Energy Capital Spring Event - Planning for and enabling energy infrastructure investment

West Midlands Combined Authority

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This afternoon aims and timings

Energy Infrastructure programme aims to:

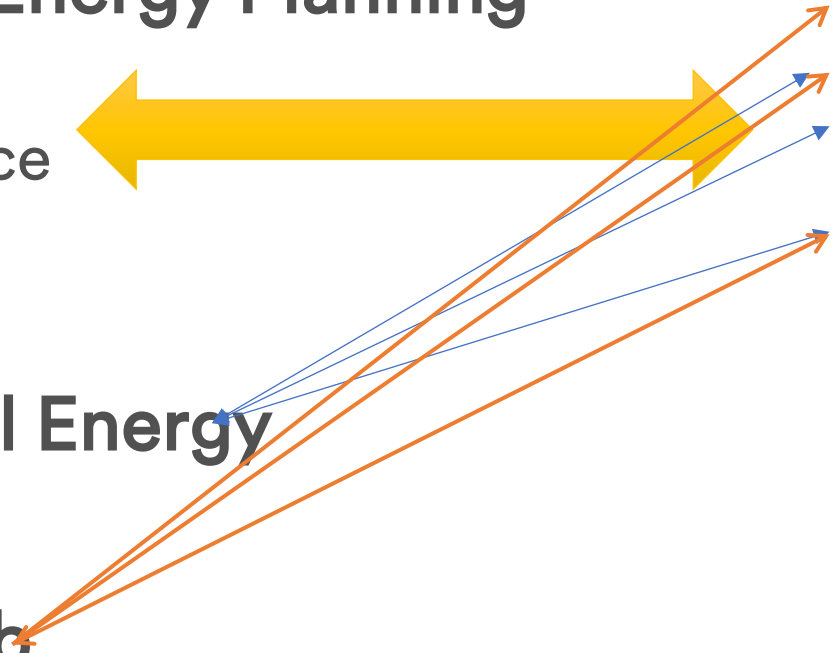
"Ensure the underlying pipes and wires are an enabler and not a barrier to future decarbonisation and clean growth in the West Midlands"

This afternoon we aim to give you an oversight of the activities planned in 2025-26 and how you can steer our work programme to meet our collective aims.

Time	Session
13:15	Workshop Briefing
13:30	Workshop 1 - LAEP
14:00	Programme highlight – Commercial Energy
14:20	Workshop 2 – Heat decarbonisation programme
15.30	Coffee / Optional BRING heat network tour

Combined programme elements

- **Local Area Energy Planning**
  - Data
  - Governance
- **Commercial Energy**
- **Heat Decarb**



Customer Groups

- New housing development (Growth)
- Public Sector Decarbonisation (Decarbonisation)
- Transport development (Decarbonisation/Growth)
- Industrial Energy (Decarbonisation/Growth/Resilience)

Wider programme linkages

- LNZA Technical Assistance Funding
- Net Zero Neighbourhood
- Investment/Growth zones
- Business Energy Advisory Service (part Business Growth West Midlands)

Local Area Energy Planning

Energy Capital Programme 2025/26

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PRIDE Project

- Planning Regional Infrastructure in a Digital Environment, or PRIDE, is a Strategic Innovation Fund project.
- It aims to improve how local planning and network investment decisions are made to fast-track the infrastructure and low-carbon technology deployment at a regional level to deliver net zero.
- The PRIDE is exploring three key elements:

LAEP+ tool: Deploying and testing the functionality of a digital tool to help local authorities plan net zero and share that planning information with energy networks in a data-driven and consistent way.

Governance structure: Testing how the LAEP+ tool works within a governance structure of local authorities, energy networks and regional infrastructure providers to inform decision making and provide democratic accountability for net zero planning at a local and regional level.

Regional Energy Strategic Planner: Testing how the learnings from the tool development and governance structure could inform and feed into the wider framework of a future Regional Energy Strategic Planner (RESP).

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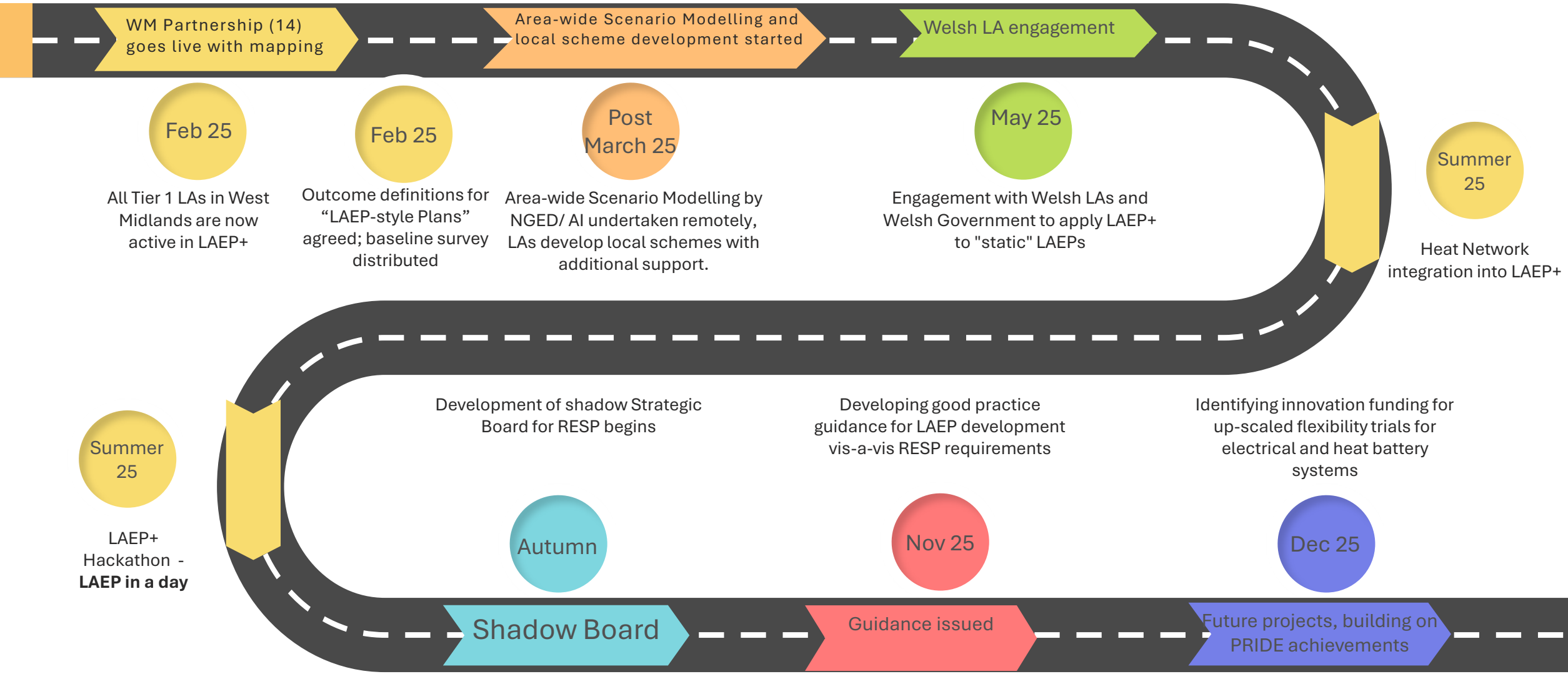
Milestones



What is a LAEP?

Established LAEP methodology

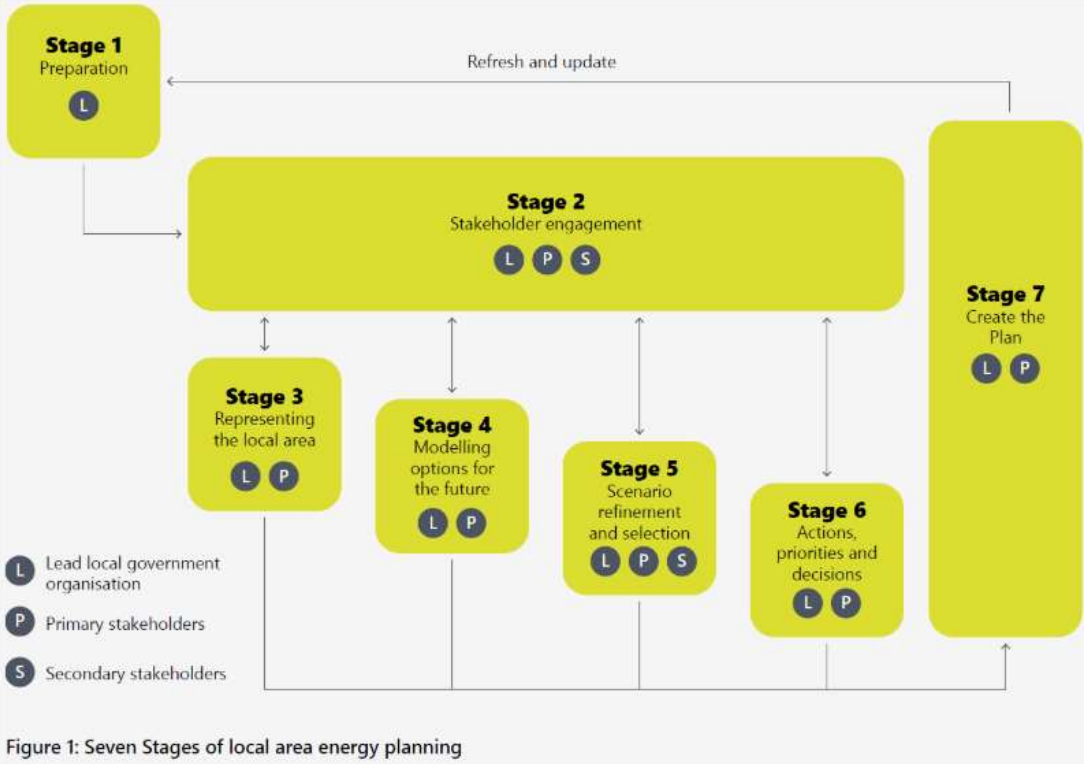


Figure 1: Seven Stages of local area energy planning

- "LAEP provides the level of detail for an area that is equivalent to an outline design or master plan; additional detailed design work is required for identified projects to progress to implementation.
- LAEP defines a long-term vision for an area but should be updated approximately every 3–5 years (or when significant technological, policy or local changes occur) to ensure the long-term vision remains relevant.
- LAEP identifies near-term actions and projects, providing stakeholders with a basis for taking forward activity and prioritising investments and action.

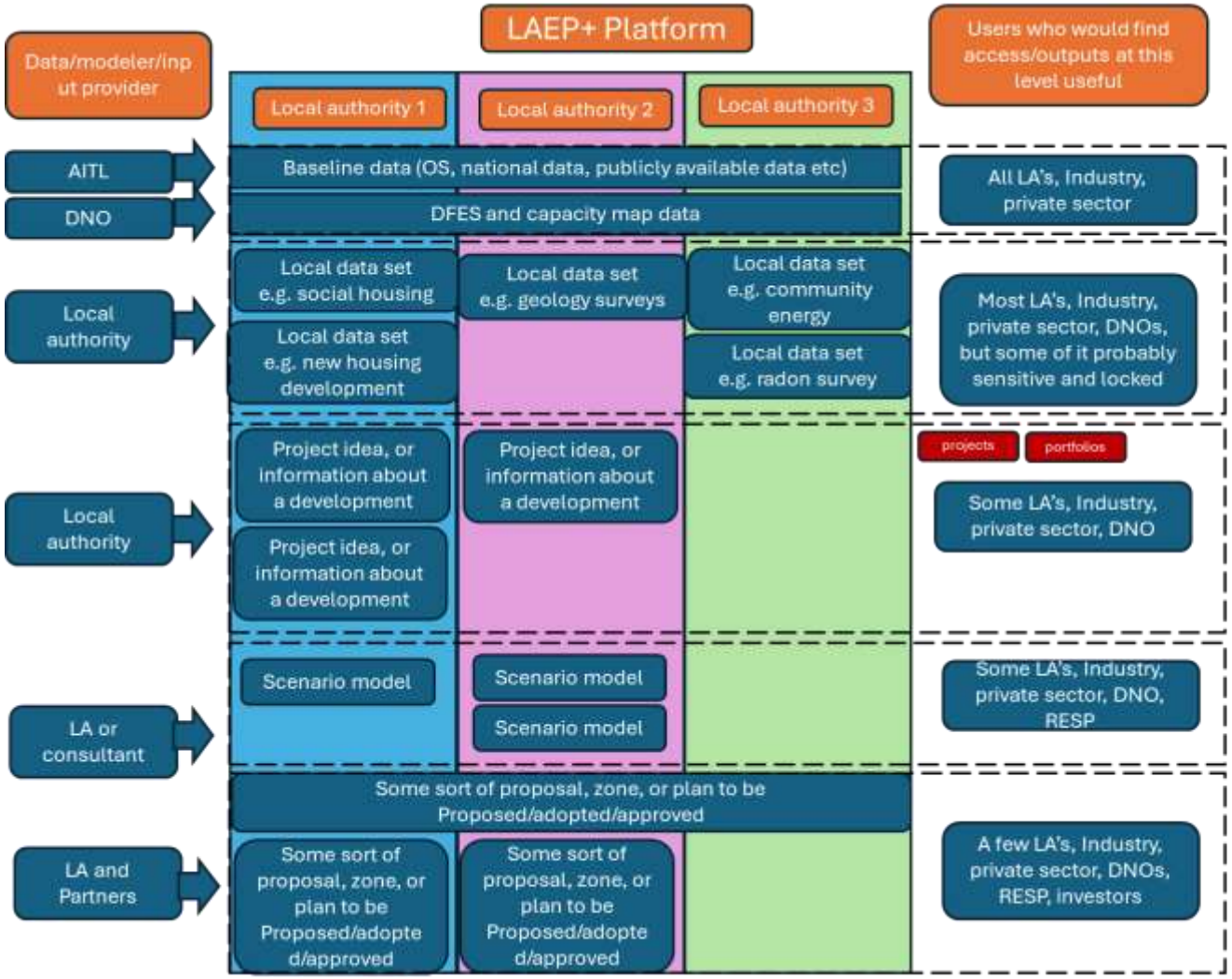
Energy Systems Catapult

What is a LAEP style plan?

It's not a LAEP!

- It's a bottom-up place-based deep dive into energy infrastructure
- It's working where there are known investment opportunities
    - New development
    - Existing or future funding opportunities
- It's establishing clear projects and project owners
- Those projects will have a timeframe for delivery and a confidence level to allow them to be accounted for in wider energy infrastructure planning

What is a LAEP style plan



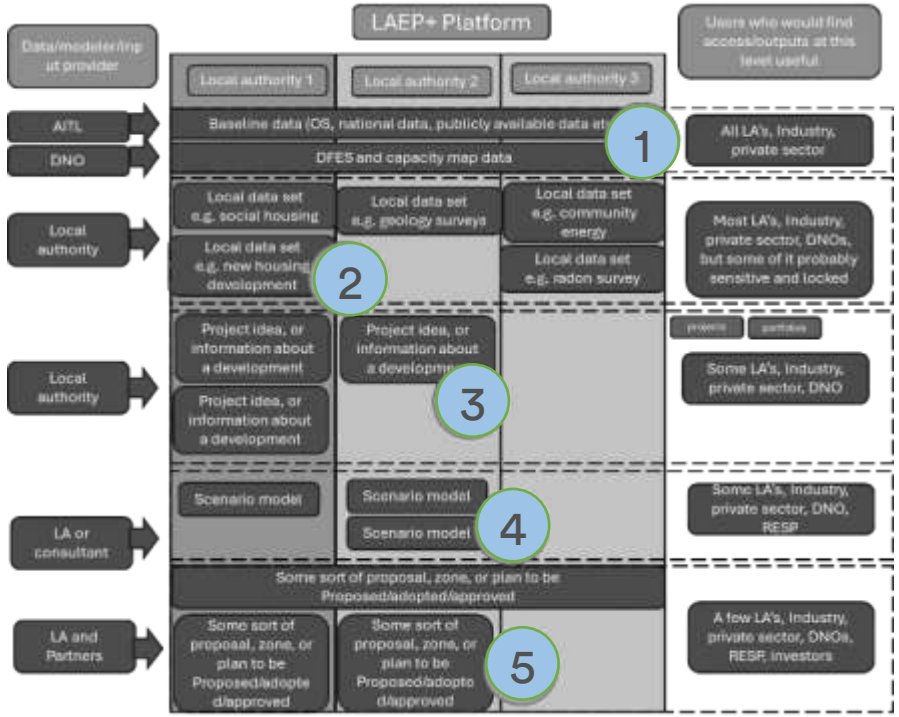
This level can be done with no involvement with LA officers: it hosts baseline data and could be the primary DFES data exchange.

This level is the most basic level: LA's can add their own datasets to view amongst themselves or share with partners/the public. Some might be sensitive. There's no modelling or analysis or strategic outputs, but it's still useful to host lots of data on one spatial platform. Not all LA's will have resource to upload datasets

For LAs and maybe some other partners, project ideas or proposals can be put onto the platform, yielding basic project info. This could help with identifying areas of zoning or where capacity investment is required. It gives DNOs a steer on specific development sites or changes in demand. Not all LA's will have resource to input project ideas.

For more detailed projects, or larger schemes, LA's or their consultants can use LAEP+ to run scenario analyses. Providing outputs to refine thinking.

This could be considered a LAEP style plan, but would be for a particular (big) project, or portfolio or programme (LAEPLet). It would be very unlikely to be holistic and a full LAEP. It also probably wouldn't have info about progress to targets. But it WOULD be a firm idea that key stakeholders have seen and know about. This could go for adoption/approval/support. Because they are all hosted in LAEP+, they aggregate across the region.



Each of the circled numbers represents a 'LAEP style plan', as referenced in the PRIDE project documents.

The circled numbers represent a tangible value and output from a local authority using LAEP+ to:

1. understand a context of an area,
2. generate an insight into an area or technology or theme,
3. visualize a specific project or spatial idea,
4. test a project: use LAEP+ to see what impacts the project has on a variety of metrics
5. Take a project or portfolio forward for further engagement, analysis or even approval/adoption

PRIDE would like to capture 10 of these outcomes at the five different levels to demonstrate the value that LAEP+ and the accompanying governance framework leads to faster, better outcomes for stakeholders with a lower time/cost burden

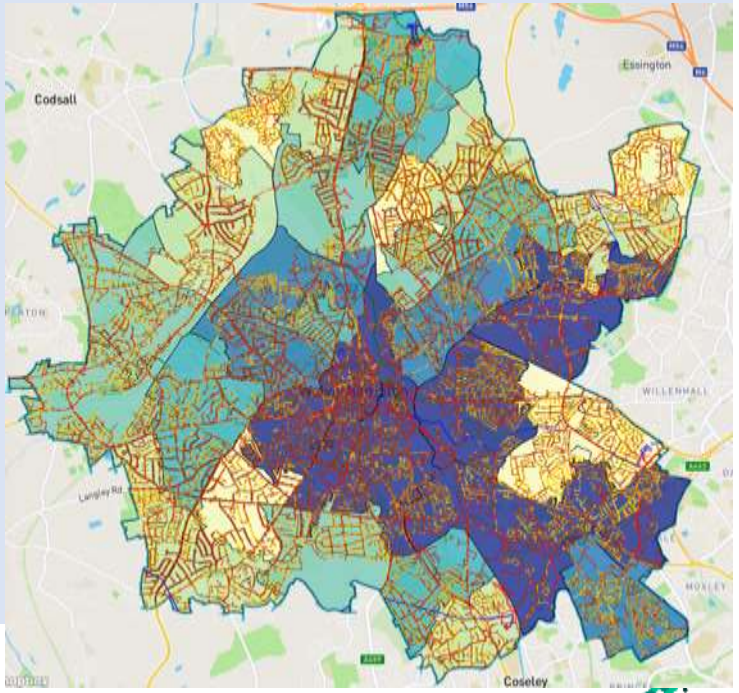
Workshop on scale

- Small scale infrastructure deep dives
- (LAEP style plans)

Outcomes:

- More/less **credible data**
- More/less **resource intensive**
- Able to identify **whole system opportunities**
- Tangible **investment opportunities**
- Alignment with DFES and Gas **network scenario planning**
- Alignment with **regional scale planning (RESP)**

- Area wide pathway setting (LAEP)



Programme Highlight

Commercial Energy

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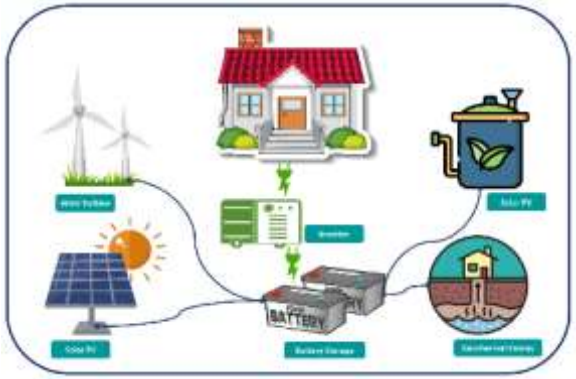
Why commercial energy?

Reddy, V. J., Hariram, N. P., Ghazali, M. F., & Kumarasamy, S. (2024). Pathway to Sustainability: An Overview of Renewable Energy Integration in Building Systems. *Sustainability*, *16*(2), 638. https://doi.org/10.3390/su16020638



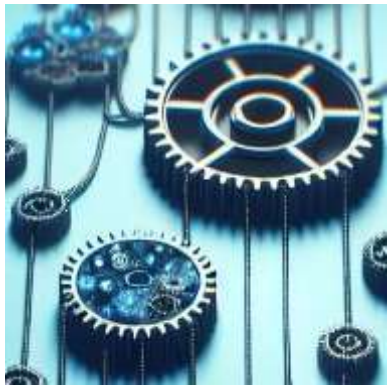
Energy security

Regional resilience

Maintain and increase competitiveness

Job creation

Devolution and the green growth agenda



Devolution

Great British Energy

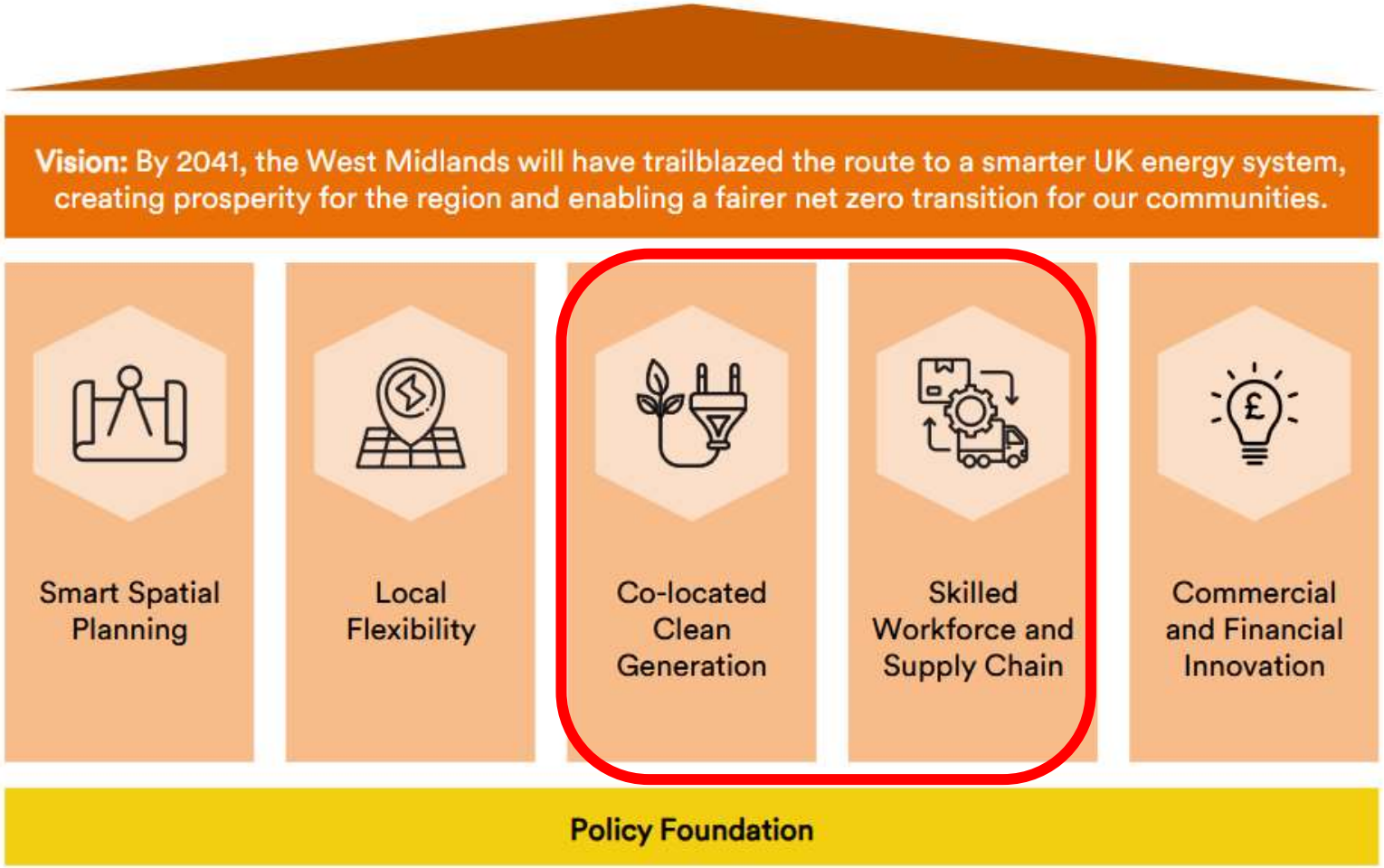
Local Power Plan

Integrated Settlement

Solar Strategy

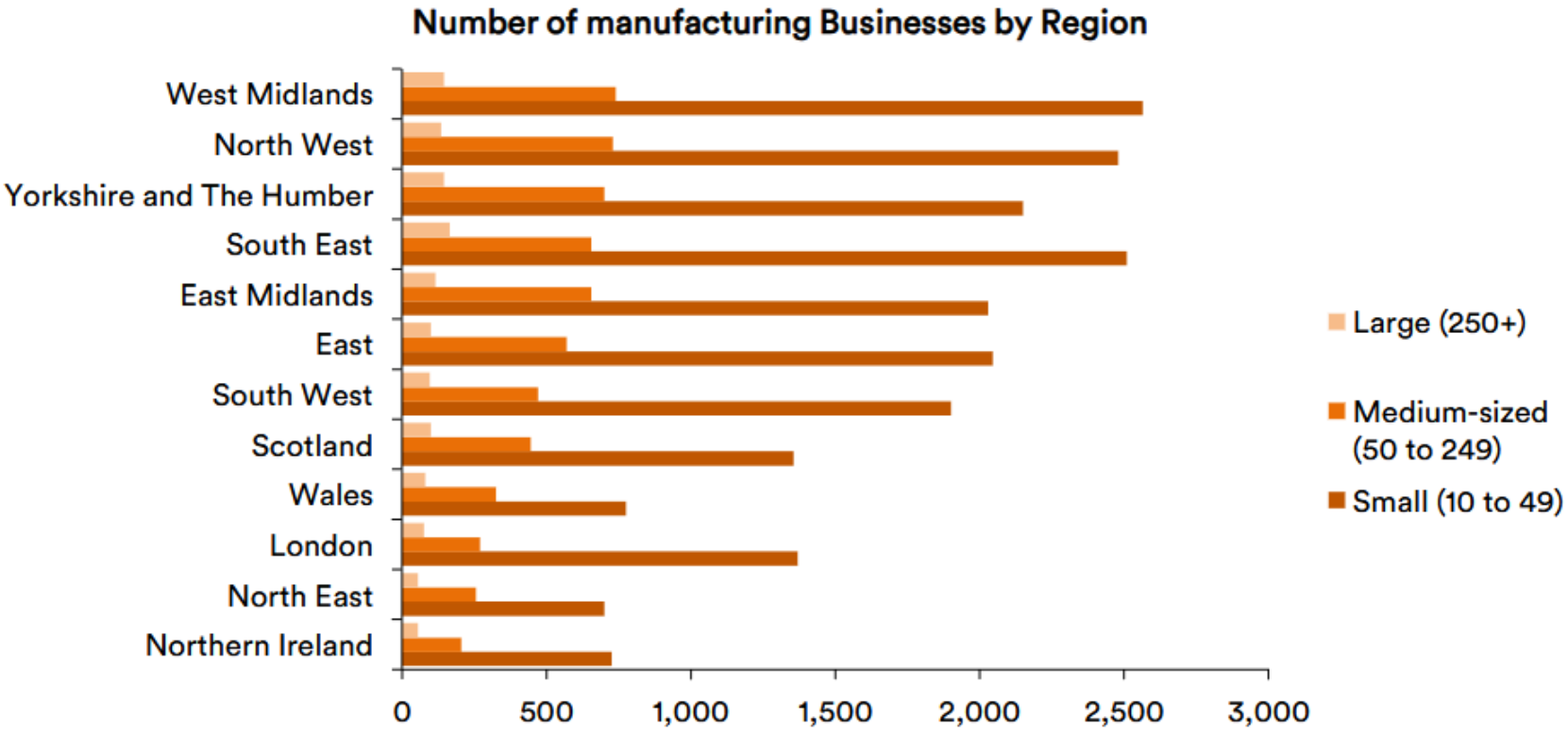
Warm Homes Plan

Regional Energy Strategy



Refreshed five-year plan, covering the period 2026 – 2030, to be published later this year

Key manufacturing sector

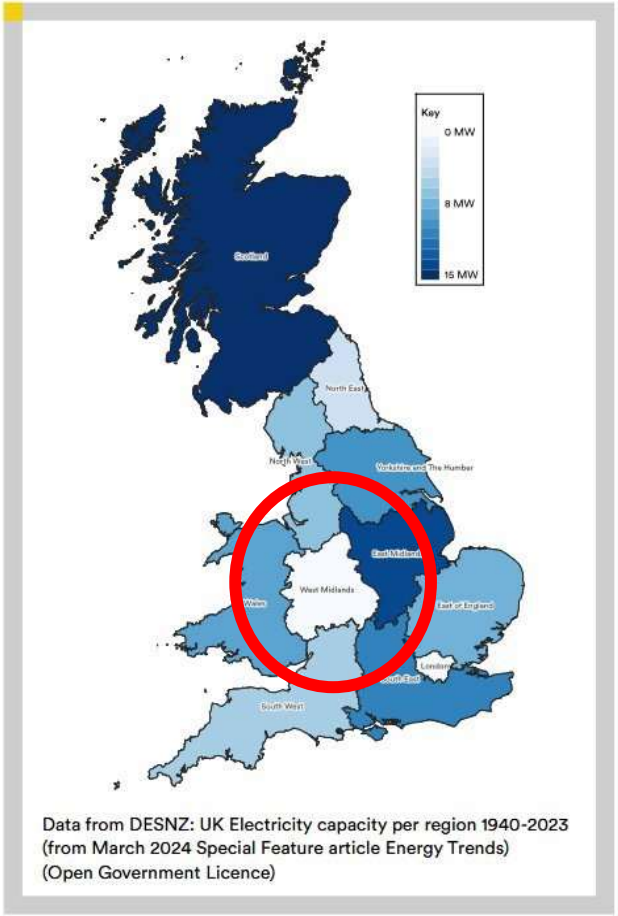


Data from ONS: UK Business Counts – enterprises by industry and employment size band, Manufacturing – 2024 (Open Government Licence)

- £20bn GVA
- 10% of WM jobs
- Accounts for over 50% of C&I energy use
- 38% were planning to cut jobs and 10% were diverting investment to other countries at height of energy crisis

Impact of high electricity prices

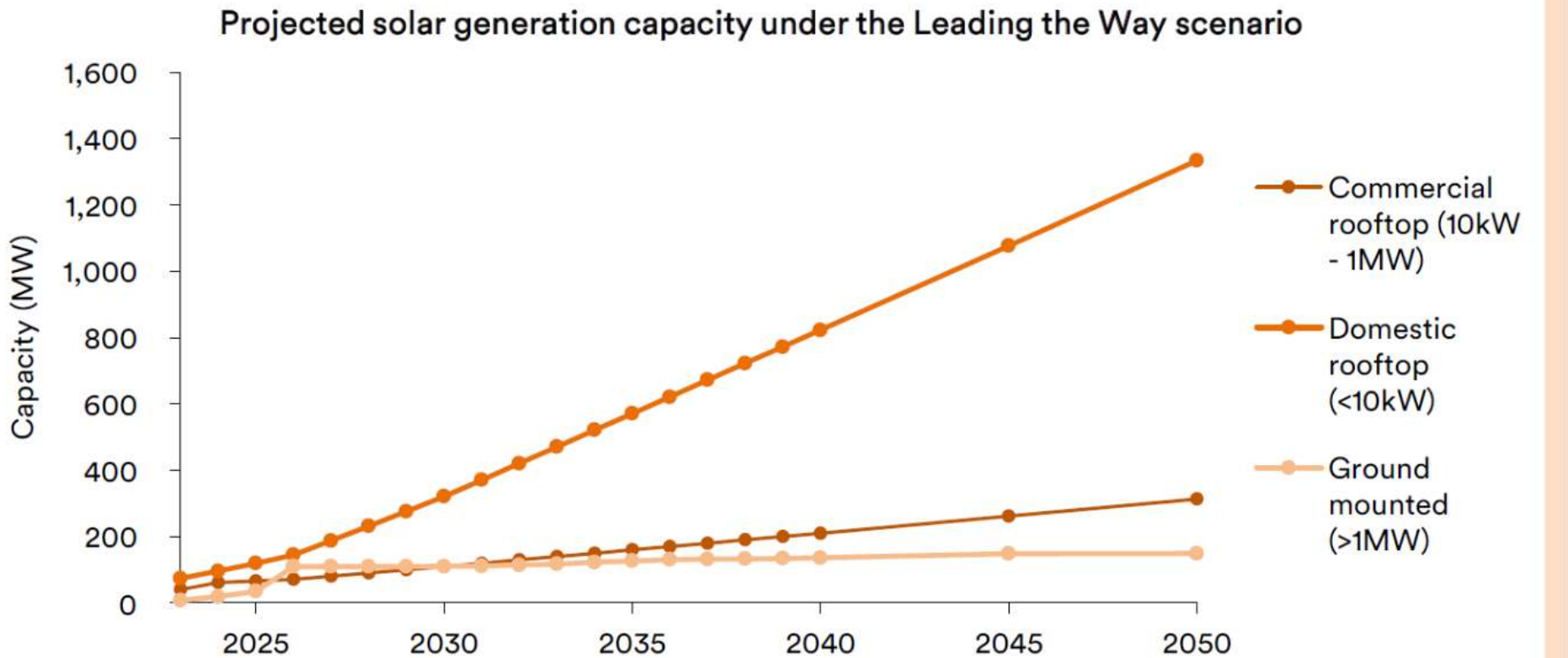
Challenges to overcome: Geographic



Data from DESNZ: UK Electricity capacity per region 1940-2023 (from March 2024 Special Feature article Energy Trends) (Open Government Licence)

- Landlocked geography
- High urban density
- 376MW of large-scale renewable generation connected to date
- c2GW of projects with connection offers
  - Over 1.6GW of this is battery storage
  - Balance is largely solar PV
  - Unknown/uncertain if all of these will connect

Future deployment



Challenges to overcome: Market barriers

- Landlord/tenant split incentive
- Lack of bandwidth
- Knowledge and resources
- Length of lease
- Access to capital
- MEES

Current support

- Business Energy Advice Service
  - £24m pilot funded by DESNZ and DLUHC managed by WM Business Growth
  - Aims are to mitigate impact of rising energy costs and net zero transition for SMEs
  - Free energy assessments and 50% match funded grants
  - Energy efficiency measures and low carbon heating – not solar PV
  - >3,000 assessments carried out to date, including >300 energy intensive businesses
  - As of late 2024, £2.5m of grants awarded with £5.7m in progress

- Net Zero Grant Programme
  - Still in discovery
  - Via individual Local Authorities?

Future support and delivery? TBC!

Sector	Potential short term actions and delivery?	Medium to long term strategy

Commercial	• Co-ordination of current support
	• Proactive engagement
	• Toolkit to address knowledge gap
	• Exemplars/case studies
	• Targeted support for mid-sized manufacturing, e.g. feasibility studies, structural surveys, grants/low cost loans
	• *LAEP*
		• Leveraging WMCA's expanded role under devolution and future direct relationship with GB Energy
		  ○ Integrated Settlement
		  ○ Local Power Plan
		  ○ Solar Strategy
		• Taking a co-ordinated approach across all sectors aligned to Regional Energy Strategy
		  ○ Smart spatial planning
		  ○ Local flexibility
		  ○ Commercial and financial innovation, e.g. regional fund
		  ○ Skills and supply chain

Public	• *Assessment of potential (LAEP)* • *Public Sector Decarbonisation Scheme*	
Domestic	• *LAEP* • *Warm Homes Plan* • *Social Housing Warm Homes Fund*	

Heat decarbonisation

The picture across the WMCA area

- Centralised, fossil gas-based systems dominate
- **88% of homes use mains gas for heating** across our area
- High **heat demand density** across an urbanised area
- The WM is an energy demand centre!
- A mixture of decarbonised heating solutions will be required, all with big infrastructure implications

A regional approach to optimise synergies

Right places

Heat Networks

Bespoke solutions

Place-based

Right time

Heat pumps

Flex potential

Integrated

Deep dive: how we're looking into flexibility

Project: EQUINOX

What: How much demand flexibility from individual heat pumps?

Why: Maximise flexibility to reduce costs and disruption from the transition

How:

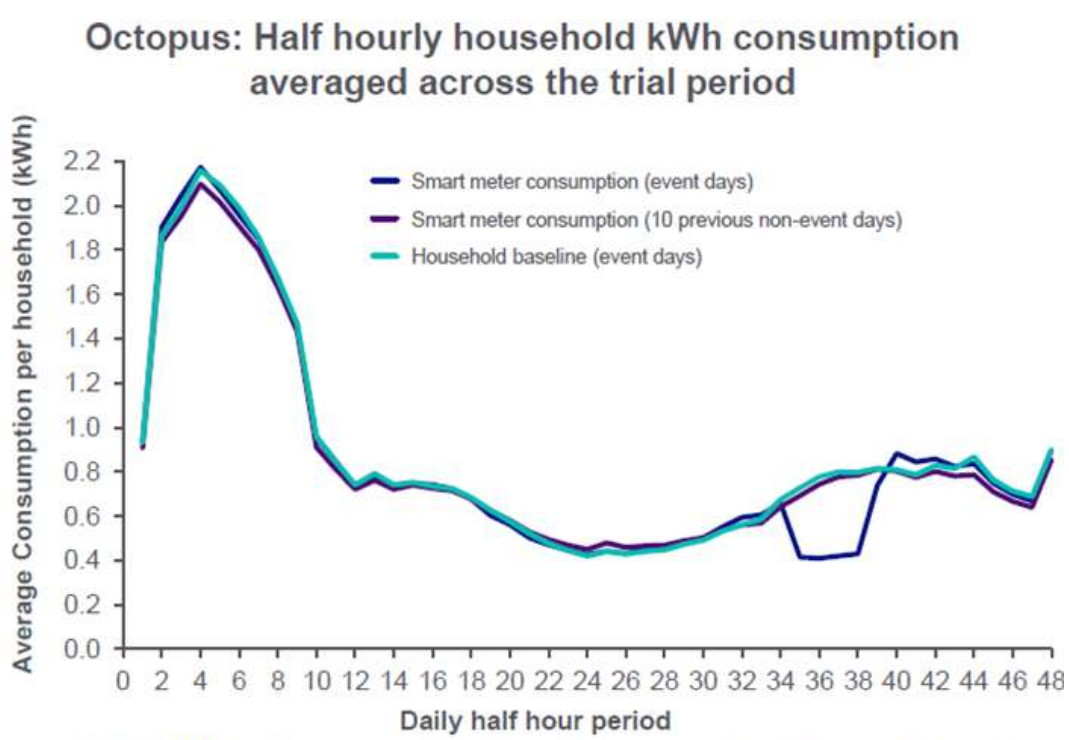
- 3 winter trials (possibly 1 summer 'turn up' trial)
- Around 500-1000 participants each year
- How customers respond to 'events'

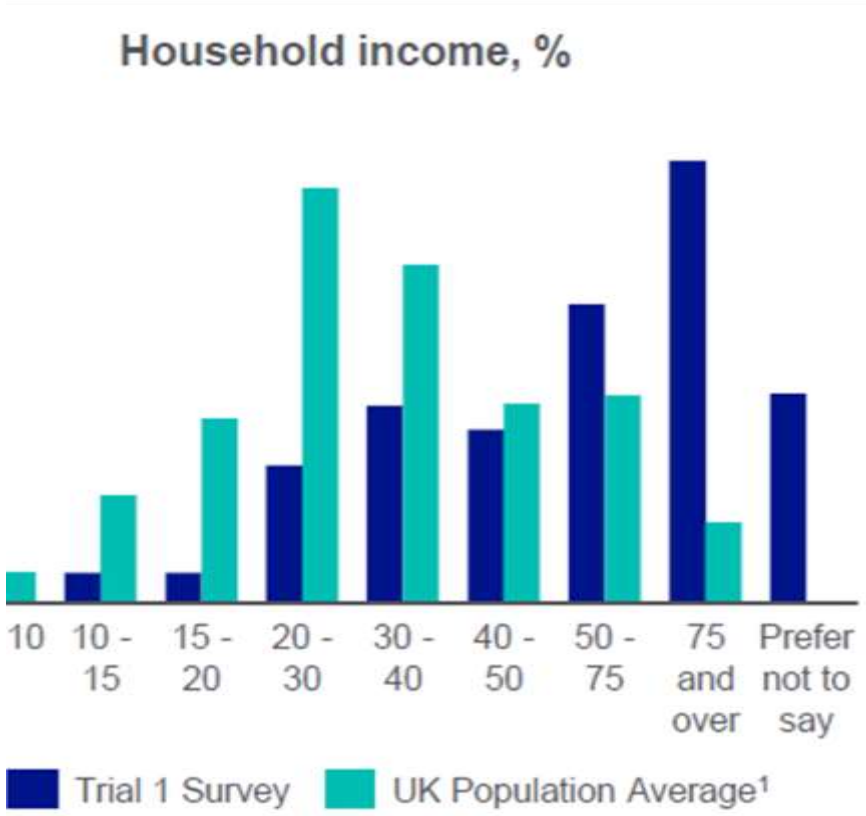
Deep dive: how we're looking into flexibility

Key for WMCA:

- The potential
- The relative value
- The barriers to unlock the full potential
- The implications for equitability and how to maximise the benefits, especially for those who might otherwise struggle to engage with flex

Deep dive: how we're looking into flexibility





- **9.25 MWh** of measurable turndown provided by participants across 22 events
- On average, **1.53 kWh per event** per event participant

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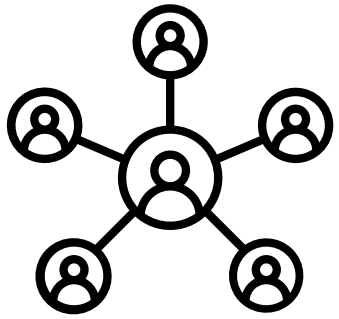
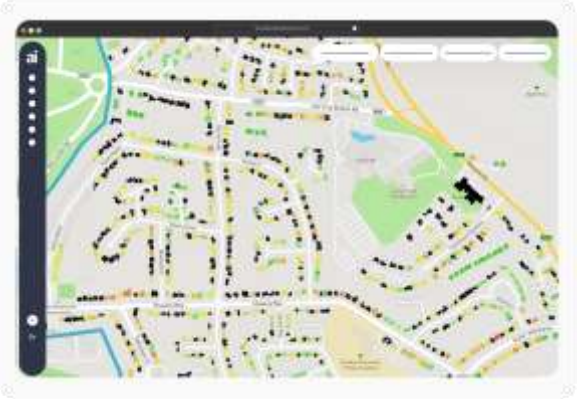
Benefits of regional coordination: heat networks

Connecting the dots

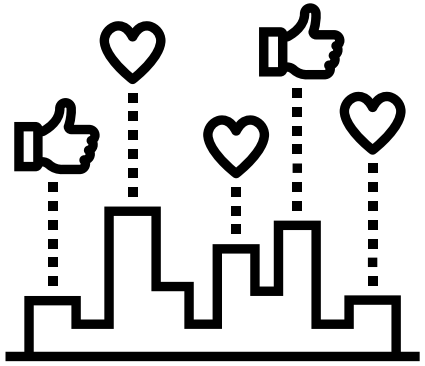


Coordination between zones



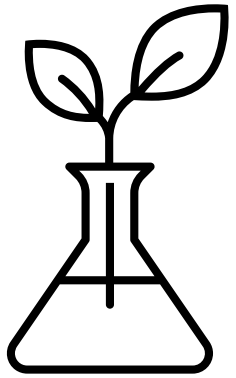
Embedding it into strategic local area planning

Improve efficiency



Sharing resources and best practices

Supporting inclusive growth and social value



Policy and regulatory context

- 600k **heat pumps** per year by 2028
- Target: **18%** of homes and **42%** of public and commercial buildings assigned to **district heat** by 2050
  - **19% of final heat demand in the West Midlands** (currently 1.5% of home heating)
  - Birmingham and Coventry already have significant heat networks and are part of the Advanced Zoning Programme
- **Flexibility** is a key pillar of Clean Power 2030
- **Devolved Retrofit Pilot** will further accelerate shift

Policy and regulatory context: heat networks

Heat Network Zoning: address demand uncertainty

Heat Networks Technical Assurance Scheme: improve performance, emissions and reliability

Authorisation and Consumer Protection: extend protections, as for electricity and gas customers

… To accelerate and drive heat network development

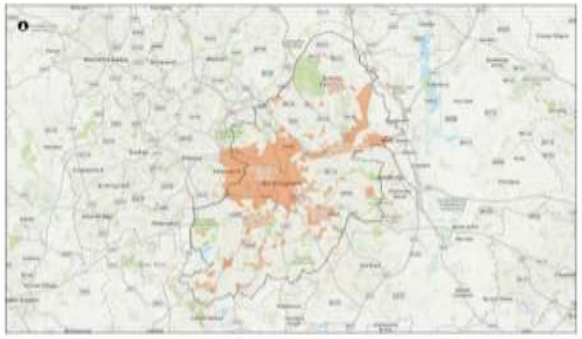
Policy and regulatory context: heat networks

Department for Energy Security & Net Zero

Birmingham

Heat Network Zoning

Zone Opportunity Report



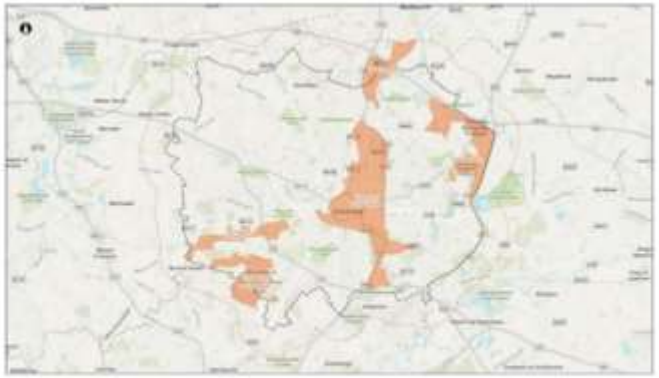
February 2025

Department for Energy Security & Net Zero

Coventry

Heat Network Zoning

Zone Opportunity Report



Regional Heat Decarbonisation Support

Developing a programme to support the strategic delivery of heat network zones, heat networks and heat decarbonisation generally by our region's local authorities.

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Data Management

Build and maintain a valuable data foundation for heat decarbonisation, heat network monitoring and opportunity mapping across the region. This should complement and not duplicate reporting and data available at national level.

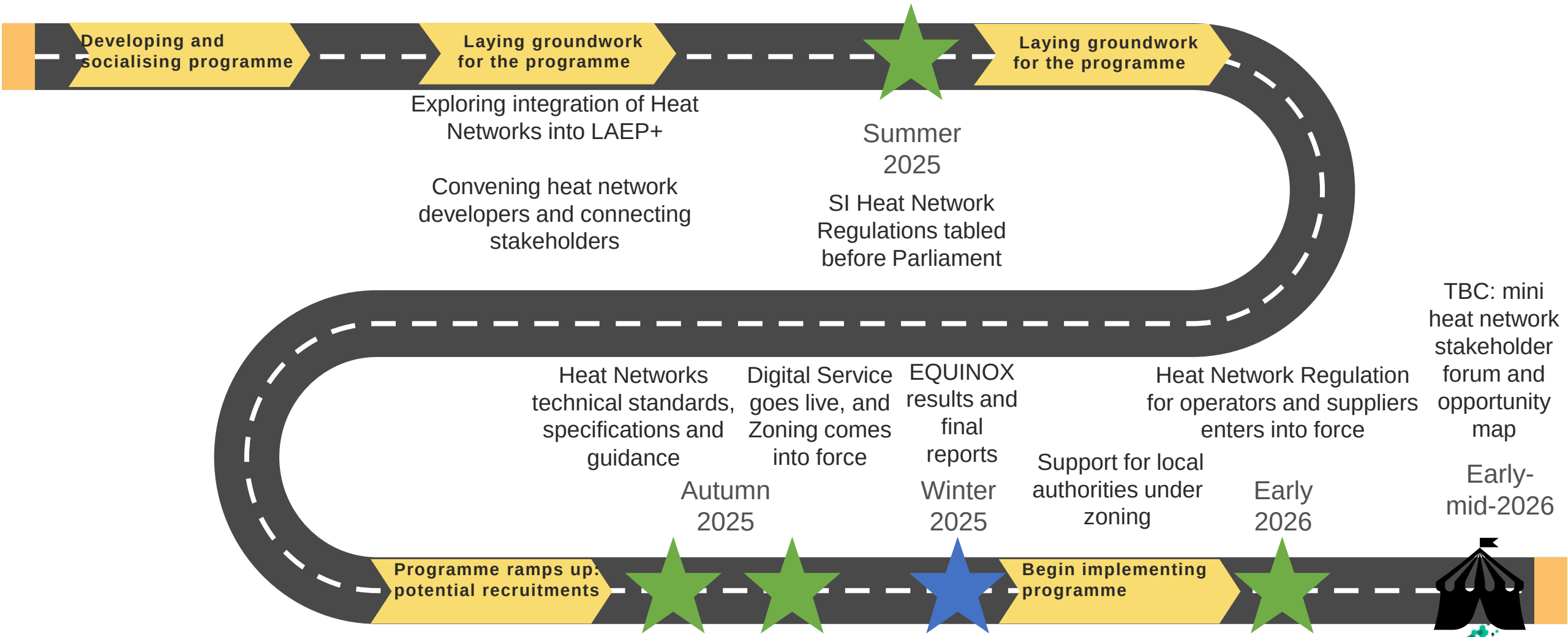
Knowledge and Capacity Building

Provide bespoke support to local authorities as needed, supporting the strategic development and engagement lead on stakeholder engagement and managing targeted consultant-commissioned work for technical, commercial and legal expertise to unlock the full regional heat network and decarbonisation opportunity. This will include work on skills in the supply chain.

Strategic Engagement and Development

External stakeholder engagement on heat networks, supporting coordination between LAs as Zone Coordinators to support best practice across the region and communicating the WM's open shopfront for heat networks. It should also involve wider heat decarbonation strategic planning and implementation, including towards the new RESP.

Heat decarbonisation 2025/26 programme



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