Spatial and Temporal Modelling: Engagement insights (1/2)

Our aim is to identify the **skills, capabilities, tools and data** used in Spatial and Temporal Modelling (STeM), to understand how these can be deployed at local level to help **ensure net zero strategic planning has maximum impact.**

What do we mean by Spatial and Temporal Modelling?

Spatial | Temporal | Adaptive | Goal-orientated

A spatial, data-driven model, with fixed targets (i.e. Net Zero by 2045), which can explore a range of credible pathways over time (i.e. energy decarbonisation) and can be updated and calibrated against local reality.

Why do we think this is important, specifically at the local level?

There is consistent evidence that a whole system, local area approach to energy planning is the most robust, economic and can provide greater social value than top-down approaches. However, Local Authorities (LAs) face significant operational, financial, and technical barriers. Furthermore, there is a growing need for dynamic delivery and use of local plans including their refreshability.

Engagements conducted:

A series of in-depth interviews with data and/or net zero personnel within LAs

A survey to capture a view from wider stakeholders

A workshop with combined authorities and the Net Zero Hub staff to test and build on interview and surveys.

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.

Spatial and Temporal Modelling: Engagement insights (2/2)

Skills/Capabilities

- There were a **range of maturity levels of all the local authorities** spoken to. The engagements encountered: a climate team with **dedicated business intelligence staff**, a **separate GIS/data team** that operates council-wide that the climate team can request resources, and **a small climate team** with limited to no GIS/data capability.
- Majority of stakeholders (58%) are already using GIS/STeM to model Net Zero Data to some degree.
- **GIS/data/modelling skills** are often seen as only for those with **pre-existing qualifications/training** and are seldom included in local authority hiring standards or seen as a must-have.

Data

- The interview and survey results suggest a **fragmented use of datasets** i.e. lack of whole system approach or consistency of usage across local authorities. It was suggested that this is driven by isolated funding streams e.g. EV infrastructure, retrofit schemes etc. that incentivise activity.
- There is a need for the **standardisation of strategic planning/Net Zero data** to ensure consistency amongst local authorities and interoperability of their local plans with regional plans etc. There was desire for an affordable, accessible data store for strategic planning / Net Zero data.
- A **minimum data requirement** for a STeM should be set to provide a 'light-touch' approach.

Tools

- Using **GIS/STeM, visualisation models** are the **most common type** of tool utilised (e.g. arcGIS) and focused on system baselining, project identification and feasibility.
- A lack of **availability and engagement** with **pathway and optimisation tools** to develop **strategy** Net Zero plans was observed from the interviews and surveys.
- **Pathway modelling tools** can give greater confidence for **funding/investment plans** by providing strategic context i.e. the Greater Manchester LAEP informed the spatial plan which led to a detailed heat pump investment plan and ultimately funding.
- In contrast, **visualisation, stakeholder engagement**, and basic scenario tools could support **tactical/operational planning** that are invaluable for project delivery.
- Guidance needed on which tool (capability) should be utilised at the different project delivery stages.

Barriers

- **Lack of funding** for internal teams and stretched capacity within the teams.
- **Access to affordable accurate**, up-to-date **data** (such as network data).
- **Non-interoperable policies** for grants/funding.
- **STeM outputs are use-case specific**, and therefore don't necessarily support all the needs that an organisation may have. For example, currently, LAEP outputs are not updated regularly against local reality/changes and are intended to be a strategic plan.

Opportunities

- Value of spatial planning recognised amongst stakeholders across all engagements.
- **Provide a centrally managed service** that provides strategic Net Zero planning information in a standardised format.
- **High interest was demonstrated for the strategic guidance STeM** could provide to help inform **project delivery and secure funding** – as evidenced by stakeholders with completed LAEPs which were able to provide concrete evidence to secure funding.

For more information, please refer to the full report