

# KNIGHTON - COMMUNITY CARBON AUDIT 2022

POPULATION	2909	OFF GAS HOUSES	495
HOUSEHOLDS	1510	HOUSEHOLD SIZE	1.93

## 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.

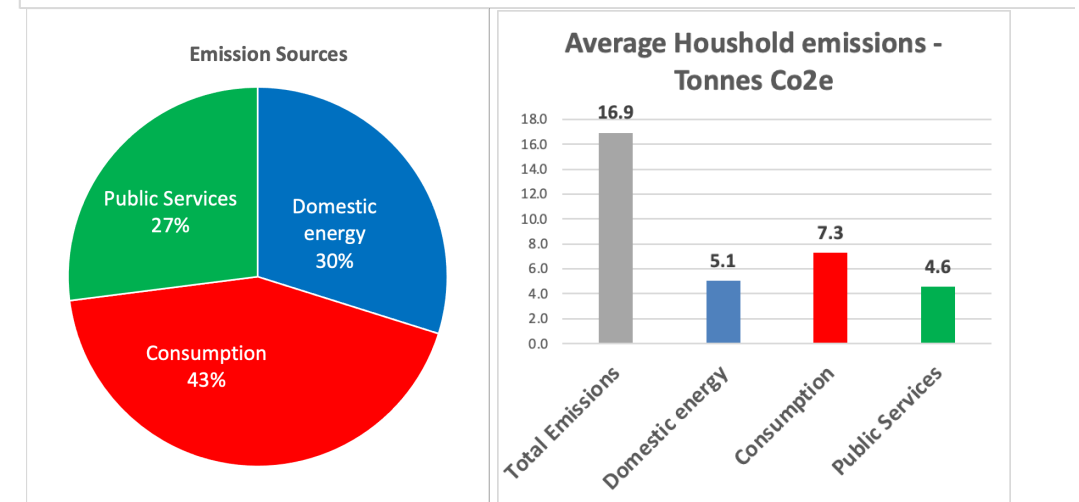
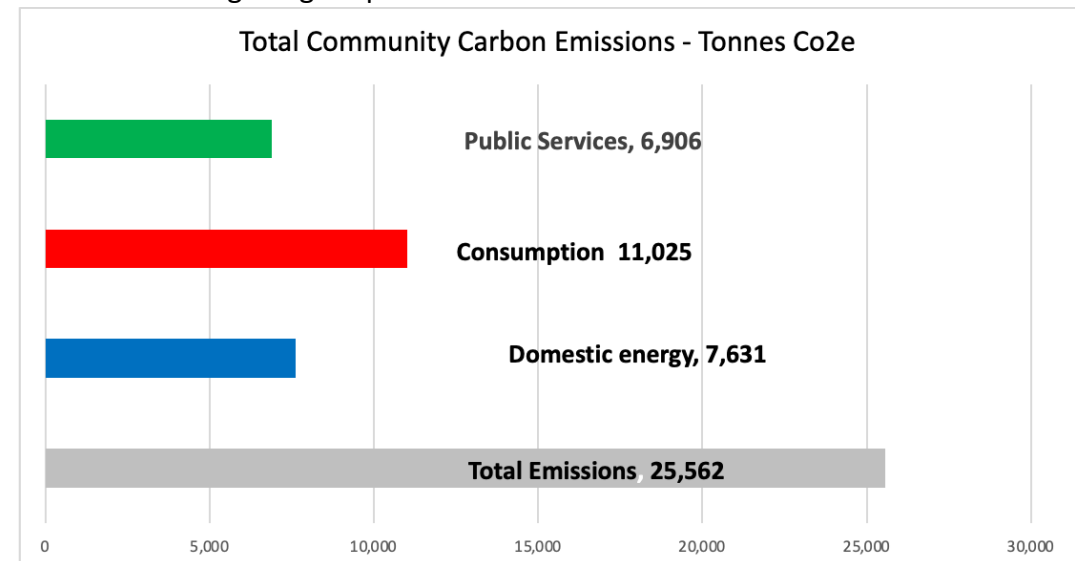
It assumes that each home has at least 1 private car

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 – 25562 tCo2e

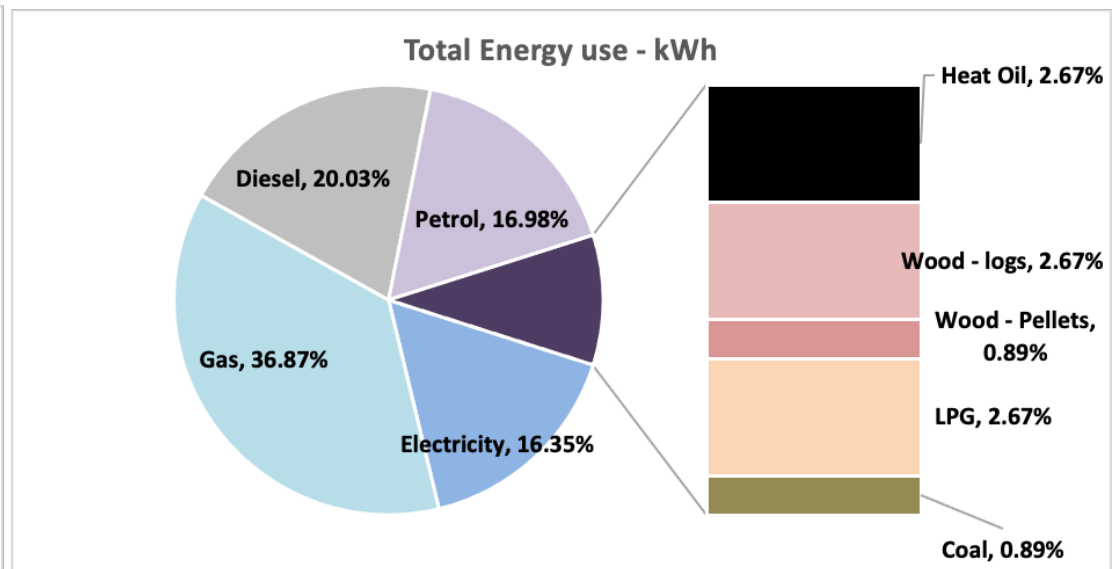
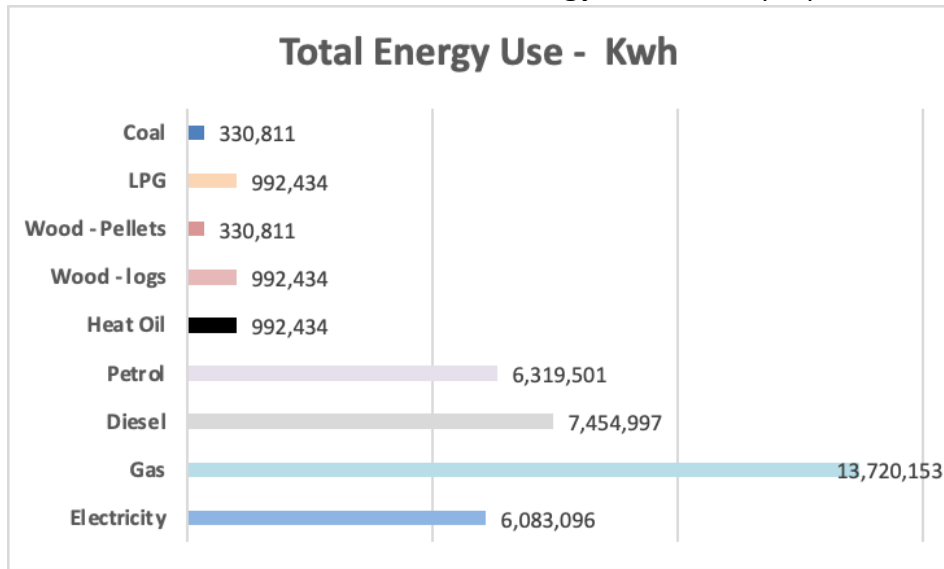
These charts show:

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

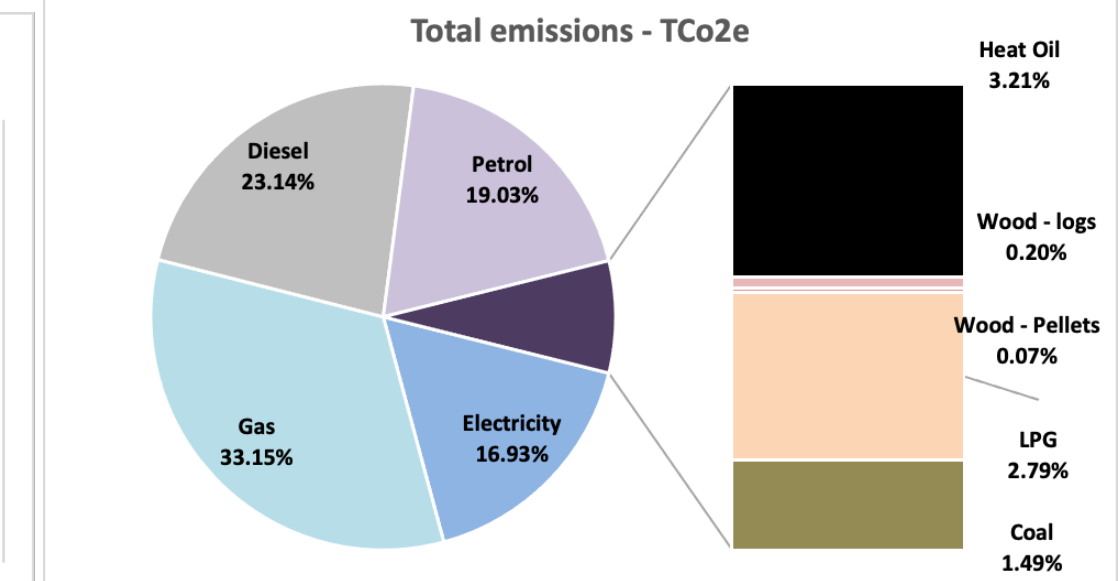
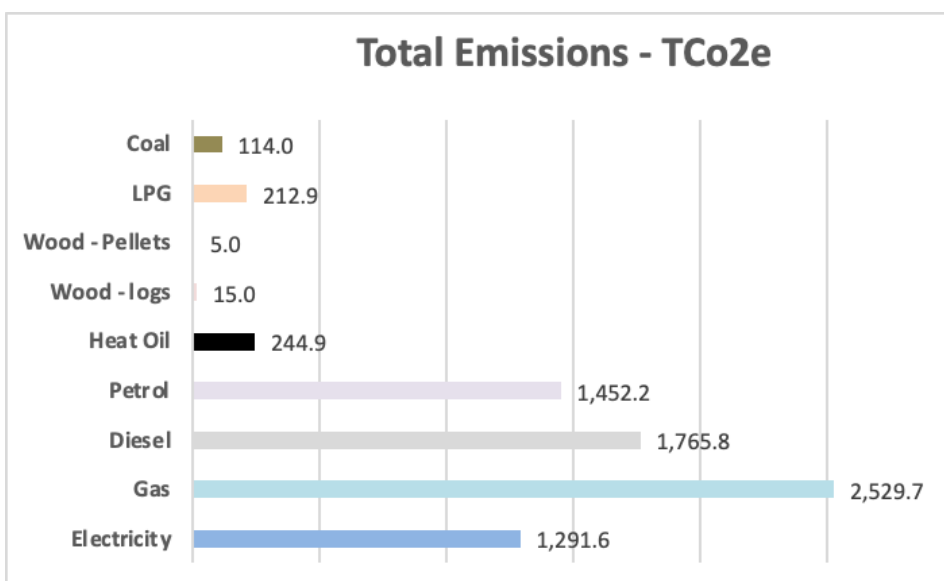


# DOMESTIC ENERGY Household Emissions: 5.1 TCo2e

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

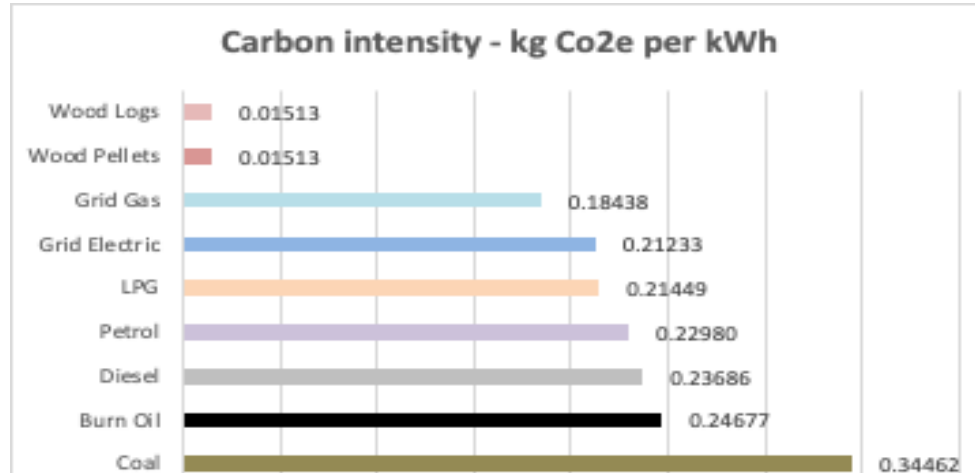


These charts show the **total carbon emissions** and the proportions from each fuel



## 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 energy carbon emissions

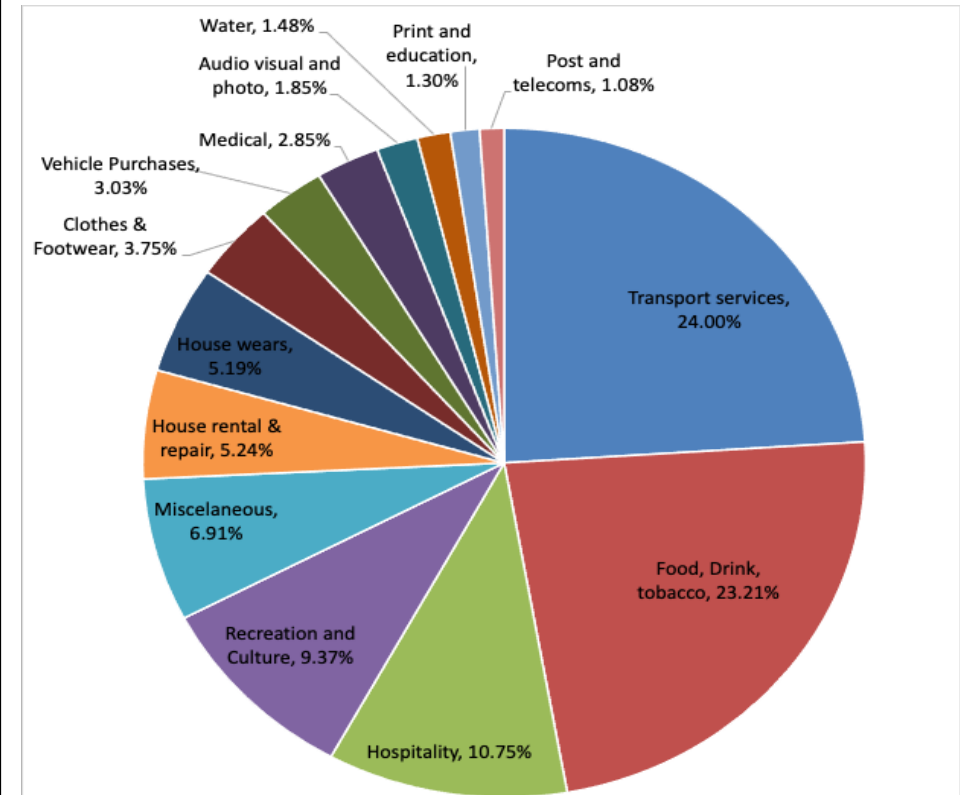
You can use the carbon intensity to calculate your own household carbon emissions with this table.

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

Fuel	UNIT	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
<b>TOTAL</b>					<b>0</b>

## CONSUMPTION Household emissions: 7.3 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.

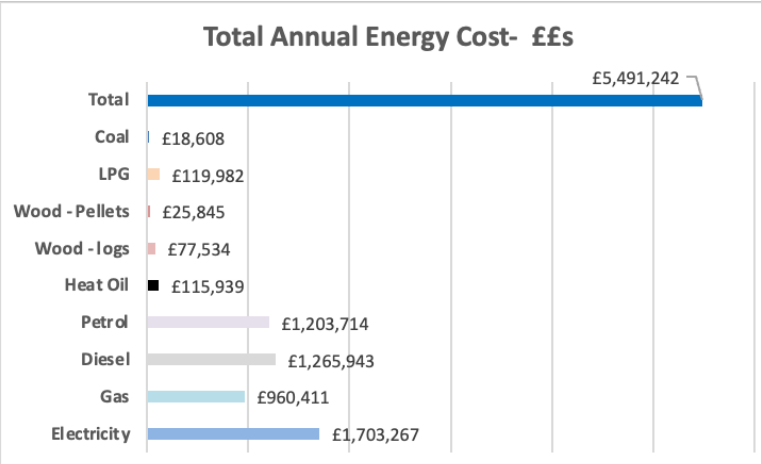


## PUBLIC SERVICES Household emissions: 4.6

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: Knighton residents spend almost £4Million on energy each year – over £3000 per home

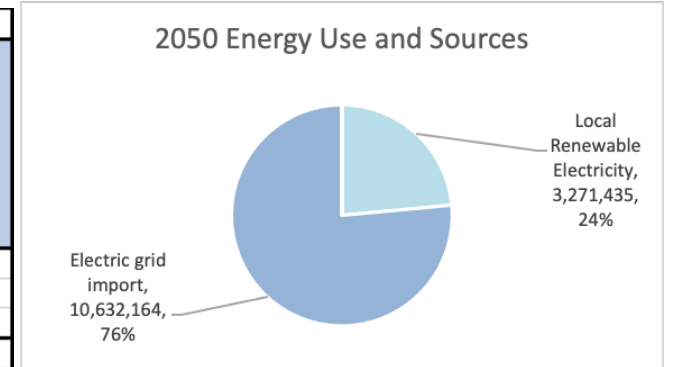
These charts show the total annual cost of fuel consumed in Knighton and an estimated annual cost per household. Most of this spending leaves the local community. Gas and Electric figures do not include standing charges and VAT.



Fuel	Average Annual Cost	Tonnes per Household	Unit cost ££s	Unit
Electricity	£1,127.99	0.86	0.28	kWh
Gas	£946.22	2.49	0.07	kWh
Diesel	£838.37	2.34	1.6	Litre
Petrol	£797.16	1.92	1.8	Litre
Heat Oil	£1,561.46	3.30	1.2	Litre
Wood - logs	£1,044.23	0.20	125	Cu m
Wood - Pellets	£1,044.23	0.20	0.375	kg
LPG	£1,615.92	2.87	0.85	Litre
Coal	£751.84	4.61	0.45	kg

**THE FUTURE:** It is 2050. All cars are now Electric and all homes are heated by heat pumps and this has reduced energy demand by almost 2/3rds. Efficiency savings from appliances and insulation further reduce energy demand. Small wind and domestic scale solar PV provide 18% of energy demand and the rest is renewable energy from the grid. 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	6,083,096	100%=> Electric	6,083,096	<b>TOTAL ELECTRICITY</b>	10% Saving	1,635,718	Efficiency savings
Diesel	7,454,997	100%=>1/3rd Elec	2,460,149		10% rooftop PV	1,635,718	640 3kWp installations
Petrol	6,319,501	100%=>1/3rd Elec	2,085,435		10% Small Wind	1,635,718	8, 100kW small wind turbines
Gas	13,720,153	100%=>1/3rd Elec	4,527,651		5% reduction	817,859	Less use - particularly travel
					65% Grid Import	10,632,164	
Heat Oil	992,434	100%=>1/3rd Elec	327,503				
Wood - logs	992,434	100%=>1/3rd Elec	327,503				
Wood - Pellets	330,811	100%=>1/3rd Elec	109,168				
LPG	992,434	100%=>1/3rd Elec	327,503				
Coal	330,811	100%=>1/3rd Elec	109,168				
<b>Total</b>	<b>37,216,670</b>		<b>16,357,175</b>	<b>16,357,175.34</b>		<b>13,903,599</b>	



UK Government  
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