

Hougham-Without Parish Council

Climate Change Project

Plugged-in Chart - Updated 2023

This is an update to the parish council's climate change project first started in 2008. At that time I was a parish councillor and developed a chart called the "PLUGGED IN CHART", designed to help parishioners understand the way electricity is used in the home. With the energy crisis now in full flow the subject is important to us all. The chart shows the cost of electricity as used by a number of common household appliances at different times of the day.

Obviously the amount of electricity used will depend on how many times or for how long an appliance is on but I found there is also a hidden cost of which you may not be aware. The hidden cost is identified in the chart for a number of appliances and is the electricity used when the appliance is either just plugged into the mains or not being used directly, e.g. on standby.

It was a surprise to me that without using an appliance it may still consume electrical power. The chart shows the relative cost of some common appliances both when just plugged in and when in use. One example is that if I leave my smart TV plugged in all the time for a year and never use it, it will cost around £50 (based on a tariff of 40p/kWh) and for that I won't have watched a programme?

We all buy electricity in units and a unit of electricity is a kilowatt hour (kWh). A kilowatt hour is consumed when an appliance or group of appliances use 1000 watts for one hour. All appliances are rated in watts and this can be found on their rating plate. The charts shows the costs of using an appliance for different times, plus an average annual cost for a combination of standby and operational use.

The chart is in four sections: -

1. The first (blue) section shows how much electricity the appliance uses when it is just plugged in (and the plug switched on) and what this would cost if left plugged in for a year. **This is the hidden cost we all should be aware of.**

2. The second (pink) chart shows what each appliance uses when left on its standby function for an "average" length of time each day and what this will cost. The standby function doesn't just apply to a TV or video, it is also a hidden cost on many appliances like your washing machine, telephone, computer etc.

3. The third (yellow) section shows what each appliance uses when operating normally for an "average" length of time. This is the cost we will expect to pay when we use an appliance. Please note that with some appliances the chart operating time shown is an estimate based on its full power rating, e.g. a washing machine does not operate at its full power rating for the whole cycle so is estimated at half an hour at full load, not the possible one to three hours it's on for.

The pink and yellow sections should be viewed in combination for an average day's use and shows an estimated cost.

4. The fourth chart is a little different and allows you to compare energy costs at different price tariffs. It also shows an estimate of the equivalent amount of CO₂ produced if based on a fossil fuel power supply.

There are many electricity supply companies offering many different prices and it would be difficult here to match your own particular tariff. Therefore three unit values are used in chart 4 to show a range of commonly used tariffs.

Remember the cost of your electricity bill will include energy which you may not realise you are using. It is easy to see when a light bulb is on but it's not so easy to reduce your plugged in energy if you don't know its being used? The project sort to encourage parishioners to become more informed as to how energy is consumed in their homes – and how waste, pollution and costs can be minimised.

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The Hougham "Plugged In Chart" 2023

Household Electricity Use and Cost Comparison Charts

The first set of charts show the average electricity consumed and the cost for some common household appliances. (Note these are examples from my own household use).

1. The blue section shows the "hidden cost" of each appliance when it is just plugged in (and the plug switched on) and what this costs when left plugged in for a year.

Appliance Type	4K Smart TV	TV(32"LCD	Smart Spk	DVD	Digibox	Kettle	Microwave	Wash m/c	Dishwash	Desk PC	PC Screen	Printer	Landline	Fridge C	Freezer C	Hi Fi	Row Totals
Plugged in (Watts)	15	12	4	0	8	0	4	6	0	13	2	0	9	0	0	9	82
Daily use (hrs)	24	24	24	24	24		24	24		24	24	24	24			24	
Annual use (kWh)	131	105	35	0	70	0	35	53	0	114	18	0	79			79	718
Annual cost @40p/kWh	£52.58	£42.05	£14.02	£0.00	£28.03	£0.00	£14.02	£21.02	£0.00	£45.55	£7.01	£0.00	£31.54	£0.00	£0.00	£31.54	£287.33

2. The pink section shows what each appliance uses when left on standby all day except for when its in operation.

On standby (Watts)	15	25	18	18	9	0	4	10	13	13	2	9	9	0	0	30	175
Average daily use (hrs)	14	14	14	14	14		23	23	23	12	12	12	12			12	
Annual use (kWh)	77	128	92	92	46	0	34	84	109	57	9	39	39			131	937
Annual cost @40p/kWh	£30.68	£51.10	£36.79	£36.79	£18.40	£0.00	£13.43	£33.58	£43.65	£22.78	£3.50	£15.77	£15.77	£0.00	£0.00	£52.58	£374.78

3. The yellow section shows what each appliance uses when operating normally and the annual costs for an "average" length of daily use.

In operation (Watts)	85	105	14	13	9	3000	1550	2269	2200	60	13	9	9	135	210	40	
Average daily use (hrs)	10	10	10	10	10	0.25	0.2	0.5	0.5	12	12	12	12	6	6	12	
Annual use (kWh)	310	383	51	47	33	274	113	414	402	263	57	39	39	296	460	175	3357
Annual cost @ 40p/kWh	£124.10	£153.30	£20.44	£18.98	£13.14	£109.50	£45.26	£165.64	£160.60	£106.12	£22.78	£15.77	£15.77	£118.26	£183.96	£70.08	£1,342.69
Average Annual cost (Pink + Yellow)	£154.78	£204.40	£57.23	£55.77	£31.54	£109.50	£58.69	£199.22	£204.25	£127.90	£26.28	£31.54	£31.54	£118.26	£183.96	£122.64	£1,717.47

4. This chart shows a costs comparison of three different tariffs for a range of electricity values used by an appliance or groups of appliances run continuously for a whole year

Appliance Consumption in Watts	5	20	50	100	200	500	700	1000	2000
Equivalent annual use in kWh	44	175	438	876	1752	4380	6132	8760	17520
Annual Cost - Unit rate @ 20p/kWh	£9	£35	£88	£175	£350	£876	£1,226	£1,752	£3,504
Annual Cost - Unit rate @ 40p/kWh	£18	£70	£175	£350	£701	£1,752	£2,453	£3,504	£7,008
Annual Cost - Unit rate @ 60p/kWh	£26	£105	£263	£526	£1,051	£2,628	£3,679	£5,256	£10,512
Approx. CO2 Used per year in Kg	22	88	219	438	876	2190	3068	4380	8760

Note: 1000kg = 1tonne of CO2