ERWOOD - COMMUNITY CARBON AUDIT

POPULATION	500	OFF GAS HOUSES	250
HOUSEHOLDS	250	HOUSEHOLD SIZE	2.00

Understanding the Carbon Audit

Community Carbon Auditing creates an estimation of carbon emissions at the community scale. It has been developed using UK Government data sources. Greenhouse Gas Emissions are measured in Tonnes of Carbon Dioxide Equivalent or tCo2e. It is a widely used measurement that accounts for the warming effect of different gases.
Emissions are grouped into three sources:

Domestic energy:
Energy used in our homes and private cars. Accurate local data was used for electricity and gas. County level figures for road fuels are proportioned based on community population, adjusted by a distance-to-services factor. For homes without mains gas the number of properties using Oil, LPG and wood was estimated.

Consumption:
The goods and services we buy including carbon emitted in the supply chain from overseas manufacture and transportation. UK Government data provides a detailed breakdown of 33 various sectors, they have been condensed to 14 sectors. The data is based on the UK total and adjusted to account for lower average household spending in Wales.

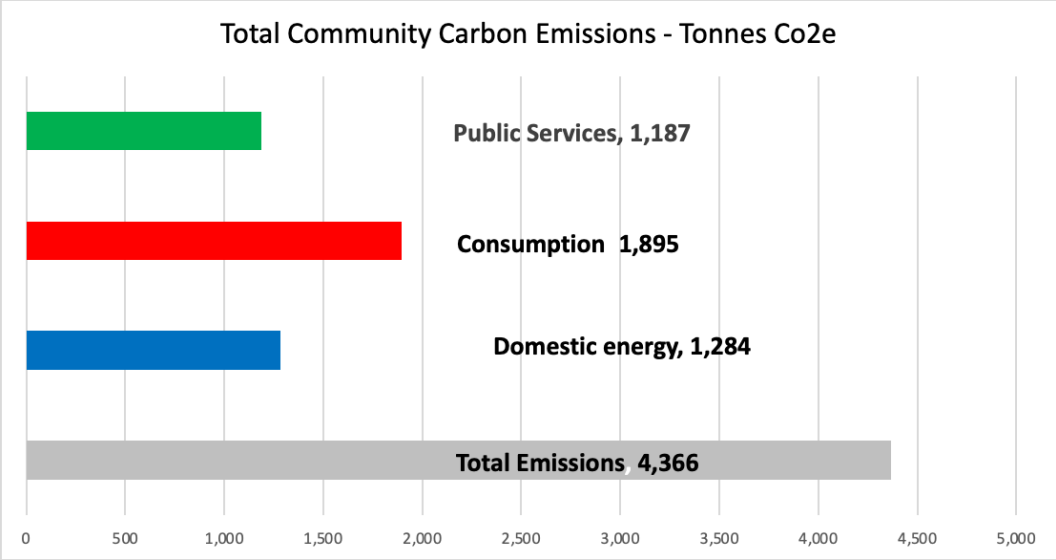
Public Services:
Those services operated on our behalf including central and local government, police and NHS. As everyone in the UK benefits from these services, the total UK figure is proportioned to the community population.

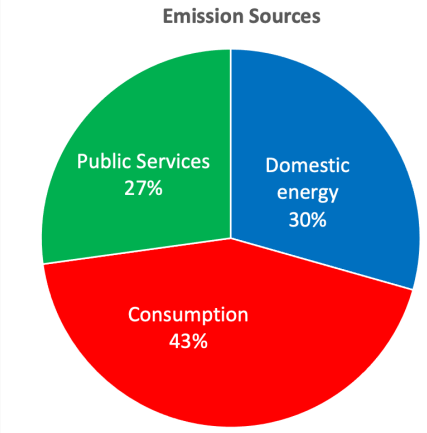
NOTE THAT: This is not an audit of individual houses – each home will vary from the average.
It assumes that each home has at least 1 private car
For gas, oil, wood and coal, it assumes each house is heated primarily by one of the fuel types, not a combination of fuels

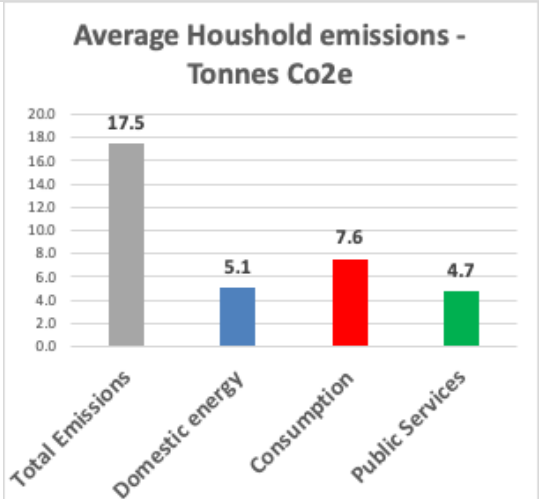
TOTAL COMMUNITY CARBON EMISSIONS – 4366 tCo2e

These charts show:

- The total carbon emissions from everyone in the community
- The proportion from the three emission sources
- An averaged figure per household

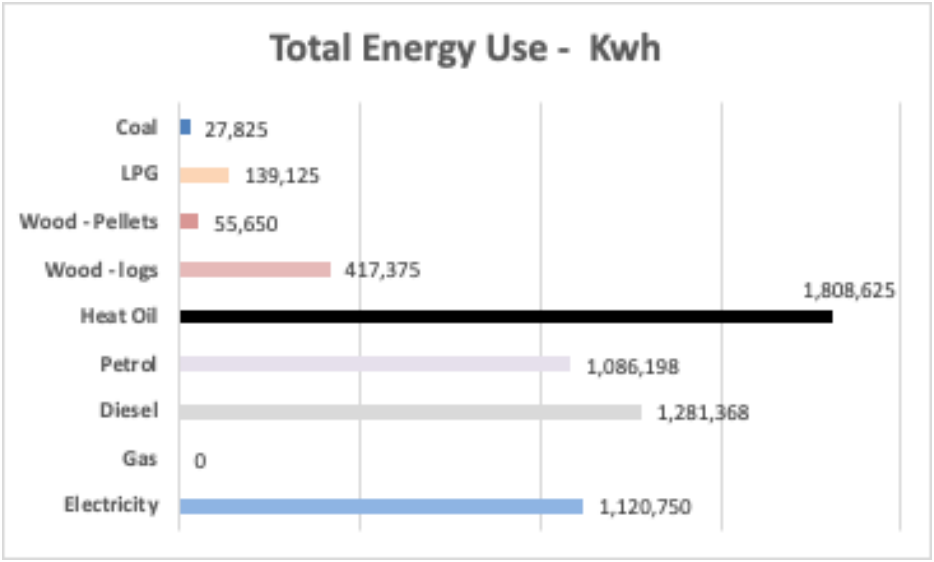


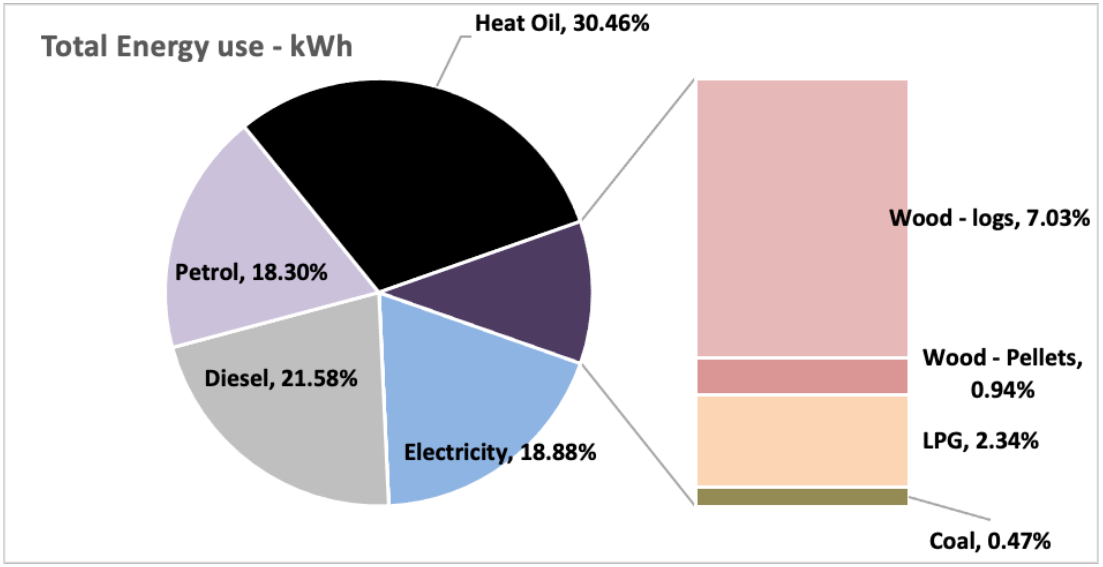




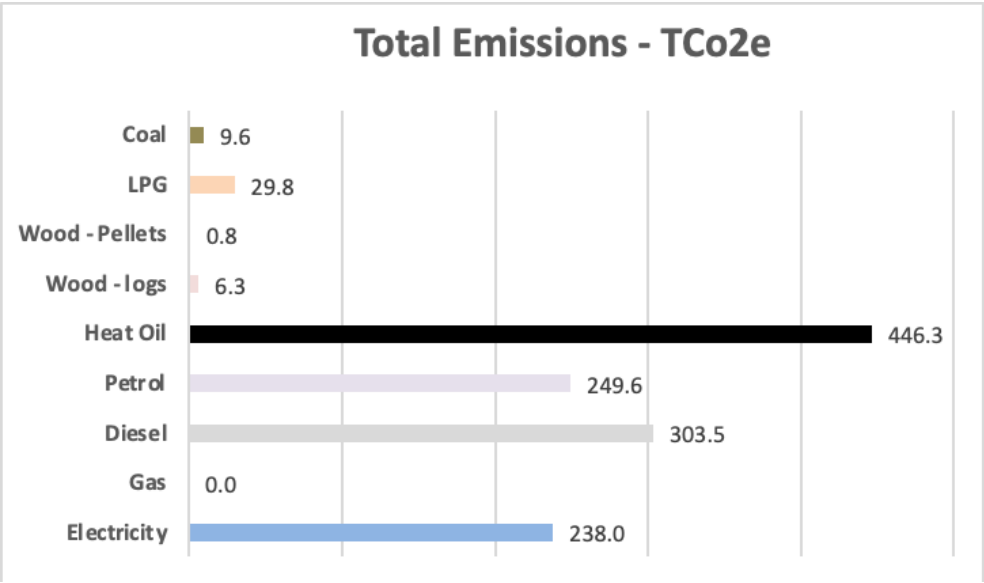
DOMESTIC ENERGY Household Emissions: 5.1 TCo2e

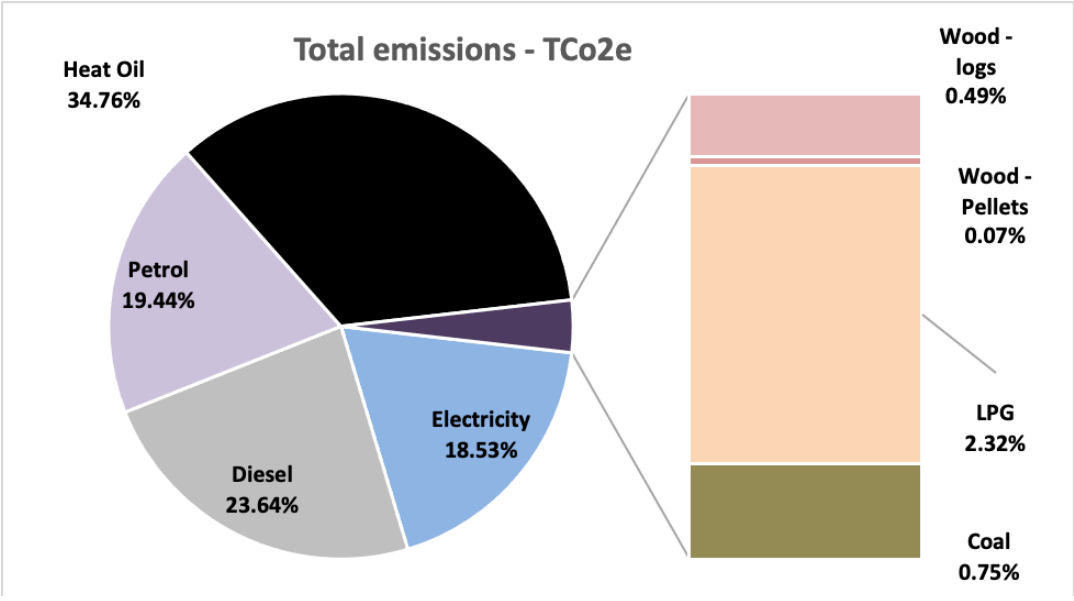
These charts show the **total domestic energy use** and the proportions of each fuel





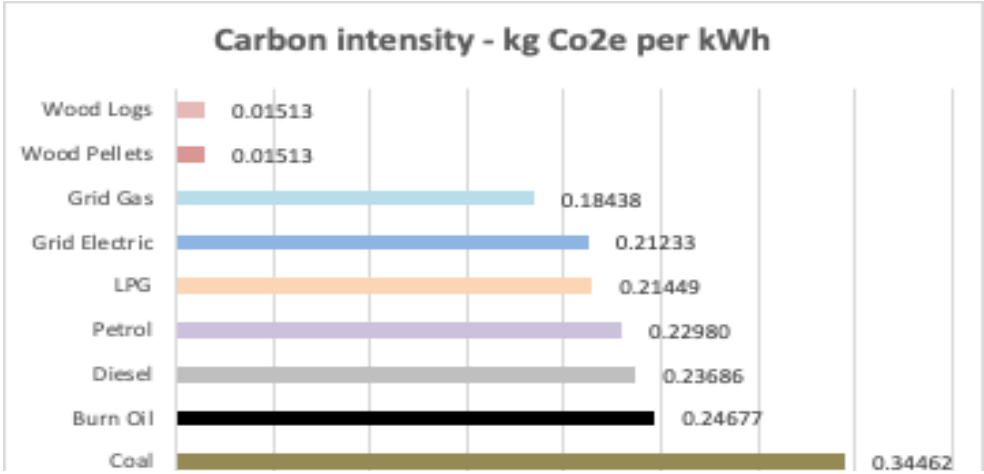
These charts show the **total carbon emissions** and the proportions from each fuel





DOMESTIC ENERGY – Carbon intensity

This chart shows the carbon intensity of each fuel type. It shows how much carbon dioxide equivalent is produced from consuming 1 kWh of each fuel. Higher carbon fuels have a higher intensity



Calculating your own household carbon emissions

You can use the carbon intensity to calculate your own household carbon emissions with this table.

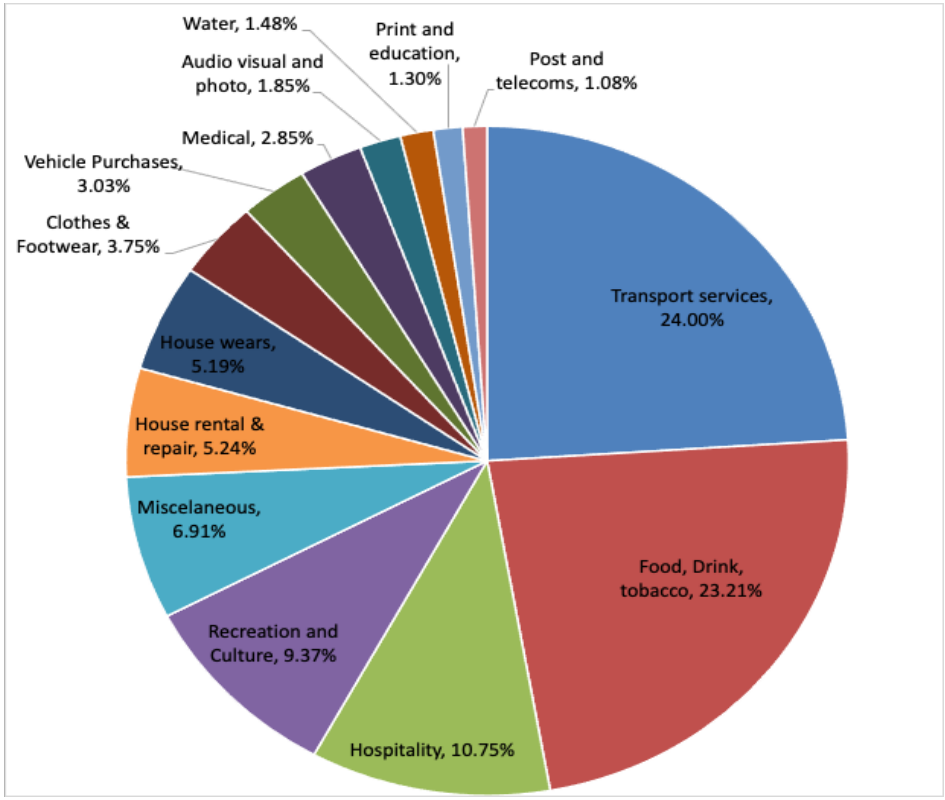
1.Record how much of each fuel you use – in the units listed

2.Multiply Column A x Column B x Column C for an answer in kg Co2e

		A	B	C	AxBxC=
Fuel	**UNIT**	**Annual use**	**Convert kWh**	**C intensity**	**TOT Kg co2e**
Coal	kg		8	0.34462	0
Burn Oil	litre		10.77	0.24677	0
Diesel	litre		10.6	0.23686	0
Petrol	litre		9.45	0.22980	0
LPG	litre		7.03	0.21449	0
Grid Electric	kWh		1	0.21233	0
Grid Gas	kWh		1	0.18438	0
Wood Pellets	kg		4.8	0.01513	0
Wood Logs	Cu metre		1600	0.01513	0
TOTAL					0

CONSUMPTION Household emissions: 7.6 TCo2e

The chart shows how the total is broken down into the various categories of goods and services we consume. Individual households consume different amounts of each category. The chart will show those goods and services that have a higher carbon impact -either because they are carbon intensive, or because they are consumed in high volumes. Local emissions from business are included in these emissions.

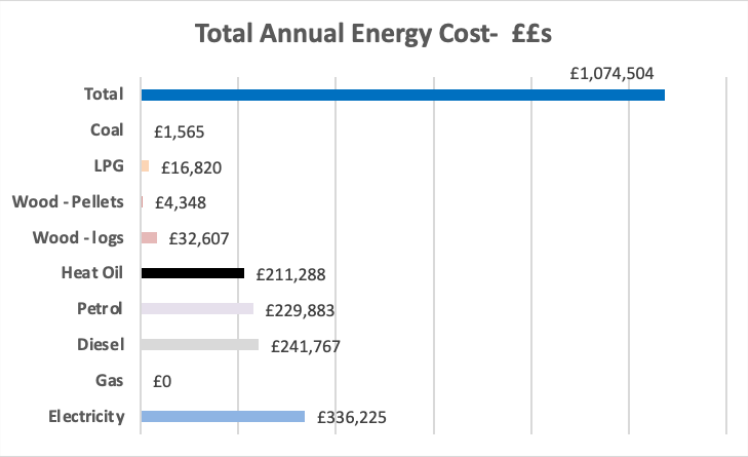


PUBLIC SERVICES Household emissions: 4.7 TCo2e

The public services figure included local and central government and some technical elements included in the UKs carbon footprint. The UK total is divided by the UK population and scaled to the household size to create a per household figure.

FINANCIAL COSTS: Erwood residents spend over £1 Million on energy each year – around £4300 per home

These charts show the total annual cost of fuel consumed in Erwood and an estimated annual cost per household. Most of this spending leaves the local community. Gas and Electric figures do no include standing charges and VAT.

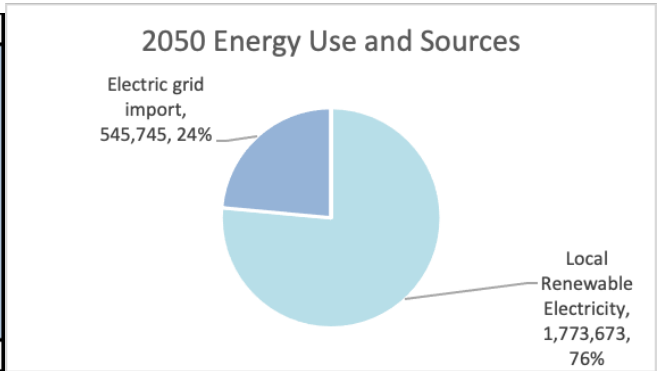


Fuel	Average Annual Cost	Tonnes per Household	Unit cost ££s	Unit
Electricity	£1,344.90	0.95	0.28	kWh
Gas	£0.00	0.00	0.07	kWh
Diesel	£967.07	2.43	1.6	Litre
Petrol	£919.53	2.00	1.8	Litre
Heat Oil	£1,300.23	2.75	1.2	Litre
Wood - logs	£869.53	0.17	125	Cu m
Wood - Pellets	£869.53	0.17	0.375	kg
LPG	£1,345.59	2.39	0.85	Litre
Coal	£626.06	3.84	0.45	kg

THE FUTURE: It is 2050. All cars are now Electric, all homes are now heated by electric heat pumps and this electrification has reduced energy demand by 2/3rd. Insulation and appliance efficiency has reduced demand by 10%. Erwoods total energy demands have more than halved. All Erwoods energy is from renewable sources and 76% is generated locally from solar PV and small wind turbines.

This is just one example of possible future energy demand and supply might be.

Fuel	2019 - kWH	Conversion	2050 - kWh	Energy	Source	kWh	Notes
Electricity	1,120,750	100%=> Electric	1,120,750	TOTAL	10% Saving	272,873	Efficiency savings
Diesel	1,281,368	100%=>1/3rd Elec	422,851	ELECTRICITY	10% rooftop PV	272,873	107, 3kWp installations
Petrol	1,086,198	100%=>1/3rd Elec	358,445	2,728,727	55% Small Wind	1,500,800	7, 100kW small wind turbines
Gas	0		0		5% reduction	136,436	Less use - particularly travel
			0		20% Grid Import	545,745	
Heat Oil	1,808,625	100%=>1/3rd Elec	596,846				
Wood - logs	417,375	100%=>1/3rd Elec	137,734				
Wood - Pellets	55,650	100%=>1/3rd Elec	18,365				
LPG	139,125	100%=>1/3rd Elec	45,911				
Coal	27,825	100%=>1/3rd Elec	27,825				
Total	5,936,916		2,728,727	2,728,727		2,319,418	



the green valleys

ecodyfi

Powys

PAVO
Powys Association of Voluntary Organisations
Cymdeithas Mudiadau Gwirfoddol Powys

UK Government
Llywodraeth y DU