Guide for reducing your carbon footprint

Challenge: reduce it to 5 tonnes of carbon (CO2e) / year (average is 12 t).

It is not hard to achieve; the Author, his wife and some of his friends and family have already done it. Our 'carbon lite' habits make us happier and healthier.

CHANGE	tCO2e /year saved
Flights and cruises (per person)	
Forego flying around the world 34,000 km (economy / first class)	3.4 / 10.2
Forego one 10,000 km ocean cruise (economy cabin / luxury suite)	2.3 / 6.1
Forego one short haul 2000 km return flight (econ. / first); take train or bus	0.2 / 0.6
Transport and vehicles (per person)	
Go by bus or train instead of commuting alone in a medium sized car (10,000 km)	3.4
Replace a large car/ med SUV with a light / hybrid car or EV (15,000 km/year)	3.0
Have at least 4 seats occupied whenever using a large vehicle (15,000 km)	3.0
Ride share with 3 other people (10,000 km, medium sized car)	2.2
Replace your large SUV with an electric 8 seat 'people mover' of same size	1.7
Do your local trips and food shopping by E-bicycle instead of car (2000km)	0.5
Home energy (household)	
If you have an oil / coal fired* or electric element storage HWS or central heating system, replace with a solar/gas, electric heat pump or wood pellet system.	3.0 – 15.0
If you are running a 0.5 kW pool pump 24 hours a day, cut it down to 4 hours	3.6
Insulate the house, shade windows outside to prevent summer sun ingress and install heavy blinds or drapes inside (can halve space heating and cooling bills)	0.5–4.0
Replace three 1 kW electric element ('fan' or 'oil filled' heaters) with one 1 kW heat pump air conditioner or wood pellet heater	1.1
Change incandescent or halogen light bulbs for LED bulbs (fifteen 75 W bulbs changed for fifteen 5 W LED's, on 3 hours per day)	1.1
If you have a second fridge, turn it off when not in use	0.7
Install a low rate shower head (assuming flow is cut by 66%)	0.6
Buy a 4-5 star front loader washing machine rather than a 3 star top loader	0.2

If you are buying a new refrigerator, buy a 400 L fridge-freezer, which is adequate for most urban families, rather than a 700 L fridge and freezer set — 0.7

Food and groceries (household)

Change from a diet heavy in red meats and processed packaged foods to one of fresh local vegetables, dried nuts grains and minimally packaged foods — 4.5

Replace 3 kg of red meat per week with 1 kg each of chicken, fish and lentils — 2.3

Replace 7 litres / week of bottled drinks with tea/coffee or home brewed drinks — 0.75

Grow 500 kg of fruit and veg in your own garden — 0.4

Waste and water (per household)

Halve the household's waste thrown into landfill and recycling bins from 1500 kg (the average) to 750 kg per year — 1.1

Stop buying daily newspapers and get the news on-line or in cafés (save 2.8 kg of paper / week) — 0.5

Compost your food scraps — 0.15

Halve your pool and garden water use by replacing sprinklers with drippers, mulching and covering your pool — 0.2

Embodied CO2e of Housing

If you are a couple, downsize from a 180 sq. m 4 bedroom house to an 80 sq. m two bedroom unit — 0.75

Increase the number of people living in a 4 bedroom brick house from 2 to 4 — 0.65

Build with light insulated framed construction instead of double brick (assume 180 sq. m 4 bedroom house) — 0.4

Embodied CO2e of Goods

Hire a boat instead or owning it (5 m boat 30 year life) — 0.6

Use hotels and or a good quality tent rather than owning a caravan (5 m caravan, 30 year life) — 0.5

Buy one quality wood framed lounge suite rather than cheap plastic or aluminium and keep it 3 times three times as long — 0.15

Put in garden beds instead of an 8x5 m pool — 0.15

Recondition a laptop computer to double its life — 0.07

Buy a quality set of clothes, shoes and bedding and make it last twice as long — 0.07

Notes:

<ol type="i">
This list shows the actions that will give the biggest carbon emissions reductions at the top, so you can more easily identify your 'big ticket' CO2e savings and do these first.
To estimate your own carbon footprint, use GHG-Energy Calc7, which can be downloaded from https://cleanenergymodelling.com.au/ghg-energy-calc/ .
Global heating is rapidly approaching 1.5 deg. C within this decade and if it reaches just 2 deg. C it will result in irreversible catastrophic climate change. Human and natural habitats are already being destroyed by more extreme droughts, floods, sea level rise and coral bleaching. Over 2 deg. C of heating, these events will be increasingly frequent and extreme. The cost in human deaths, sickness and economic damage will be huge.
Changing to a 'carbon lite' lifestyle is better for us. It has many other benefits in addition to doing our bit to stop catastrophic climate change. For example:

Driving a car less and using public transport reduces road congestion and urban pollution.
A mainly vegetarian diet is better for our health and costs less.
Walking and riding improves physical fitness, giving us more years to live.
Saving electricity and fuel saves us money.
Using cars less saves us money on parking and fuel.
Fewer flights and cruises will reduce the incidence of lethal global pandemics such as COVID 19.

Space and hot water heating CO2e savings depend on the climate and the energy source. For a large house in an extreme climate such as NE USA with an oil or coal fired central heating system, changing to a low emission heating system can save >15 tonnes CO2e per year.
Savings in embodied emissions of goods are tonnes of CO2e per year. Savings over the lifetime of the items are 5 – 60 times higher (see below).

Assumptions:

- CO2e savings are for an average 3 person household.
- Electricity emission factor of 0.8 kgCO2e/ kWh – typical for states of China, India, SE Asia Australia and parts of the US.
- Lifetime of house = 60 years.
- Lifetime of car = 15 years.
- Lifetime of caravans, boats = 30 years.
- Lifetime of clothes = 5 years.