

How to Electrify Your Life, Save Loads of Money, and Save the Planet

ENERGY PERFORMANCE: 2023 FINAL REPORT

<https://electrifylife.co.uk>
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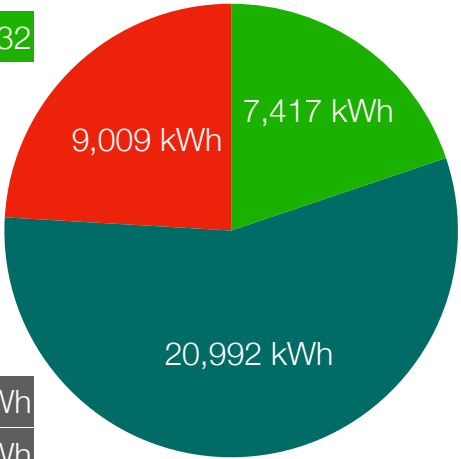
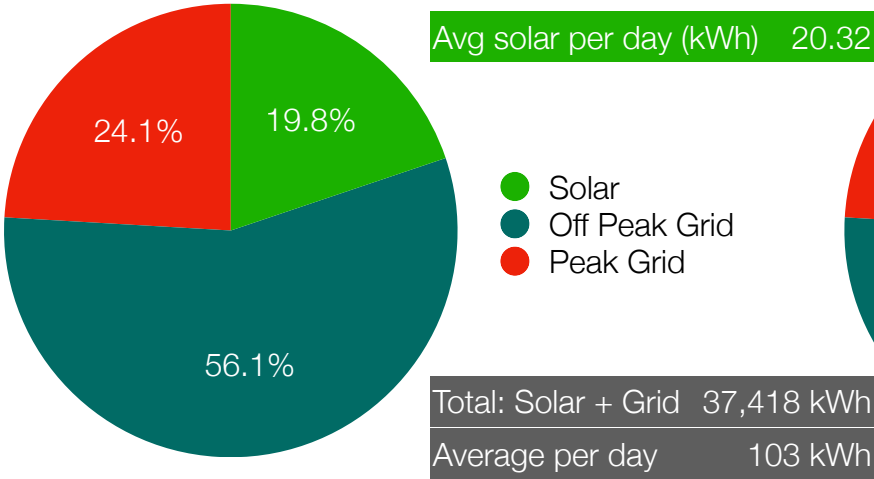
Savings versus cost of heating oil and petrol use the typical £/litre of those fuels in each monthly period (petrol price from Tesla app).

Grid electricity cost reflects our current Intelligent Octopus Go Faster tariff:
6 hours off-peak @ 7.5p/kWh including VAT
18 hours peak @ 28.7p/kWh including VAT
Standing Charge @ 50p/day including VAT
100% renewable supply; no ROCs/offsetting.

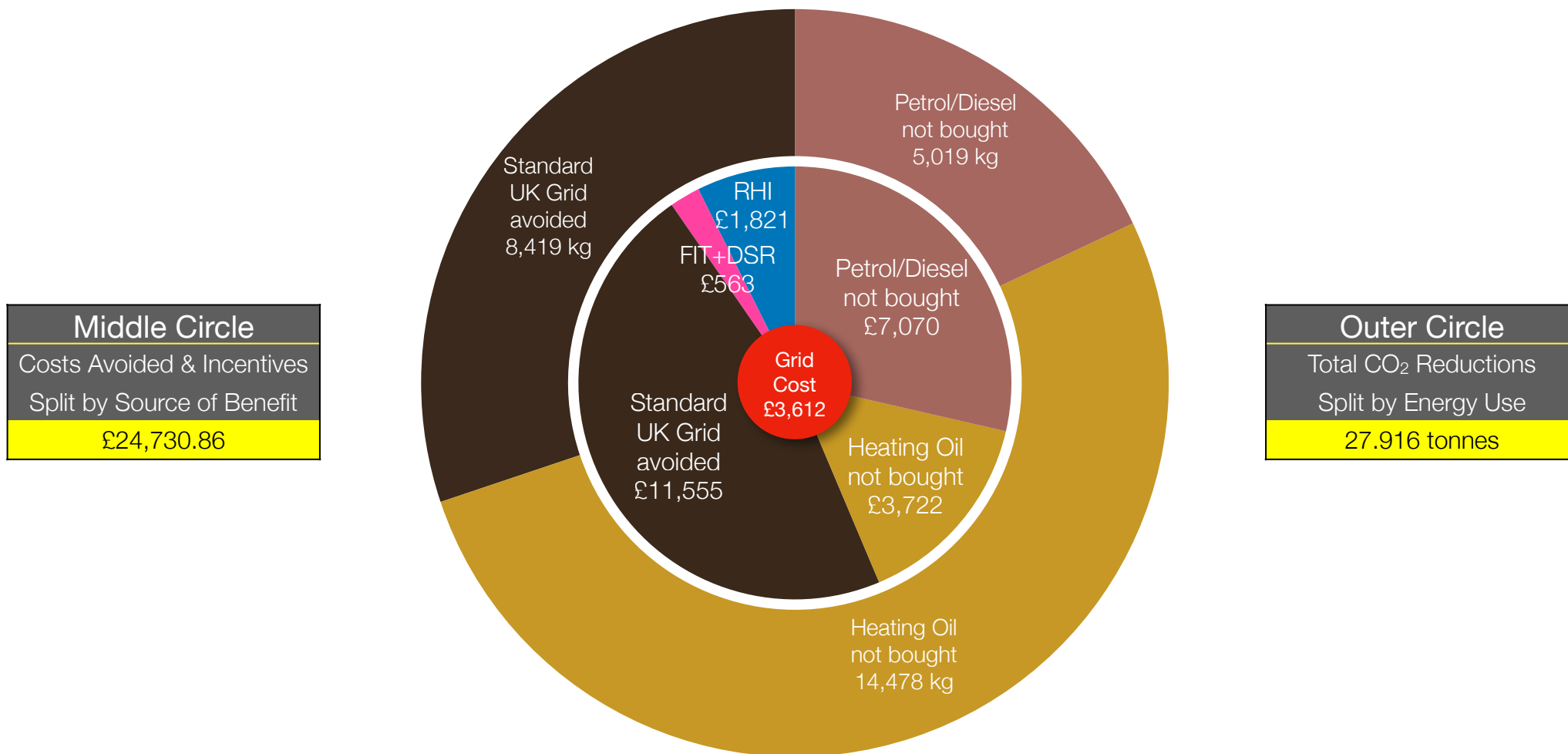
Cash savings vs standard rate electricity use OFGEM Price Cap per kWh (varies quarterly).

CO₂ savings vs standard electricity use 2023 UK Grid Emissions Factor of 0.2249 kg/kWh

Peak Grid	£1,874.27
Off Peak Grid	£1,373.31
Solar	£0.00
Total Energy Cost	£3,247.58
Standing Charge	£192.54
VAT @ 5%	£172.01
Total Energy Bill (gross)	£3,612.13
Avg Cost per kWh (gross)	9.65p
Avg Cost per day (gross)	£9.90
Total Incentives received	£2,384.16
Net Energy Cost (net of incentives)	£1,227.97
Avg cost per kWh (net)	3.28p
Avg cost per day (net)	£3.36

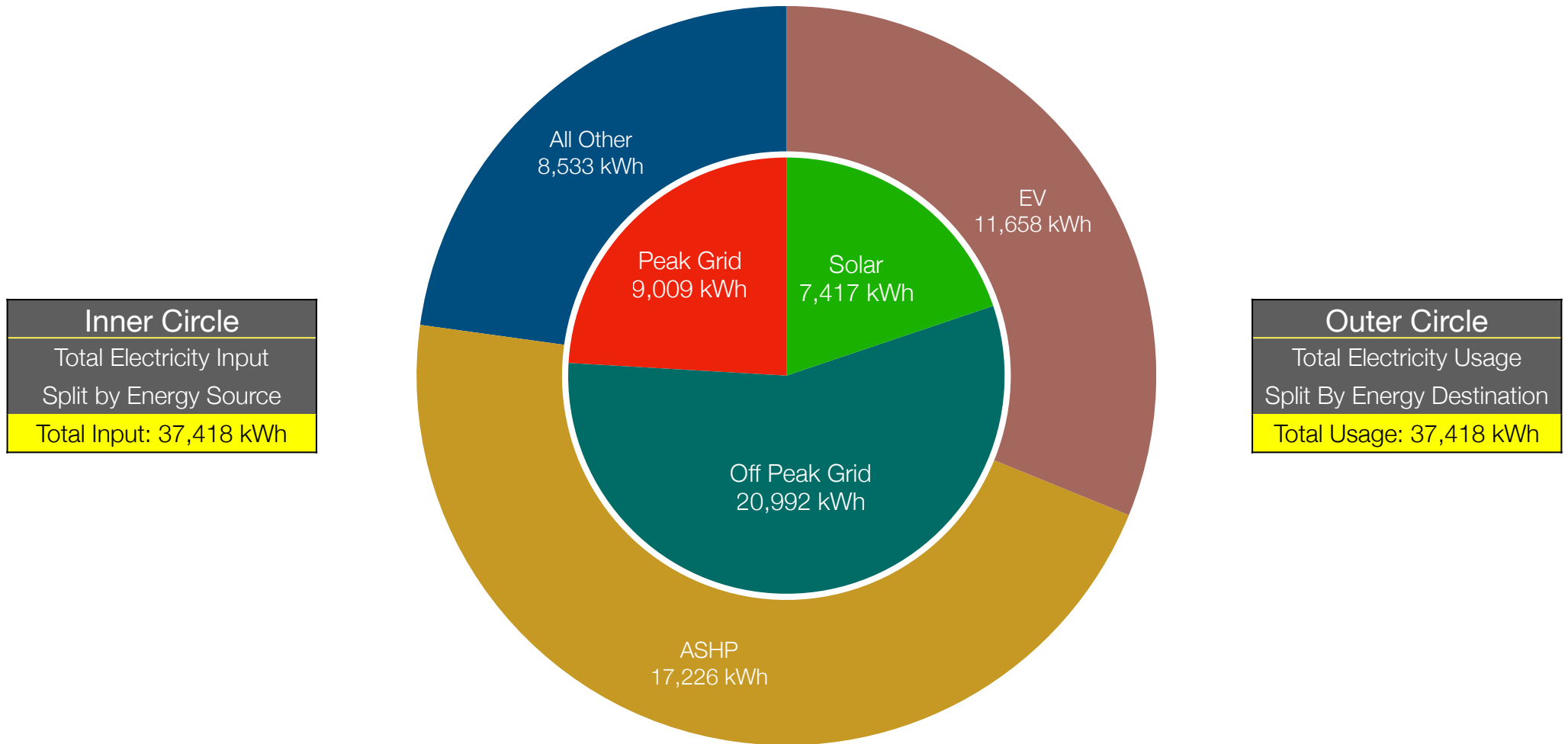


Total CO₂ Emissions Reductions and Total Financial Benefit In Year & Payback Period

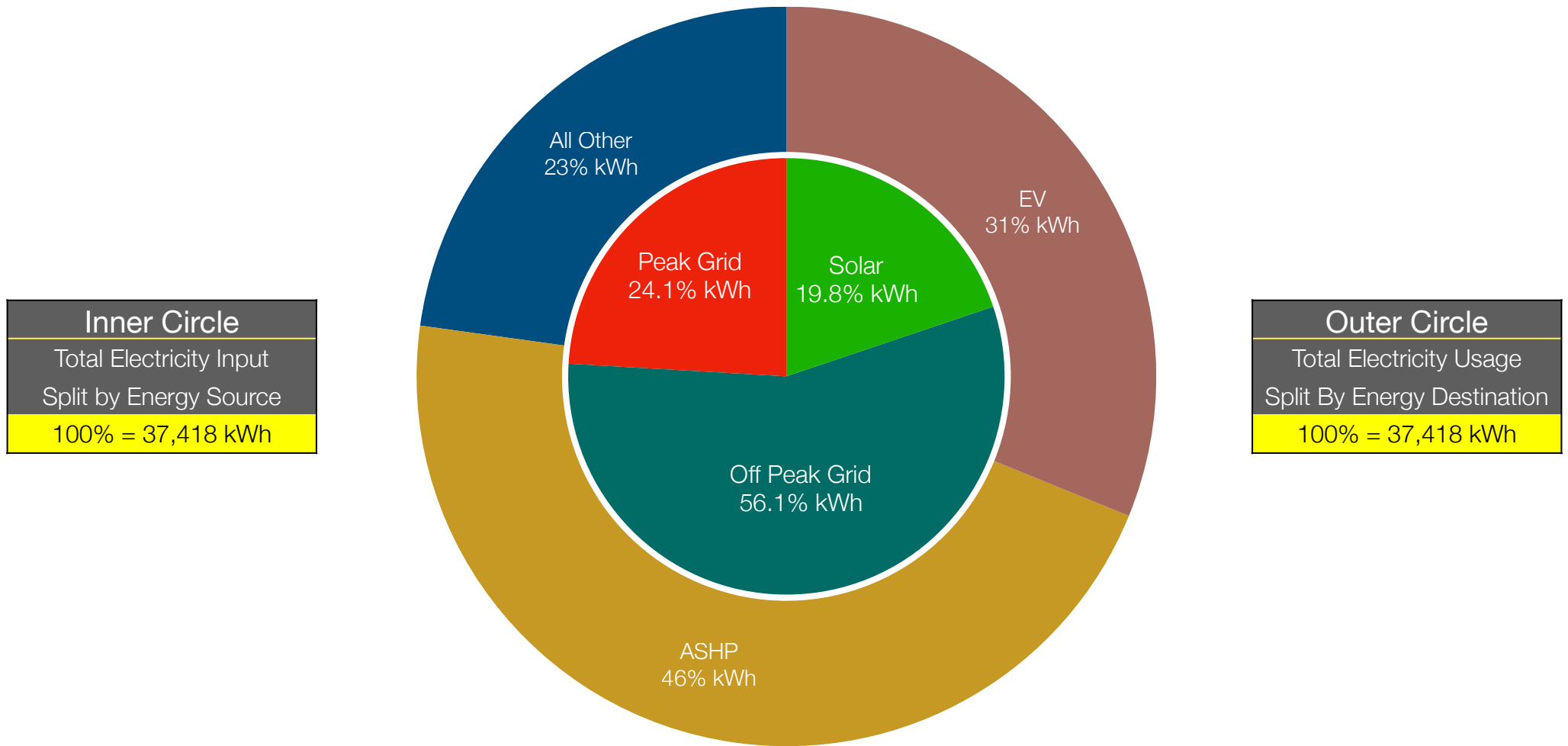


Total Capital Investment	Net Financial Benefit <i>Definition</i>	Net Financial Benefit <i>Result</i>	Payback Period
£145,981	Total Middle Circle Benefits	NFB in Year £21,118.74	6.91
incl 2 EV cars & all fixed equipment	Minus Grid Cost Bullseye	NFB per Day £57.86	Years

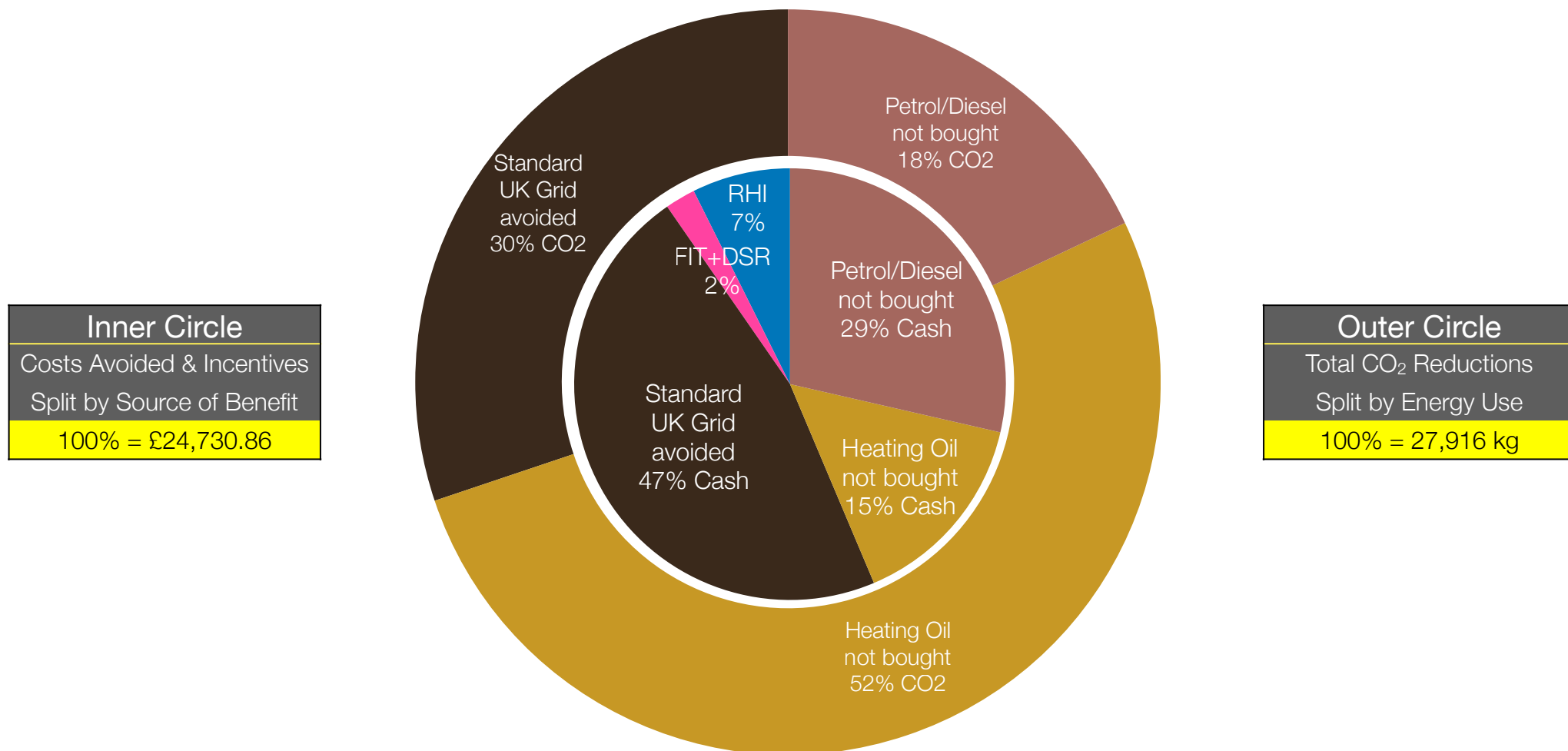
Energy Sources & Energy Destinations : Overview

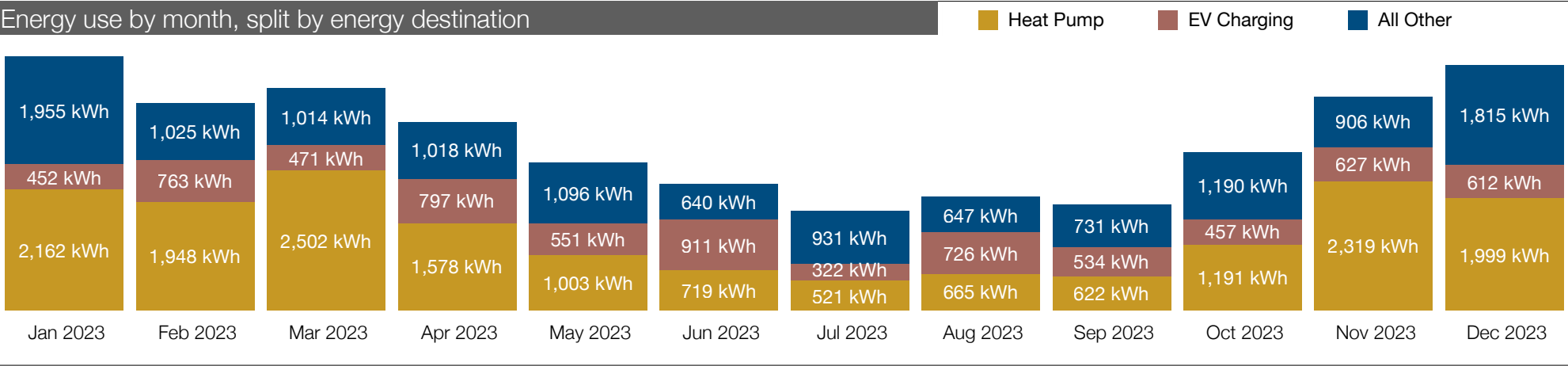
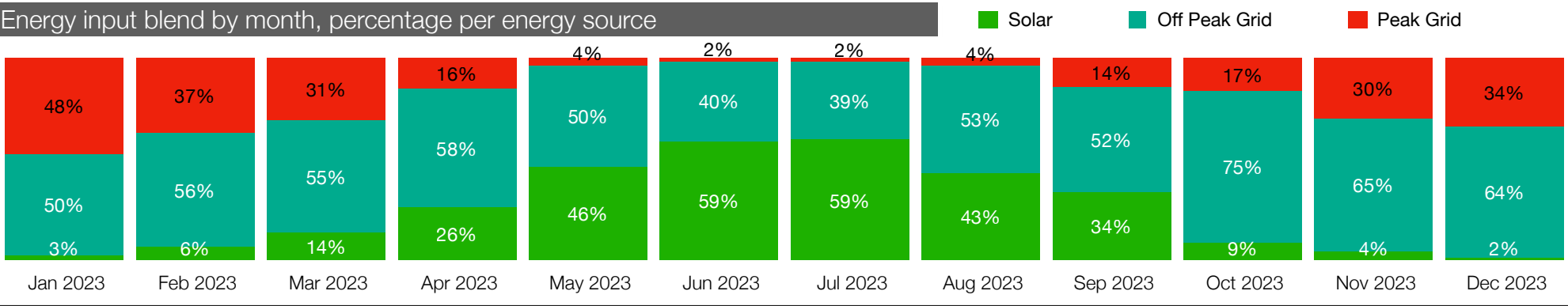
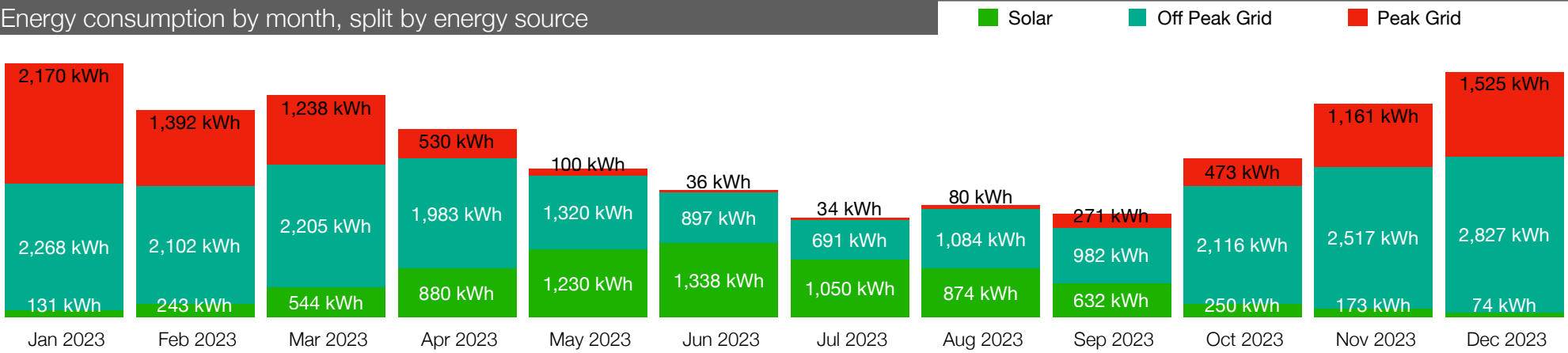


Energy Sources & Energy Destinations : Overview %

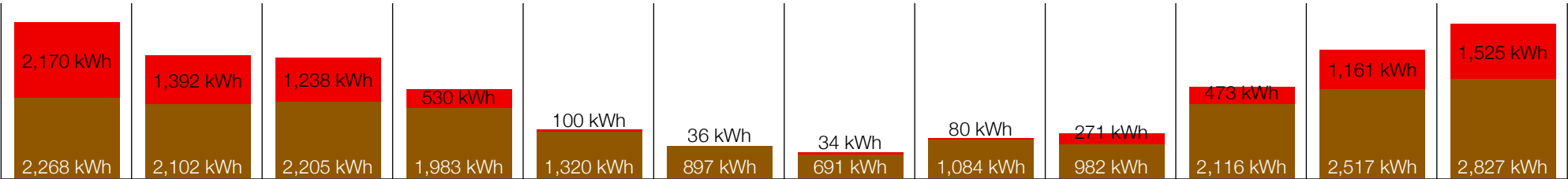
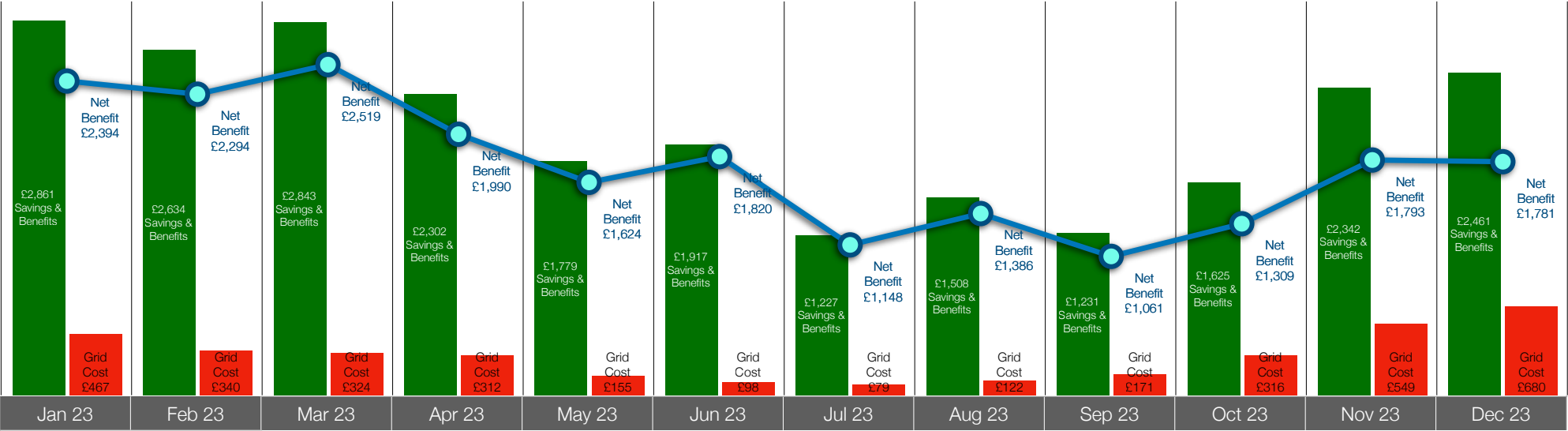


CO₂ Emissions Reductions & Cash Savings/Incentives %

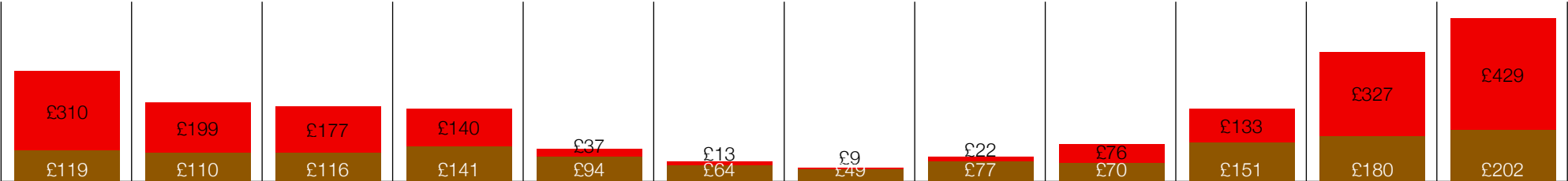




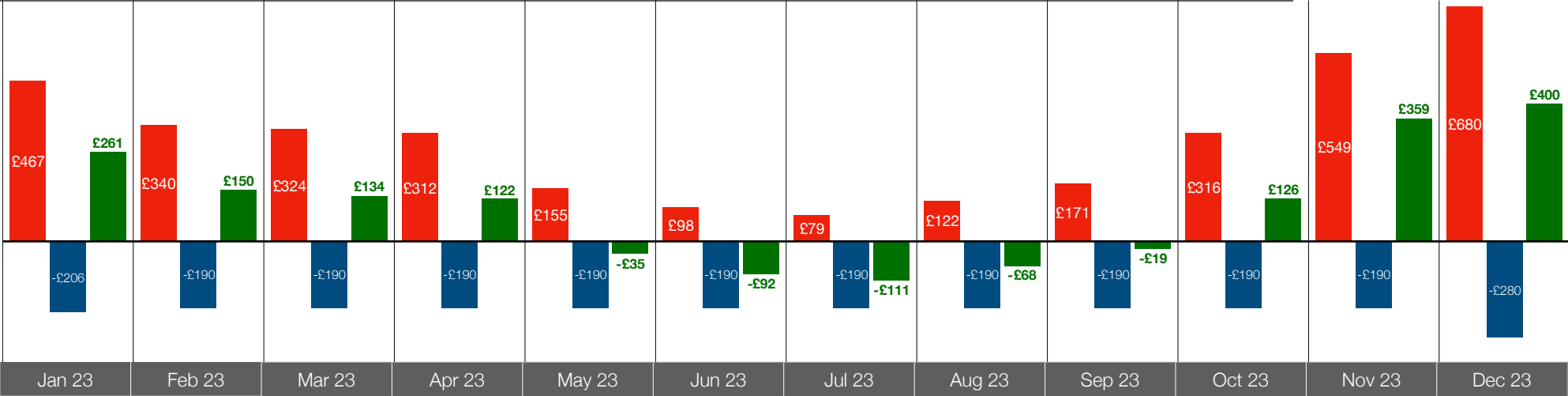
Savings & Benefits *minus* Energy Cost = Net Benefit: by month.



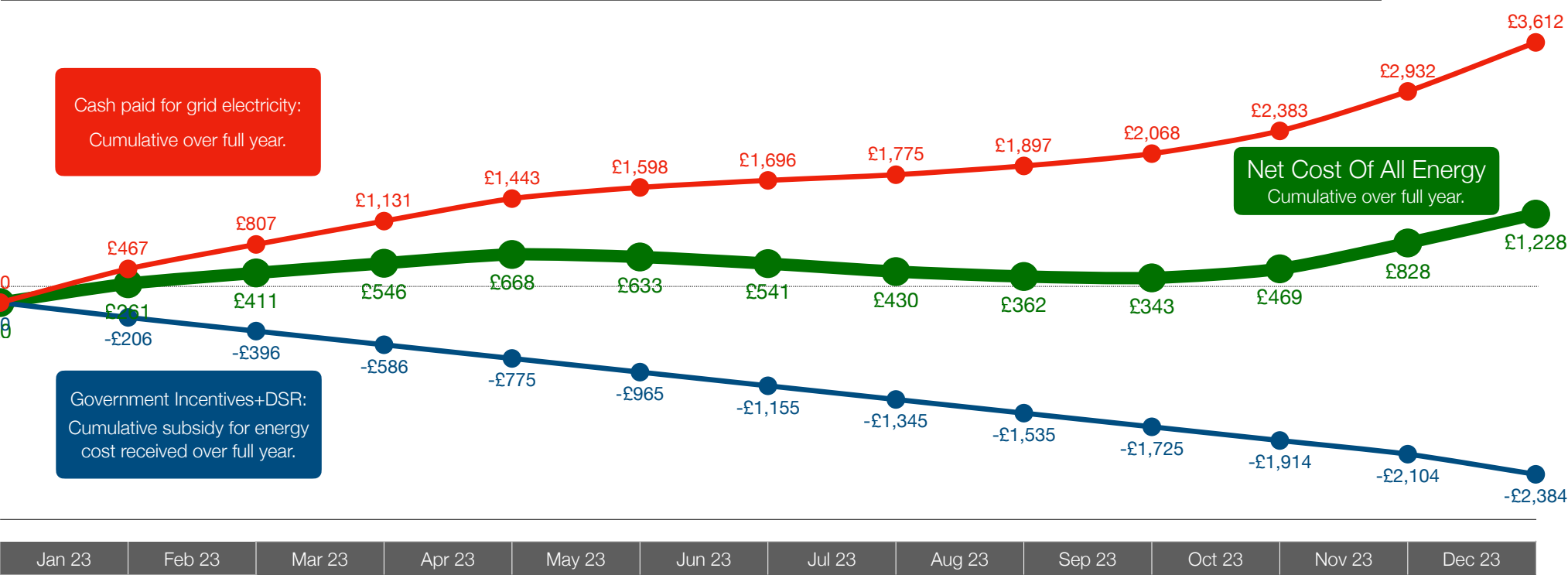
■ Peak Grid Import ■ Off Peak Grid Import Above ■ Peak Grid Cost ■ Off Peak Grid Cost Below



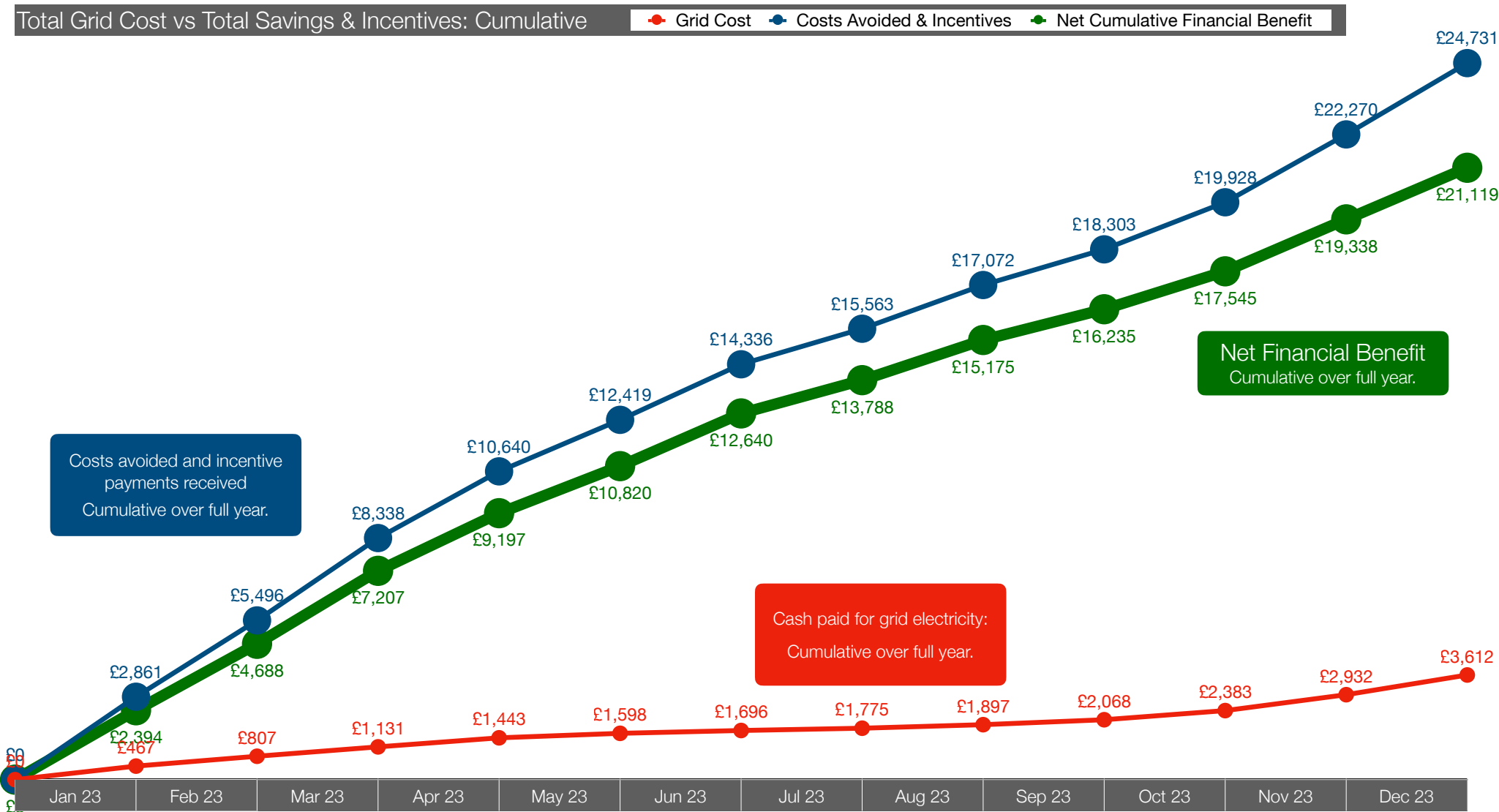
Total Energy Cost vs Total Incentives: by month.



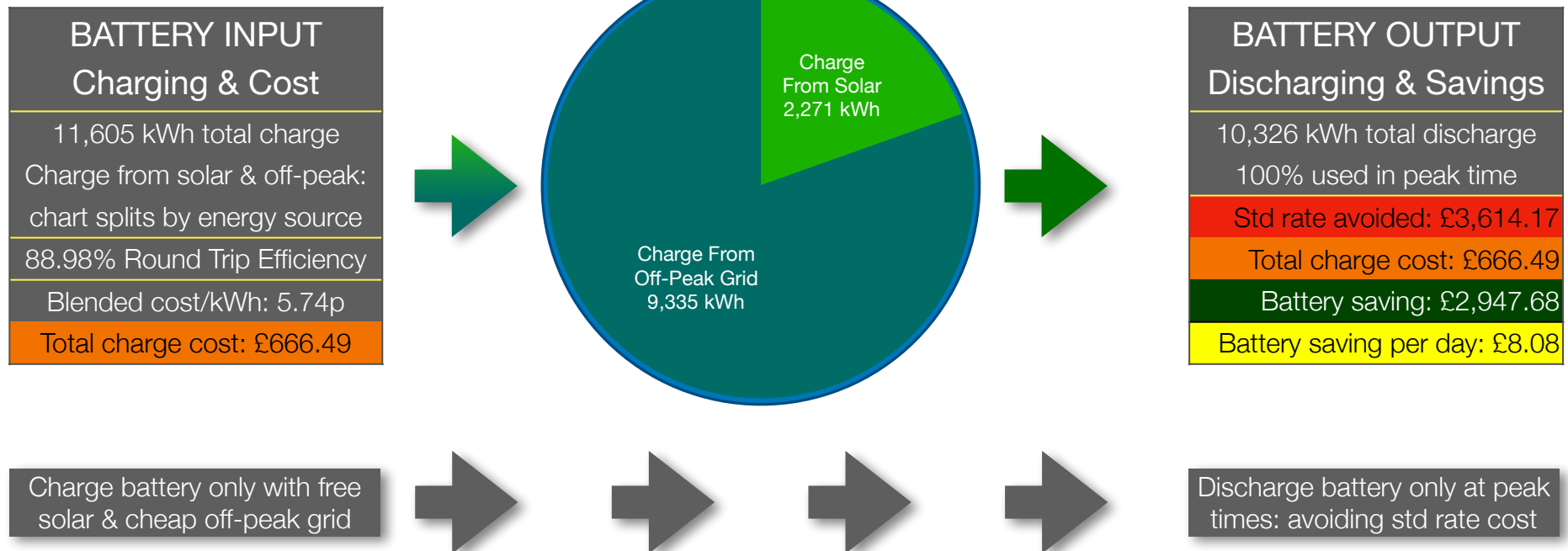
Total Grid Cost vs Total Incentives: Cumulative



Total Grid Cost vs Total Savings & Incentives: Cumulative



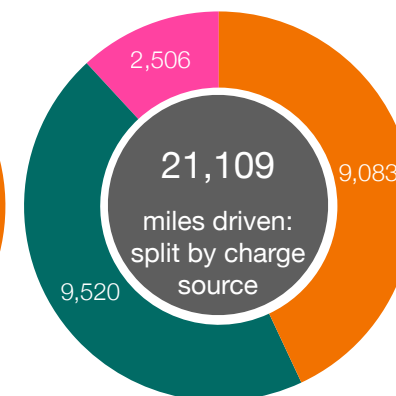
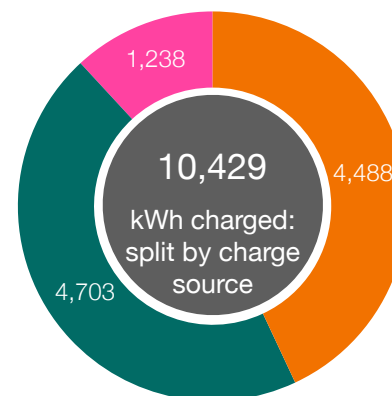
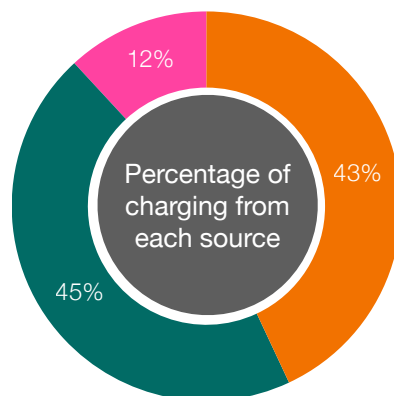
Savings from battery by time-shifting consumption



EV cost & carbon savings

Tesla Model X: mileage, cost & carbon summary

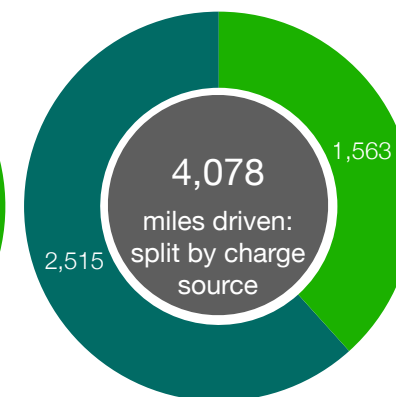
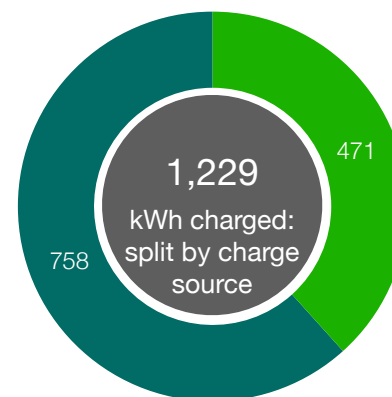
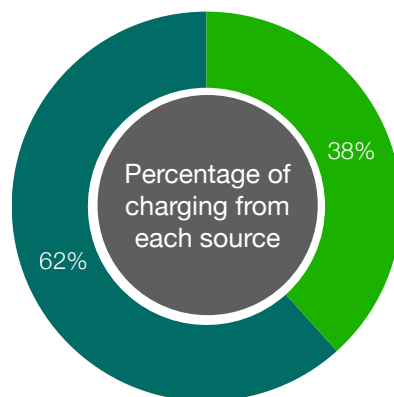
Miles driven in period	21,109
Total cost, using charging mix shown	£307.69
Electricity charging cost, pence per mile	1.46p
Cost saved vs 22mpg car petrol	£6,112.08
CO2 saved vs UK ICE avg @ 124.1g/km	4,209 kg



Free Solar At Home Free Tesla Supercharging Off-Peak Grid At Home Peak Grid At Home Free Other Charging

Nissan Leaf: mileage, cost & carbon summary

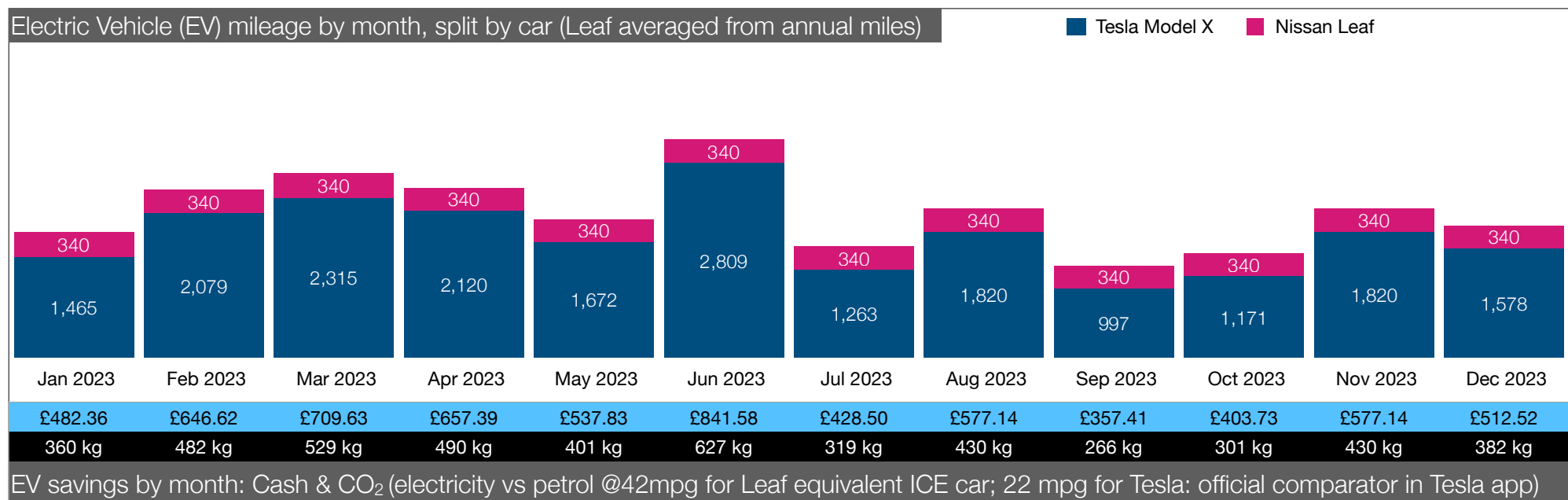
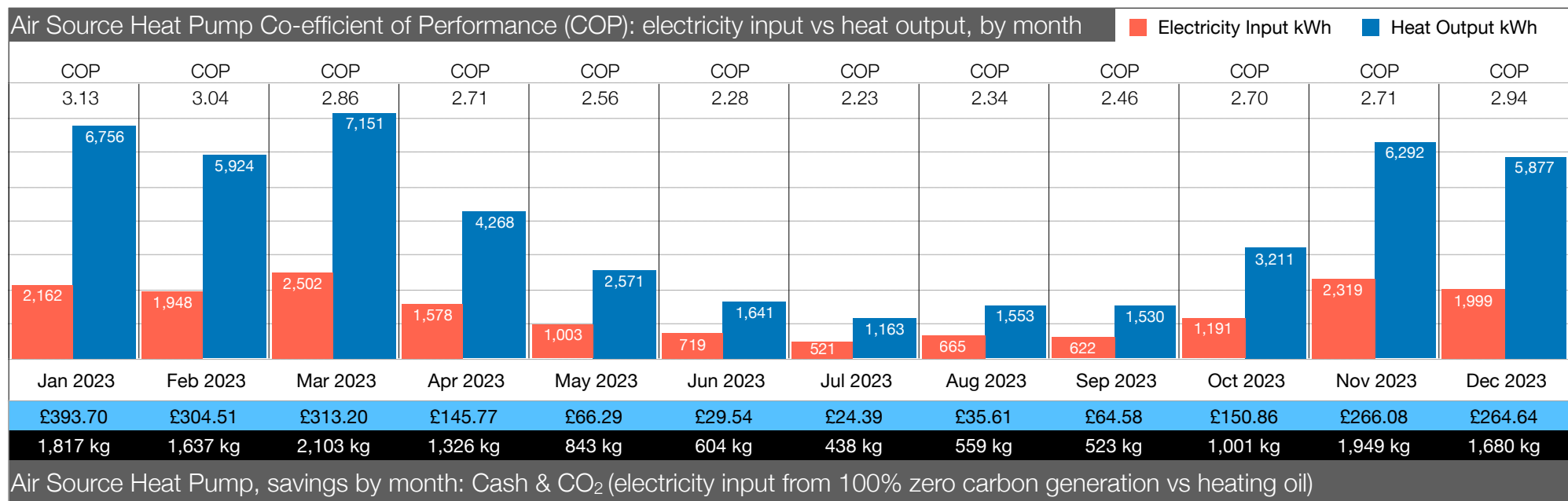
Miles driven in period	4,078
Total cost, using charging mix shown	£30.42
Electricity charging cost, pence per mile	0.75p
Cost saved vs 42mpg car petrol	£619.78
CO2 saved vs UK ICE avg @ 124.1g/km	810 kg

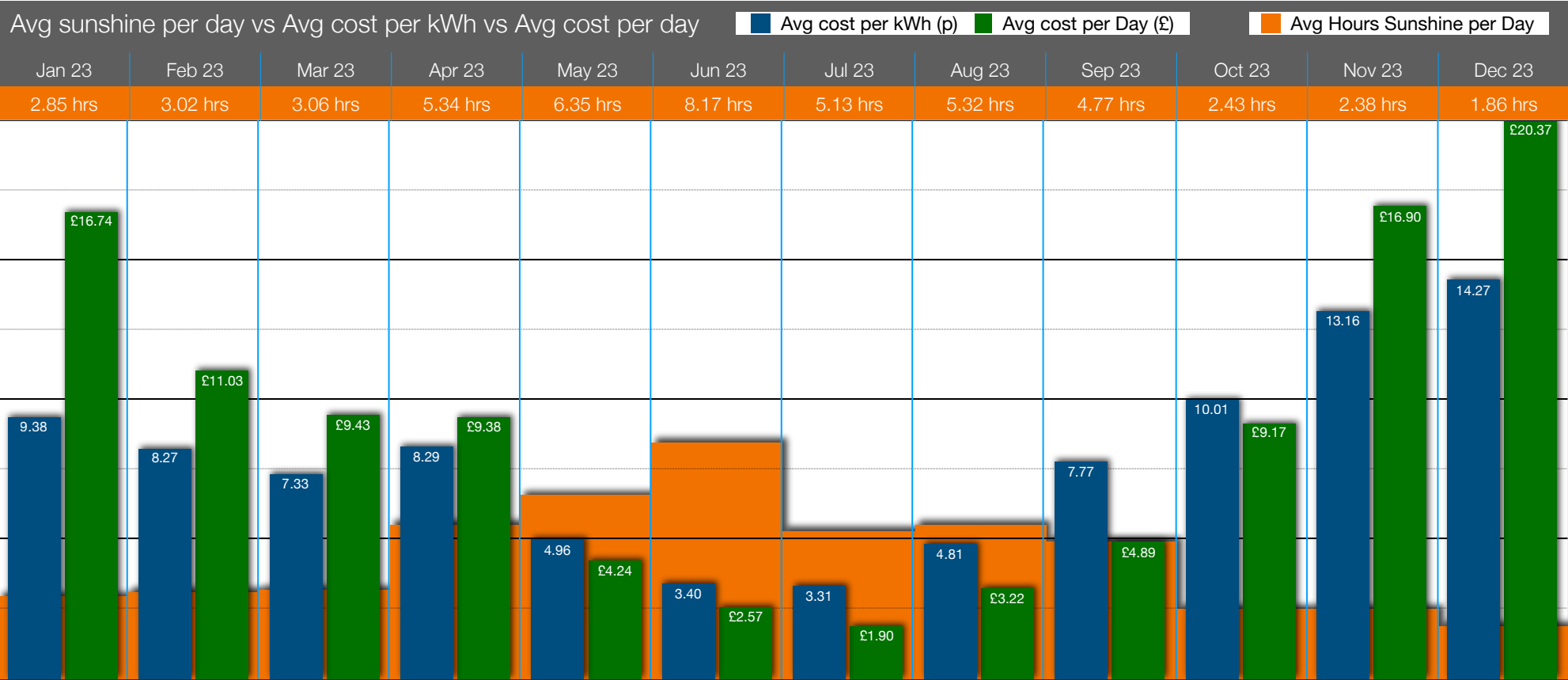


Free Solar At Home Free Public Charging Off-Peak Grid At Home Peak Grid At Home Free Other Charging

Both cars: total mileage, cost & carbon

Miles driven in period	25,187
Total cost, using charging mix shown	£338.11
Fuel cost, pence per mile	1.34p
Cost saved vs ICE cars @ £1.72/litre	£6,731.86
CO2 saved vs ICE, total for both cars	5,019 kg

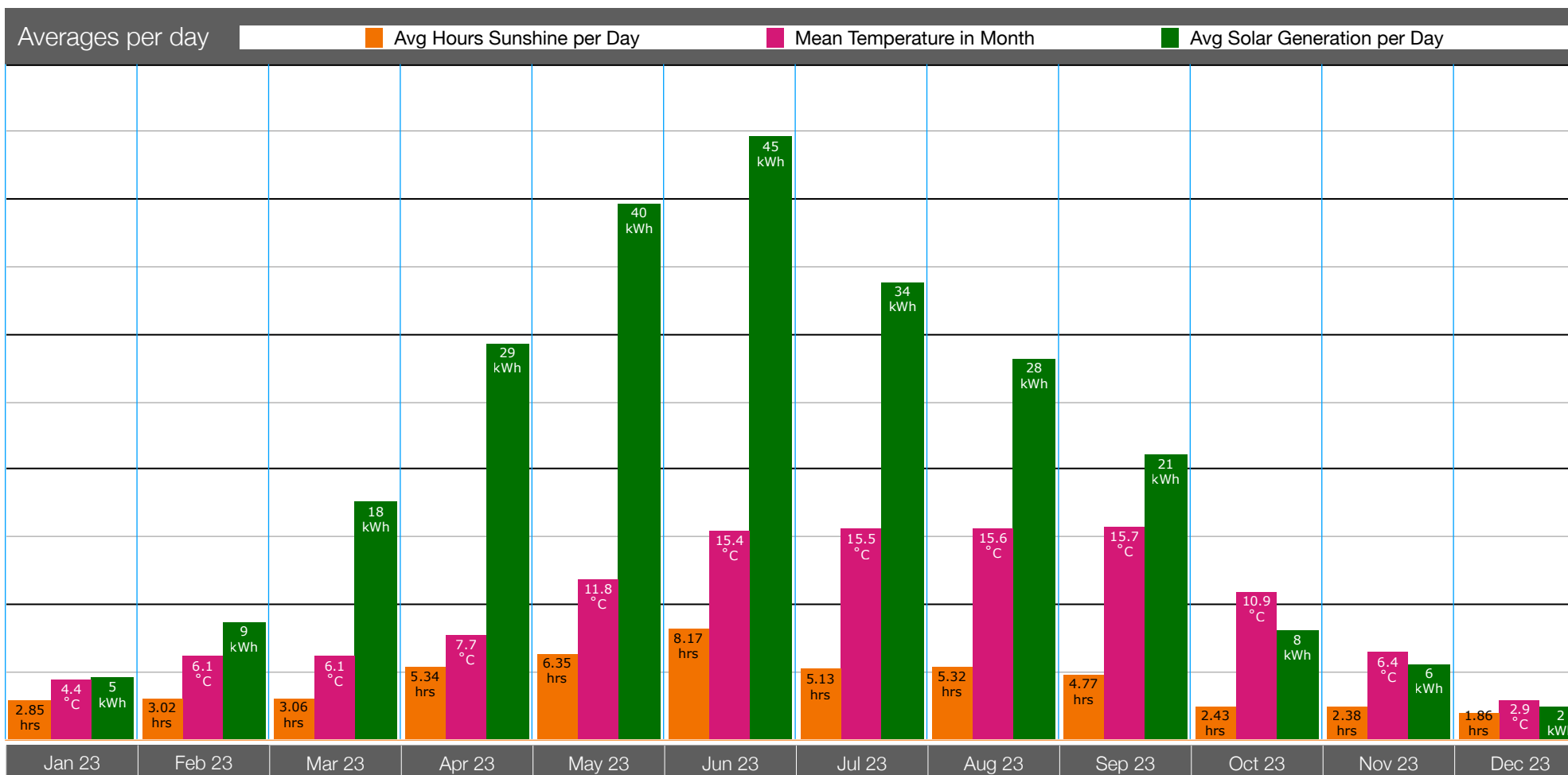




Grid Tariff Info. Octopus Energy Go Faster to April 2023 (fixed at pre-Ukraine rates). Then post-Ukraine Intelligent Octopus Go to Year End. Peak rate cost reduced slightly from July 2023.

Off-Peak: 5 Hours @ 5.24p/kWh excl VAT Peak: 19 Hours @ 14.40p/kWh excl VAT	Off-Peak: 6 Hours @ 7.14p/kWh Peak: 18 Hours @ 37.11p/kWh	Off-Peak: 6 Hours @ 7.14p/kWh excl VAT Peak: 18 Hours @ 28.17p/kWh excl VAT
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Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23
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ASHP cost & carbon savings

Air Source Heat Pump

kWh electricity input in period	17,226 kWh
kWh heat output in period	47,935 kWh
COP efficiency (heat ÷ electricity)	2.78
Average electricity cost per kWh, pence	9.65p
Total ASHP electricity cost in period	£1,662.97
Heating oil for same output @ 9.8 kWh/l	4,891 litres
Cost of heating oil not purchased	£3,722.13

Cost saved ASHP vs oil boiler	£2,059.17
CO2 saved vs oil boiler @ 2.96 kg/litre	14,478 kg

Whole system cost & carbon savings

Smart energy savings

kWh electricity consumed in period	37,418
kWh generated by on-site solar	7,417
kWh imported from grid	30,001
Total grid electricity cost	£3,247.58

Electricity @ price cap rate	£11,554.60
CO2:@ HMRC GFactor: 0.22499 kg/kWh	8,419 kg

Cost saved vs standard rate electricity	£8,307.02
CO2 saved by 100% renewable electricity	8,419 kg

Summary overview savings, incentives, and carbon reduction in period

Total energy cost in period for all uses, including electricity standing charge & VAT	£3,612.13
Cost Avoided: standard rate electricity not purchased	£11,554.60
Cost Avoided: boiler heating oil for same heat output not purchased	£3,722.13
Cost Avoided: petrol/diesel for same mileage in ICE cars not purchased	£7,069.97
Total energy purchase costs avoided	£22,346.70
Incentive: £457.39 Feed In Tariff for Solar Generation + £106.05 DRS Grid Payments	£563.44
Incentive: Renewable Heat Initiative (RHI) Payments for Air Source Heat Pump	£1,820.72
Total incentives	£2,384.16
Combined Costs Avoided and Incentives	£24,730.86
MINUS total energy cost in period for all uses, including electricity standing charge & VAT	-£3,612.13
Overall net benefit = {(Combined Costs Avoided + Incentives) – (Energy Cost)}	£21,118.74
Total CO2 saved: {(100% renewable electricity vs UK grid avg) + (EVs vs ICE) + (ASHP vs oil boiler)}	27.916 tonnes