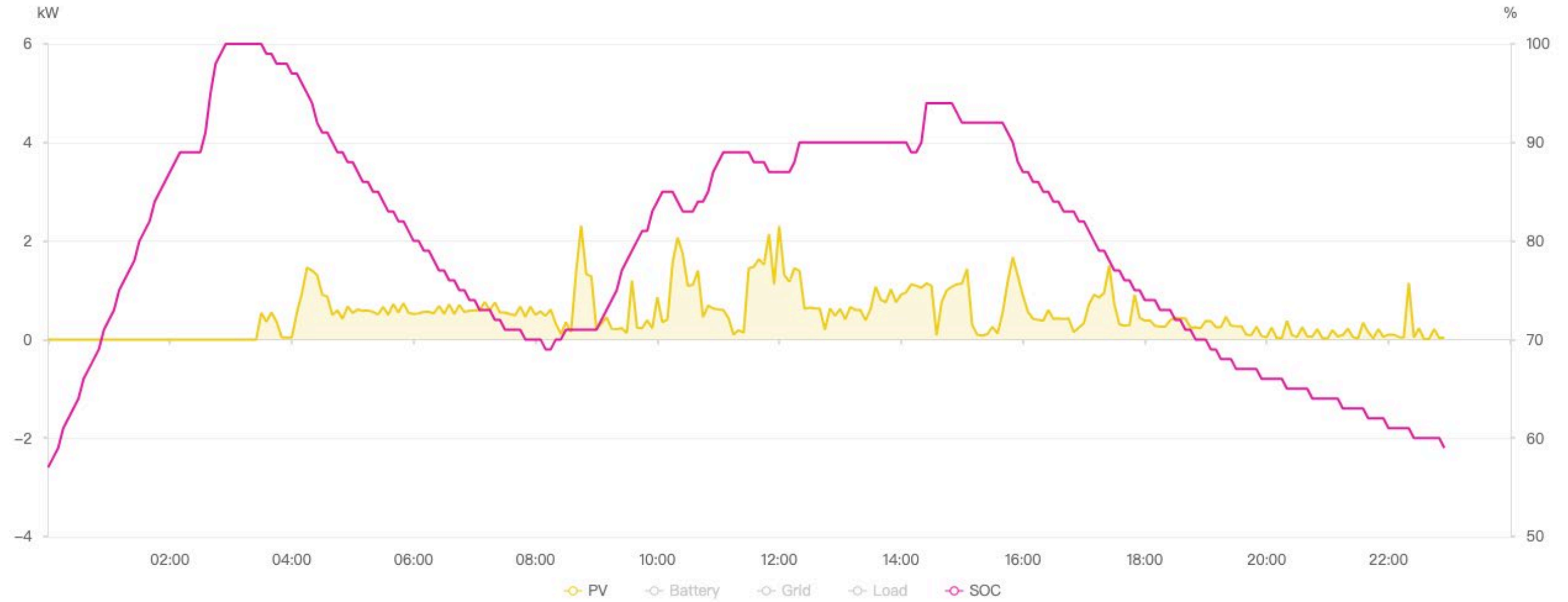
March 3rd 2024

9.3kWh of Solar

Battery “State of Charge”

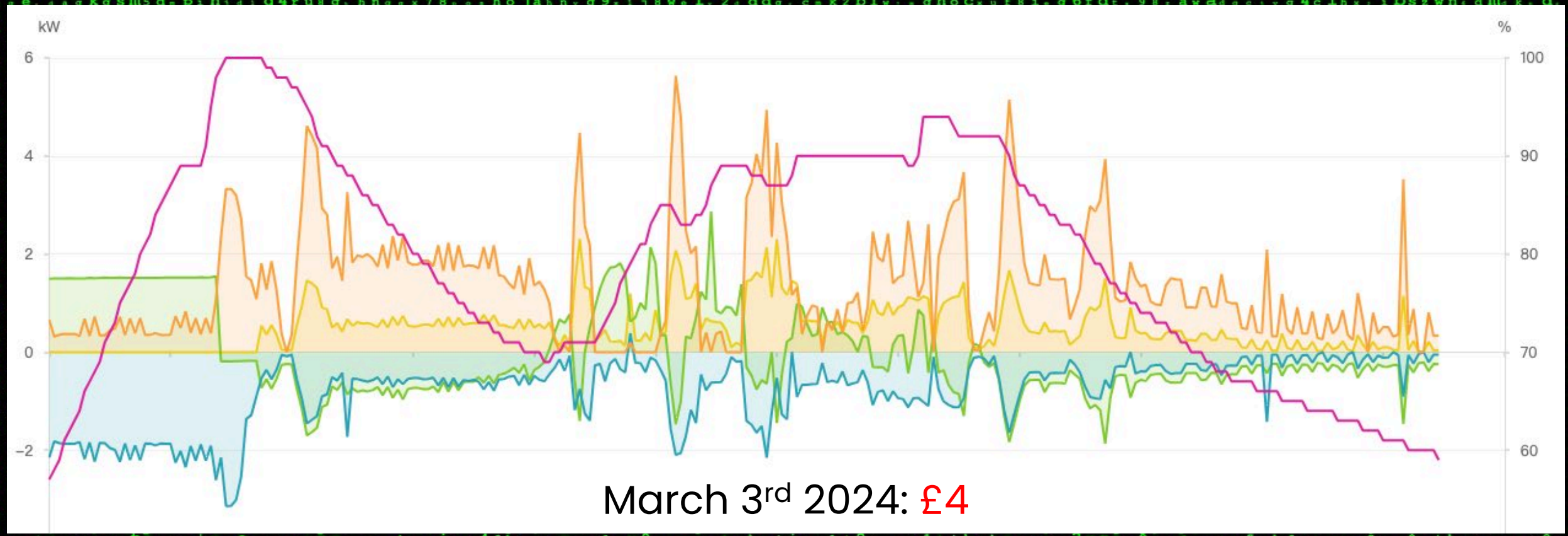


Battery Strategy: Offpeak + Solar



9.3kWh Solar

12kWh used by Heat Pump



March 3rd 2024: £4

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Tip 1: Find the leaks

Tip 2: Don’t overdo it!

RANK	INTERVENTIONS	ENERGY BILL (ESTIMATED)	SAVINGS VS CURRENT	PROJECT COSTS
103	Gas ← Default : Standard Electricity Variable Tariff	£1,708.88	£0.00	£0
1	ASHP 3.8^{SCOP} 4kWp 15kWh ← EDF : GoElectric Overnight Mar25 tariff → Default : Best Price Smart Export Guarantee	£459.89	-£1,248.99	£28,400
2	ASHP 3.8^{SCOP} 4kWp 10kWh ← EDF : GoElectric Overnight Mar25 tariff → Default : Best Price Smart Export Guarantee	£548.11	-£1,160.77	£26,800
10	ASHP 3.8^{SCOP} 4kWp 5kWh ← EDF : GoElectric Overnight Mar25 tariff → Default : Best Price Smart Export Guarantee	£687.27	-£1,021.61	£25,200

Tip 2: Don’t overdo it!

RANK	INTERVENTIONS	ENERGY BILL (ESTIMATED)	SAVINGS VS CURRENT	PROJECT COSTS
103	Gas ← Default : Standard Electricity Variable Tariff	£1,708	£0	£0
1	ASHP 3.8SCOP 4kWp 15kWh ← EDF : GoElectric Overnight Mar25 tariff → Default : Best Price Smart Export Guarantee	£1,408	£300	£8,500
2	ASHP 3.8SCOP 4kWp 10kWh ← EDF : GoElectric Overnight Mar25 tariff → Default : Best Price Smart Export Guarantee	£1,408	£300	£7,500
10	ASHP 3.8SCOP 4kWp 5kWh ← EDF : GoElectric Overnight Mar25 tariff → Default : Best Price Smart Export Guarantee	£1,408	£300	£6,500

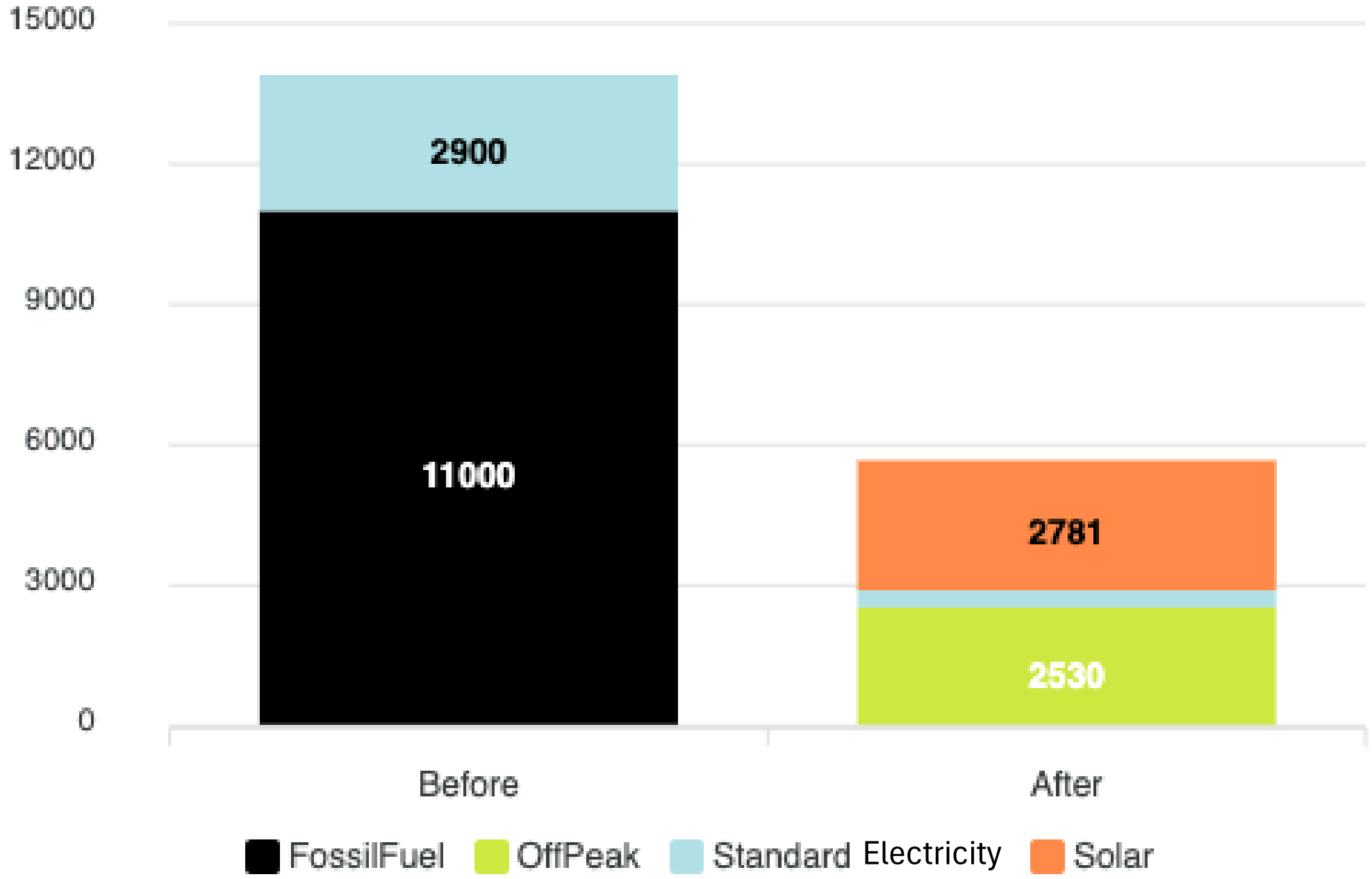
~15 Years payback!

Tip 3: Don’t overcomplicate it

Tip 3: Don’t overcomplicate it

Fabric ~~First~~ Fifth

octopus energy


15000
12000
9000
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2900
11000
2781
2530
Before
After
FossilFuel
OffPeak
Standard Electricity
Solar

~~Fabric First~~ Fifth

1. ASHPs ASAP
2. Get Smart (tariffs)
3. Measure & get comfy
4. Solar & Storage
5. Fabric Fifth

Fabric ~~First~~ Fifth

1. ASHPs ASAP
2. Get Smart (tariffs)
3. Measure & get comfy
4. Solar & Storage
5. Fabric Fifth

warmur

1. Measure & get comfy
2. ASHPs when you're ready
3. Get Smart (tariffs)
4. Solar [& Storage]
5. Fabric Fifth [natural!]

1. Tech & Tariffs
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Thank You!

alex@warmur.co.uk

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