



# Low carbon living

*Advice note for CIWEM members*

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This advice note provides helpful information to encourage low carbon living in the United Kingdom (UK), enabling [net zero](#) sooner. It distils information from '[In our hands: behaviour change for climate and environmental goals](#)' (Reference 1) and associated knowledge.

The content is for anyone who cares about biodiversity loss and the dangers of global warming. There are a range of actions to suit different abilities, energy levels, geographical locations, values, and wealth.

The note also satisfies two commitments in the [Climate and Ecological Emergency Declaration](#) (Reference 2) by the Chartered Institution of Water and the Environment (CIWEM):

- Creating climate and ecological champions of our members, stakeholders and the public, inspiring urgent action to tackle this shared crisis
- Empowering our members to work with their own employers, stakeholders and supply chains to deliver zero carbon [...] and environmental net gain

It is crucial that governments and businesses act more swiftly to make a better, greener system. This is fundamental to make low carbon living accessible, convenient and fair across our society. In the meantime, we, as citizens, have important and influential roles as consumers, users, members of communities, and voters. Together, we can reach net zero sooner



## Start cutting your emissions this year

There's a need for immediate, rapid, and sustained reductions in greenhouse gases (emissions) to limit global warming to only 1.5 degree Celsius ([AR6 Synthesis Report: Climate Change 2023](#), Reference 3). The current pace of action in the UK means that total emissions could be twice as much as they need to be. [Net Zero: The Ambition Gap Report](#) shows these two trajectories in graphs (page 15).

Over 60% of UK reductions in emissions rely on the involvement of the public ([Reference 1](#)). This covers behaviours on flying, car use, how we use energy, diet and what we buy.

Each of us has a different footprint of emissions depending on our circumstances and choices. An average UK person emits around 8.5 tonnes per year ([1.5-Degree Lifestyles: Towards A Fair Consumption](#), Reference 4). High income groups can have double the national average of emissions. The sources of the average footprint are:

- 3.2 tonnes from transport (travelling by car emits 1.6 tonnes and airplane emits 1.4 tonnes)
- 1.9 tonnes from the home (predominantly from heating, but also lighting, cooking, cooling and appliances)
- 1.6 tonnes from food (meat emits 0.7 tonnes, dairy emits 0.4 tonnes)
- 1.0 tonnes from consumer goods, such as furniture, clothing, and electrical devices (clothing emits 0.4 tonnes)
- 0.4 tonnes from leisure activities outside of the home, such as creative arts, entertainment, restaurants and sports (not including travel)
- 0.4 tonnes from services for personal purposes, such as communication, education, finance, insurance and welfare

The intermediary target is 2.5 tonnes per person by 2030 to hopefully curb global warming to an average 1.5 degree Celsius ([Special Report](#)

[on Global Warming of 1.5°C](#)). Achieving this target will require a collective effort – by individuals in communities, businesses, organisations and governments (local and national).

We recommend that you calculate your own footprint of emissions. The [Centre for Alternative Technology](#) has helpful information and links to carbon calculators and ecological footprints.



## The positive outcomes of starting now

In addition to limiting climate change and damage to nature, low carbon living offers long-term health and social benefits for you, your family and your community. These include, but are not limited to:

- changing to a plant-rich and less processed diet can mean a healthier body mass index (BMI), decreasing the risk of dying young or developing life-changing illness ([national food strategy: independent review](#), Reference 5)
- reducing private car ownership improves air quality and social justice as highly polluted areas have a high proportion of deprived communities, hospitals and schools ([Reference 1](#))
- active travel (walking and cycling) reduces fatal cases of cardiovascular disease ([sustainable health equity: achieving a net zero UK](#))

There are also economic benefits to you and at a national scale:

- improving the energy performance of your home will reduce your energy bills ([energy advice for your home - Energy Saving Trust](#))
- lowering meat and dairy in our diets offers annual savings of £1.2 billion to our National Health Service ([health impacts modelling by University of Oxford](#))
- adopting low carbon technologies boosts green jobs ([the sixth carbon budget: the UK's path to net zero](#))

Often there are wider global benefits from low carbon living. For example, buying fewer garments reduces social impacts of production, demand on water resources and environmental impacts of microfibres ([fixing fashion: clothing consumption and sustainability](#)).

## Modes of low carbon living

Implementing all these free or relatively low-cost measures can decrease your emissions by at least 7 tonnes per year:

- decrease thermostat at home by 1 degrees Celsius
- fly less frequently
- buy mostly pre-loved goods and no more than 3 new items of clothing each year
- switch to a renewable electricity contract at home
- eat a plant-based and less processed diet
- walk or use a bicycle instead of a car for short journeys
- switch off unneeded lights
- use an electric shower for half the time
- eat all the food you buy (prevent food waste)

To help you choose where to become a conserver, the sub-sections below present a range of commitments and yearly avoided emissions. The emissions are per person and rounded to 1 decimal place. Your individual reduction could be significantly higher or lower.



## Options to reduce emissions from your travelling

Options	Emissions avoided	Sources
no long haul return flights	4 to 12 tonnes for each return trip	<a href="#">carbon footprint calculator</a> (Reference 6)
replace medium haul return flights with train, bus, ferry or a car (with multiple passengers)	50 to 99% of medium haul return, for a UK to Italy trip it equates to 0.5 to 1 tonne	<a href="#">flight free UK</a> , <a href="#">climate hero</a> (Reference 7)
reduce car use by a quarter	0.5 to 0.9 tonnes in a medium SUV	<a href="#">Reference 6</a>
walk or use a bicycle instead of a car for short journeys	about 75% on short trips, could equate to around 0.5 tonnes	<a href="#">which form of transport has the smallest carbon footprint?</a> (Reference 8), <a href="#">Reference 4</a>
replace car journeys with public transport	42 to 75% (train) 73 to 80% (bus)	<a href="#">helping you choose shared travel options</a> , <a href="#">Reference 8</a>
closer weekend leisure	around 0.5 tonnes	<a href="#">Reference 4</a>
replace combustion car with an electric one	30% less from car's lifetime, equate to around 0.5 tonnes	<a href="#">research news - University of Exeter</a> , <a href="#">Reference 4</a>



## Options to reduce emissions from your home

Options	Emissions avoided	Sources
install an air source heat pump	1.2 to 4.3 tonnes	<a href="#">a guide to air source heat pumps</a>
switch to a renewable electricity contract	over 0.5 tonnes	<a href="#">Reference 4</a>
install a solar photovoltaic system	around 1 tonne	<a href="#">a comprehensive guide to solar panels</a>
install solid wall insulation	0.4 to 1.6 tonnes	<a href="#">solid walls insulation advice</a>
install cavity wall insulation	0.3 to 1.2 tonnes	<a href="#">cavity wall insulation advice</a>
install loft insulation	0.5 to 1.0 tonnes	<a href="#">roof and loft insulation guide</a>
install solar water heating	0.3 to 0.9 tonnes	<a href="#">advice on installing solar water heating</a>
insulate your hot water tank	0.4 to 0.7 tonnes	<a href="#">insulating hot water tanks advice</a>
replace single glazed windows with A++ double glazing	around 0.4 tonnes	<a href="#">net zero and home energy improvements</a> (Reference 9)
add secondary window glazing	around 0.3 tonnes	<a href="#">Reference 9</a>
decrease thermostat by 1 degree Celsius	around 0.3 tonnes	<a href="#">Energy Saving Trust</a> (Reference 10)
switch off unneeded lights	around 0.2 tonnes	<a href="#">facts &amp; figures: sustainability</a>
3 minutes instead of 6 minutes using a 10kW electric shower	around 0.1 tonnes	<a href="#">quantifying the energy and carbon effects of water saving</a>
use LED bulbs	65 kilograms	<a href="#">Reference 9</a>
top up existing loft insulation to 270mm	50kg to 95kg	<a href="#">roof and loft insulation guide</a>



In England and Wales, the government is providing a [boiler upgrade scheme](#). Grants are available to install a heat pump or biomass boiler. The website contains a useful link to find a certified contractor in the UK. There are similar grants for Scotland and Northern Ireland:

- [home energy Scotland grant and loan: overview - Home Energy Scotland](#)
- [grant to replace your boiler - nidirect](#)

If your neighbours live in similar houses to yours, consider working together. This is more efficient than each household making improvements separately. Learn from [how you can help your community](#) or [communities tackling the energy crisis](#). For a community heating case study, see [Swaffham Prior's heat network](#).

It's useful to ask a contractor to confirm the change in energy performance rating. After installation you can check the thermal performance. This will allow you to hold the contractor to account.

## Options to reduce emissions from your food

Options	Emissions avoided	Sources
eat a plant-based and less processed diet	around 73%, equates to 0.8 tonnes	<a href="#">Behaviour change, public engagement and Net Zero</a> (Reference 11)
50% less meat, dairy products and eggs	25 to 40%, equates to 0.3 to 0.4 tonnes	<a href="#">Reference 11</a>
buy only UK produce (eat seasonally)	8 to 13%, equates to 0.1 to 0.2 tonnes	<a href="#">People, Plate and Planet</a>
eat 2-3 plant-based meals weekly	around 0.1 tonnes	<a href="#">Reference 7</a>
prevent food waste	around 0.1 tonnes	<a href="#">Reference 6</a> , <a href="#">Reference 11</a>

## Options to reduce emissions from your consumer goods

Options	Emissions avoided	Sources
buy pre-loved clothing and textiles	around 0.2 tonnes	<a href="#">Reference 6</a>
buy no more than 3 new clothing items each year	around 56% from clothing, equates to 0.2 tonnes	<a href="#">the future of urban consumption in a 1.5°C world</a> (Reference 12)
use electronic devices for at least 7 years and repair	18% by 2030, equates to 0.1 tonnes	<a href="#">Reference 12</a>

## Collective motivation

It's normal if the scale of change sometimes feels overwhelming. Acting collectively makes it a lot easier to start and maintain new habits. See if one of these sustainable communities motivate you:

- [flight free UK](#)
- [hubbub](#)
- [possible](#)
- [take the jump](#)
- [Scottish communities climate action network](#)
- [transition together](#)



## Help others do their bit

“In order for a group to adopt a new behaviour, only 25% of the group need to change in order to influence and convert the rest” ([The 25 Percent Rule](#))

We encourage our members to show leadership and inspire others to adopt low carbon living. Polling shows that the UK public want to cut emissions but don't know which actions have the biggest impacts or where to find trusted information.

Have a discussion with a friend, a neighbour, in your social club, faith group, workplace or local schools. A study by Climate Outreach concludes that climate change can be the issue that unites us: [Britain Talks Climate](#).

Share your story. Talk about the positive outcomes and your lessons. Be careful of nudging too hard and causing a negative effect ([reactance](#)). The best approach is to act as a moderator. The organisation Possible gives [four important techniques for talking to others](#).

Research by Climate Outreach provides further guidance on communicating:

- [do's and don'ts for communicating net zero and fairness](#)
- [what to do about awkward climate conversations](#)
- [the uncertainty handbook](#)

There are parts of society that are resistant to change or wish to forestall it. The [annex](#) in this document contains a small selection of such narratives and suggestions on ways to diffuse them.

Working with local organisations and councils widen the benefits and opportunities. These can cover tackling social and health inequalities, modifying the built environment, and attracting more funding.

There are several examples across the UK:

- Bristol green capital partnership – [black and green ambassadors, community climate action plans](#)
- [Climate Action Fife](#) – partnership of 11 organisations aiming to be a leading example of participation, inclusion, and action
- Cumbria action for sustainability – partnership of 80 organisations working towards a [net zero carbon county by 2037](#)
- [iCommunity](#) – share and develop collaborative initiatives for Republic of Ireland and Northern Ireland, such as [the people's transition](#)
- Oxford County Council are supporting villages and parishes to reduce local speed limits, which encourages active travel
- Peterborough Environment City Trust – [free one to one advice with a sustainability expert](#)



## Prompt the government for quicker change

History shows that we, as citizens, can shape what the government does. For example, any of the following actions can nudge the government to [change the system](#):

- changing to a green energy supplier
- choosing a green bank or pension
- retrofitting our homes
- taking political action

Join campaigns, support non-government organisations or write to your local MP about making low carbon living easier, such as:

- push for better policies on medium-term targets
- demand for food system changes, such as heavily tax advertising of unhealthy foods and better access to fresh food in economically disadvantaged areas ([Reference 5](#))
- ask for more investment in public health, teachers, those who repair or renovate and workers in agriculture, food, environment and the community

To help inspire you, here are some relevant initiatives:

- [campaign for the Climate and Ecology Bill](#)
- [viewpoint: cars should come with health warnings](#)
- eco-score labelling and product repairability index on home appliances – indicating emissions and if spare parts are available, easy to find and affordable (France)
- low carbon advertising policies (North Somerset, Liverpool and Norwich)
- reopen disused train lines to reduce reliance on cars and improve access to employment ([campaign for better transport](#))
- no domestic flights when an alternative journey is available by train in less than 2.5 hours (France)

Many of these initiatives stem from [Reference 1](#). You'll find the Government's responses to all 38 recommendations on the same webpage, dated 21 December 2022.

It's useful to know that the UK is a signatory of the Aarhus Convention. This means our government has statutory obligations to engage with the public and provide education on environment and climate change.



Carbon capture greenhouse Switzerland. Credit: Matjaz Krivic / Climate Visuals Countdown



## Links to further resources

Embracing more sustainable travel:

- [the sustainable travel hierarchy](#)
- [active travel case studies and information](#)
- [Engaging football fans with climate change - case study - Climate Outreach](#)
- [setting up a walking school bus](#)

Shifting to a greener consumption:

- [learn a recipe for cooking with leftover food - One Home](#)
- [plant-based challenge: sparking change - M&S and Hubbub](#)
- [the right to repair and reuse your electronics - the Restart Project](#)
- [Does your bank invest in fossil fuels? - One Home](#)

Conserving energy at home:

- [a government endorsed questionnaire on insulation - One Home](#)
- [find ways to save energy in your home – gov.uk](#)

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## Annex – diffusing narratives

The responses to the narratives below are mostly rebuttals. They don't always make for good conversations. Consider implementing [lessons from Possible](#) that adds kindness into the conversation, (making the other person much more receptive), and enables a shared responsibility for solutions:

- ask questions to try to understand the wider idea or feeling underlying a person's point
- ask questions like 'how could we change that?' or 'what would you like to happen instead?'

### **Narrative 1 – it's the responsibility of the government to encourage low carbon living**

- it's a shared responsibility to reach net zero – the government and industry can make the system fairer and easier; individuals can reduce consumption quicker than changes to infrastructure
- doing your bit will improve health and wellbeing
- <https://youtu.be/S45266oIm58> – Climate Outreach

### **Narrative 2 – I'll only change when China/ India reduces their emissions**

- China has also set a net zero target amongst other big polluters ([net zero coalition - United Nations](#))
- to avoid ecological breakdown, citizens in high-consuming countries must reduce their emissions in the next 5 to 6 years
- there's an absolute amount of emissions to limit global warming to 1.5 degrees Celsius – each person on the planet has a lifetime budget of 50 tonnes from 2020 ([the maths of staying within the CO2 budget](#))
- the longer we wait, it's unlikely that government and industry can decarbonise quick enough to cover the difference

### **Narrative 3 – there's little point in individuals acting if the corporations and businesses don't take significant action too**

- our spending choices can influence the market, for example consider if the country of manufacture relies on fossil fuels or [electricity from low-carbon sources](#)
- lobby the government for eco-labelling to make it easier to identify low carbon products and services
- the Financial Conduct Authority has rules for listed companies and large regulated asset owners or managers to disclose [transition plans to meet net zero](#)

### **Narrative 4 – isn't there a lot of uncertainty about climate change?**

- [the uncertainty handbook](#) by Climate Outreach provides helpful advice on how to respond, such as:
  - scientists are as certain about climate change as they are about the link between smoking and lung cancer
  - there's a scientific consensus in excess of 90 per cent that climate change has been caused by human activities
  - reducing our carbon emissions is like having home insurance policy, protecting against risks

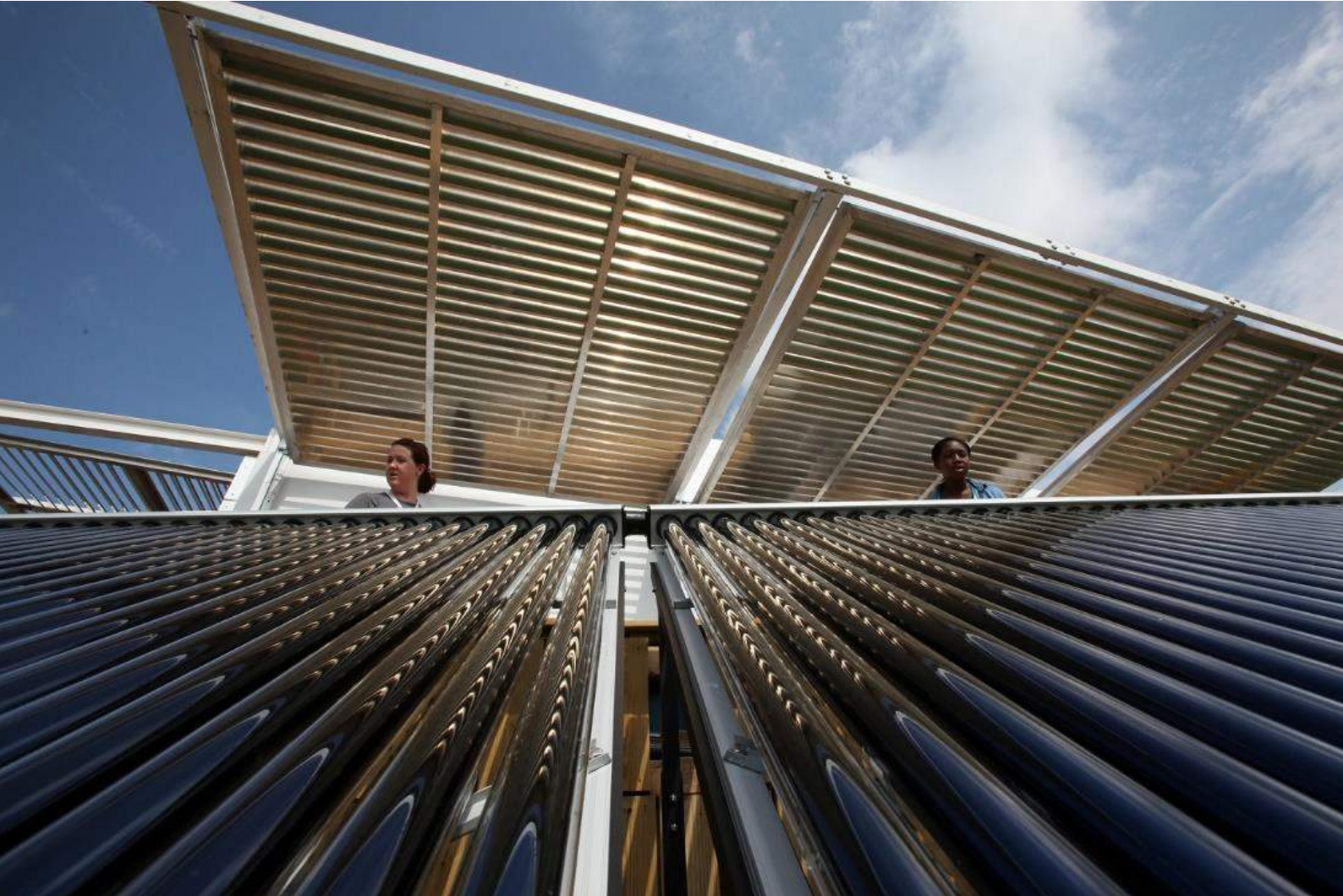
### **Narrative 5 – healthier food is more expensive**

- investment in sustainable farming methods (agroecological and higher yielding) can produce cheaper food than current organic prices ([national food strategy: independent review](#))

### **Narrative 6 – reducing consumption means the economy will suffer**

- traditional GDP growth above all else means we will all suffer

- there's an alternative growth model for the 21<sup>st</sup> century that meets the needs of all within the means of our planet ([doughnut economics by Kate Raworth](#))
- economic growth and environmental protection are mutual
- if people reduce flying by half and use lower emitting transport, there'd be a 280,000 net increase of jobs, such as in domestic tourism and cleaner fuels research ([the right track for green jobs](#))



Credit: Stefano Paltera / U.S. Department of Energy  
Solar Decathlon