

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?

GOAL 1 – Business & Skills	 <ul style="list-style-type: none">• 90% of commercial lighting are LEDs by 2040.• 1,500 jobs created in the low carbon and renewable energy sector by 2040.	 <ul style="list-style-type: none">• Provide 2,000 people with training for the low carbon and renewable energy sector.	 <ul style="list-style-type: none">• Establish 5 low carbon clusters in South Yorkshire by 2040.
GOAL 2 – Infrastructure	 <ul style="list-style-type: none">• At least 5 minewater energy schemes operational by 2040.	 <ul style="list-style-type: none">• Increase solar PV capacity to 3.5GW by 2040.• Increase onshore wind capacity to 1.55GW by 2040.	 <ul style="list-style-type: none">• Complete low carbon heating penetration (or hydrogen-ready) by 2040.
GOAL 3 – Built Environment	 <ul style="list-style-type: none">• 65,000 cavity walls insulated by 2040.• 119,000 solid walls insulated by 2040.	 <ul style="list-style-type: none">• No fossil fuel heating in new homes from 2025.• All new homes to be built close to Passivhaus standard from 2030.	 <ul style="list-style-type: none">• Double the number of community energy organisations in South Yorkshire by 2040.• 100kW per year of community energy by 2030.
GOAL 4 – Transport	 <ul style="list-style-type: none">• 10% reduction in car miles by 2030, rising to a 25% reduction in 2040.	 <ul style="list-style-type: none">• Fully zero-emission public transport network by 2035.	 <ul style="list-style-type: none">• 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)

STeM Commission

- 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

Models Whole System Outcomes

Costs Scenarios

Supports Whole System Inputs

Optimises

Evaluates Socio-Economic Benefits

Visualisation

Visualises Outputs

Supports Interactivity

Stakeholder Engagement

Supports Export

Supports Stakeholder Interactivity

Supports Feedback

Key Insights

Modular 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.