

A GROUNDBREAKING PROJECT

NET
ZERO
LEISTON

A ROUTE TO NET ZERO

CREATING THE UK'S FIRST NET ZERO TOWN

JOIN THE
JOURNEY
TODAY

Welcome to Net Zero Leiston, an ambitious and exciting project to create the country's first Net Zero town.

In this ebook, you will discover what Net Zero is, why we need to act now and how people in the community of Leiston are coming together with industry experts from Suffolk, the UK and Europe to play a leading role in helping Britain reach its climate change targets. You will find out why Net Zero Leiston is unique in working with the community to create a robust, engineered route

map, which can provide the blueprint for towns up and down the country to follow our path.

We want you to get involved and help make a world of difference in the fight against climate change. We want to hear your views on the most important issues to address. That way we'll have true Community Power and together shape the journey to Net Zero.

So thank you for reading this ebook – we are looking forward to hearing your views on the next steps we should take.

I WANT TO GET INVOLVED

COMMUNITY POWER

NET ZERO LEISTON

FOREWORD

Leiston-cum-Sizewell Town Council has long recognised the importance of climate change on our everyday lives and our futures. We are very pleased, through this initiative, to get involved and do our bit to alleviate and slow global warming in the best way we can, which is to promote, encourage and pursue net zero carbon emissions in the parish by around 2030.

with our young people to help them join in and secure a better future for themselves.

We invite Leiston residents to become the drivers of this project and help the Town Council get the message out there and bring everyone on board to achieve the aim. It is a nine-year journey after all!

The Council is really excited to be working, as part of Leiston Together, with such a talented, committed and professional collection of partners who have the expertise and global knowledge to make this all possible. We can all do our bit of course, but to truly reduce our carbon emissions in the parish, we need some major interventions and a really effective and ground-breaking education package

Please read the document and, if you would like to see the scientific background work that has gone into these figures please [view the technical appendices](#). The main contact point for the Council, and Leiston Together, will be the Town Clerk (Mrs Caroline Rinder), who will be supported by the outgoing Town Clerk (Mr John Rayner).

THE JOURNEY TO NET ZERO STARTS HERE

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MRS CAROLINE RINDER



MR JOHN RAYNER

01 WHAT IS NET ZERO?

NET ZERO IS THE BALANCE BETWEEN THE AMOUNT OF GREENHOUSE GAS PRODUCED AND THE AMOUNT REMOVED FROM THE ATMOSPHERE.

SUFFOLK TO BE NET ZERO BY 2030

In March 2019, Suffolk County Council declared a climate emergency and pledged to reach Net Zero by 2030.

GREENHOUSE GAS PRODUCED

GREENHOUSE GAS REMOVED

NET ZERO

Net Zero is achieved when the amount we produce is no more than the amount removed.

How much is Leiston's carbon budget?

Each country has an apportioned carbon budget. If a country's carbon emissions exceed its apportioned budget, it is not helping to achieve the target to limit temperature rises to 1.5°C. With the help of experts, Net Zero Leiston has distilled the UK carbon budget into a Leiston-specific target.

To ensure we don't go above 1.5°C of global warming, Leiston's apportioned carbon budget is 95,000 tonnes of CO₂, up until 2100.

The current carbon emissions in the Leiston boundary are 15,700 tonnes of CO₂ per year. The existing land and green spaces remove 3,700 tonnes of CO₂ per year. This provides a net annual CO₂ consumption of 12,000 tonnes.

WHY IS IT IMPORTANT?

Net Zero is vital to limit global warming.

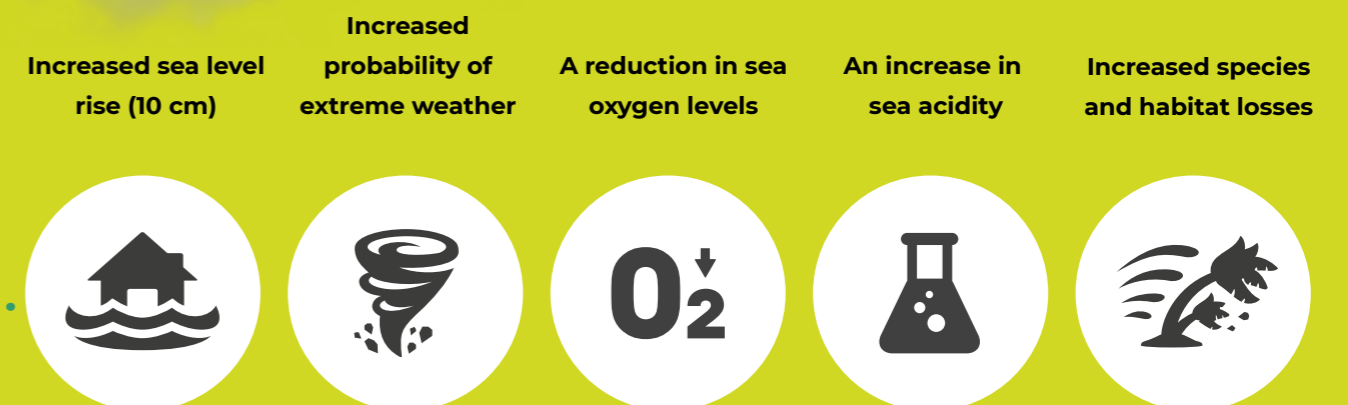
Net Zero measures, such as energy efficient insulation, can also lower our energy bills while increasing the warmth of our homes.

[The 2018 Intergovernmental Panel on Climate Change \(IPCC\) report](#) shows that to avoid the most significant impact of climate change, global temperatures need to remain within the limit of 1.5°C above pre-industrial levels.

There are many positive benefits of achieving Net Zero for your mental and physical wellbeing and the environment around you, from cleaner air and thriving green spaces to enjoy, to exercising as you travel to work.

The impact of an increase in global temperature of 2.0°C versus an increase of 1.5°C include increased sea level rise (10 cm) and the increased probability of extreme weathers, including droughts and heavy rainfall, a reduction in sea oxygen levels, an increase in sea acidity and increased species and habitat losses.

At this annual rate the carbon budget for Leiston would be exhausted in less than eight years. **The challenge for Leiston and towns like it across the UK is therefore serious and urgent.**





02

INTRODUCING
**NET ZERO
LEISTON**

How we started

In January 2020, the Leiston Together Group, East Suffolk Council, Suffolk County Council and Sizewell C started exploring what it would take to transform a town to reach Net Zero carbon emissions.

As a town with a rich industrial heritage and where energy is a major economic sector, Leiston is in an ideal location to be at the heart of a net-zero revolution.

Objectives

We started with three clear and ambitious objectives:

Draft a route map that shows the current level of emissions and what it would take to reach Net Zero.

Create a socially acceptable pathway to Net Zero that the community can own.

Ensure this is openly-available and replicable for other villages, towns and cities – in other words, that Net Zero Leiston could lead the way for communities up and down the country to join us on the journey to Net Zero.

Industry experts

To create the route map, we have formed a working group of experts from Suffolk, the UK and across Europe:

Atkins, low-carbon engineering experts – primarily responsible for the route map.

Opergy, local, clean energy experts – key contributor to the route map and providing solutions advice.

Energy Systems Catapult, experts in energy modelling – supporting route map options and creating a standalone study on vulnerable households in Leiston.

Carbone 4, carbon accountancy experts – reviewing carbon emissions calculation methodologies.

Ikigai Capital, financing experts – giving insight into funding for the route map.

University of East Anglia, internationally recognised experts in agricultural management – providing input to agricultural emissions/solutions.

Sizewell C, proposed new nuclear build next to Sizewell B – providing project management and seed funding.

EDF, the UK's largest supplier of low-carbon electricity – supporting initial pilot projects.



Principles

This initial group was founded with seven principles:

Ensuring local stakeholders are at the heart of the project.

Taking a thorough, robust engineering approach.

Addressing households in vulnerable circumstances and providing social mobility.

Understanding how different technologies work together to create a replicable energy showcase.

Combining Net Zero ideas with replicable funding solutions.

Maximising wider benefits and opportunities for all stakeholders.

Helping the region achieve its climate goals and continuing the UK's focus as a leader in the journey to Net Zero.

What is a carbon budget and how do we calculate it for Leiston?

To keep temperature rises within the 1.5 degree limit, the approach for calculating Leiston's carbon budget is:

Global Carbon Budget
1,010,000 MtCO₂

UK Carbon Budget
1,906.5 MtCO₂

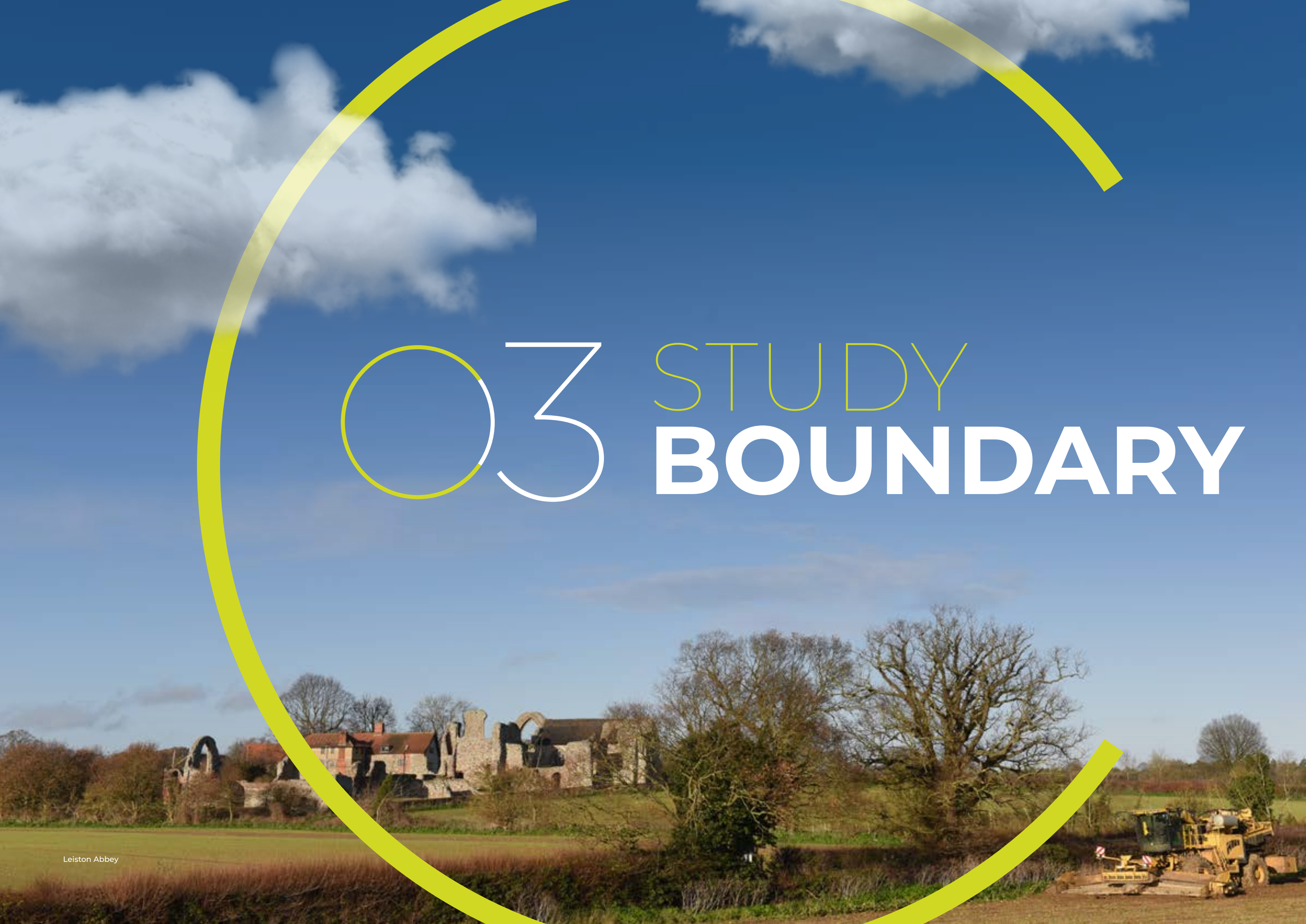
Suffolk Coastal Carbon Budget
4,119 ktCO₂

Leiston Parish Carbon Budget
95 ktCO₂

Project Steering Group

The key project decisions are made by a Project Steering Group, consisting of Leiston Together / Leiston Town Council, East Suffolk District Council and Suffolk County Council.

The Steering Group's objectives are: to revitalise the identity of Leiston, improve the living standards of residents, meet climate goals and apply learnings from the project elsewhere in the district/county.



03 STUDY BOUNDARY

LEISTON PARISH IS THE BOUNDARY FOR NET ZERO LEISTON

Why has this been selected?

Aligns with existing local parish boundary.*

Small enough to propose deliverable solutions within the route map, but large enough to ensure the learning can be used more widely to inform similar projects across the UK.

Provides some diversity in the economic sectors considered.

What's in scope?

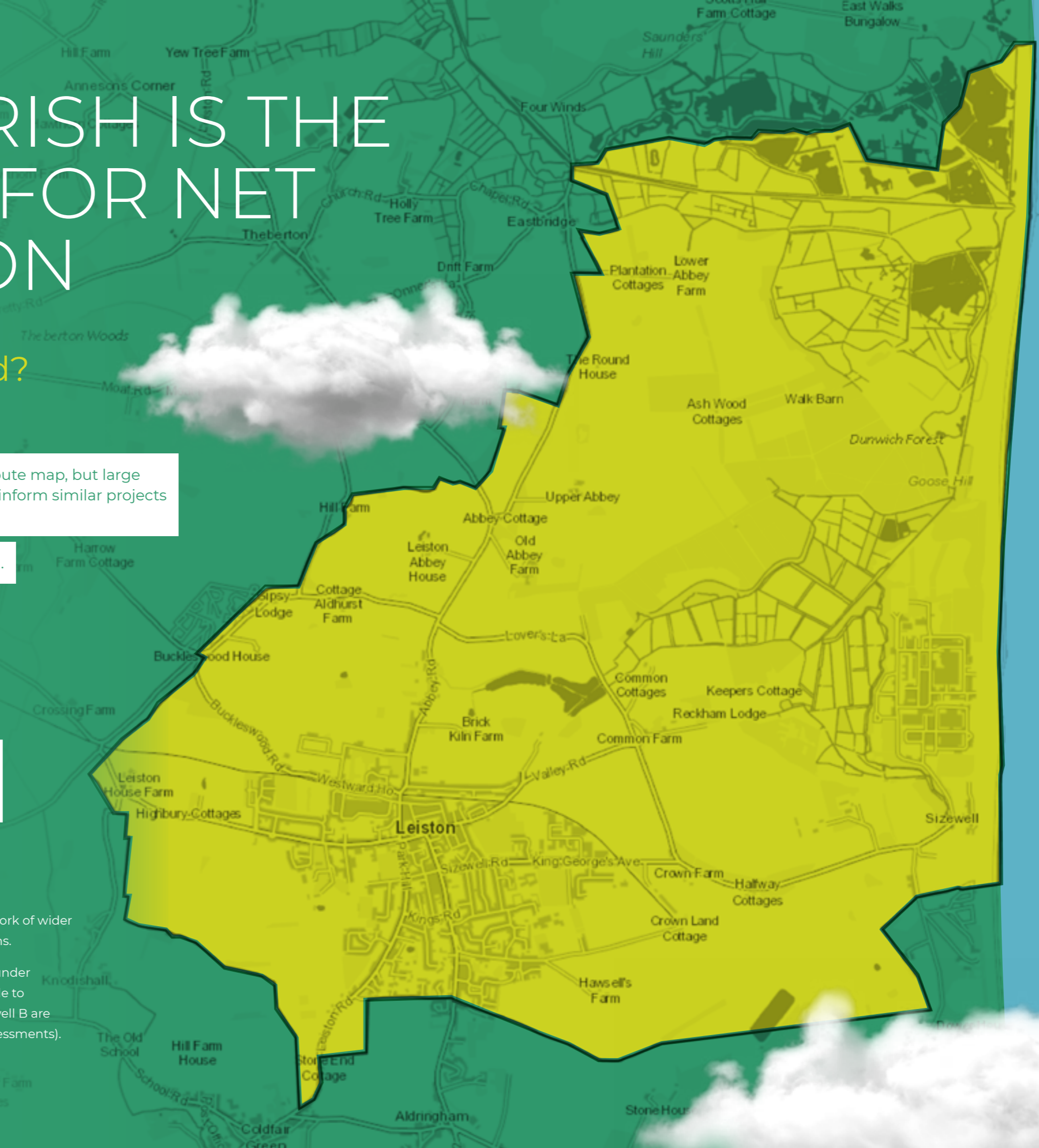
The study will consider the emissions from buildings, grid energy, transport, agriculture and land use.

Emissions that are part of the supply chain of goods, for example the food grown outside the boundary and sold in shops in Leiston, are not part of this project.

Is the boundary physical?

The boundary is virtual, not physical. This area is connected to a large network of wider energy uses, transport routes, environmental features and carbon emissions.

*Large national infrastructure is not included in the study as it's excluded under the carbon budget approach, which we have followed. This project is unable to influence the activities of these projects (though both Sizewell C and Sizewell B are looking to reduce their emissions and are undertaking lifetime carbon assessments).





04 ROUTE MAP PROCESS

STEP 01

BASELINE CARBON EMISSIONS

Review and calculate current baseline emissions within the boundary area.

STEP 02

ASSESS HEAT, POWER & TRANSPORT SOLUTIONS

Review and assess the practical heat, power and transport strategies for the study area.

Calculate the carbon emissions reduction associated with these solutions and what portion of the baseline carbon emissions can be reduced.

The carbon budget for Leiston is likely to mean Net Zero has to be achieved before 2030. It is unlikely all projects can be completed in this timeframe, so initiatives, like planting trees, may be needed during a transitional phase to meet the overall target.

STEP 03

ASSESS NATURE-BASED SOLUTIONS

Review environmental solutions that could be used to provide further carbon emission reduction.

For example, creating new green spaces that can act as a carbon sink, or regenerating peatland bog, which will also trap carbon.

A good example of this is the Aldhurst Farm habitat recreation project, currently underway within the boundary of this study. This is where 67 hectares of arable farmland has been converted to wildlife habitat to increase biodiversity.

Business/
Commercial
Modelling
Assessment

STEP 04

CREATE THE BEST POSSIBLE NET ZERO LEISTON ROUTE MAP

Review Steps 2 and 3 to allow us to create the best possible solution.

Funding
Assessment

NET ZERO



05 CURRENT EMISSIONS

LEISTON'S CURRENT EMISSIONS, CALLED THE BASELINE, HAVE BEEN CALCULATED FROM FOUR KEY CATEGORIES



Buildings
11.6 ktCO₂ – 2020



Transport
3.8 ktCO₂ – 2020

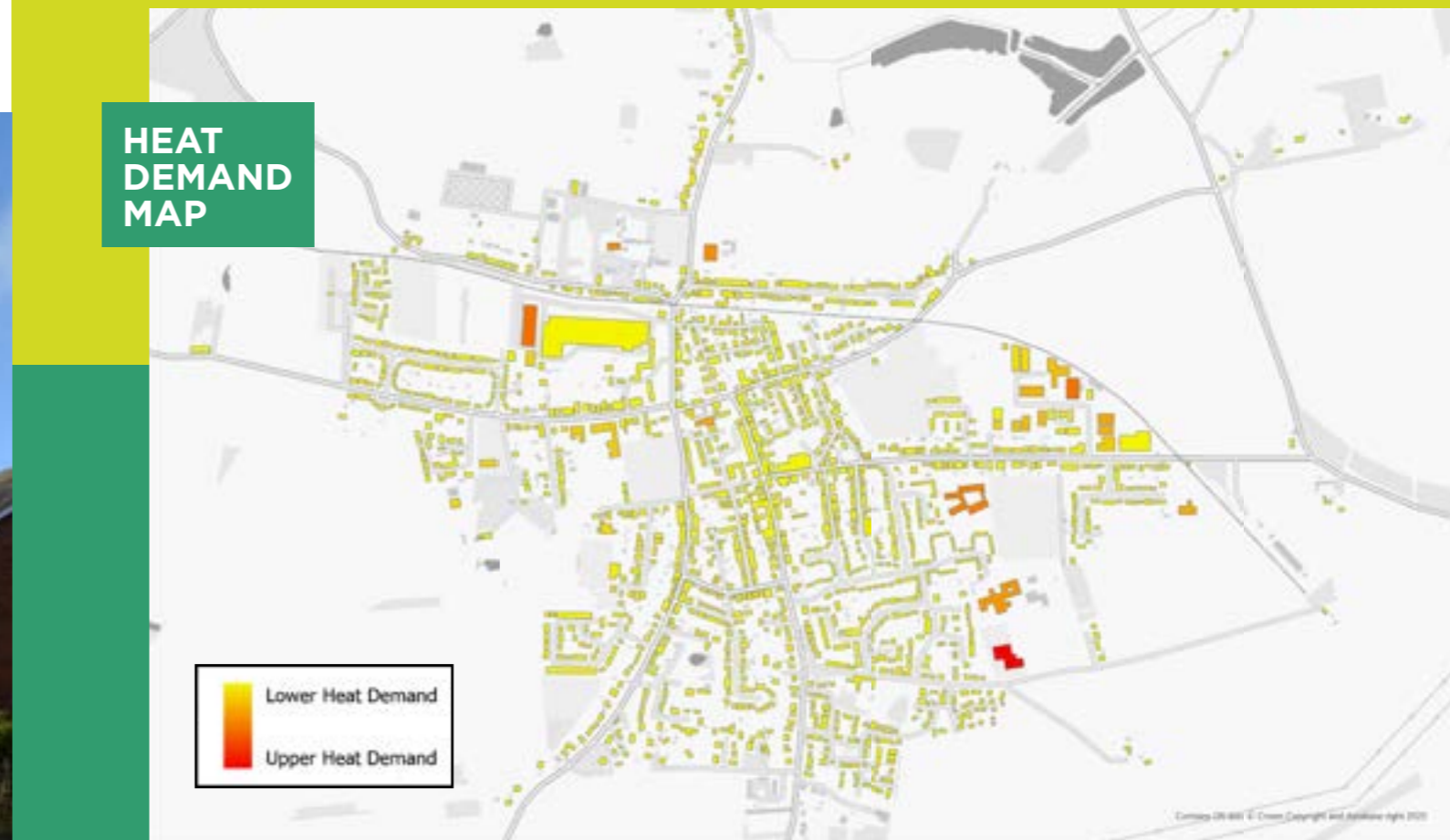
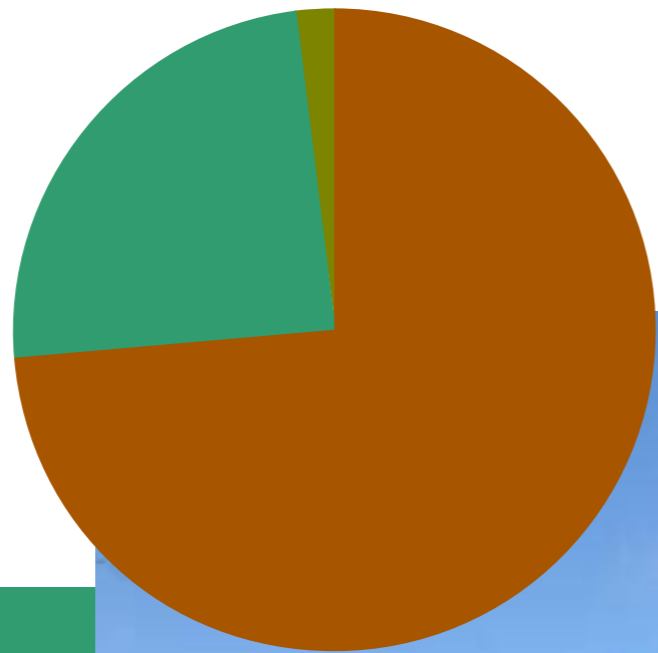


Agriculture
0.3 ktCO₂ – 2020



Land Use
3.7 ktCO₂ removed – 2020

These four categories summarise the total emissions for Leiston and help to demonstrate the key areas to target. For example, transport covers the carbon emissions from car fumes and the buildings category covers carbon emissions from our electricity and gas consumption, which we use to power and heat our homes and businesses. The UK carbon emissions can similarly break down in this way. At a national level, broadly, carbon emissions from heat, transport and energy consumption are the main categories.



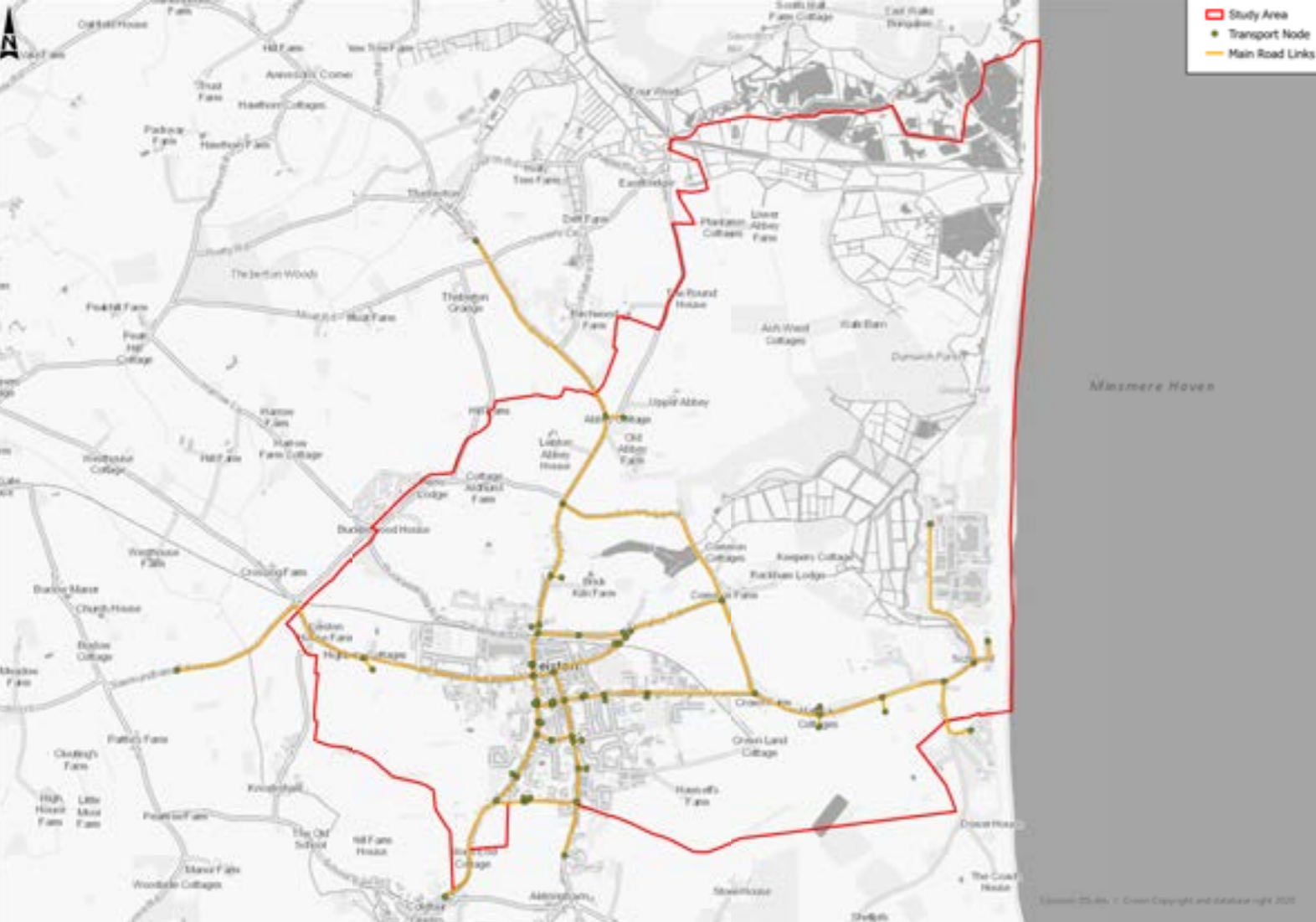
Buildings

Total 11,608 tonnes of CO₂ at present

There are more than 3,000 buildings in the study area that have been identified as having an energy demand. 89% are domestic and account for 7.8 ktCO₂, with the remaining 11% non-domestic accounting for 3.8 ktCO₂. The emissions from buildings largely come from the electricity and gas consumed to heat and power the property.



Leiston Houses



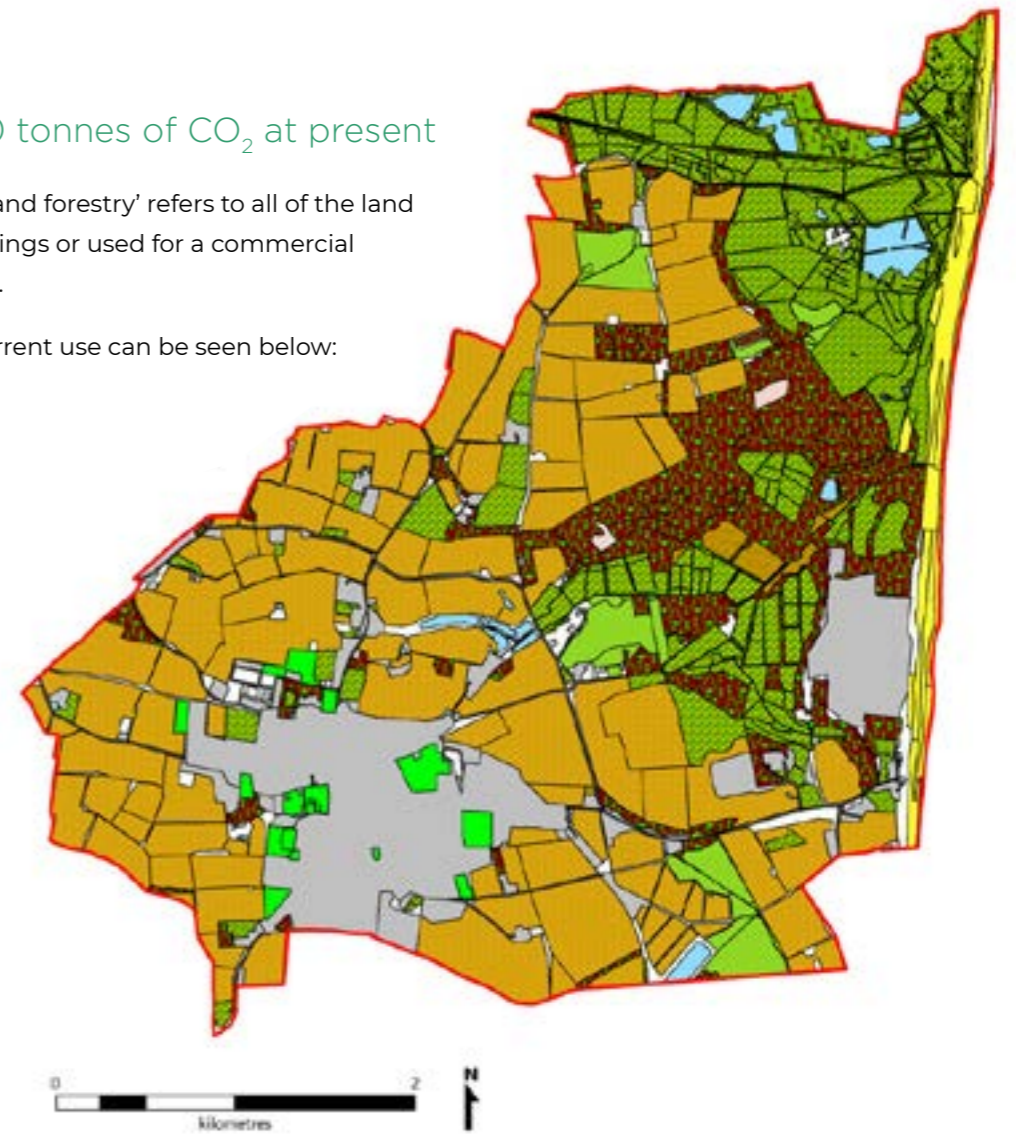
Land Use

Total negative 3,700 tonnes of CO₂ at present

'Land use, land use change and forestry' refers to all of the land that is neither existing dwellings or used for a commercial purpose, such as agriculture.

A map showing Leiston's current use can be seen below:

- Leiston
- Cropland (annual)
- Cropland (perennial)
- Forest Land
- Grassland (meadows and pasture)
- Grassland (scrub and scrub)
- Other land
- Settlement (built environment)
- Settlement (green space)
- Wetland (mud)
- Wetland (reedbed)
- Wetland (sand dunes and shingle)
- Wetland (water meadows)



Transport

Total 3,800 tonnes of CO₂ at present

As a rural area, car use is essential for residents to get to work, school and leisure activities. With a limited number of electric vehicles in Leiston, the emissions are largely made up of petrol and diesel vehicles.



Leiston Public Transport



Agricultural Land

Agriculture

Total 300 tonnes of CO₂ at present

Agriculture is a key part of Suffolk and makes up a large part of the land use in Leiston. This is largely arable land with limited livestock.

Within the UK agricultural sector, combustion sources account for 79% of CO₂ emissions and fertiliser applications the remaining 21% (Defra, 2019).

06

ROUTE MAP

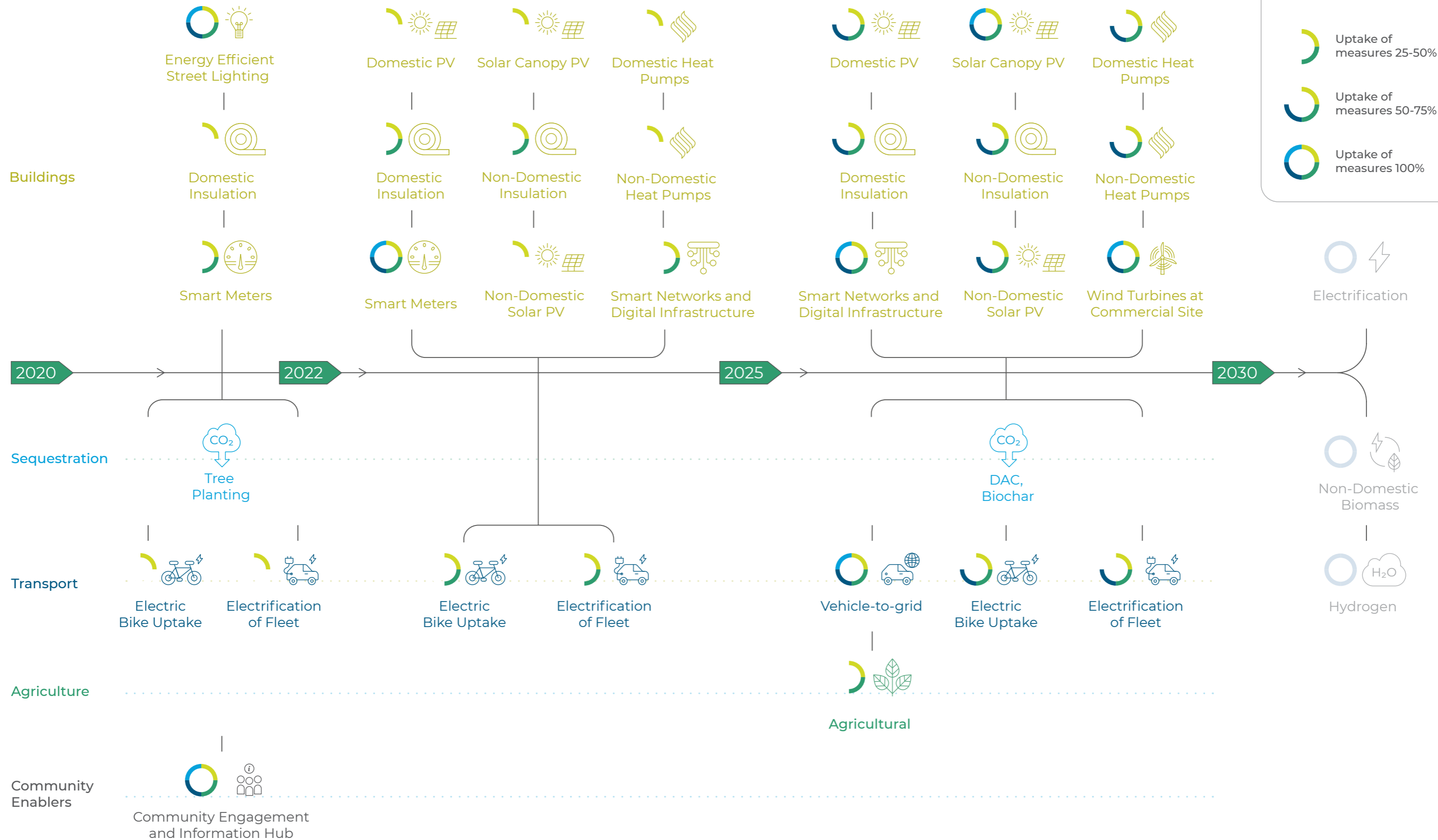
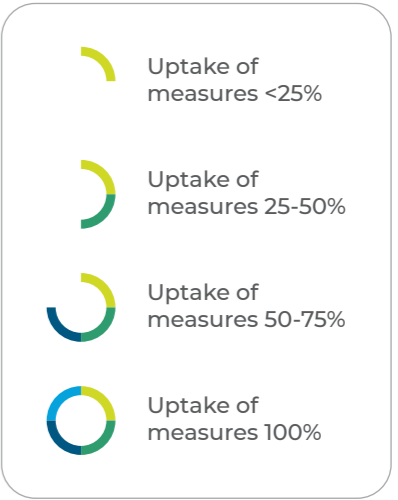


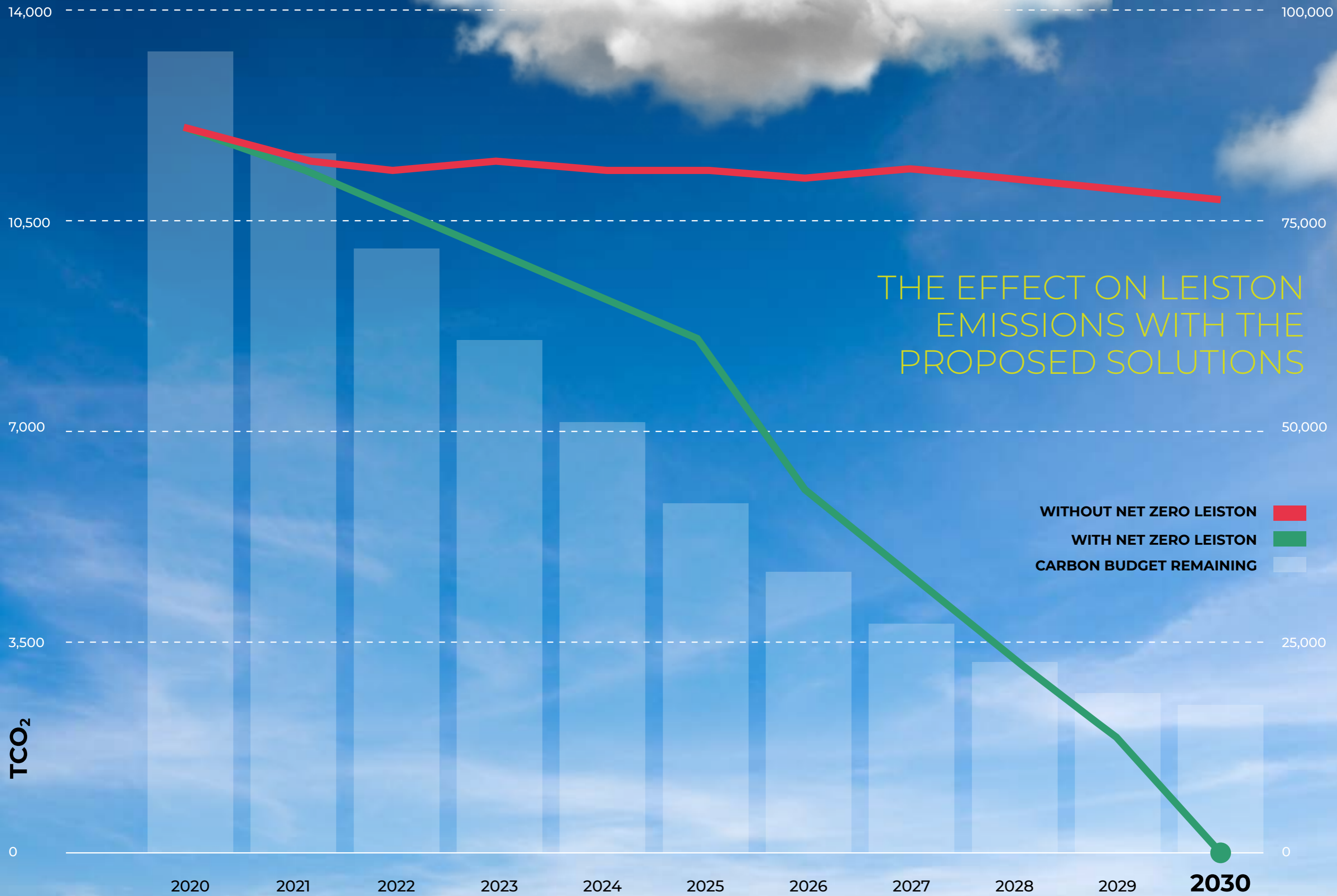


ROUTE MAP

- 1. Achieve Net Zero direct emissions (scope 1) and indirect emissions (scope 2) by around 2030, from a 2020 annual baseline
- 2. Not exceeding the 2100 Carbon budget for Leiston study area of 95,000 t CO₂

Key





The measures assessed for inclusion in the route map would have a demonstrable impact on Leiston carbon emissions, provided they work for the community and are adopted at scale. For example, Net Zero Leiston is already looking to improve the energy efficiency of homes within Leiston.

Based on our research, and compared to 2020 emissions in Leiston, if every home adopted all the available measures to increase energy efficiency, we could reduce carbon emissions by around 1,300 tCO₂ per year.

Similarly, if businesses followed suit and adopted all the measures available, this could reduce carbon emissions by around 1,000 tCO₂ per year.

ACTION PLAN



- **2020 Detailed route map analysis carried out and Net Zero Pilots launched.**
- **Q1 (Now) Launch of the vision paper and commencement of feedback from the community.**
- **H1 2021 Launch of the route map, governed by the feedback from the community.**
- **November 2021 COP 26, which will be held in Glasgow. An opportunity for the UK to demonstrate on an international stage the progress the UK is making to reach Net Zero, specifically with projects like NZL.**
- **2020-2030 measures to decarbonise Leiston will be adopted and the route map will be put into action.**
- **Around 2030 A Net Zero Leiston.**



07 PILOT SCHEMES



Net Zero Leiston Tariff

EDF has created a zero-margin tariff (this is the cheapest price that EDF can provide energy without making a loss) to make low-carbon power affordable for all households.

This is an exclusive tariff for people living in Leiston and it's backed by 100% low-carbon sources like nuclear, wind and solar.



Hybrid heat pumps

Residents of Leiston who rely on heating from LPG or oil tanks because their home isn't connected to the gas network are being offered access to a low-carbon hybrid heating system at a heavily discounted price.

This adds an air source heat pump to their existing boiler, so they don't need to replace their existing system. The heat pump provides about 80% of the heating demand, so they don't use as much oil/LPG to heat their home.

Energy efficiency measures

Many of the homes in Leiston could benefit from insulation.

This pilot uses smart databases to pinpoint homes with low energy efficiency, then suggests measures to become more energy efficient, for example through insulation in walls, roofs or flooring. We have successfully secured a Green Homes Grant for homes in Leiston, so in many cases this funding can pay for installation.





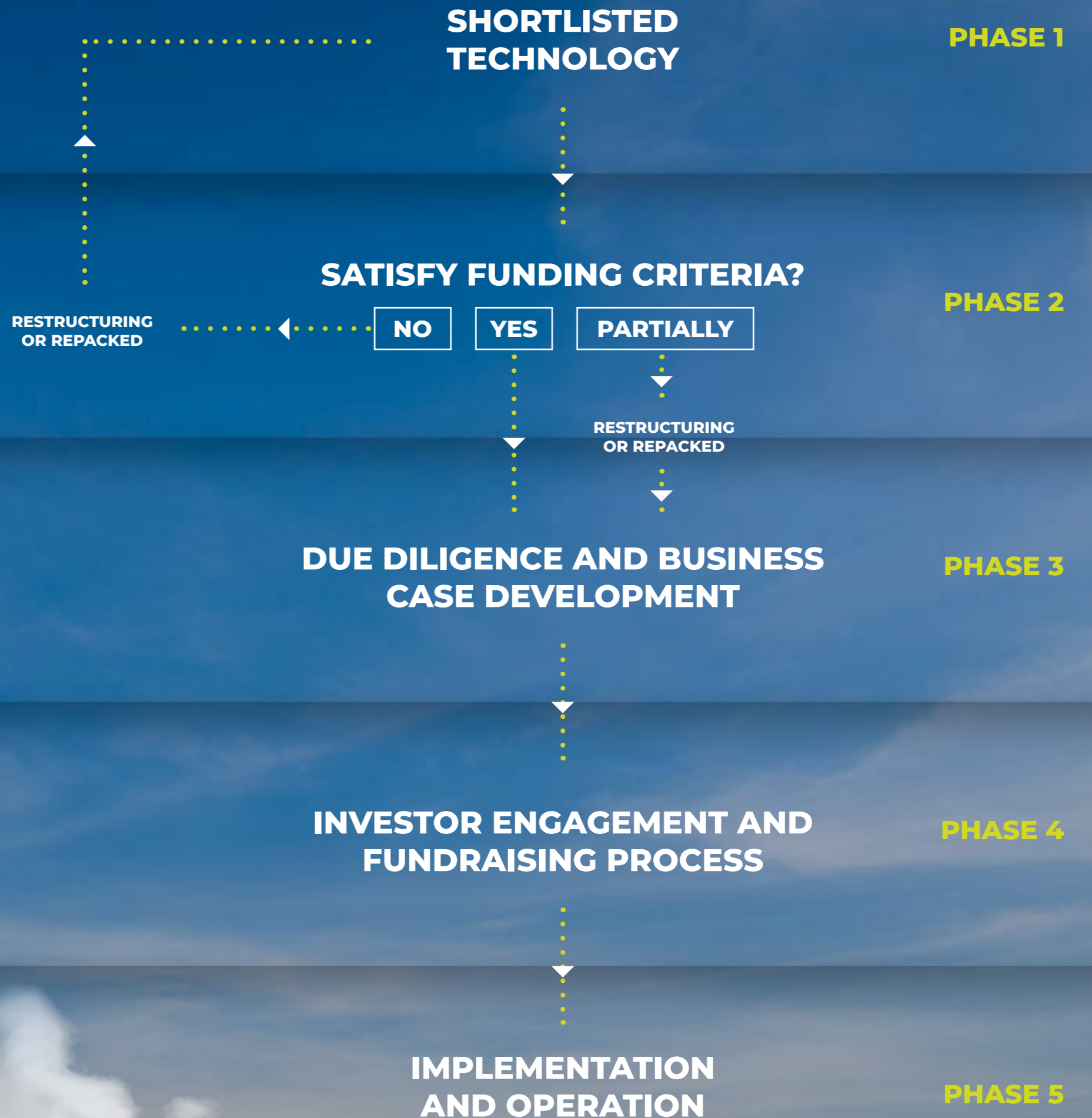
FINANCING

NET ZERO
LEISTON



To ensure the route map is financeable, the projects will undergo a five-step funding assessment, where shortlisted technologies will be selected from both a business and investor perspective.

Net Zero Leiston will seek to draw on both public funding, such as grants, as well as private sector financing through investors or strategically-interested companies.



09

HOW
TO GET
INVOLVED

Over the coming months, we'll be publishing a detailed route map, which will show in full the road to Net Zero for Leiston.

If you'd like to be notified when this is available, [click here](#) and we'll make sure you're alerted as soon as it's released.

In the meantime, there are many ways you can get involved and help make a world of difference in the fight against climate change.

WELCOME

If you live locally and want to volunteer your home for pilots.

[click here](#)

To take part in our Net Zero Leiston focus group.

[click here](#)

EV chargers or heat pumps? Tell us what you'd like to see from Net Zero Leiston.

[click here](#)

If you don't live in Leiston but would like to be a part of the Net Zero journey, we'd love to hear from you.

[click here](#)

When our Leiston office is allowed to reopen, please do come visit us at the Sizewell C Information Office, 48-50 High Street, Leiston, IP16 4EW to find out more and join the discussion in person.



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www.netzeroleiston.info