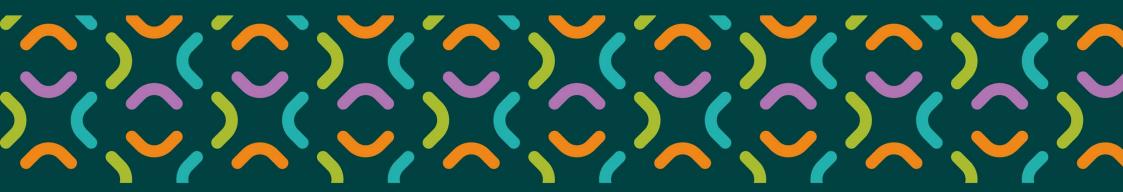
# North East and Yorkshire Net Zero Hub Spatial & Temporal Modelling (STeM)





## The Problem...

Lots of strategies like this...

- How do we turn this into action?
- How do we understand whether this is possible and how much it will cost?
- How do we choose the right path?

#### Net-zero CO, emissions by 2040

GOAL 1 - Business & Skills	90% of commercial lighting are LEDs by 2040.     1,500 jobs created in the	Provide 2,000 people with training for the low carbon and renewable	Establish 5 low carbon clusters in South Yorkshire
GOAL 1	low carbon and renewable energy sector by 2040.	energy sector.	by 2040.
GOAL 2 - Infrastructure	At least 5 minewater energy schemes operational by 2040.	Increase solar PV capacity to 3.5GW by 2040. Increase onshore wind capacity to 1.55GW by 2040.	Complete low carbon heating penetration (or hydrogen-ready) by 2040.
GOAL 3 - Built Environment	65,000 cavity walls insulated by 2040.     119,000 solid walls insulated by 2040.	No fossil fuel heating in new homes from 2025. All new homes to be built close to Passivhaus standard from 2030.	Double the number of community energy organisations in South Yorkshire by 2040. 100kW per year of community energy by 2030.
GOAL 4 - Transport	10% reduction in car miles by 2030, rising to a 25% reduction in 2040.	Fully zero-emission public transport network by 2035.	Fully zero-emission private hire fleet by 2035.

## The Alternative...









#### **Spatial**

Can explore a range of credible pathways and map these to a geography

#### **Temporal**

Pathways can be tested over time and changes can be incorporated

#### **Adaptive**

Can be updated and calibrated against local reality

#### **Goal-orientated**

Is policy and strategy based with a fixed end goal (i.e. Net Zero by 2050)





- Review local and combined authority preparedness and evidence of emerging need
- Review commercial market offerings and assess against identified needs – does the market offer what we want?
- Make recommendations on resources, training, and commercial market



#### **Overarching Functional Considerations**

Expertise Requirement Time / Effort Requirement

Temporal Capability Spatial Capability Transparency

Refreshability

Baseline Representation

> Represents Baseline

Infers Gaps

Scenario Modelling

> Models Scenarios

Supports Whole System Inputs Models Whole System Outcomes

Optimises

**Costs Scenarios** 

Evaluates Socio-Economic Benefits Visualisation

Visualises Outputs

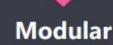
Supports Interactivity

**Stakeholder Engagement** 

Supports Export Supports Stakeholder Interactivity

Supports Feedback

## **Key Insights**



## Implementation

A modular approach to introduce STeM, beginning with the mapping and visualisation of net zero data can be beneficial to cater to different needs



### Pathway/Scenario Modelling

Limited engagement with pathway/scenario modelling was highlighted across many organisations e.g. LAs, CAs, and NZH



#### Strategic Guidance

STeM can provide valuable strategic guidance to inform project delivery and secure funding/investment



### **Solution requirements**

LAs saw value in in-house GIS training and tools that do not require third parties/expert-user training. However, such tools are generally currently unable to provide the detail and granularity of a LAEP.



### **Solution Ownership**

CAs could own the data and commercial tools and the LAs could own the delivery of the projects. However, based on current analysis there wouldn't be the capability to own and manage a complex pathway model.