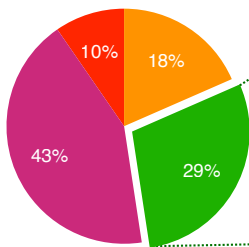


March 2020 How To Electrify Your Life Performance Report

Overall performance and benefits of our generation, storage and EV charging system for the month.

SUMMARY ENERGY RESULTS	kWh
Solar energy generated and used immediately during peak hours, net of 176.6 kWh solar used for Powerwall charging. Total solar gen was: 521.9 kWh.	345.3
Powerwall stored energy used during peak hours. Charged 176.6 kWh solar + 369.4 kWh off-peak grid.	546.0
Off-peak grid energy used between 00:30 and 04:30 to charge Powerwall, charge EVs, and all other uses (100% renewable)	801.6
Peak grid energy consumed during peak hours for any use. (100% renewable)	180.0



Powerwall Breakdown	kWh	GBP
Charge from off-peak grid electricity import	369.4	£18.47
Charge from solar	176.6	£0.00
Total charge to Powerwall	546.0	Cost Incurred £18.47
Powerwall discharge during peak hours	546.0	Cost Avoided £70.80
Net benefit of Powerwall peak-shifting		£52.13

SUMMARY COST SAVING RESULTS (all electricity use, incl. EV charge)	
Total energy consumed (kWh)	1,872.9
Total cost, grid electricity incl. standing charge & VAT	£71.10
Government payments for solar generation	-£25.14
Net total electricity bill, net of Govt payments for solar	£45.96
Actual average cost of kWh used (£45.96÷1,872.9)	£0.0245
UK average electricity cost per kWh	£0.1550
Cost of 1,872.9 kWh at UK average cost	£290.30
Total saving on 1,872.9 kWh vs UK average cost	£244.33

SUMMARY OF CLIMATE BENEFITS	
Total electricity used (kWh)	1,872.9
All solar and grid energy used is from 100% renewable generation.	
Avg UK emissions (g/kWh): "For all sources of electricity, the average amount of carbon dioxide emitted in 2018 amounted to 180 tonnes per GWh of electricity supplied." [Source]	180
Total grams CO2 emissions avoided by using 100% renewables versus UK average	337,119
kg CO2 emissions avoided by using 100% renewables versus UK average	337

MOTORING BENEFITS RESULTS (mileage gained from charging EVs)	
Total energy charged to EVs (kWh)	495.7
Miles range gained from charging 495.7 kWh	1,158.2
Actual cost of off-peak grid used for EV charging	£21.61
Fuel costs to drive a petrol/diesel car 1,158.2 miles	£198.31
Total saving on motor fuel versus petrol/diesel	£176.70
Total financial benefits in month	£421.04

Total EV miles fuelled with 100% renewable electricity	1,158.2
Kilometre equivalent	1,863.9
Average UK CO2 emissions g/km (2018 most recent data)	125.1
Total grams CO2 emissions avoided by using EVs vs UK average	233,180
kg CO2 emissions avoided by using EVs charged using 100% renewables	233
Total kilograms CO2 emissions avoided	570

March 2020 detailed data

CORE VARIABLES	
Number of days in month	29
Number of solar panels in operation in period	24
Peak generating capacity of each panel (kWp)	0.31
Peak generating capacity of all panels combined (kWp)	7.44
Off-peak grid electricity (Octopus Go tariff), cost per kWh, including VAT	£0.0500
Peak grid electricity (Octopus Go tariff), cost per kWh, including VAT	£0.1293
Saving for every kWh charged into Powerwall at off-peak but used at peak time	£0.0793
Average energy consumption per mile of Tesla Model X and Nissan Leaf EVs – very conservative, hard driving (kWh per mile).	0.428
Assumed average mpg of internal combustion engine cars for motoring benefit calculations	35
Gallons to Litres conversion	4.54
Assumed price per litre of fuels for motoring benefit calculations	£1.32

Variables & Key Inputs

Energy Performance and related Financial Benefits in month	Energy (kWh)	Financial (GBP)
Solar energy generated in peak hours by solar panels and used on site	521.9	
Financial benefit of solar generation. (Purchase cost of 521.9 kWh peak grid electricity avoided.)		£67.49
Financial benefit of Government payments for solar generation (applies to 16 panels only, later panels too late for subsidy).		£25.14
Energy discharged from Powerwall battery during peak hours. (Energy charged to battery using off-peak grid and solar only).	546.0	
Financial benefit of Powerwall discharging stored energy during peak hours. (Cost of 546.0 kWh peak electricity avoided.)		£70.80
Energy charged to EV batteries using off-peak grid electricity.	432.1	
Cost which would have been incurred if 432.1 kWh of peak grid electricity had been used to charge EVs.		£55.88
Cost actually incurred to charge 432.1 kWh to EVs, using off-peak grid electricity only.		£21.61
Financial benefit of using off-peak energy (Octopus Go tariff) to charge EVs – peak cost avoided minus off-peak cost paid		£34.27
Energy charged to EV batteries using energy from solar generation	63.6	
Financial benefit of charging EVs with solar-generated energy (cost of 63.6 kWh peak hours grid electricity avoided).		£8.22
Total direct energy-related financial benefits in month		£205.71

Energy Cost Saving Benefits

Motor fuel saving benefits in month	Energy (kWh)	Financial (GBP)	Calcs
Total energy charged to EVs from off-peak grid electricity	432.1		
Range gained by EVs with 432.1 kWh off-peak charging, assuming 0.428 kWh per mile consumption. (Miles)			1,009.7
Total gallons required to cover 1,009.7 miles at assumed internal combustion car average mpg			28.8
Litres equivalent of 28.8 gallons			131.0
Total cost of petrol/diesel fuel that would be payable to purchase 131.0 litres, at £1.32 per litre.		£172.88	
Off peak grid energy cost actually incurred to charge 432.1 kWh into EVs.		£21.61	
Financial benefit of charging EVs with off peak electricity versus the cost of petrol/diesel fuel to cover the same distance.		£151.28	
Total energy charged to EVs from solar-generated electricity	63.6		
Range gained by EVs with 63.6 kWh solar charging, assuming 0.428 kWh per mile consumption. (Miles)			148.5
Total gallons required to cover 148.5 at assumed internal combustion car average mpg			4.2
Litres equivalent of 4.2 gallons			19.3
Total cost of petrol/diesel fuel that would be payable to purchase 19.3 litres, at £1.32 per litre.		£25.43	
Cost of solar energy to charge 63.6 kWh into EVs.		£0.00	
Financial benefit of charging EVs with off peak electricity versus the cost of petrol/diesel fuel to cover the same distance.		£25.43	
Total motor fuel saving financial benefits in month		£176.70	

Motor Fuel Cost Saving Benefits