

Emissions reduction pathways and climate action planning

EMAQ webinar (Net Zero 2)

13th March 2024



This material is provided on the understanding it is for self-study/training purposes only and may not be copied, stored, transmitted or displayed for the purpose of any trade or business.



Katharina Schmitt



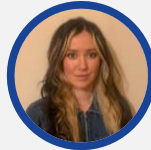
Consultant

Climate Action Planning and Transparency

Supporting local authorities with their net zero plans

Katharina.Schmitt@ricardo.com

Ellie Voke



Senior Consultant

Climate Action Planning and Transparency

Supporting local authorities with their net zero plans

07751 741 256

Ellie.Voke@ricardo.com



AGENDA

- Introduction to the CAP Process
- Getting Started
- Building the Evidence Base
- Strategy Identification – Pathways Deep Dive
- Action Detailing
- Plan Compilation
- Questions and Discussion

5



What is a Climate Action Plan?

A Climate Action Plan outlines the measures to reduce emissions and respond to climate change impacts.

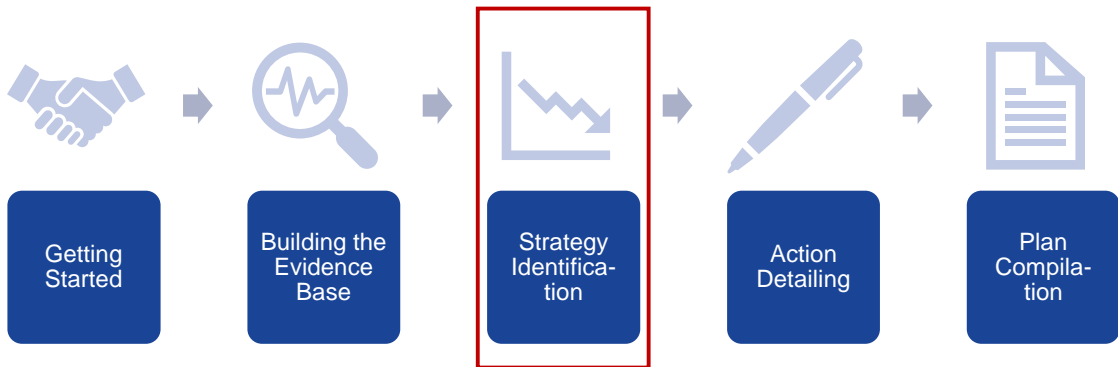
6

What makes a *good* Climate Action Plan?

- Evidence-based, data-driven, and objective
- Ambitious but achievable
- Informed by consultation with stakeholders incl. local community
- Tailored to local needs and aims to overcome local barriers
- Inclusive and equitable
- Clear funding, implementation, and review procedures in place
- Includes transparent progress monitoring

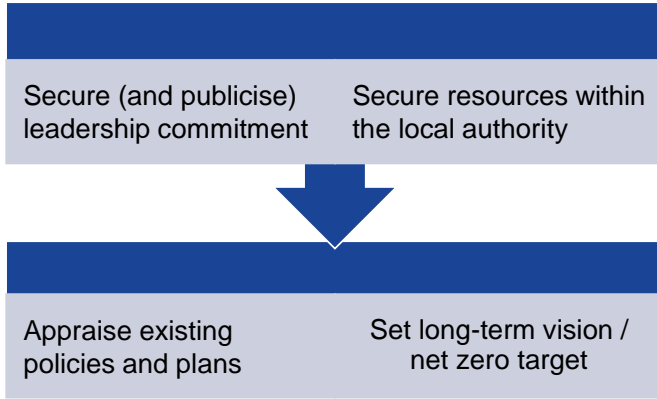
7

The Climate Action Planning Process



8

Getting Started

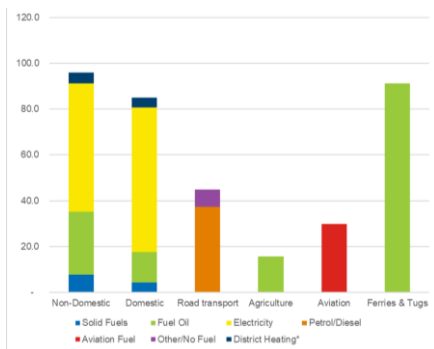


9

Building the Evidence Base: GHG Inventory

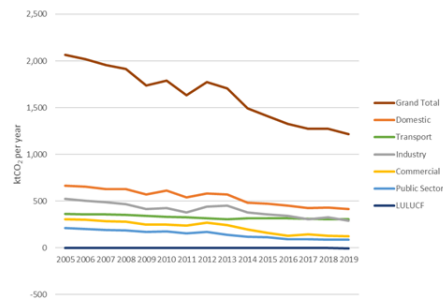
What?

- Shows emissions sources and sinks for a defined geographic area and a defined time frame



Why?

- Starting point for all net zero work
- Give insights into priority areas for action
- Allows progress to be tracked
- Increases transparency, which can build confidence



10

Building the evidence base: Needs Assessment



- Put climate action in the wider context of the city or local authority area
- Allows the local authority to assess the suitability and effectiveness of potential climate actions



11



**Strategy identification –
Pathways modelling deep dive**

12

Strategy Identification

Introduction: Bus Shelters and Bees



When starting work on a new climate action plan, the first step is to assess the client's **level of understanding**, along with their **current targets and commitments**.

Often, this will include **relatively small-scale actions** that may not have a quantifiable impact.

The first step is to help them understand **key actions aimed at tackling all sources of emissions**, and then develop a **holistic implementation plan**.

That's where scenario modelling comes in.



13

GHG scenario modelling can help people...



Understand what you say

- Identifying key drivers, trends and risks
- Providing context and nuance to the decision-making process
- Responding to the audience's interests (or concerns)



Believe what you say

- Accuracy and objectivity
- Tracking progress, monitoring and reporting
- Ensuring transparency
- Being perceived as an authority / reliable source

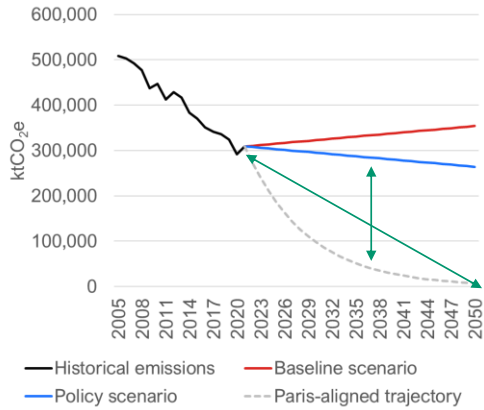


Do what you say

- "You can't manage what you can't measure"
- Prioritising actions
- Allocating resources
- Obtaining funding or making a business case

14

Business-as-usual scenarios

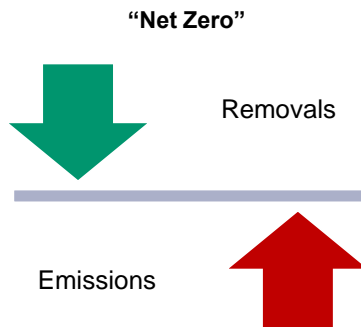


- Two types of BAU scenarios:
 - Zero-action scenario
 - Policy scenario
- Reference point for the other scenarios

15

Mitigation measures

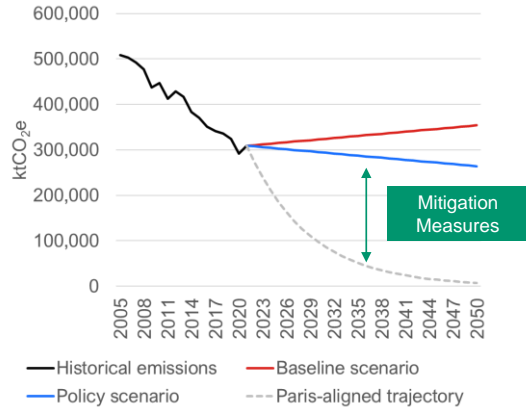
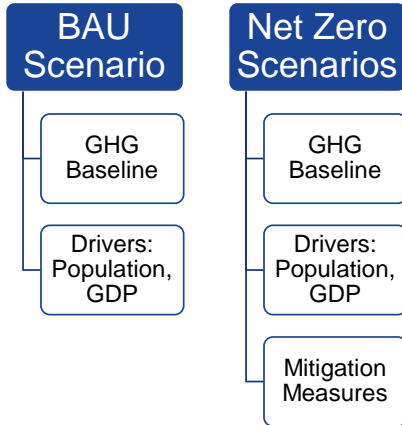
Mitigation measures are what “make” the net zero or emissions reduction scenarios.



16

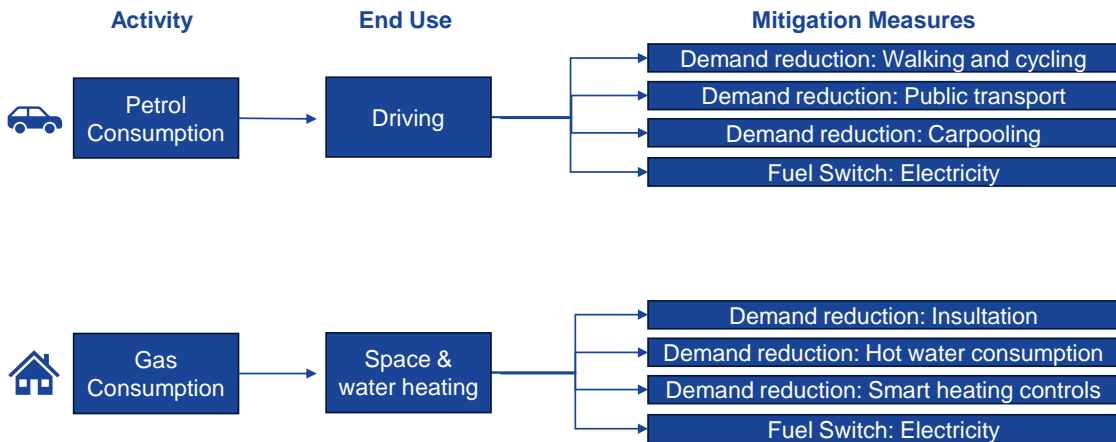
Mitigation measures

Mitigation measures are what “make” the net zero or emissions reduction scenarios.



17

Mitigation measures



18

Mitigation measures



- Mitigation measures are most commonly a “mix and match” of different sources. This also depends on what the pathway is supposed to represent, e.g. realistic with current means or explorative, with funding not yet in place.
- Common examples are:
 - Policy targets or ambitions, e.g. “We aim to reduce vehicle kilometres by 20% by 2030.”
 - Research into typical impacts of measures, e.g. “Government statistics show that solid wall insulation reduces energy consumption by 18% on average.”
 - Detailed feasibility studies, e.g. “Our supermarket roof can accommodate 50 kW of PV, producing 42,500 kWh of renewable electricity each year, which will replace grid electricity.”
 - Benchmark estimates, e.g. “500 houses will be constructed per year, each using 8,000 kWh of gas.”
 - Assumptions about technologies, e.g. “Replace all petrol cars with electric vehicles.”



19

How does it work?



Both the GHG emissions baseline and future scenarios are calculated as follows:

$$\begin{array}{c} \text{Activity data} \\ \text{(e.g. kWh of fuel} \\ \text{consumed)} \end{array} \times \begin{array}{c} \text{Carbon intensity} \\ \text{of that activity} \\ \text{(e.g. kgCO}_2\text{e/kWh)} \end{array} = \begin{array}{c} \text{Carbon emissions} \\ \text{from that activity} \\ \text{(kgCO}_2\text{e)} \end{array}$$

With this in mind, models like the NZP tool allow us to calculate the impacts of...

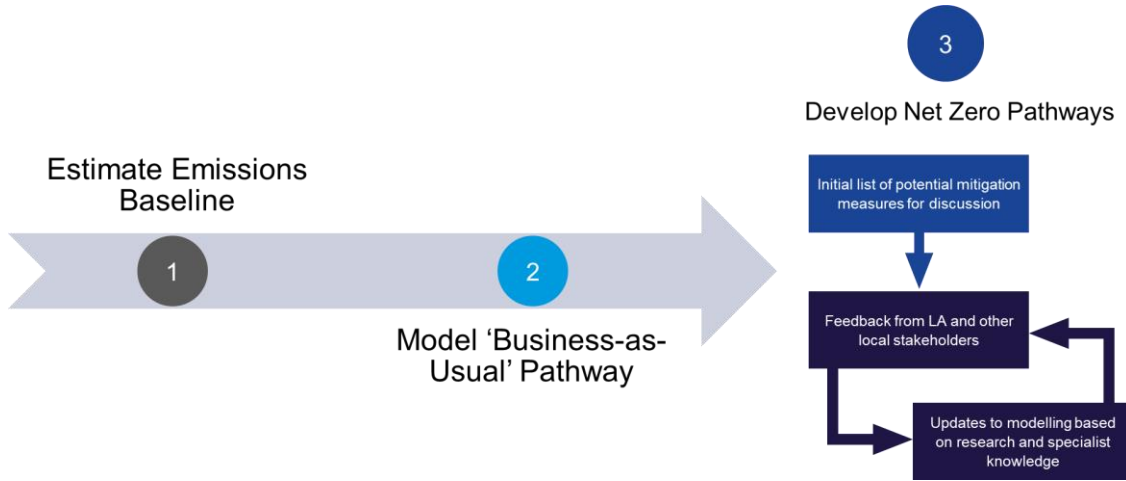
Changes in the activity
(e.g. reducing electricity demands by using a more efficient technology)

Changes in carbon intensity
(e.g. switching from grid electricity to renewable electricity)

A change in emissions could be due to a change in the activity *and/or* a change in the carbon intensity of that activity

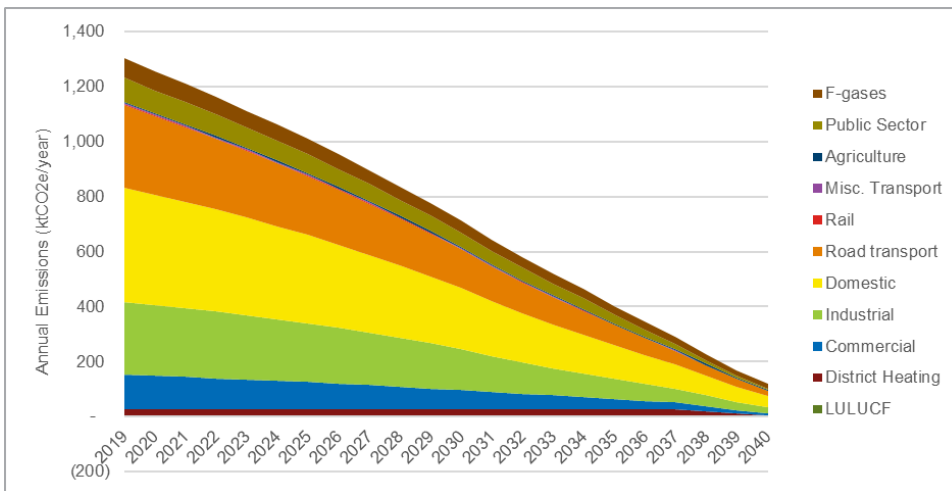
20

Modelling recap



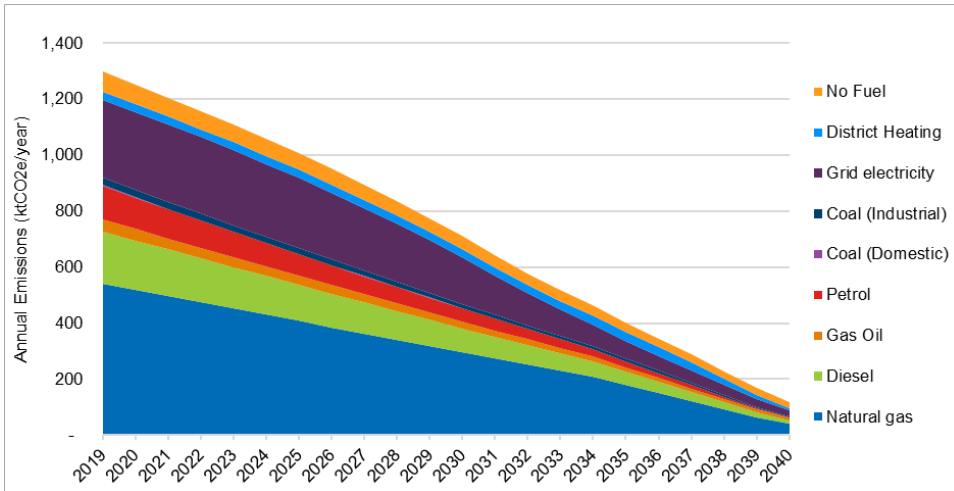
21

Example outputs: Changes in emissions



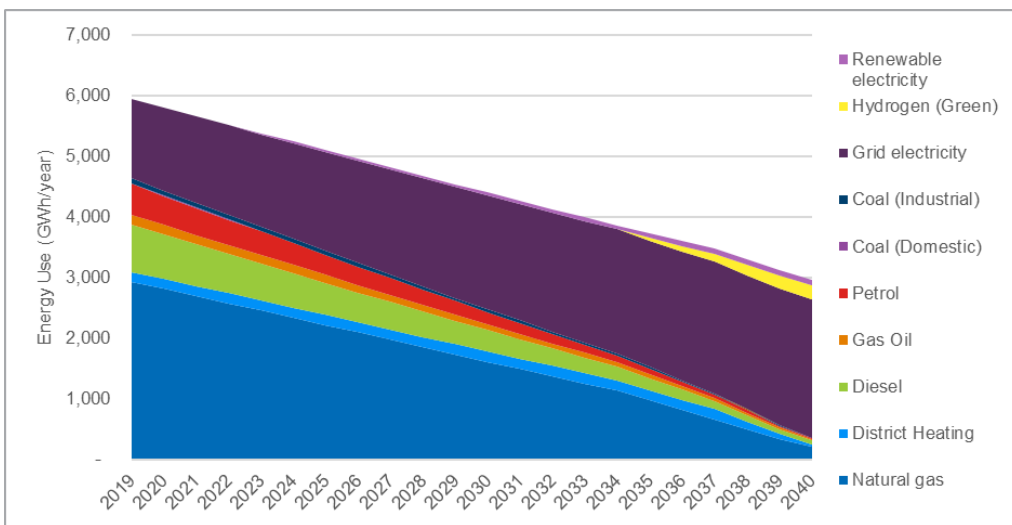
22

Example outputs: Changes in emissions



23

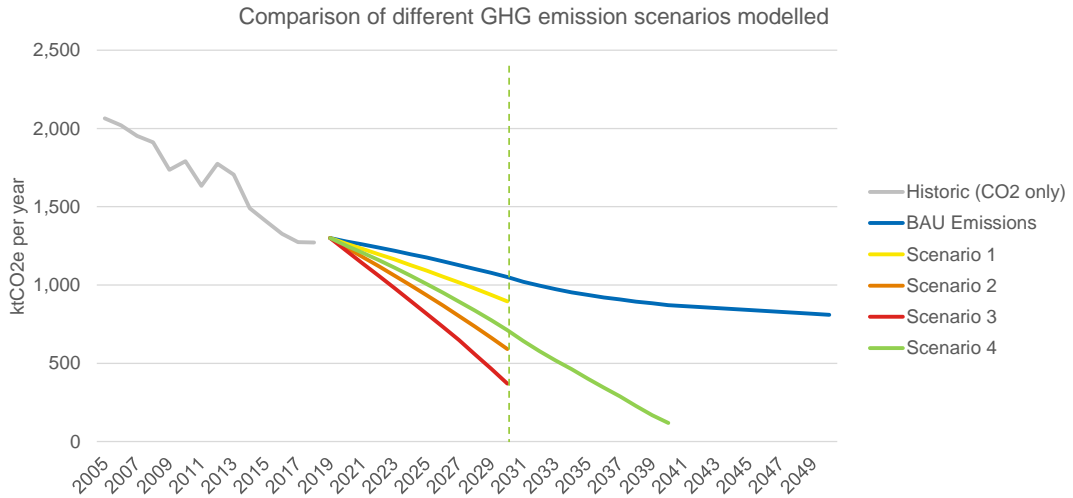
Example outputs: Changes in fuel use



24



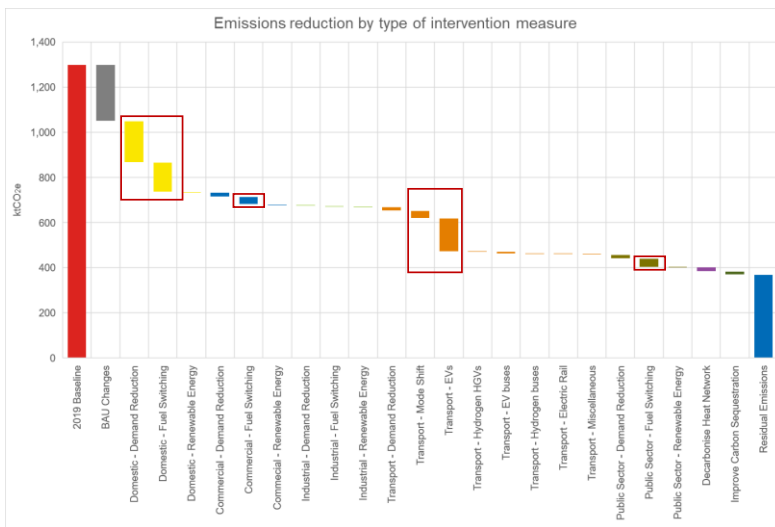
Example outputs: Scenario comparison



25



Example outputs



26

Advantages and limitations of emissions modelling



It *can* be used for...

- ✓ Estimating the relative scale and direction of impact from GHG mitigation measures
- ✓ Understanding the level of ambition that is required in different sectors, to help inform policy
- ✓ Assessing potential future changes in energy demand and fuel mix
- ✓ Sensitivity testing, identifying the variables that impact future emissions, and thereby identifying key issues or future risks that should be the focus of policy development or action planning

It *cannot* be used for...

- ✗ Estimating the GHG emissions impact where there is no data available to support an estimate
- ✗ Predicting the future or providing a forecast – we are looking decades into the future!

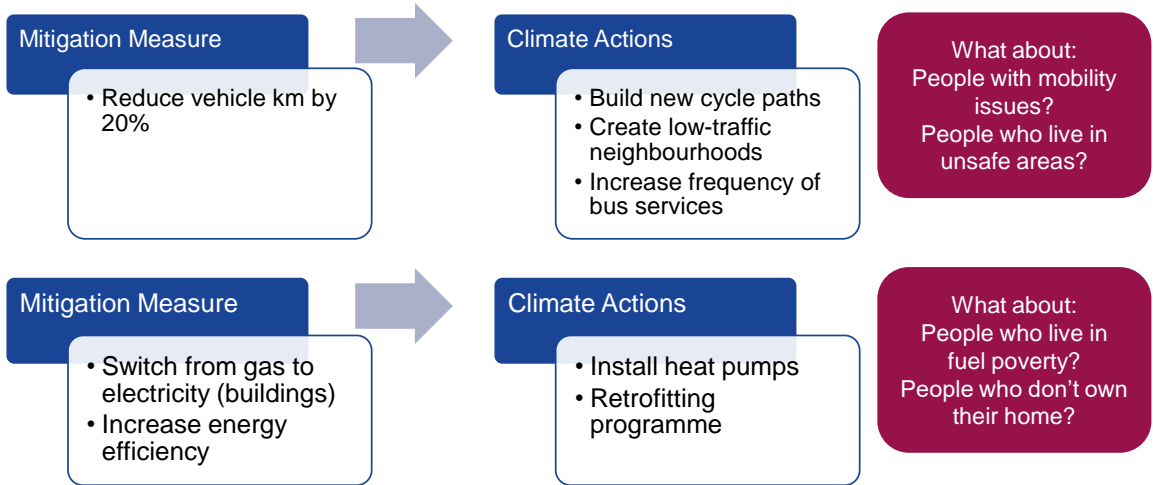
27



Climate Action Plan Drafting

28

Action detailing



29

Community engagement

The CAP needs to be tailored to local needs, including understanding local priorities and barriers



Helps realise co-benefits

Involving the community increases the number of local priorities that can be tackled.



Secure buy-in

Higher chance of successful implementation and long-lasting change.

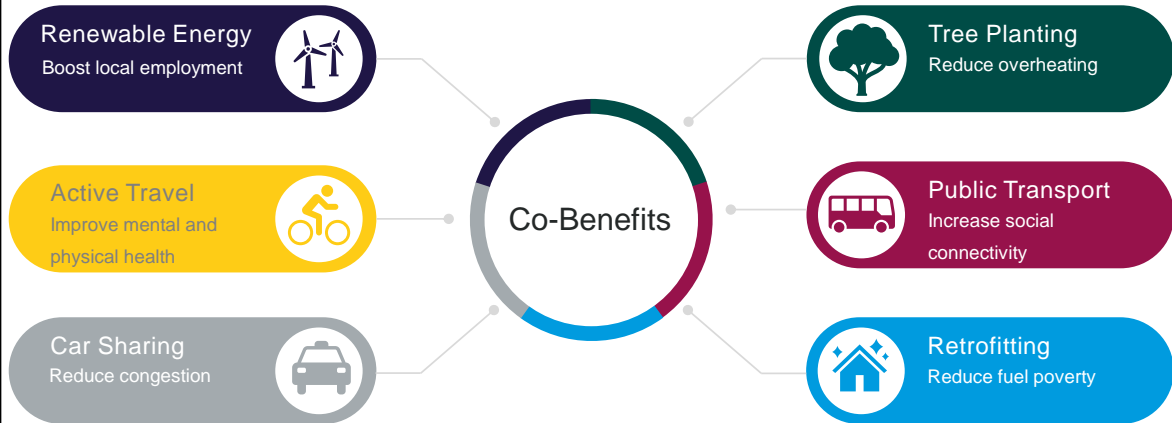


Enable a Just Transition

Ensures that the benefits of a transition to a green economy are shared equally across people and communities.

30

Action Detailing: Co-Benefits



31

Plan compilation



32

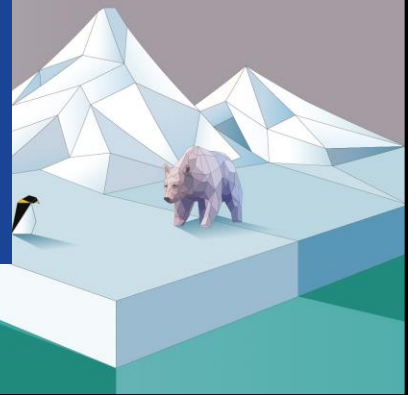


Q&A

33



Thank you!



34

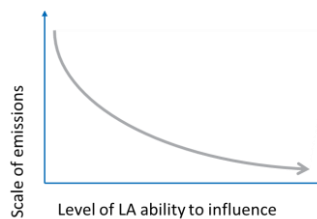
Additional Slides (if needed)

35

Opportunity to influence emissions

UK Local Authorities are typically only directly responsible for a small proportion of city-wide GHG emissions
As a result, there is often an **inverse relationship** between:

- Level of control
- Level of impact



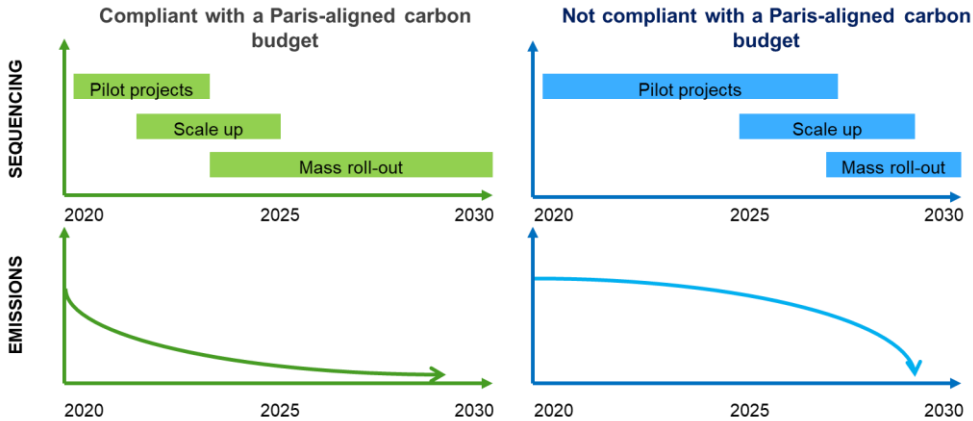
However, Councils have a **range of options** for exerting indirect influence over emissions that they do not control:



Adapted from *Local Authorities and the Sixth Carbon Budget, 2020*, <https://www.theccc.org.uk/publication/local-authorities-and-the-sixth-carbon-budget/>

36

The need for urgent action



37

Questions to ask during the modelling

Questions to ask yourself	Points to consider
What are the main sources of emissions?	Targeting 'big ticket' items will show a larger impact on emissions.
What sources of emissions can the local authority (or other key stakeholders) control?	This is important when developing action plans – Local Authorities want to know what they can influence.
What policies, projects or initiatives is the local authority most interested in?	Scenario modelling can be used to provide evidence in support of a particular project/policy/proposal.
What are the main underlying drivers of emissions in this case?	Focus on modelling the most relevant trends. For example, a planning authority might care most about new housing, whereas a business might care most about economic growth projections.
Do we have evidence to quantify the impact on emissions?	If there's insufficient evidence, it may not be appropriate to model. Try to describe the impacts qualitatively or provide off-model estimates if necessary.
Will our advice change if we model a specific trend or mitigation measure?	If it doesn't change our advice, don't spend too much time on the modelling and address the impacts in the report instead.

38