



# Social visions for a low-carbon future



Centre for **Climate Change**  
and **Social Transformations**

CAST is a global hub for understanding the role of people in shaping a positive low-carbon future. Based at the University of Bath, our additional core partners are Cardiff University, University of East Anglia, University of Manchester, University of York and the charity Climate Outreach.

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## CITATION

Cherry, C., Verfuert, C. & Demski, C.. (2024) Social visions for a low-carbon future. CAST report.

Illustrations by



[motionmanor.co.uk](http://motionmanor.co.uk)

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# PART 1

## IMAGINING LOW-CARBON FUTURES

Part 1 introduces the project, focusing on why we advocate for the creation of social visions of low-carbon futures (rationale), how we went about this (methods) and what we learnt in the process (findings and potential applications).



## WHY IMAGINE LOW-CARBON FUTURES

We are facing a climate emergency. Tackling this requires a rapid transformation of every sector of society and a radical shift in personal lifestyles and social norms<sup>1,2</sup>. With around two thirds of global carbon emissions linked to household-level consumption<sup>3</sup>, this goal cannot be achieved without substantial changes to the way we live our everyday lives and the systems of production and consumption that surround us.

Public climate concern is at an all-time high<sup>4</sup>, with 70% of the UK public (66% in Sweden and 74% in China) believing that tackling climate change will require drastic changes in the way we live. However, questions remain about what transformational lifestyle changes might actually look like. With the public crucial to the success of such a transformation, it will be essential that any transition is shaped by what is socially acceptable/desirable, taking account of existing place and community context.

While many visions of low-carbon futures already exist, these usually emerge through elite technical or policy processes, focusing on national level perspectives. As such, they give no voice to public preferences and take no account of existing needs and vulnerabilities within local communities. By presenting and engaging publics with depictions of such futures and their implications for everyday lives, we argue that local public visioning processes provide one way of substantially improving public understandings of what transformational lifestyles look like.

Undertaken as part of the Centre for Climate Change and Social Transformation's (CAST), as part of its Visioning Theme, this report details our approach to engaging local publics in imagining a low-carbon future. We provide a detailed account of our method, describing the visioning workshops we conducted with participants in the UK, China and Sweden.

The main aim of this report is to showcase the co-developed place-based visions created by our participants, presenting illustrated accounts of their place-based visions for a low-carbon future in a way that would not be possible in an academic paper. In this way, we hope to highlight the power of citizen imagination, reflecting on the benefits and complexities of developing such place-based participatory visioning methods and their value in deepening public deliberations for sustainable lifestyle change.



## LOCATIONS & SAMPLE

We conducted 14 public workshops in the UK, China and Sweden to discuss what radical lifestyle change might look like. In total, 97 participants took part across seven locations, recruited to represent a diverse socio-economic sample across age, gender, income and ethnicity. Each setting reflects different factors influencing the potential for low-carbon transformation. The United Kingdom recently became the first major economy to pass net-zero carbon emissions laws, committing to end its contribution to global warming by 2050<sup>5</sup>. China, the world's largest emitter, has ambitiously pledged to peak emissions by 2030 and achieve carbon neutrality by 2060<sup>6</sup>. Leading the way, Sweden ranks second in the world for its climate mitigation efforts<sup>7</sup>.

Two workshops were conducted in each location, with participants grouped together approximate one group of high-emitters and one group of low-emitters. In the UK,

we chose three locations that exemplify different characteristics that will influence the impact that radical emission reductions may have on the everyday lives of local people: Aberdeen, an industrial city with links to the fossil fuel industry; Manchester, a major UK city with the busiest international airport outside London; and South-West England, a rural area with a high proportion of long-distance commuters. In China, we chose Tier 1 city Shanghai, one of the most prosperous and developed cities in China, and Chengdu, a Tier 2 city that is an attractive investment destination, with lower costs and opportunities for growth. In Sweden, we chose Stockholm, which has implemented extensive sustainable transport policies over the past decade, and Gothenburg, ranked the most sustainable city in the world.



\*Tier system for Chinese cities is influenced by GDP, income level, administrative level, and population with Tier 1 the highest and Tier 4 the lowest classification.

## ENVISIONING A LOW-CARBON FUTURE

We aimed to explore what feasible and desirable low-carbon futures might look like with members of the public in the UK, China and Sweden. Covering how futures might evolve across the four lifestyle areas (food, shopping, travel and heating), we discussed a range of options for achieving lifestyles choices compatible with a 1.5°C future and what they might mean for peoples' everyday lives.

Building on established techniques for engaging publics with climate and energy topics<sup>8,9,10,11</sup>, deliberative visioning workshops were designed with the aim of providing an open space for participants to explore and engage with new, unfamiliar or challenging possibilities and reflexive discussions around the future of everyday life.

## LOW-CARBON LIFESTYLE OPTIONS

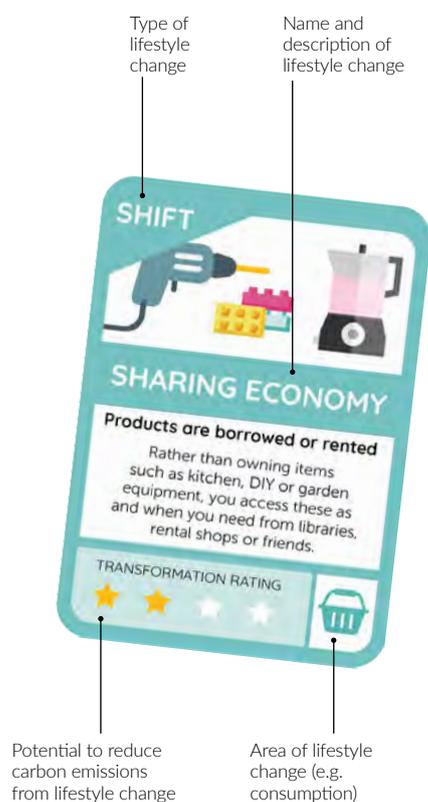
A core challenge of this project was how to discuss and compare the vast range of different mitigation options available for radical lifestyle change. Throughout the workshops, participants were presented with a series of low-carbon lifestyle options through which we structured the workshops discussions and activities. This list was based on recent research quantifying the emissions reduction potential of consumption-based mitigation strategies<sup>12</sup>. Considering over 60 different strategies across the areas of transport, food, housing, and consumption (strategies relating to the production, use or efficiency of electricity were considered out of scope) we curated a final list of 38 strategies for radical lifestyle change.

Each strategy was categorised within the Avoid-Shift-Improve (ASI) framework<sup>13</sup>. We used this framework to translate more technical carbon mitigation options from the literature into more publicly relatable lifestyle options, using the following definitions to guide us:

- **AVOID** (do less) = doing fewer high-carbon activities and/or buying fewer high-carbon products and services (e.g., avoiding a car journey, buying less, reducing home temperatures)

- **SHIFT** (do differently) = accessing activities, products and services in different, lower carbon ways (e.g., travelling by train, eating a vegetarian diet, using electric heat pumps)
- **IMPROVE** (do better) = buying or accessing products and services that produce fewer carbon emissions (e.g., buying an electric car, improved product standards)

In total, 38 strategies were discussed within this research (see Appendix for details of all the low-carbon lifestyle strategies considered). Based on this information we created a series of low-carbon lifestyle cards that summarised each lifestyle strategy in a way that could be quickly understood by participants. Each card displayed a brief explanation of the strategy and a transformation rating to indicate its mitigation potential (from one to four stars, with 4 stars representing the highest emissions reductions). For more details, see CAST Briefing 14<sup>14</sup>.



## WORKSHOP DESIGN

We developed **two complimentary future-oriented approaches** for exploring what desirable sustainable lifestyles might look like. The first was a more **traditionally deliberative approach**, based on group dialogue surrounding preferences for low-carbon lifestyle options. We presented participants with the full set of low-carbon lifestyle cards, that detailed a range of emissions reductions strategies for each lifestyle area. After discussing each of these strategies in small groups, participants were asked to reflect overnight on what a desirable low-carbon future might look like and to choose a set of low-carbon lifestyle cards that reflected their personal preferences.

The second approach took the form of a more **creative visioning method**. In small groups, we guided participants in imagining what a low-carbon future might look like for their place and community in 2050. Participants discussed what had changed in each lifestyle area, and also in society more widely, for example how infrastructure, regulations, or social norms might have changed. Participants then took part in a

**persona development task**<sup>10</sup> to develop a set of characters that live in that future and imagine the different ways they live low-carbon lifestyles in each future location. A set of low-carbon lifestyle cards was selected for each character to reflect this.

While the Chinese and Swedish workshops largely followed the same process as those conducted in the UK, a few alterations were required to accommodate for their different cultural contexts. Most significantly, the heating lifestyle area was omitted from these workshops, which therefore only included discussions around the topics of food, shopping and travel. This choice was made because the substantially different heating and housing infrastructures in both China and Sweden, meant that the materials would have been inappropriate for discussion and comparison. The lifestyle cards for food, shopping and travel were translated into the local languages (Swedish and Mandarin Chinese) and the visuals on the cards were adapted where appropriate.



## WHAT WE LEARNT ABOUT DESIRABLE LOW-CARBON FUTURES

Exploring low-carbon lifestyle change in the UK, China and Sweden, this research aimed to go beyond policy preferences to engage publics with more meaningful reflection on desirable visions for the future.

Interestingly, the overarching visions for desirable low-carbon futures that came through were quite different across the three countries. In the UK, visions were dominated by ideas around green space and healthy lifestyles, reflecting post-COVID ideals within narratives of a low-carbon UK. Home working, reduced traffic, and cleaner air, combined with discussions of green urban regeneration evoked visions of urban life centred on wellbeing, leisure and community.

In Sweden, visions of the future were firmly based on a desire for convenience, self-sufficiency, and community within the upcoming green transition. Here people

generally felt that society was already heading in this low-carbon direction and that the options we were presenting were perhaps not radical enough on their own unless all were combined.

Contrastingly, in China, desirable visions of the future were rooted in discussions of economic prosperity and continued improvement of living standards. People expressed a wider desire for health and wellbeing and strengthened community living, which they hoped in turn would provide secondary opportunities for the introduction of low-carbon policies.

However, when considering the innate popularity of the low-carbon lifestyle cards, participant choices were surprisingly similar across all locations, with the same cards consistently making up the top three choices across locations. The reasons behind these

choices of course vary, with the top cards representing the lifestyle changes that people felt would be the easier or most obvious choices (e.g., reducing food waste and balanced diets; carbon labels and product standards; electric cars and active travel).

By imagining the future by proxy (i.e., focusing on exploring the future lives of others, like them, in their locations), we found that participants were more open to exploring the possibility of radical options (e.g., giving up flying, meat or cars), even where these had been shut down as implausible or unacceptable options for the participants themselves previously.

As a public engagement process, three clear narratives emerged surrounding what mattered most to people when imagining a desirable low-carbon future:

**Co-benefits:** Developing low-carbon lifestyles that have benefits beyond just emissions reductions emerged as central to a desirable future. Specifically, health and wellbeing benefits (e.g., green space, clean air, active lifestyles) and community benefits (e.g., supporting local business, encouraging community cohesion, reducing loneliness) were highly valued.

**Conditionality:** Public acceptance of these visions of the future was contingent on a number of conditions of acceptance similar to those discussed surrounding personal preferences for low-carbon lifestyle change (see Cast Briefing 14 for details)<sup>14</sup>. Threats to fairness, accessibility and personal freedoms were the primary cause for the rejection of more radical lifestyle choices (usually those that involved fully or almost fully giving up currently valued practices such as eating meat, flying or owning a car).

**Social norms:** Whilst the most low-carbon lifestyle options were largely seen as too radical to be implemented today (e.g., adopting a fully vegan diet, giving up flying or living car-free), for many participants there was a strong belief that these options were slowly becoming more normal, or accepted by young people, and that in the future (e.g., by 2050) these would come to be seen as normal and largely uncontroversial.



## METHODOLOGICAL REFLECTIONS

Overall, our approach can be seen as particularly valuable in contexts where potentially significant social or lifestyle change is required. Specifically, it added value to more traditional deliberative methods (e.g., those based primarily on group dialogue regarding preferences for current policy options) by:

- acting as a space for co-creating visions of the future as opposed to simply collecting public responses to top-down scenario development;
- providing a light-hearted space within which to explore often taboo or difficult-to-discuss and 'sticky' topics, such as reducing meat consumption or limiting flying;
- allowing for truly tangible, place sensitive discussions of the future that are embedded within local contexts and community relationships;
- encouraging greater participant collaboration and enjoyment through engagement in more creative and playful visioning activities;
- inviting more emotional and personal engagement with the future through the creation of diverse personas with rich personal life histories;
- enabling participants to step back from their current circumstances and preferences to more openly explore alternative futures.

## PUBLIC ENGAGEMENT APPLICATIONS

We propose that the approach we used in this research has broad applicability to wider public engagement exercises at national and local levels. Here we briefly summarise four ways in which the methodological innovations developed as part of this project can be useful for those involved in developing meaningful public participation and engagement:

**Public perceptions and acceptability** This approach was primarily developed to provide a valuable method for exploring national level policy issues and 'sticky' topics that emerged as controversial (e.g., high-carbon consumers, frequent flying, or drastically reducing meat consumption) with members of the public. The approach is well suited for considering broad questions surrounding policy and lifestyle changes that may be necessary to address climate change, biodiversity, and wider sustainability issues. Outcomes of such work include providing valuable, in-depth understandings of public perceptions on complex policy issues and the creation of future visions and/or personas (created by members of the public) that can be used both analytically and for engagement purposes to indicate public acceptability.

**Local engagement with visions of the future** At the local scale, such workshops are also valuable for engaging local communities to explore the ways in which future policy change may affect them on a personal or community level<sup>10</sup>. The approach can be easily adapted to site specific policy issues, usually where communities (be they geographic or otherwise) are likely to be impacted by proposed policy, infrastructural or lifestyle changes. Outcomes include an in-depth picture of local sentiment (that moves beyond just preferences to explore emotional and relational impacts of future change) and the creation of future visions and/or personas (created by and about the relevant community) that can be used both analytically and for wider local engagement.

### **Deliberative visioning within policy making**

We have also had success in adapting our visioning approach for use in policy making, bringing together targeted groups of policy makers, wider stakeholders and publics to explore visions of the future (e.g. deliberating tree-planting targets in Wales with farmers)<sup>15</sup>. The approach can be tailored to both national and local contexts but will likely be best suited to projects that focus on a specific policy area where wider strategy is being developed. Outcomes include the creation of co-produced visions of the future that can be used both analytically and for wider local engagement, providing rich insights valuable for policy teams prior to finalising or developing policies.

**Downscaling for smaller projects** Finally, while this project represents a large qualitative work programme that created a wealth of data on multiple topics and from multiple country locations, this approach can be effectively downscaled to fit within a focus group format that is cheaper and quicker to conduct. This could be designed with either publics or policymakers as participants and would be best suited to very specific policy or community issues or situations where co-production between organisations or community groups would be beneficial.



# PART 2

## LOCAL VISIONS OF THE FUTURE

Part 2 puts our participants' visions for a low-carbon future centre stage, presenting the illustrated cityscapes for each country, alongside visualisations of the people that might live in them.

These illustrations are based on analysis of the empirical data collected from the workshops as described in Part 1. For each location, the illustration is accompanied by a description of how the place has changed by 2050 and a list of the most prominent low-carbon lifestyle cards on which the vision was developed. Four personas depicting imagined inhabitants of each place are then presented, showing the desirable low-carbon lifestyles participants anticipated might emerge from such futures.



Now a post-oil, low-carbon city, Aberdeen has grown into a thriving green city. With more green space and cleaner air than ever before, its residents enjoy a good quality of life. Increased home working is the norm, and the city centre has been redeveloped as a hub for leisure, exercise and socialising.

Popular low-carbon lifestyles include:

**SHOPPING:**

- Product standards
- Second hand products
- Buying less
- Carbon labels

**FOOD:**

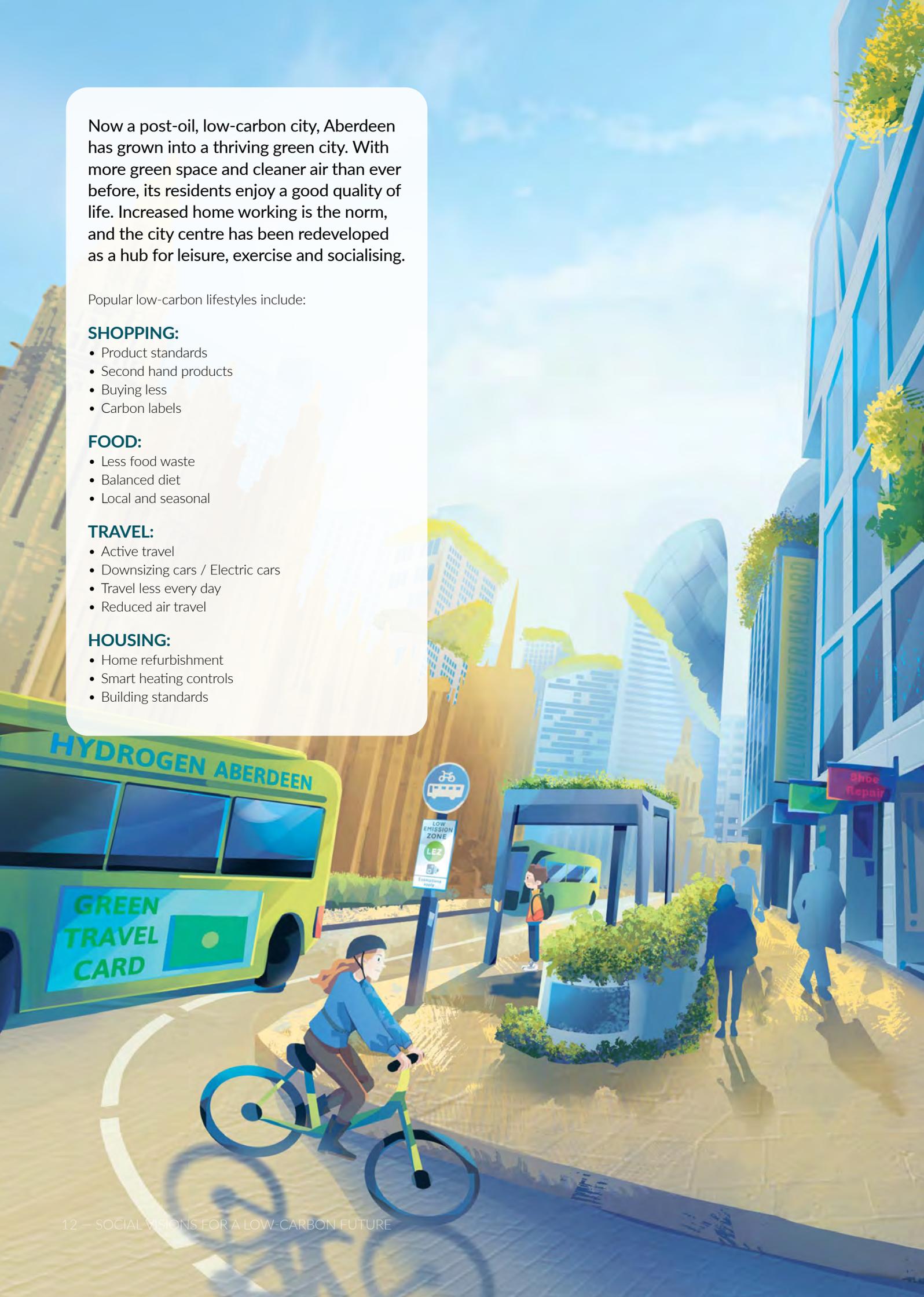
- Less food waste
- Balanced diet
- Local and seasonal

**TRAVEL:**

- Active travel
- Downsizing cars / Electric cars
- Travel less every day
- Reduced air travel

**HOUSING:**

- Home refurbishment
- Smart heating controls
- Building standards



# ABERDEEN 2050



## Kenny Campbell, 42

A professional couple living in a trendy central Aberdeen flat, Kenny and his partner Jenny take pride in their work (a Lawyer and CEO) and the very conformable lifestyle it provides. They holiday often, travelling Europe by train, and taking an annual flight to reach more far-flung destinations.



### Low-carbon lifestyle preferences

- Pay-for-service to access mod-cons
- Eating a balanced low-meat diet
- Newbuild smart eco-flat
- European train travel

### Thoughts on low-carbon living

Like most of Gen-Z, they support the shift to low-carbon lifestyles, but don't otherwise think much about it.

### Concerns about low-carbon living

They have few worries. The newly designed city centre is their playground, where they meet friends, eat at fancy (mostly) vegan restaurants, and take part in a variety of sports and wellbeing classes.



## Jayden, 10

A young boy living with his parents in central Aberdeen, he and his family live a modest, but comfortable life in their refurbished terrace house. He works hard at school, hoping for a career in technology that will provide better job prospects.

### Low-carbon lifestyle preferences

- Traveling to by school bus
- Small electric family car
- Eating a low-meat diet
- Second-hand clothes and games

### Thoughts on low-carbon living

Jayden takes the low-carbon lifestyle of the 2050's in his stride, thinking very little about their eco-centric lifestyle when it's not being talked about in school.

### Concerns about low-carbon living

The introduction of carbon taxes and strict product standards mean that some mod-cons are out of reach. Jayden experiences some jealousy, as he desires a holiday abroad..



## Heather, 27

Medic, Heather and her boyfriend James, live a frugal, low-carbon lifestyle, focusing on maintaining physical and mental health, through a variety of sports and leisure activities, and a very low-meat diet. Regular international air travel is central to their lifestyle, but they do their best to combine work and leisure trips.



### Low-carbon lifestyle preferences

- Newbuild smart eco-flat
- Local living and active travel
- Second-hand clothes and products
- Carbon labels

### Thoughts on low-carbon living

Heather is committed to a healthy and eco-friendly way of life, but her calling is undertaking charitable work abroad with Doctors Without Borders.

### Concerns about low-carbon living

The ever rising frequent flyer tax means Heather is concerned about both the financial costs, as well as the carbon cost of their travel. The couple's financial choices are all geared towards saving money to pay for this luxury.



## Briony, 32

Briony and her young family live a comfortable, eco-friendly lifestyle in the middle-class suburbs. They have a modern eco-home with all the mod-cons, including low-carbon heating system, smart technologies and high-quality appliances and entertainment systems (purchased through pay-for-services models).

### Low-carbon lifestyle preferences

- Halved meat consumption
- A healthy, balanced, local diet
- Pay-for-service to access mod-cons
- Public transport and high-speed trains

### Thoughts on low-carbon living

Briony grew up understanding the importance of a sustainable lifestyle. Working as an architect designing low-carbon houses, she is proud contribute to creating a cleaner, greener Aberdeen.

### Concerns about low-carbon living

A job for life is rare these days, so Briony is concerned about unstable future employment prospects and her family's ability to maintain this lifestyle if their income dropped.





Manchester has evolved into a very modern and technology focused city. Out-of-town shopping centres, like the Trafford Centre, have been repurposed as mixed-use hubs for housing, hot-desk office space and leisure activities. Visually, the city is much greener and although electric cars dominate the transport system, the air quality has greatly improved. Digital services provide a multitude of opportunities for green consumption through sharing, re-use and repair apps and social media campaigns focus heavily on thriftiness and sustainable lifestyle options.

Popular low-carbon lifestyles include:

#### **SHOPPING:**

- Product standards
- Second hand products
- Buying less
- Sharing economy

#### **FOOD:**

- Less food waste
- Balanced diet
- Reduced meat options

#### **TRAVEL:**

- Downsizing cars / Electric cars
- Active travel
- Travel less every day
- Frequent flyer tax

#### **HOUSING:**

- Building standards
- Home refurbishment
- Lower room temperatures

# MANCHESTER 2050



## Graham Pendleton, 71

A retired couple living in a quiet Manchester suburb, Graham and his wife Nancy use their free time to live as low-carbon lives as possible. They enjoy the freedoms of a comfortable retirement, staying active in the local community where Graham helps to organise the local sharing co-op that fulfils a lot of their needs.



### Low-carbon lifestyle preferences

- Downsized home and car
- Swapping red meat for white meat
- Participating in a sharing co-operative
- Nature-based staycations

### Thoughts on low-carbon living

Living a high-carbon lifestyles in his youth, Graham was initially naïve about the scale of change needed, but has adapted well and over time has become inspired by the way society has made changes for the benefit of future generations.

### Concerns about low-carbon living

Graham is proud of the new eco-friendly lifestyle and has few concerns. He struggles with the idea of giving up meat but has largely swapped red meat for chicken and is not fazed by the lab grown meat that has become the norm.



## Freddy Future, 24

Freddy is a trendy young man, whose work in the technology industry provides him a good income to enjoy the benefits of an eco-friendly life in the city. Flexible home working gives him plenty of leisure time to spend on fashionable wellness trends, as well as all the usual sports and social activities.



### Low-carbon lifestyle preferences

- Fully vegan diet
- Active travel and local scooters
- Pay-for-service to access mod-cons
- Standards ensure high quality products

### Thoughts on low-carbon living

Freddy accepts that international flying is a privilege now and rightly costs a lot more than it did for previous generations. He still values the cultural experiences of long-distance travel but agrees with the frequent flyer tax that limits how often he can fly.

### Concerns about low-carbon living

Despite declining meat consumption in recent years, Freddy is still concerned about animal welfare, as well as the health implications of meat/dairy consumption. Like many young people, he advocates for a fully vegan diet for all.



## Ben Zoom, 20

Ben is a student, living in shared accommodation at Manchester University. He has an entrepreneurial spirit, setting up a dog walking business to supplement his income, which is higher than the average student.



### Low-carbon lifestyle preferences

- Local living and active travel
- Second-hand clothes and products
- Lab-grown meat
- Personal carbon-budgets

### Thoughts on low-carbon living

Growing up in this low-carbon society, Ben doesn't take much interest in climate issues or counting carbon emissions. He doesn't subscribe to any specific diet and generally buys cheap second-hand products to avoid worrying about personal carbon budgets.

### Concerns about low-carbon living

Travel is almost a luxury commodity these days and Ben aspires to eventually own an electric car. He also dreams travelling to the USA and China, but with such high carbon taxes, his access to air travel is limited for the time being.



## Sarah Jones, 70

Living in a small bungalow on the edge of Manchester, Sarah enjoys a quiet family life, and enjoys active holidays and gardening, always sharing photos on social media. They are very family-orientated, with a strong focus on healthy living, in order to stay well and enjoy watching her grandchildren grow up.

### Low-carbon lifestyle preferences

- Sharing economy
- Car free living
- Staycations in the UK countryside
- Vegetarian diet

### Thoughts on low-carbon living

Sarah isn't that interested in low-carbon lifestyles but recognises that quality of life has improved since 2020. She has been vegetarian for decades, influenced by the social media Veganuary campaigns of the 2020s.

### Concerns about low-carbon living

Despite a good pension, Sarah is concerned about money. The new carbon taxes on meat, products and flying mean everything is more expensive nowadays and she is very careful about her spending choices.



This rural area is a wonderful place to live, with great air quality and opportunities for healthy, natural living. The carbon savvy population take pride in their local produce and the multitude of community eco-projects. Public transport, to and within the local city centre has improved, but rural residents can't do without small electric vehicles. Local land-use shifts mean many of the fields are now dominated by energy and heating infrastructure.

Popular low-carbon lifestyles include:

### SHOPPING:

- Carbon taxes
- Second hand products
- Buying less
- Carbon labels

### FOOD:

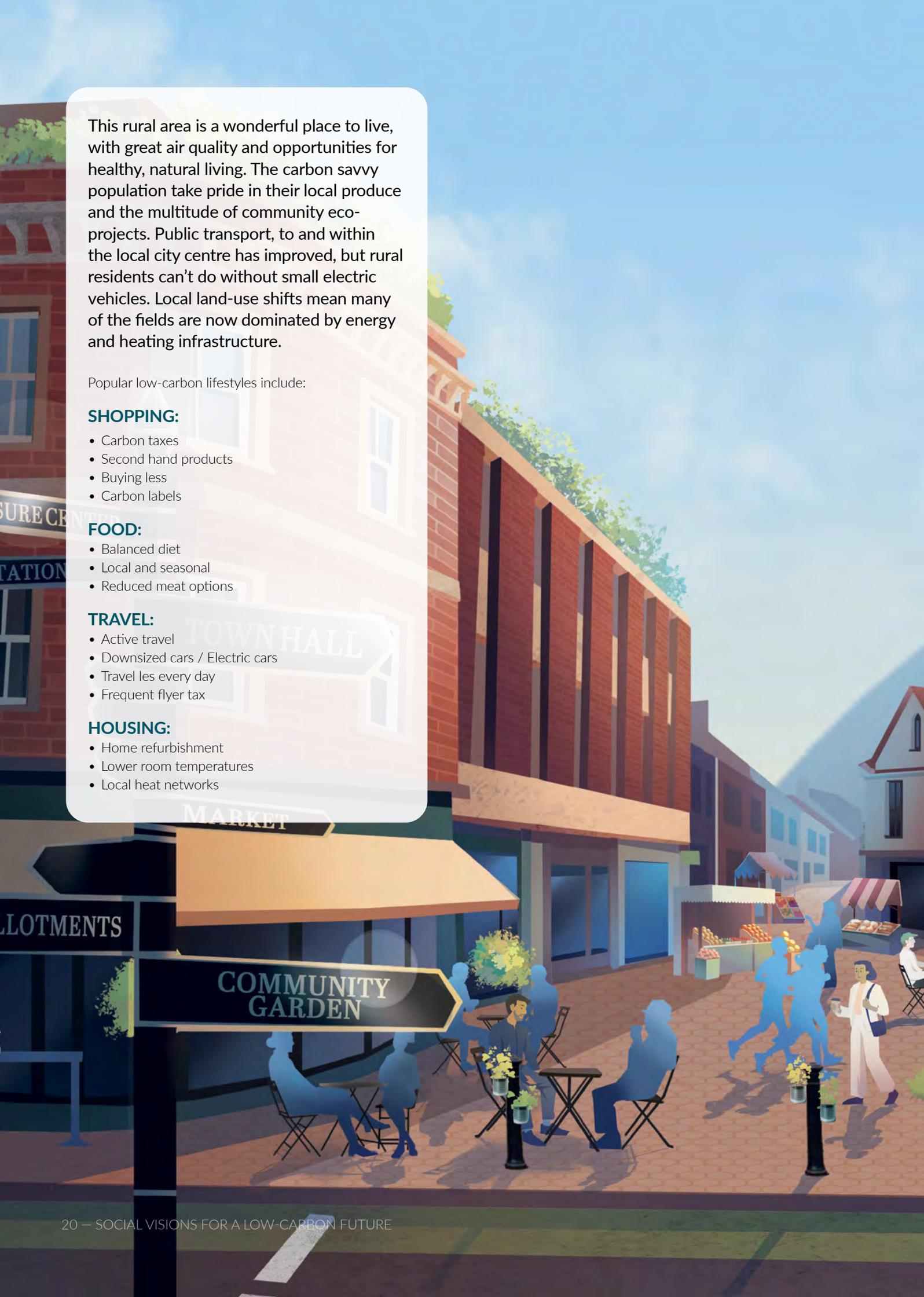
- Balanced diet
- Local and seasonal
- Reduced meat options

### TRAVEL:

- Active travel
- Downsized cars / Electric cars
- Travel less every day
- Frequent flyer tax

### HOUSING:

- Home refurbishment
- Lower room temperatures
- Local heat networks



# SOUTH-WEST ENGLAND 2050



## Ahmed, 32

Ahmed works as a design engineer and lives a rural lifestyle with his young family. Balancing their carbon budget is a priority and the family have worked to half their meat intake to allow space in his carbon budget for international flights to visit family.



### Low-carbon lifestyle preferences

- Pay-for-service to access mod-cons
- Small electric family car due to rural location
- Standards ensure high quality products
- Heat pump installation for rural areas

### Thoughts on low-carbon living

He is happy with his lifestyle and his ability to support his family, and looking back at the mistakes of the past he feels good that he, and his country, have taken steps to become carbon neutral.

### Concerns about low-carbon living

Ahmed is concerned about the huge tax bills associated with low-carbon life and the expensive pay-for-services schemes that provide his family with access to the most up-to-date products. Consumption is heavily regulated: new product standards, carbon taxes and personal carbon budgets all add to the bureaucracy.



## Fatima, 35

A doctor in the local hospital, Fatima moved to Exeter with her partner Daisy to reduce their commute and their carbon footprint. Their highly efficient new build home is cheap and easy to keep warm as the whole block is heated through a local heat network.



### Low-carbon lifestyle preferences

- Pay-for-service to access mod-cons
- Mostly vegetarian diet with lab-grown meat
- Local heat networks for eco-flats
- Local city centre living

### Thoughts on low-carbon living

Generally, Fatima loves her new low-carbon lifestyle and enjoys knowing she is making a contribution to a low-carbon society. Convenience is her priority and she chooses pay-for-service schemes to access modern home appliances and entertainment systems.

### Concerns about low-carbon living

While they accept that the frequent flyer tax is necessary, Fatima regrets that they aren't able to travel more internationally and they save as much as they can for occasional flights to visit Daisy's family in Canada.



## Cedric Brown, 20

Cedric lives with his parents in their small high-tech eco-house. He is passionate about protecting the environment and at university, he studies environmental science, in the hope of one day working in sustainable agriculture or renewable energy.



### Low-carbon lifestyle preferences

- Second-hand clothes and products
- Public transport via new tram system and cycle network
- Vegetarian diet with minimal food waste
- High-tech eco-homes

### Thoughts on low-carbon living

Cedric loves their sustainable and ethical lifestyle and is grateful that climate anxiety is no longer the burden it was for previous generations. The low-carbon innovations that were difficult to adopt for his parents' generation are now just commonplace and normal for him and his peers.

### Concerns about low-carbon living

As his household has a relatively low income, Cedric doesn't have a lot of money and has to think carefully about his lifestyle choices. He tries to save money (and carbon emissions) by buying only second-hand products, avoiding meat and dairy and avoiding food waste, but could still never afford to fly abroad.



## Corona Jones, 30

Born during the COVID-19 pandemic, Corona grew up in the changed world that followed. She is a doctor in the local hospital and lives with her partner Dave in a swanky eco-apartment in the city centre. There is a new electric tram system in place across the city which she regularly uses for commuting and leisure.

### Low-carbon lifestyle preferences

- Pay-for-service to access mod-cons
- Vegetarian diet with local and seasonal foods
- Local heat networks for eco-flats
- Public transport via new tram system

### Thoughts on low-carbon living

As respected members of the community the couple lead by example, adopting low-carbon choices wherever possible. Corona is particularly interested in how low-carbon and healthy lifestyles complement each other and works to promote low-meat diets, active travel and nature-based staycations.

### Concerns about low-carbon living

Despite being relatively well off, high carbon taxes mean that new carbon intensive products are very expensive nowadays.



Shanghai has developed into a very convenient city with easy-to-use infrastructure for walking, cycling, and using public transport. The city has become less centralised with many self-sufficient communities producing their own energy supply, managing their waste and providing people with a community-centred lifestyle. With working from home and working less being the norm, the city centre has become a focal point for socialising, replacing the many consumer-focused shops of the past.

Popular low-carbon lifestyles include:

### SHOPPING:

- Buying less
- Product standards
- Carbon labels
- Sharing economy

### FOOD:

- Balanced diet
- Local and seasonal
- Reduced meat options

### TRAVEL:

- Long distance train travel
- Travel less every day
- Public transport
- Electric cars



# SHANGHAI 2050

社区医院

电动自行车



### Liu Lulu, 30

A professional with a high income and a sustainable and mindful lifestyle. Liu practices yoga, meditation, and running for physical and mental well-being and to reduce stress from her work.

### Thoughts on low-carbon living

Living in a tight-knit community, Liu sets an example by integrating low-carbon choices into her daily life, and is particularly fond of luxury, low-carbon brands.

### What's important in life

Despite her high income, Liu values experiences over possessions, occasionally traveling abroad and exploring the world. In her everyday life spending time with her dog is important to her..

### Low-carbon lifestyle preferences

- Lives alone in small, detached “eco villa”
- Pay-for-services over ownership
- ovo-lacto-vegetarian with the occasional lab-grown meat alternative
- Cycling instead of car-us



### Xiaoyanzi, 56

She lives with her partner. Both earn a comfortable living with highly paid freelance work. They work from home and enjoy and active social life being part of one of the many thriving local communities in Shanghai.



### Thoughts on low-carbon living

Prioritising convenience, Xiaoyanzi likes the available pay-for-service schemes allowing her to have a minimalist approach to consumption. Maintaining good health, she follows a balanced, mostly vegetarian diet, occasionally including sustainably sourced fish.

### What's important in life

She enjoys an active social life that revolves around mahjong sessions – a popular tile-based game - and meeting friends and family in her community. Xiaoyanzi and her partner love traveling but limit air travel to once a year to reduce emissions.

### Low-carbon lifestyle preferences

- luxurious city mansion surrounded by greenery
- Paying for services for convenience
- Vegetarian but occasionally eats fish
- Cycling, electric car and limits flights to one per year



## Doudou, 40

A professional, who lives in a spacious apartment with her husband and two children – a boy and a girl.



### Low-carbon lifestyle preferences

- Public transport and sometimes family electric car
- Buying less
- Less meat and food waste
- Collective sharing of goods and stuff

### Thoughts on low-carbon living

She strategically integrates the sharing economy into her daily life, emphasising collective sharing and eating a balanced, healthy and “scientifically informed” diet. She uses carbon labels to guide her decisions.

### What’s important in life

With her very stressful job, it is important to her to keep healthy by engaging in outdoor sports and virtual reality games. Occasionally, she and her family indulge in holidays abroad, preferably using land transport to get there.



## Dong Mei, 60

She is a single woman who enjoys the comforts of her retirement community while she still works as a freelance consultant. She enjoys a moderate income and maintains her well-being by staying active and engaged with her community.



### Low-carbon lifestyle preferences

- Medium-sized apartment
- Reduced meat and balanced diet
- Local holidays
- Public transport for shorter distances

### Thoughts on low-carbon living

Having witnessed the evolution of the city’s transport network, Dong Mei relies on public transport, as well as walking or cycling for shorter distances. She prefers the low-hassle pay-for-services options that simplify her life.

### What’s important in life

Although she knows it is not good for her health or the environment, Dong Mei has a particular fondness for sweet treats. Having a good balance in life, she actively engages in hobbies such as virtual reality experiences and online socialising.



Chengdu has developed into a high-tech city with a well-working public transport system and a lot of green spaces. Banning private vehicles, except for electric cars, has substantially improved the air quality, reflecting the city's high focus on health. People in Chengdu live in tight-knit communities where trading of second-hand products flourishes and there is a high demand for lab grown meat. Although a lot of peoples' lives are now online, meeting in cafes and other 'offline' places remains important for socialising.

Popular low-carbon lifestyles include:

### SHOPPING:

- Product standards
- Lifetime guarantee
- Personal carbon budget
- Carbon taxes

### FOOD:

- Local & seasonal
- Less food waste
- Reduced meat options

### TRAVEL:

- Travel shorter distances
- Electric cars
- Public transport
- Reduced air travel

# CHENGDU 2050



## Nainai Nuhui, 52

An independent woman in her early 50s, Nainai Nuhui, lives alone in her spacious apartment. With a high income earned as a freelancer in the service industry, she values her independence.



### Low-carbon lifestyle preferences

- Small electric car for local journeys
- Balanced diet with low meat
- Frequent flyer tax
- Pays for services

### Thoughts on low-carbon living

She particularly likes the options to pay for services that make her feel less trapped in high-consumption patterns. Buying less and reducing the overall waste she produces are important features of her low-carbon lifestyle.

### What's important in life

She maintains an active social life and meditates to enhance her well-being. While laws discourage flying through a frequent flyer tax, she still enjoys global holidays justifying it with her being alone and not having a family.



## Rousong, 25

A young office worker in the service industry with a middle-income and a vibrant social life. She moved away from her family for work and now lives in a medium-sized apartment in Chengdu.

### Low-carbon lifestyle preferences

- Second hand and rent & borrows where possible
- Low meat diet supplemented with lab-grown meat
- Public transport
- Prevents food waste

### Thoughts on low-carbon living

She embraces a low-carbon ethos by paying for services, especially in her well-equipped kitchen where she rents the devices she needs rather than buying them. She tries to keep her carbon footprint small by buying second-hand items and by renting and borrowing when possible, contributing to the city's thriving second-hand economy.

### What's important in life

Because she lives away from her family, she loves the community-centred living and has an active social life. She is particularly fond of playing mahjong.





### Lao Pangxie, 58

Lives with her husband in a medium-sized apartment. They enjoy a middle income and have two children that already moved out.

#### Low-carbon lifestyle preferences

- Paying for services
- Fewer purchases
- Healthy and meat reduced diet
- Active and public transport

### Thoughts on low-carbon living

Her diet preferences mirror her commitment to sustainability, featuring less meat and a diet rich in local and seasonal produce. Following Chengdu's ban of private petrol cars, Lao uses public and active transport for grocery shopping, meetings, and to get to her office job.

### What's important in life

A good work-life balance is very important to Lao, allowing her to have an active social life. She has a close circle of friends and particularly enjoys square dancing and holidaying locally.



### Gelin Nan, 30

The third child of a wealthy family, with whom he lives in a multigenerational traditional Chinese courtyard house (Siheyuan). Embracing the high-tech environment in Chengdu, he works part-time in e-sports.



#### Low-carbon lifestyle preferences

- Paying for services and lifetime guarantees
- Lab grown meat
- Electric car and active travel
- Staycations

### Thoughts on low-carbon living

Being from a wealthy family, he finds it difficult to reduce his consumption. Instead of buying things, he pays for services where he can. Like many of his generation, he eats lab grown meat and also grows some food at his family home. He rarely goes on holidays and prefers staycations when he does.

### What's important in life

Gelin loves gaming and a lot of his professional and private life are influenced by the high-tech environment of Chengdu. The excessive gaming is already impacting his health.



Stockholm has evolved into a high-tech city that embraces the community focused and robot assisted lifestyles of its inhabitants. Collective living in passive and net zero houses in Stockholm's green suburbs has become the norm with public transport and small, individualised travel pods connecting the different parts of the city. The increase of home deliveries means the city centre now has less stores but instead has a flourishing culture scene and is an important place for socialising.

Popular low-carbon lifestyles include:

#### SHOPPING:

- Product standards
- Buying less
- Carbon taxes

#### FOOD:

- Less food waste
- Balanced diet
- Local and seasonal

#### TRAVEL:

- Travel less every day
- Car-clubs
- Long distance train travel
- Reduced air travel





## Maria, 80s

Lives in a collective with like-minded individuals where they share a spacious, net-zero house suitable for Maria's low income.



### Low-carbon lifestyle preferences

- Sharing economy
- Buying less stuff
- Vegetarian diet
- Active travel

### Thoughts on low-carbon living

Her diet reflects her commitment to sustainability, consisting primarily of varied vegetarian meals, occasionally supplemented by lab-grown meat alternatives. She cycles and walks to get around Stockholm and prefers taking a boat or the train for longer journeys.

### What's important in life

Maria embraces a minimalist lifestyle - cherishing experiences over material possessions. In her spare time, she enjoys spending time nature, as she immerses herself in outdoor activities and embarks on staycations in Sweden.



## Malvin, 19

A long-distant student who lives in a community in the leafy outskirts of Stockholm. He lives with his parents in a small house with solar panels and grows food on their roof.



### Low-carbon lifestyle preferences

- Sharing economy
- Community growing of food
- Travelling less every day
- Public transport for short and long distances

### Thoughts on low-carbon living

Embracing community life, Malvin enjoys making use of the sharing economy regularly borrowing one of the shared bikes and cars widely available. He eats little meat and if so, it is mostly lab grown, which he supplements with vegetables grown at home and in the community gardens in his neighbourhood.

### What's important in life

Malvin is very active and enjoys all sorts of sports, especially football. He tries to live a healthy life reflected in his low-meat diet. When he travels abroad, Malvin opts for long-distance train journeys for holidays.



## Adam, 45

He shares a spacious apartment with his friends in the city centre. Working as an IT freelancer, he embraces the normalised practice of remote work and enjoys a high income while maintaining a minimalist lifestyle.



### Low-carbon lifestyle preferences

- Sharing economy
- Vegetarian
- Car-free
- Europe by train

### Thoughts on low-carbon living

Following a minimalist lifestyle, Adam likes making use of the sharing economy and makes sure stuff he buys has a high standard. He lives car-free and travels around Stockholm using a mix of walking, cycling, self-driving taxis, car-clubs and the trains. He is vegetarian and grows some of his food in their community garden at home.

### What's important in life

Adam has many hobbies including yoga, music, gaming, and the great outdoors. He enjoys traveling to Europe and often spends 2-3 months abroad combining working and traveling through 'workcations'.



## Shanti, 30

He lives in a city centre community-apartment building and works as a freelancer in IT. In a block with 70 flats, the building has a lot of communal space including a rooftop garden.



### Low-carbon lifestyle preferences

- Shared economy
- Balanced, low meat diet
- Public transport
- Shared electric car

### Thoughts on low-carbon living

Shanti likes the convenience of the shared economy which means he can spend his money on fun and experiences instead of stuff. He has a balanced, low meat diet and is quite involved in community growing which includes vegetables from the shared rooftop garden and lab-grown meat from the community basement.

### What's important in life

Shanti likes being active and trying out trendy sports such as padel tennis. Having fun is more important to him than stuff and he enjoys a fulfilling urban lifestyle with a middle-income and regular train holidays to Europe.



Gothenburg has developed into a greener and more connected city with a thriving digital infrastructure. Self-sufficient communities are clustered around the city centre, connected with park and ride options and cycle highways. Private cars were replaced by shared self-driving cars and, together with remote working policies, led to much improved air quality and less traffic. People live closer to nature and socialise within local communities where looking after the elderly has become a priority. Community growing, vertical farming and generally local food production dominate the urban landscape.

Popular low-carbon lifestyles include:

### SHOPPING:

- Buying less
- Lifetime guarantee
- Product standards
- Second hand products

### FOOD:

- Less food waste
- Local and seasonal
- Balanced diet

### TRAVEL:

- Travel less every day
- Public transport
- Electric cars
- Long distance train travel



# GOTHENBURG 2050





## Olivia, 50

She lives in a small house in the green suburbs with her partner and one child. As an IT freelancer, she works from home and enjoys a high income.

### Thoughts on low-carbon living

To reduce the amount of new stuff she buys, Olivia mostly borrows things, making use of the sharing economy. She has a balanced, varied diet and stays active by cycling and walking across town with the occasional tram or self-driving car use. For her holidays she usually stays locally but rarely treats herself to a trip aboard.

### What's important in life

Olivia prioritises a good work-life balance allowing enough time for her hobbies, being creative, and travelling. She loves spending time in nature, enjoys music, and exercises regularly.

### Low-carbon lifestyle preferences

- Sharing economy
- Balanced diet
- Active travel
- Staycation



## Marcus, 72

He lives in a cozy home in the suburbs with his partner and works from home as a part-time journalist. He enjoys a middle income and regularly visits his grown-up children.



### Thoughts on low-carbon living

Marcus actively engages in the sharing community to reduce waste. To achieve a high standard, the shared things are updated regularly. He enjoys local food and eats little meat. To get around, he walks, cycles, or uses an electric bike since he doesn't own a car.

### What's important in life

Marcus values a good work-life balance so that he has enough time to go travelling with his grandchildren and to enjoy the greenery in Gothenburg. You can often find him walking or cycling in the various parks.

### Low-carbon lifestyle preferences

- Staycations by train or boat
- Sharing economy
- Balanced diet with few meats
- Buying less



## Jeanette, 22

She recently graduated from university in Gothenburg and works as a freelancer with a low income. She shares a large apartment from where she sometimes works.



### Thoughts on low-carbon living

She lives simply and tries to keep her carbon footprint low. Being thrifty, Jeanette opts for second-hand items and follows a flexitarian diet, low on meat and fish, to save money and reduce waste and emissions.

### What's important in life

Jeanette does not care much for materialistic things and instead prioritises being outdoors, gaming, and going to the theatre with friends.

### Low-carbon lifestyle preferences

- Second hand and buying less
- Active travel supplemented with electric car use for commuting
- Europe by train
- Flexitarian and balanced diet



## Kim, 31

He leads a bustling life juggling part-time office work and part-time freelancing. He has a high income, but enjoys communal living in a big, shared apartment.

### Thoughts on low-carbon living

Kim follows a vegan diet, occasionally trying lab-grown meat, and opts for train travel when exploring Europe. He's also part of a car-sharing club, occasionally using an electric car but also embraces cycling, walking, and public transport for city travel.

### What's important in life

He cherishes his gym sessions, outdoor adventures, and gaming. Kim dislikes the throwaway society of the past, often repairing items and choosing long-lasting products. In Gothenburg's close-knit communities, Kim finds joy in local connections and shared experiences.

### Low-carbon lifestyle preferences

- Sharing economy & repairing things
- Active travel
- Vegan diet supplemented with lab-grown meat
- Europe by train



# Appendix

Details of the low-carbon lifestyle cards discussed within this research, including headings, sub-headings and transformation ratings (from 1 to 4 stars).

THE PRODUCTS WE BUY		RATING
AVOID	<b>CARBON TAXES</b> Product prices are determined by carbon emissions	★★★
	<b>PERSONAL CARBON BUDGETS</b> Every citizen has an equal annual carbon budget	★★★
	<b>BUYING LESS</b> New products are purchased only when necessary	★
	<b>CARBON LABELS</b> All products have easy to understand carbon labels	★
SHIFT	<b>SECOND HAND PRODUCTS</b> Products are purchased second hand	★★
	<b>SHARING ECONOMY</b> Products are borrowed or rented	★★
	<b>PAYING FOR SERVICES</b> Product ownership remains with producers	★★
IMPROVE	<b>PRODUCT STANDARDS</b> Product standard laws are implemented	★★
	<b>LIFETIME GUARANTEES</b> Businesses are responsible for the products they sell	★★
THE FOOD WE EAT		
AVOID	<b>CARBON TAX ON FOOD</b> Carbon tax makes meat products more expensive	★★★
	<b>REDUCED MEAT OPTIONS</b> Reduced meat options in supermarkets and restaurants	★★★
	<b>LESS FOOD WASTE</b> Reduced household food waste	★★★
SHIFT	<b>VEGAN DIET</b> Replacing animal products with plant-based alternatives	★★★★
	<b>VEGETARIAN DIET</b> Replacing meat with meat free alternatives	★★★★
	<b>HALVE MEAT CONSUMPTION</b> Meat consumption is reduced by half	★★
	<b>SWAP RED MEAT WITH WHITE</b> Replace red meat with white meat	★★
	<b>BALANCED DIET</b> A healthy, nutritious diet	★★★
IMPROVE	<b>LOCAL AND SEASONAL</b> Seasonal, local, and organic fruit and vegetables delivered	★
	<b>LAB GROWN MEAT</b> Meat is grown in a lab	★★
HOW WE TRAVEL		
Everyday travel		
AVOID	<b>TRAVEL LESS EVERY DAY</b> Day-to-day travel is reduced outright	★★
	<b>TRAVEL SHORTER DISTANCES</b> Day-to-day travel distances are short	★★
SHIFT	<b>LIVING CAR FREE</b> No car ownership	★★★★
	<b>CAR CLUBS</b> Shared access to car travel	★★★★
	<b>PUBLIC TRANSPORT</b> Public transport use for everyday journey	★★★
IMPROVE	<b>ELECTRIC CARS</b> Electric cars replace petrol and diesel	★★★★
	<b>DOWNSIZING CARS</b> Smaller cars replace larger cars	★★
Long distance travel		
AVOID	<b>STAYCATIONS</b> All holidays are taken in the UK	★★★★
	<b>REDUCED AIR TRAVEL</b> Distances travelled by plane are halved	★★★
	<b>FREQUENT FLYER TAX</b> Flights are taxed according to how often people fly	★★★
SHIFT	<b>LONG DISTANCE TRAIN TRAVEL</b> Long distance travel by train rather than flying	★★★

HOW WE HEAT OUR HOMES (UK ONLY)		
AVOID	<b>SMALLER HOMES</b> Reduced living space or increased occupancy	★★
	<b>LOWER ROOM TEMPERATURES</b> Rooms are kept at lower temperatures	★
SHIFT	<b>HYDROGEN BOILERS</b> Hydrogen boilers become the main heating system	★★★★
	<b>LOW CARBON HEATING</b> Heat pumps become the main heating system	★★★★
	<b>LOCAL HEAT NETWORKS</b> Waste heat from industry is used to power homes	★★★★
IMPROVE	<b>BUILDING STANDARDS</b> Building regulations require high standards for new homes	★★
	<b>HOME REFURBISHMENT</b> Homes are refurbished to improve energy efficiency	★★★★
	<b>SMART HEATING CONTROLS</b> Smart heating controls manage home temperatures	★

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CAST is funded by the Economic and Social Research Council



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