



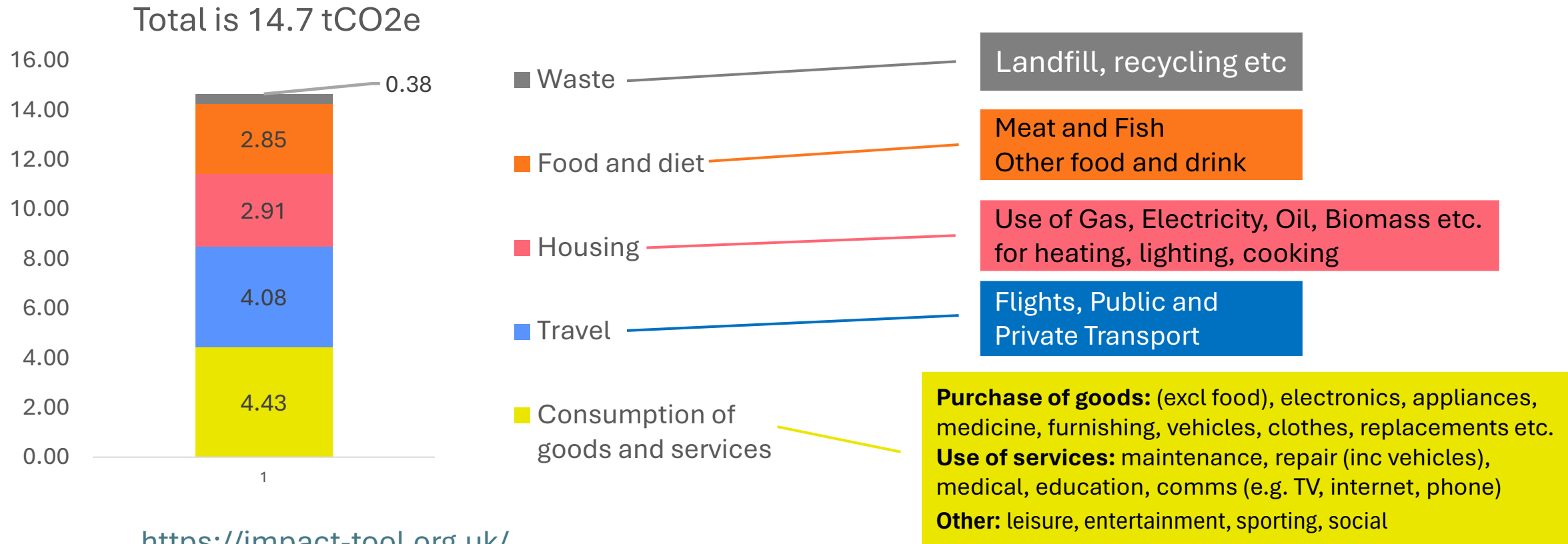
1000 Acts of Climate Kindness

Reducing our Carbon Footprint Together

Chris Rider

Household Carbon Footprint (Tonnes of CO₂e)

Hardwick Parish Average



<https://impact-tool.org.uk/>

Centre for Sustainability, University of Exeter

Consumption – our stuff!

4.4t CO₂e/household average (30%)

- Personal choices – we have control over this
 - All stuff has emissions from obtaining raw materials, manufacturing, distribution & sales
 - Most stuff needs maintenance, repair – especially clothes, vehicles, electronics
- Services have emissions too
 - Streaming video & phone has emissions. Electricity cost. Support staff buildings and travel. Cabling.
 - AI needs much, much more electrical power.
 - Medical & education facilities
- Leisure, Entertainment, Social

Consumption – what options are there to reduce our carbon footprint?

1. **Resist advertising pressure to replace and upgrade every 2 years or to consume more.** It doesn't make us happier 😊 !
2. **Consider renting or buying second hand.** There are no new emissions when a second-hand item is purchased or leased, other than much smaller selling/distribution emissions.
3. **Buy more expensive high quality items less often.** They last longer and reduce total emissions. (Which subscription!)
4. **Keep our stuff longer by fixing it**
 - Literally, “a stitch in time saves nine”
5. **Sell items or give them away rather than throwing away.**
 - Many new platforms to enable this to be done.

Travel – Flights, Private & Public Transport

4.1t CO2e/household average (28%). 1.3t Flights, 2.2t Private, 0.6t Public

*from vehicle V2C “logbook”

Car

- Ford Galaxy 2l diesel
- Toyota Prius hybrid

Annual Mileage	10,000			
km/mile conversion	1.609			
		g/km*	g/mile	Tonne/year
Ford Galaxy		170	274	2.7
Toyota Prius		70	113	1.1

Flights (1 person)

	Destination (Return)	Class	Total Flying Time	Total Distance (km)	CO2e (t)**	Emission(g)/km
UK	London to Glasgow	Economy	2h 20min	1110	0.13	117
EUROPE	London to Rome	Economy	5h 15min	2888	0.27	92
INDIA	London to Delhi	Economy	19h 55min	13460	0.90	67
FAR EAST	London to Tokyo	Economy	28h 30min	18661	1.23	66
FAR EAST	London to Tokyo	Prem Econ	28h 30min	18661	1.54	83
FAR EAST	London to Tokyo	Business	28h 30min	18661	4.11	220
FAR EAST	London to Tokyo	First	28h 30min	18661	9.65	517

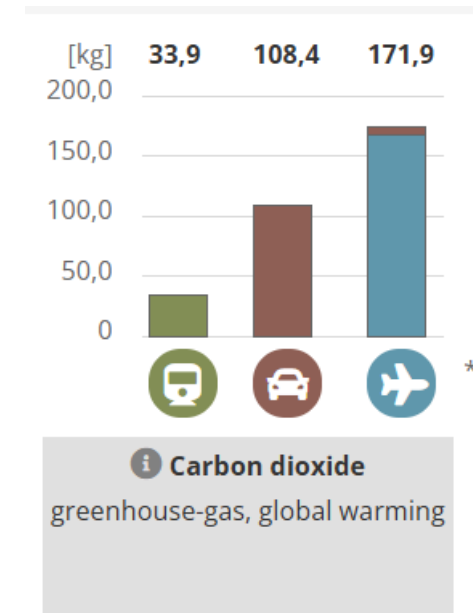
** Google flights data

A single long haul flight is similar to a year of car use

Calculation of Transport footprints

- London to Glasgow – **Return**
 - Economy Flight (1 person) 0.13t CO₂e
 - Ford Galaxy (1 person) 0.22t
 - Ford Galaxy (4 people) 0.06t
 - Toyota Prius (1 person) 0.091t
 - Toyota Prius (4 people) 0.023t
 - Train (1 person) 0.042t *trainline.com
- But...Electric train emissions are reducing as the electricity grid decarbonises (same for eVs)

Including emissions associated with production and distribution of fuels



London to Glasgow (**one way**)

www.ecopassenger.org

EURO 4 car with 1.5 passengers (EU Avg Utilisation)

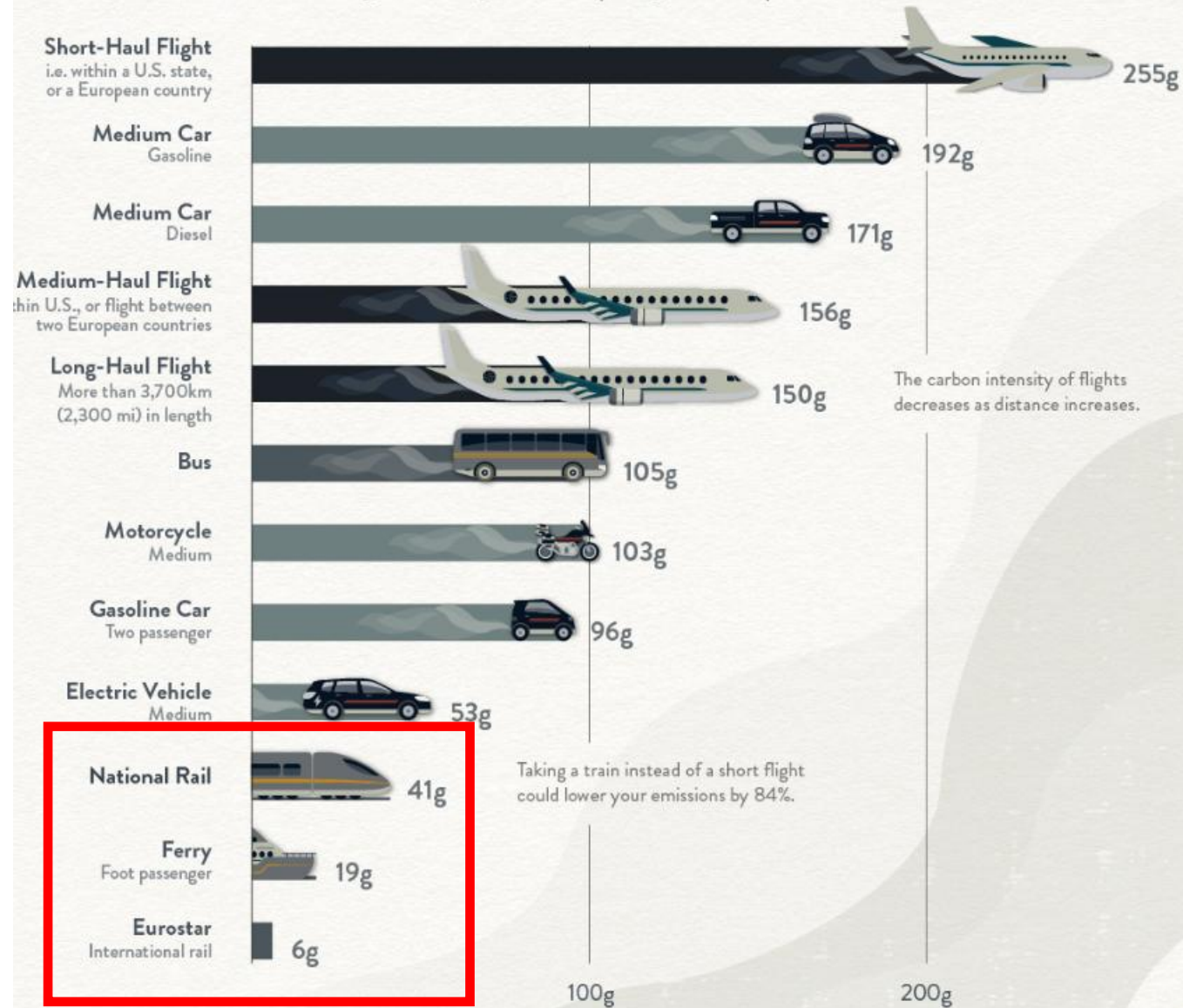
Flight includes car travel to both ends

Numbers from calculators similar but not same. Assumptions different. Select one and stick to it.

The Carbon Cost of Transportation

What's the lowest-carbon method of transportation? Here's the carbon footprint of travel for different vehicles, measured in grams of carbon dioxide equivalents per passenger-kilometer.

● Air Travel ● Private Transport ● Public Transport



Travel – what options are there to reduce our carbon footprint?

1. Flights

- Take a train/boat to avoid most damaging short-haul flights. High-speed trains like Eurostar & TGV have 2.5% of emissions of these flights.
- Drive with a full car instead of flying for short-haul routes. See more of the country en route and save money.
- Consider sleeper trains. They avoid travel-related hotel costs (e.g. early flights)
- Holiday closer to home 😊

Travel – what options are there to reduce our carbon footprint?

1. Flights

- Not all flights to the same destination have the same emissions. Depends on:
 - aircraft type,
 - % occupancy,
 - Seat area (i.e. maximum number of passengers on flight)
 - likelihood of contrails (they contribute about a third of total warming impact),
 - whether SAF (biofuel) has been used as additive.
- Can be up to 20% difference. Use Google flights tool (or others) that give the CO2 emissions for each flight and select the smallest.

The screenshot displays a Google Flights search for a round trip from London to Glasgow. The selected flight is an easyJet departure on Monday, 13 October, from London Luton Airport (LTN) at 08:50 to Glasgow Airport (GLA) at 10:05. The flight duration is 1 hour and 15 minutes. The aircraft is an Airbus A320 in Economy class. A red box highlights the emissions information: 61 kg CO2e, which is 9% below the average. Other details include a below-average legroom of 74 cm, a medium contrail warming potential, and a total price of £42.

Flight Details	Emissions & Environmental Impact
London ↔ Glasgow Round trip · Economy · 1 passenger	£42 Lowest total price
Selected flights	Track prices
easyJet Departing flight · Mon 13 Oct	61 kg CO2e -9% emissions
08:50 · London Luton Airport (LTN)	Below-average legroom (74 cm)
Travel time: 1 hr 15 min	Emissions estimate: 61 kg CO2e
10:05 · Glasgow Airport (GLA)	Contrail warming potential: Medium
easyJet · Economy · Airbus A320 · U2 402	

Travel – what options are there to reduce our carbon footprint?

2. Car

- Drive more slowly
 - Air resistance goes as the square of the speed. So we use 4x as much energy to push through the air at 60mph as we do at 30mph;
 - Driving at 60mph uses 26% less energy to counteract air resistance than at 70mph (and saves money)
 - Allow more time for the journey, so we aren't under pressure to drive at maximum speed.
- Accelerate more slowly and brake more gently.
- Increase the number of passengers
 - Car share
 - Take others
- Use the park and ride
- Buy next vehicle with lower emissions
 - Second hand vehicle
 - Hybrids
 - Electric vehicles
 - Electric bike

Travel – what options are there to reduce our carbon footprint?

3. Public Transport & Other

- Use buses and trains – much lower emissions than cars
- Cycling and eBikes – save on parking and fuel costs for trips into Cambridge

Housing – Energy

2.9t CO₂e/household average (20%)

Gas Heating (1.8t) Electricity (0.8t) Hardwick average

Heating

Lighting

Cooking

All electrical devices

Housing – Options to reduce our carbon footprint and save money

<https://energysavingtrust.org.uk/energy-efficient-diy-projects/>

1. Switch to suppliers of lower carbon energy
2. Heating the house (2t CO₂e!)
 - Improve insulation first. Loft. Cavity wall. Unused chimneys. Window and door draughts.
 - Heat pumps use 25% of the energy to heat the house. Electric. £7500 government grant available. Do your research on this and take advice.
 - Turn down the thermostat (1degree reduction could save £145/year [Octopus])
 - Don't heat rooms that aren't in use. TRV's or smart radiator valve controls can help.
3. Heating the water
 - See Octopus energy tips <https://octopus.energy/blog/energy-saving-tips/#toptips>
4. Air dry, don't tumble dry
5. Kettles – don't overfill. Do heat water then transfer to pans on the gas hob.
6. Take shorter showers

Food and Drink

2.8t CO₂e/household average (19%)

Meat and Fish	(1.9t)
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Other food and Drink	(0.9t)
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Food and Drink – options to reduce carbon footprint

2.8t CO₂e/household average (19%)

- Reduce amount of meat eaten – beef has highest impact, chicken and fish lowest
- Try plant-based meat substitutes and milk substitutes
- Reduce food waste
- Eat seasonally and locally. Avoids transportation costs and heating costs – especially air-shipped produce (e.g. strawberries in winter!)
- Organic food – production of fertilisers and pesticides creates emissions
- Try composting food waste
- Avoid food with lots of packaging

<https://www.cambridgeshire.gov.uk/residents/climate-change-energy-and-environment/how-you-can-take-action/sustainable-food-and-shopping>

Taking first steps

1. **Determine your current carbon footprint** – try more than one calculator. Get other family members to do it.
 - E.g. WWF <https://footprint.wwf.org.uk/>
 - Carbon Independent <https://www.carbonindependent.org/index.html>
 - Open University https://students.open.ac.uk/candc/carbon_calculator/#
2. **Make a plan** to reduce it by 20% in first year
 - Talk about big lifestyle decisions together. Food choices, holiday choices...
 - Consider insulating your house (thermal camera surveys)
 - Plan for future big buying decisions well in advance
 - a. Next vehicle
 - b. Next boiler/ Heat pump
 - c. Solar + battery
3. **Take any quick easy steps**
4. **Determine your carbon footprint again** in a year's time and make new plan

Where do we go from here?

All actions, even small steps are valuable.

Let's do this together...

A Forum for

- Information and explanation
- Sharing experience
- Encouragement
- Helping one another – are you a willing expert in some aspect?
- Discussion

Complete our questionnaire and let's start a local group. Looking for skills in marketing, website creation, organising

