Worcestershire
Local Enterprise Partnership

Worcestershire Energy Strategy
Local Area Energy Plan mapping

WLEP Board

31 March 2023

WLEP Net Zero update

Worcestershire Local Enterprise Partnership

MIDLANDS NET ZERO HUB

WALES&WEST UTILITIES

worcestershire county council

WORCESTERSHIRE GROWTH HUB

nationalgrid

Cadent Your Gas Network

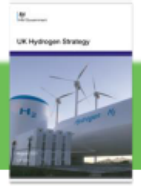
WLEP Energy Strategy

2019

UN CLIMATE CHANGE CONFERENCE UK 2021

COP26

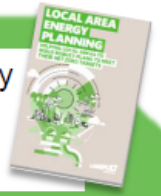
Autumn 2021



Hydrogen Consortia / Taskforce

Local Area Energy Planning

Summer 2022



WGH Hydrogen Round Table

Net Zero Project Delivery: MNZH

WGH/MNZH support IETF bids

Green Grants: WGH/MNZH support LoCOP, BEEP etc

Green Skills: HWCC QES Q1 Survey & LSIP

Net Zero

Worcestershire
Local Enterprise Partnership

Local Area Energy Planning (LAEP) - Worcestershire

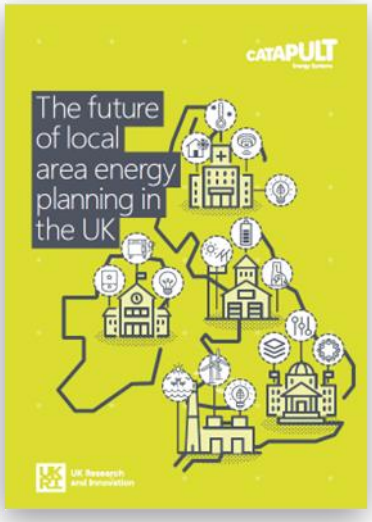
31.03.2023

What is Local Area Energy Planning?

Worcestershire Local Enterprise Partnership

Energy Systems Catapult in their UKRI commissioned report on 'The future of local area energy planning in the UK' define a LAEP as:

"LAEP is a data driven and whole energy system, evidence-based approach that is led by local government developed collaboratively with defined stakeholders. It sets out to identify the most effective route for the local area to contribute towards meeting the national net zero target, as well as meeting its local net zero target."



What does a Local Area Energy Plan do?

Worcestershire Local Enterprise Partnership

A Local Area Energy Plan:

Provides a proposed future plan to achieve net zero ambitions for an area, identifying the change needed to local energy system & built environment.

The level of detail is comparable to an outline design or urban masterplan.

- Covers current energy consumption and associated greenhouse gas emissions & the projected consumption to 2050 in a defined area
- Provides a fully costed & spatial plan, setting out total costs & changes in energy use and emissions
- Identifies what changes are required, where and by whom. Identifies near-term actions & projects to help prioritise investment & action
- Requires regular updates: every 3-5 years (or when significant technological, policy or local changes occur)

What is the scale of LAEP and is funding available?

Worcestershire Local Enterprise Partnership

- Development of LAEP is not a statutory obligation & although encouraged, it is not funded in England. LAEP development is funded and underway in Wales. Also underway in other areas in England, e.g. 10 district LAEPs adopted by Greater Manchester Combined Authority Sept 2022, York, Newcastle upon Tyne; Derbyshire & Nottinghamshire (D2N2) etc

- Energy Systems Catapult (ESC)* anticipate that a local government organisation will lead the creation of a LAEP, as a primary stakeholder. According to ESC, LEPs are categorised as secondary stakeholders.

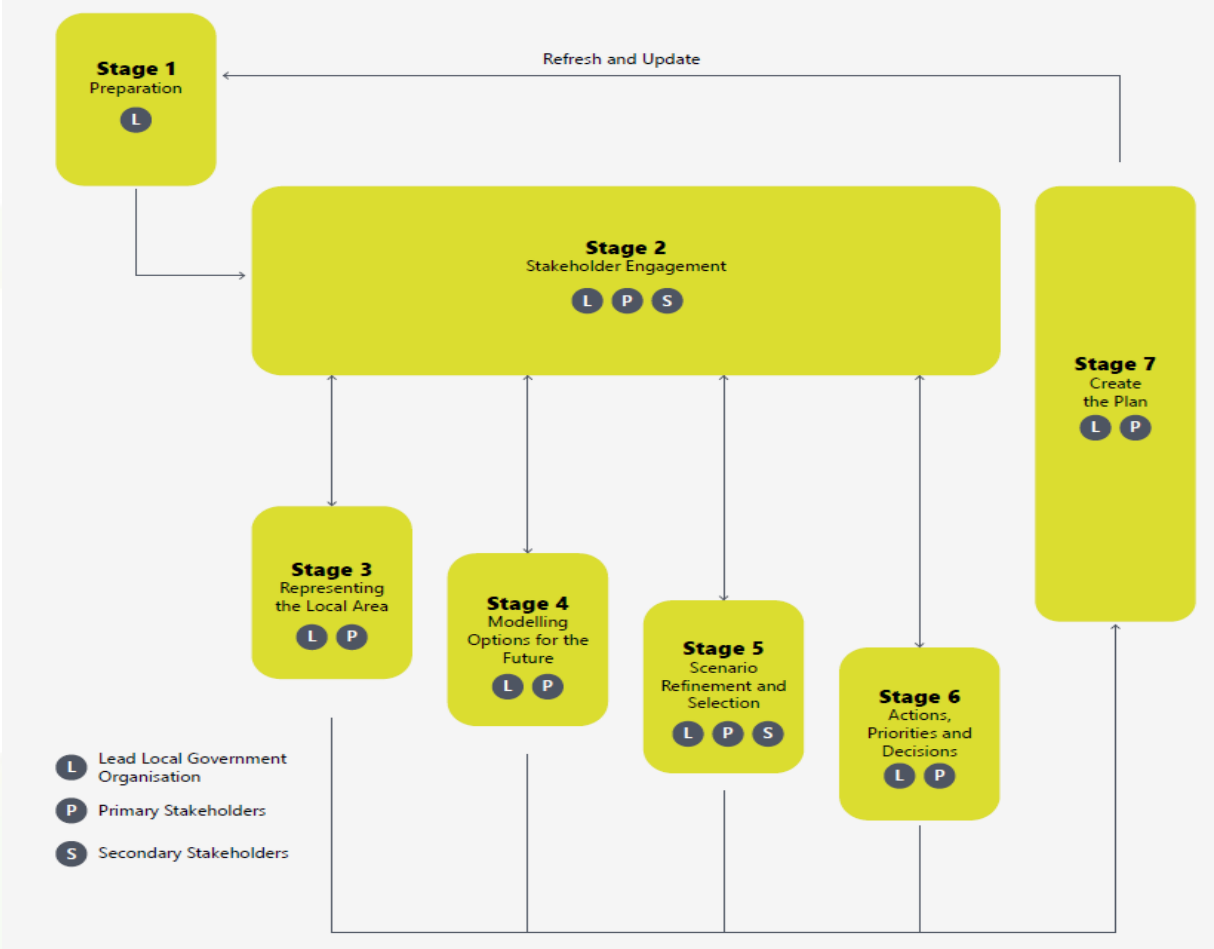
- Scope of LAEP geography: Can vary from large area, i.e. whole county as per the development of the Welsh LAEPs to a local priority area. ESC has created a 7-stage process which ensures a common standard approach, enabling the aggregation of LAEPs across an area.

* ESC: Guidance on Creating a Local Area Energy Plan (LAEP)

The 7-stage Local Area Energy Planning Process

Worcestershire Local Enterprise Partnership

Energy Systems Catapult in their 'Guidance on Creating a Local Area Energy Plan (LAEP)' define 7 stages to the development of a LAEP:



Provides a standard & consistent approach to creating a LAEP, to allow for comparability & aggregation (across areas)

Looks at roles & responsibilities, Stakeholder Engagement, Modelling & Refining & Creating the LAEP

Scope of LAEP

- Initial focus of Worcestershire LAEP to baseline the current energy system in relation to planned / proposed development sites / growth areas to identify priority areas for full LAEP
- Worcestershire LAEP vs ESC Guidance on features to be assessed for LAEP

ESC Guidance Features to be assessed for LAEP	**Relevance for LAEP**	mapped / cuurent/potential data source **Mapped for Worcestershire LAEP**
Current Emissions	Understand current emission level to identify what needs to change to meet carbon target	WLEP Energy Strategy: BEIS Local Authority Carbon Dioxide Emissions Estimates 2005-2015. 2017.
Current demand by sector & location	Understand current demand to help calculate future demands & context for any changes in demand	WLEP Energy Strategy: BEIS Sub-national electricity consumption statistics 2005-2015. 2017.
Existing substation headroom	Understand current available capacity in substations before reinforcement is required and identify areas at risk	NGED Coverage & Constraints (for Development sites)
Existing EV charging infrastructure	Assess how much more EV charging infrastructure may be required	WLEP Energy Strategy: Office for Low Emission Vehicles. National Charge Point Registry & Zap Map 2018 WCC / Jacobs Report on EV Infrastructure
Existing Domestic buildings	Significant source of energy demand in most local areas that needs decarbonising	% of properties EPC D-G by ward / ONS Census 2021: Fuel Type. Energy Saving Trust dataset: age, tenure, etc
Existing Non-Domestic buildings	Significant source of energy demand in most local areas that needs decarbonising	Identified major energy users across County
Current Gas Network	To understand existing energy supply and areas off gas grid	Cadent & Wales & West Utilities Coverage & Constraints (for Development sites)
Energy Demands over whole area	Provide overall picture of demand for a local area, to illustrate needs for generation	Potential to use Wales & West whole energy system Pathfinder Tool
Existing local generation & storage	Understand what energy is currently being generated and stored locally	WLEP Energy Strategy: BEIS Renewable Energy Planning Database. 2017 & Renewable electricity generation at Local Authority level 2016. 2017.
Planning constraints on developments	Helps identify where some options may be limited	Conservation areas, Landscape Types, Flood Risk
Socio-Economic situation (incl fuel poverty)	Important context to future plans, may identify areas that need certain measures targeting	WLEP Energy Strategy: Worcestershire, Warmer: Worcestershire Fuel Poverty Plan 2017-2022. 2017.
Existing heat networks	To help understand existing energy sources	MNZH
Committed future plans	Understand certain and significant local developments across the energy system	Development sites only
Available roof space for new PV	Helps understand the potential to generate low carbon energy locally	WLEP Energy Strategy: BEIS Renewable Energy Planning Database. 2017 & Renewable electricity generation at Local Authority level 2016. 2017.
Land for other renewable generation	Helps understand the potential to generate low carbon energy locally	WLEP Energy Strategy: SQW. Renewable energy capacity study for the West Midlands. A final report to Telford and Wrekin Council. 2011.

Local Area Energy Planning - Worcestershire

Worcestershire Local Enterprise Partnership

Stage 1: PREPARATION

- 7 July
  - Initial scope for Worcestershire LAEP
  - Net Zero Map

WLEP / MNZH LAEP NEXT STEPS

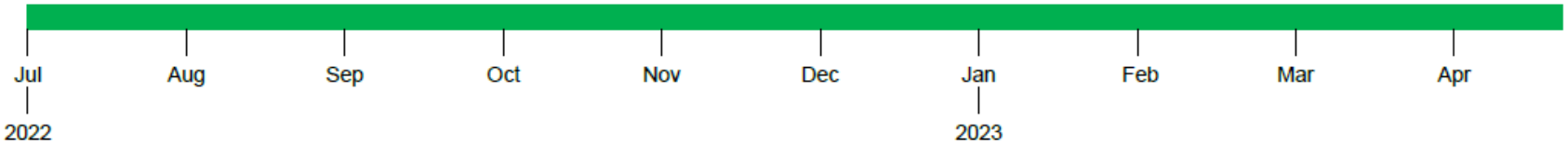
- 13 Sept
- 9 Nov
- 2 Dec
- 7 Mar

Stage 2: STAKEHOLDER ENGAGEMENT

- 13 July: WCC joins LAEP Group
- 22 July: NGED LAEP
- 12 Aug: Cadent Gas LAEP
- 19 Oct: Wales & West LAEP
- 26 Oct: Cadent Gas Hydrogen Round Table
- 1 Nov: Cadent Gas: Biomethane LAEP
- 11 Nov: WLEP / WCC: Green Skills
- 9 Jan: Cadent / STGP: H2 & Biomethane LAEP
- 1 Mar: Hydrogen Valley Consortia
- 29 Mar: Cadent H2 Feasibility Study Launch

Stage 3: REPRESENTING THE LOCAL AREA

- 26 Sept: Engagement with LPA's →
- 6 Oct: WLEP / WCC Data Team LAEP Mapping Briefing
- 1 Nov: LAEP Mapping →



Local Area Energy Planning - Worcestershire

Worcestershire Local Enterprise Partnership

Stage 1: Preparation

- Decision to review local energy system and impact of any network constraints on Worcestershire's development sites to identify local priority area/s
- Net Zero Map: Stock take on the WLEP's role in projects & initiatives as part of Net Zero agenda
- Identify LAEP Group: WLEP, MNZH, WCC: Sustainability, Planning & Transport, Waste Services

Stage 2: Stakeholder Engagement

- Engagement with Network Operators: NGED, Cadent Gas, Wales & West Utilities with agreement to:

  - share data on demand projections and capacity to collectively identify pinch-points
  - share future energy scenarios for area
  - collaborate on LAEP development

- LAEP Action Plan

Stage 3: Representing the Local Area

- Engagement with Local Planning Authorities to provide updated development sites & planning status
- WCC Data Team LAEP Mapping. Data validation with LPA's & Network Operators

Local Area Energy Planning - Worcestershire

Worcestershire Local Enterprise Partnership

LAEP Maps developed as below:

LAEP MAPS	DATA SOURCE
Development sites: Type (Residential, Employment or Mixed) & Planning status	Local Planning Authorities 2022/23
Gas & Electricity Network Operators: Coverage, Development sites & capacity	Network Operators: NGED, Cadent Gas & Wales & West 2022/23
Off Gas Grid Areas & Development sites	Cadent Gas & Wales & West 2022/23 Local Planning Authorities 2022/23
Biomethane Injection Points & Capacity & Known Hydrogen Demand High Energy Users, Proposed new Anaerobic Digestion facility	Wales & West & Cadent Gas 2022/23 Hydrogen Opportunities: WGH survey 2022 High Energy Users: MNZH & WCC 2022 Proposed new Anaerobic Digestion facility: WCC Planning 2022
Severn Trent Water Anaerobic Digestion sites; Severn Trent Green Power solar sites; STW potential heat export sites	Severn Trent Green Power 2023 & MNZH
Proportion of domestic properties EPC D-G by ward & estimated count	Energy Performance of Buildings Register Jan 2008 - Nov 2022
Fuel Type: Mains Gas; Electric; Heat Network, Other	ONS Census 2021
Property Age; Tenure; Risk Cold Cat 1 Hazard, RdSAP CO2 emissions	Energy Saving Trust compiled data (listed sources): Property Age: Home Energy Check Tool 2020 Tenure: HM Land Registry 2019 Risk Cold Cat 1 Hazard: EST data source tbc CO2 Emissions: EPCs 2008-2021
Conservation Areas & Landscape Types, Rivers, Flood Zones	WCC Landscape Character Assessment 2023 Environment Agency / Defra Feb 2023

Worcestershire
Local Enterprise Partnership

LAEP Worcestershire - Initial Findings

31.03.2023

Initial Findings: County-wide Challenges

Worcestershire Local Enterprise Partnership

OPPORTUNITIES

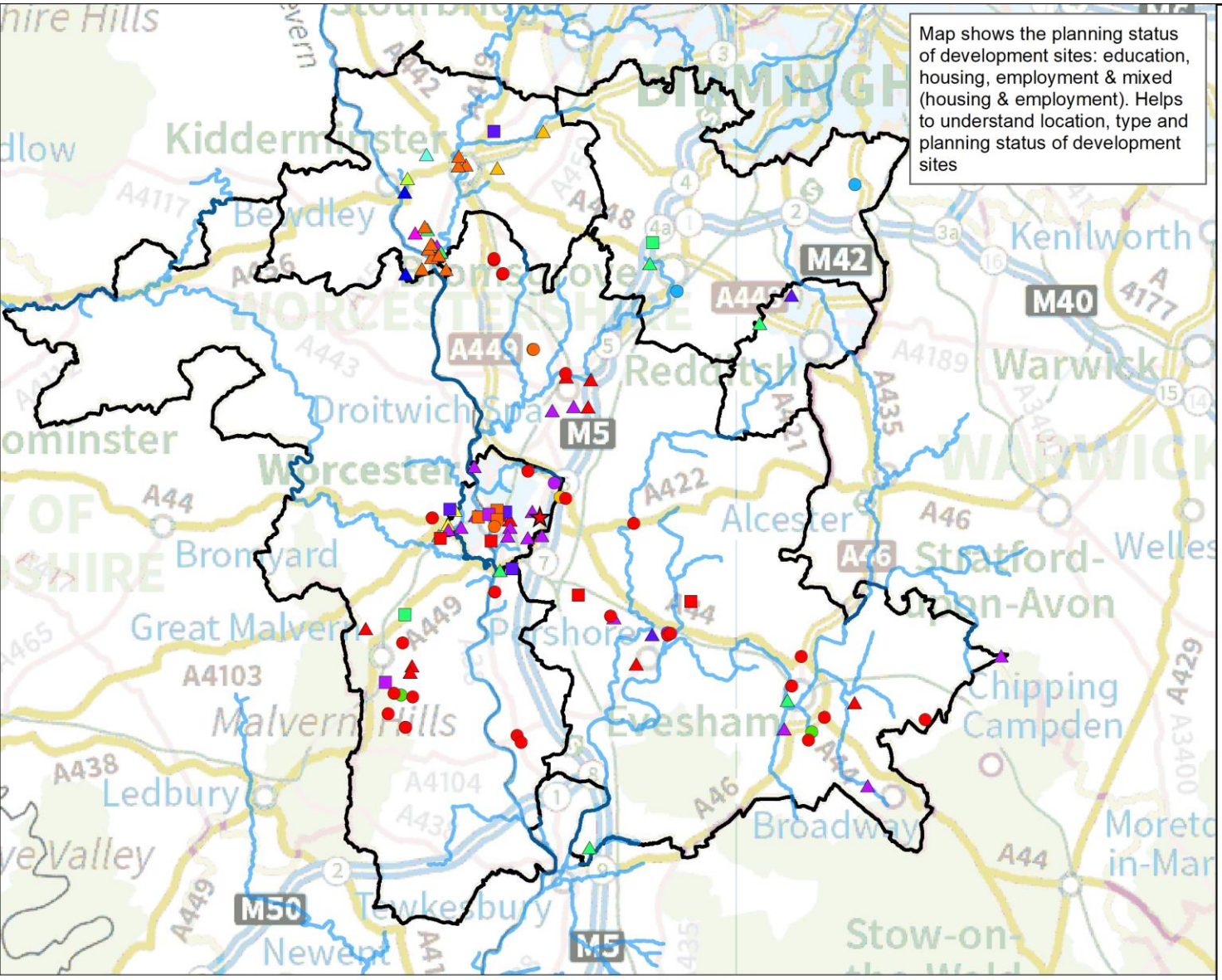
- Mix of grid connected and local renewable energy sources (electricity, heat networks, biomethane etc.) delivered through micro-grids
- Impending new Local Authority food waste collection responsibilities
- Strategic and development planning are key enablers and potential blockers
- In-county business opportunities and skills development key to avoid economic benefit leakage
- LAEPs must prioritise most significant/constrained areas and/or those with maximum potential

WEAKNESSES

- Strategic development areas require grid reinforcement
- No hydrogen expected in near future from main energy distributors (Cadent, W&W)

THREATS

- EV charging will introduce additional demand
- Net zero transition will require both demand reduction and peak load smoothing to minimise electricity demand
- Widespread need to upgrade existing housing and for new housing and non-domestic buildings to be net zero ready
- Conservation areas, Areas of Outstanding Natural Beauty present challenges
- Strategic and development planning are key enablers and potential blockers



© Crown copyright and database rights 2023 Ordnance Survey 100024230.
You are not permitted to copy, sub-license, distribute or sell any of this data to third parties in any form.

Local Area Energy Planning - Known Development Sites Planning Status

Produced by Business Intelligence Team (March 2023)

worcestershire county council

Local Area Energy Planning - Worcestershire

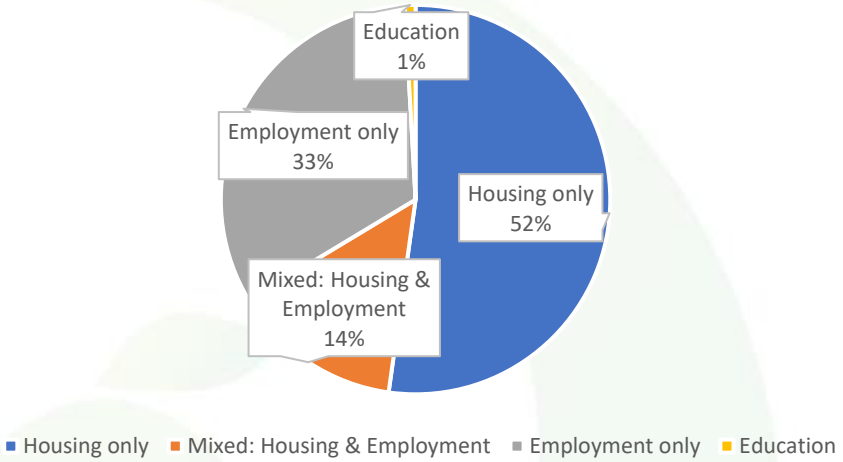
Worcestershire Local Enterprise Partnership

Initial findings: Development sites

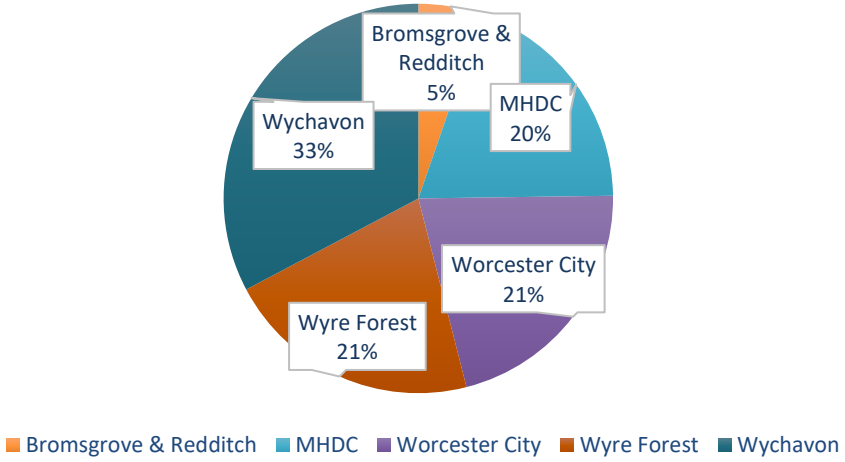
113 development sites & planning status provided by LPAs

- 27% (30 sites) have started construction, 1 has completed construction
- 73% (82 sites) are at stages: proposed allocation to planning approved

Development sites by type



Development sites by LPA

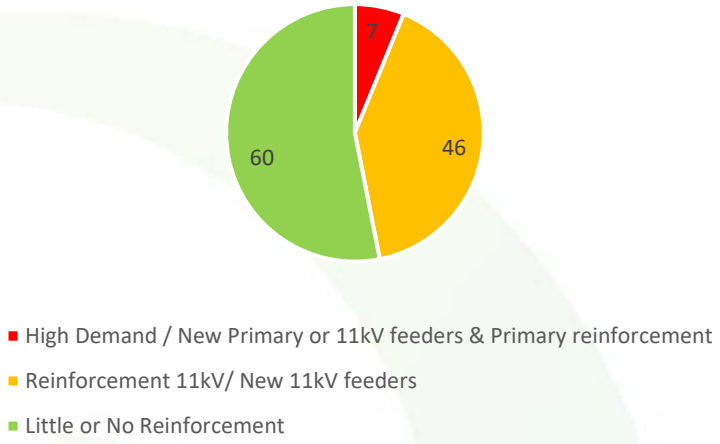


Local Area Energy Planning - Worcestershire

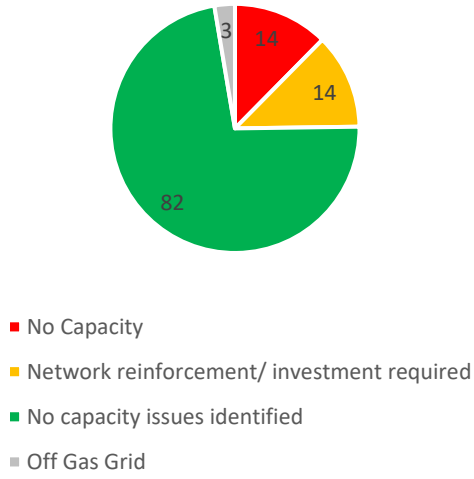
Worcestershire Local Enterprise Partnership

County Level: Energy Network capacity constraints vs development sites

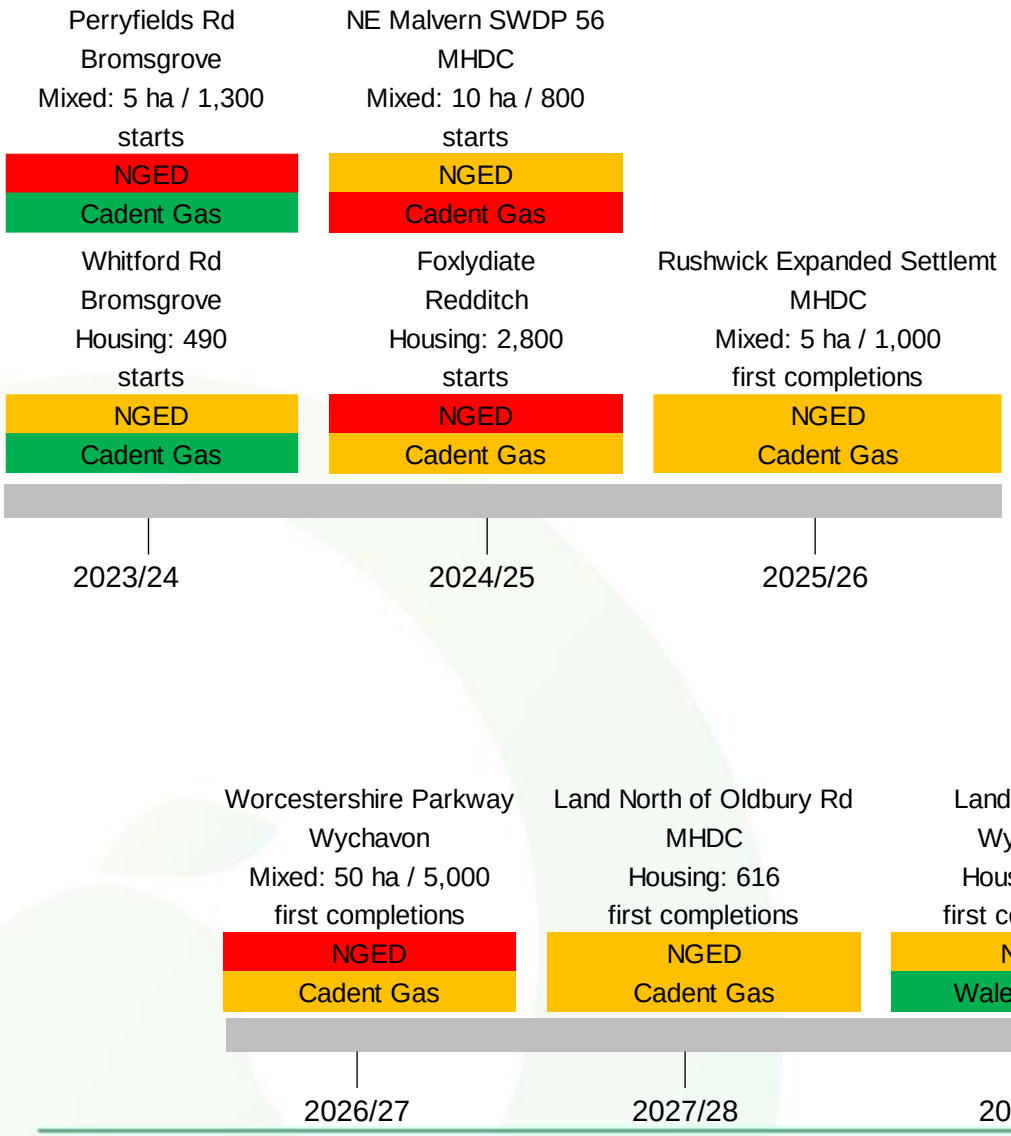
Electricity network capacity vs County development sites (NGED)



Gas Network capacity vs County development sites (Cadent Gas & Wales & West)



Significant sites timeline: Housing & Mixed



Strategic growth / significant sites: 400+ dwellings (20 sites)

Timeline shows 10 x sites with planning status: proposed allocation to planning approved with network capacity constraints

Exclusions:

- 8 x sites already under construction
- 2 x sites unknown timeline: Kidderminster Extension & Land at Navigation Rd, Diglis

Significant sites: Employment

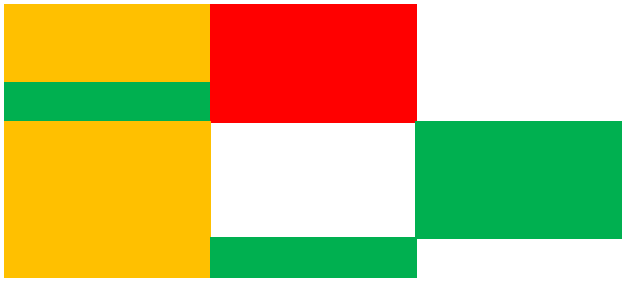
Strategic Growth / significant sites: 9+ hectares (11 sites)

Shows 7 x sites with planning status: proposed allocation to planning part permitted with network capacity constraints

Exclusions:

- 2 x sites already under construction / construction part site: Bromsgrove Technology Park 9 ha & Wythall Green Business Park 1.7 ha, both Bromsgrove
- 2 x sites with no capacity constraints: Eatons Farm 9.54 ha & Worcester Technology Park 21.35 ha, both Wychavon

Employment Sites	Area	Hectares	Planning Status
Three Counties Showground	MHDC	38.54	Proposed Allocation
Park Farm, Blackmore Park Rd	MHDC	14.05	Proposed Allocation
Land at Mayfield Rd	MHDC	9.71	Proposed Allocation
Vale Industrial Park	Wychavon	34.08	Planning part permitted
Two Shires Park, Weston Road	Wychavon	31.27	Proposed Allocation
Land between Broadway Road and the A46	Wychavon	12.21	Proposed Allocation
Stonebridge Cross Business Park	Wychavon	10	Allocation

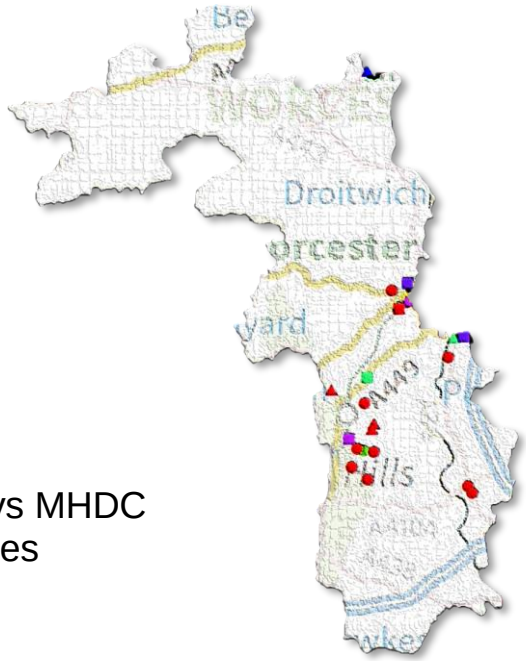


EXAMPLE PRIORITY AREA (1) Malvern Hills District

Worcestershire Local Enterprise Partnership

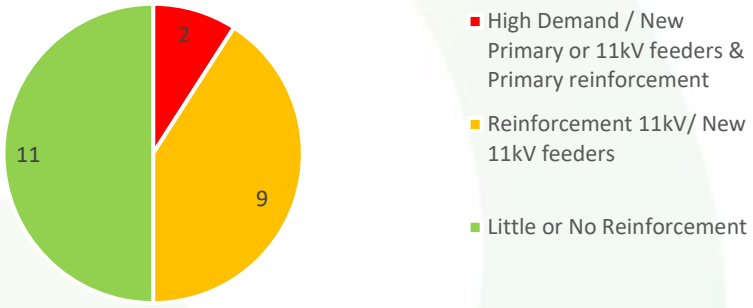
MHDC LPA identified 22 development sites:

- 14% (3 sites) have started construction
- 86% (19 sites) are at stages: proposed allocation to planning approved

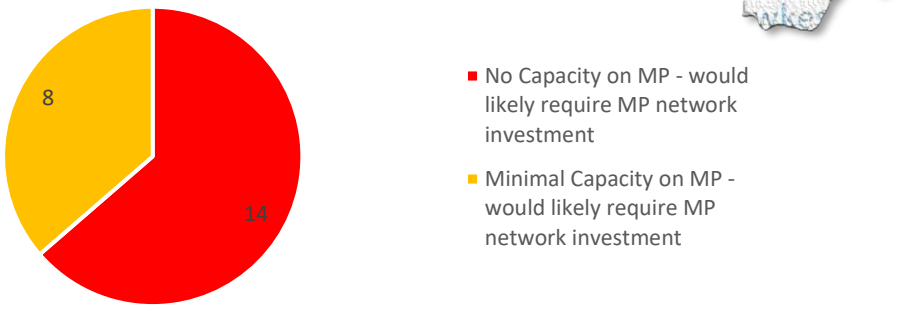


Capacity constraints vs development sites

NGED capacity vs MHDC development sites

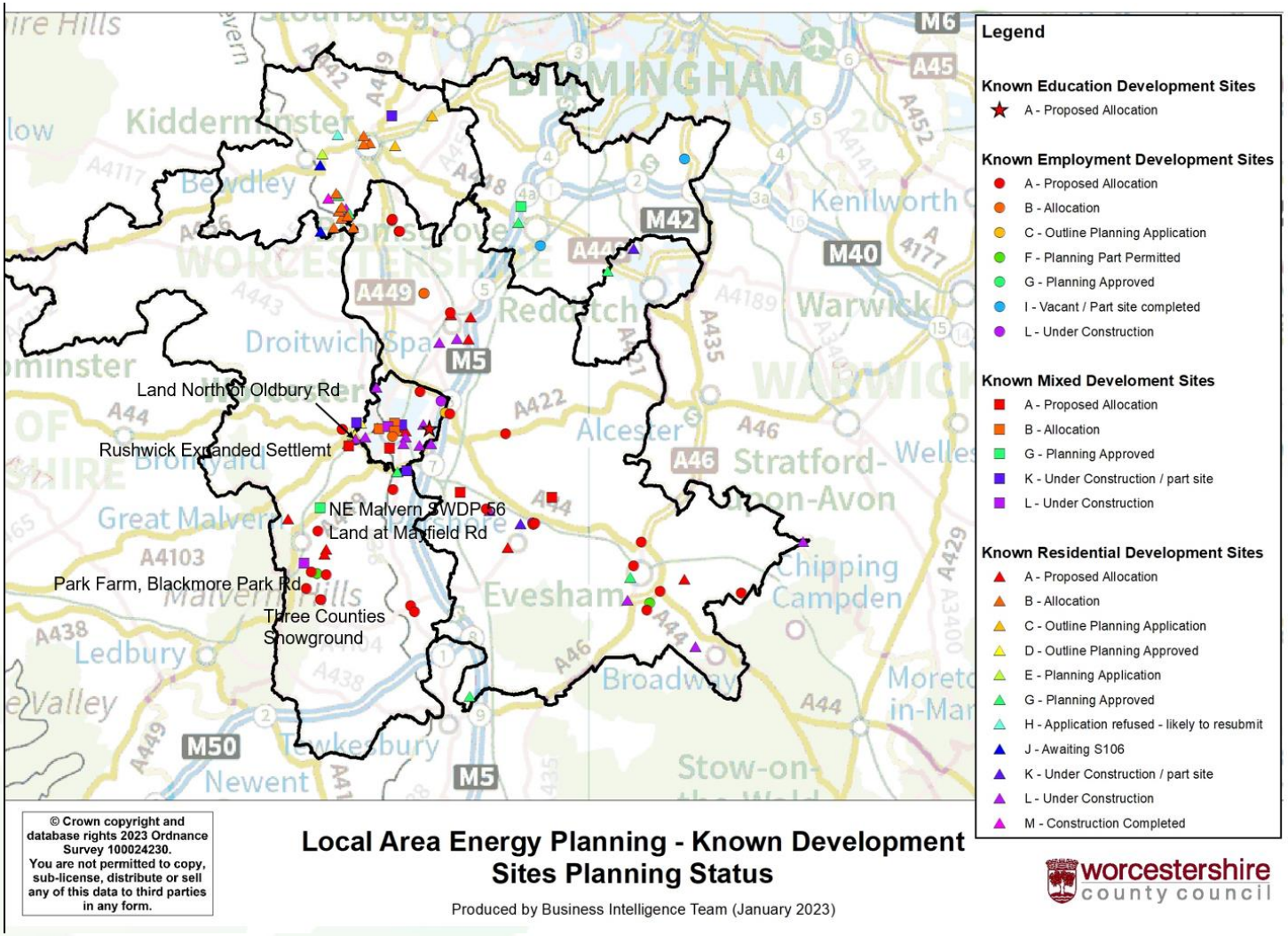


Cadent Gas capacity vs MHDC development sites



MHDC Strategic Growth / Significant development sites

6 x sites: planning status: proposed allocation to planning approved with capacity constraints



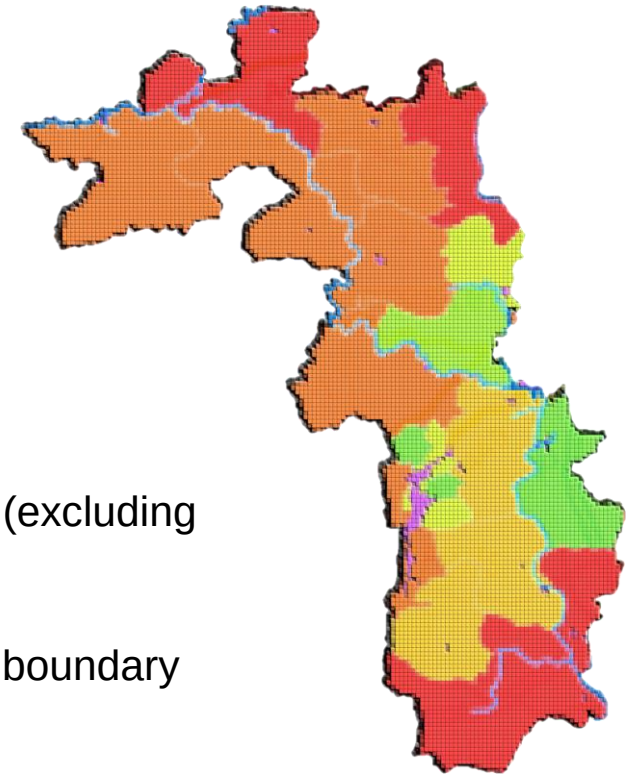
EXAMPLE PRIORITY AREA (1) Malvern Hills District

Worcestershire Local Enterprise Partnership

Home upgrade requirements:

76% - 87% of domestic properties have EPC D-G in wards:

- Lindridge
- Baldwin
- Ripple
- Longdon



Main fuel type:

MHDC wards (as above) 40% - 78% heated by other means (excluding mains gas, electric, heat network)

High percentage of domestic properties with EPC D-G cross boundary in the Bewdley & Rock ward, Wyre Forest District Council

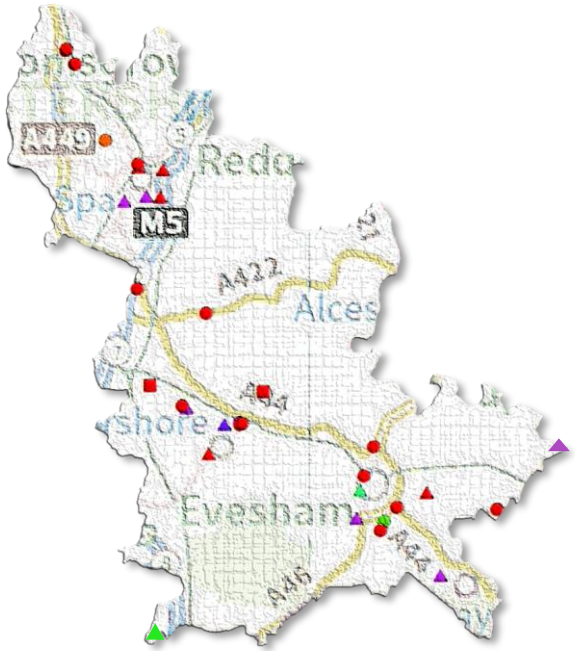
Opportunity at Hanley Swan to work with Hanley Energy Action Team (HEAT) a community group that MNZH funded through the Rural community energy fund (RCEF) to explore the opportunities highlighted in their energy mapping exercise

EXAMPLE PRIORITY AREA (2) Wychavon

Worcestershire Local Enterprise Partnership

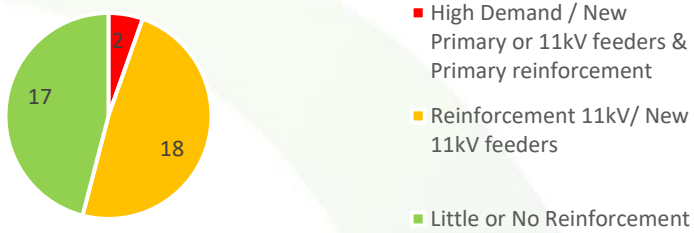
Wychavon LPA identified 37 development sites:

- 24% (9 sites) have started construction
- 77% (28 sites) are at stages: proposed allocation to planning approved

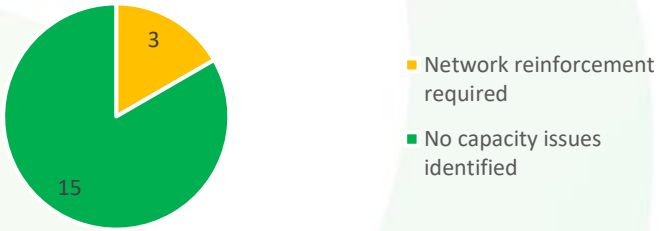


Capacity constraints vs development sites

NGED capacity vs Wychavon development sites



Wales & West capacity vs Wychavon development sites

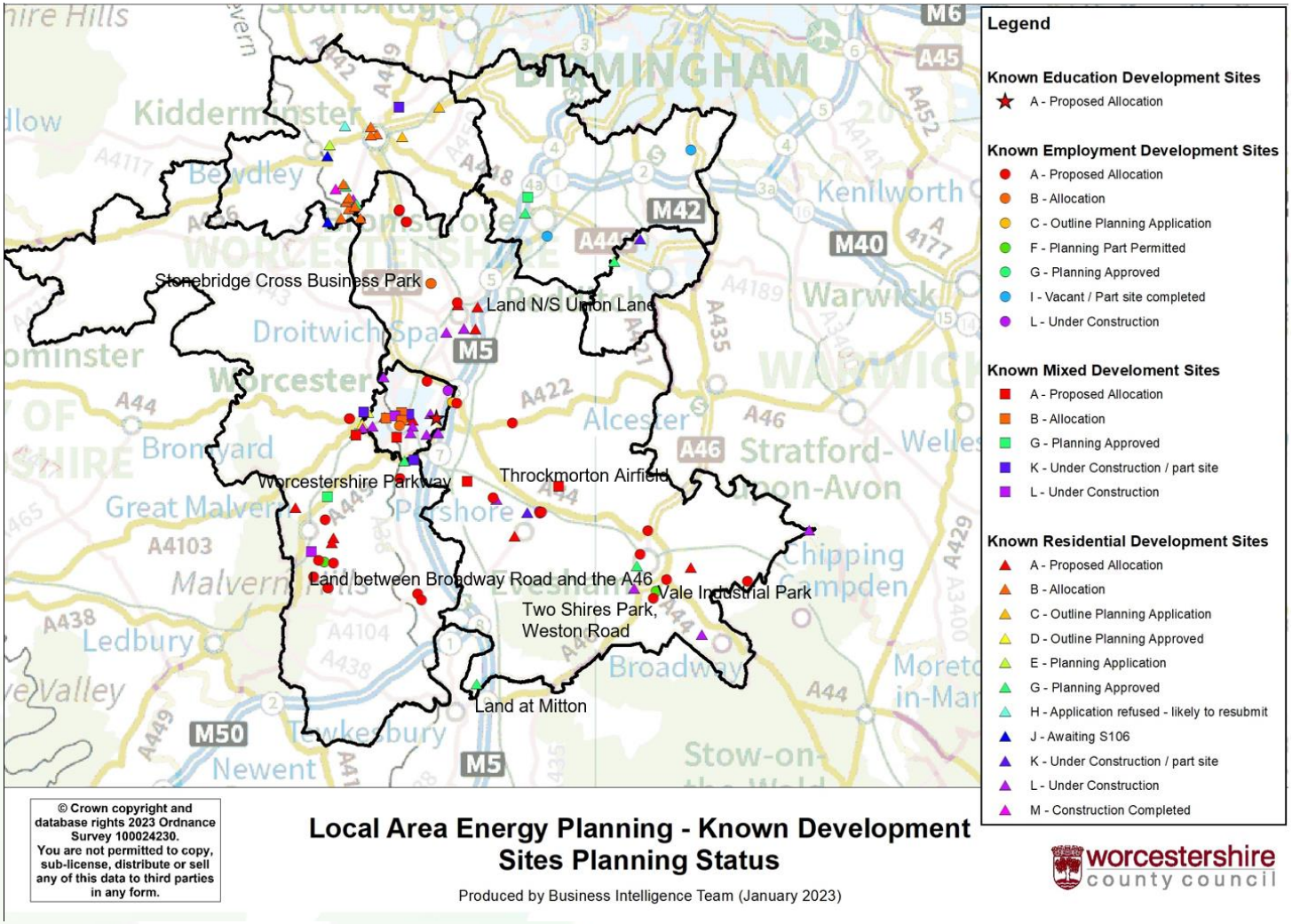


Cadent Gas capacity vs Wychavon development sites

Wychavon Strategic Growth / Significant development sites

Worcestershire Local Enterprise Partnership

8 x sites: planning status: proposed allocation to planning approved with capacity constraints



© Crown copyright and database rights 2023 Ordnance Survey 100024230. You are not permitted to copy, sub-license, distribute or sell any of this data to third parties in any form.

Local Area Energy Planning - Known Development Sites Planning Status

Produced by Business Intelligence Team (January 2023)

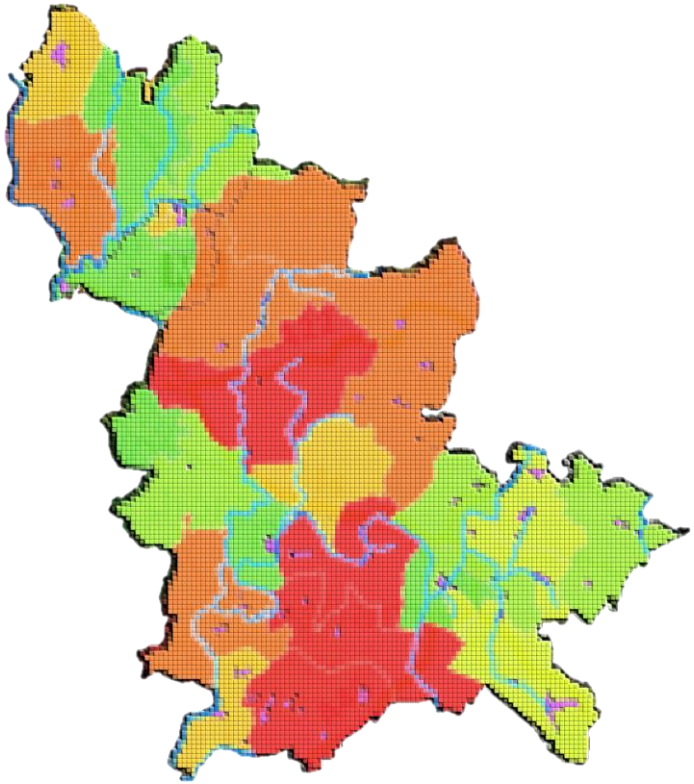
worcestershire county council

EXAMPLE PRIORITY AREA (2) Wychavon

Worcestershire Local Enterprise Partnership

Off Gas Grid: development sites:

- Residential:
  - Cheltenham Rd, Evesham: 507 dwellings.
  - Land adjacent to Sims Metal: 360 dwellings
- Employment:
  - Snodsbury Farmhouse: 1.71 ha



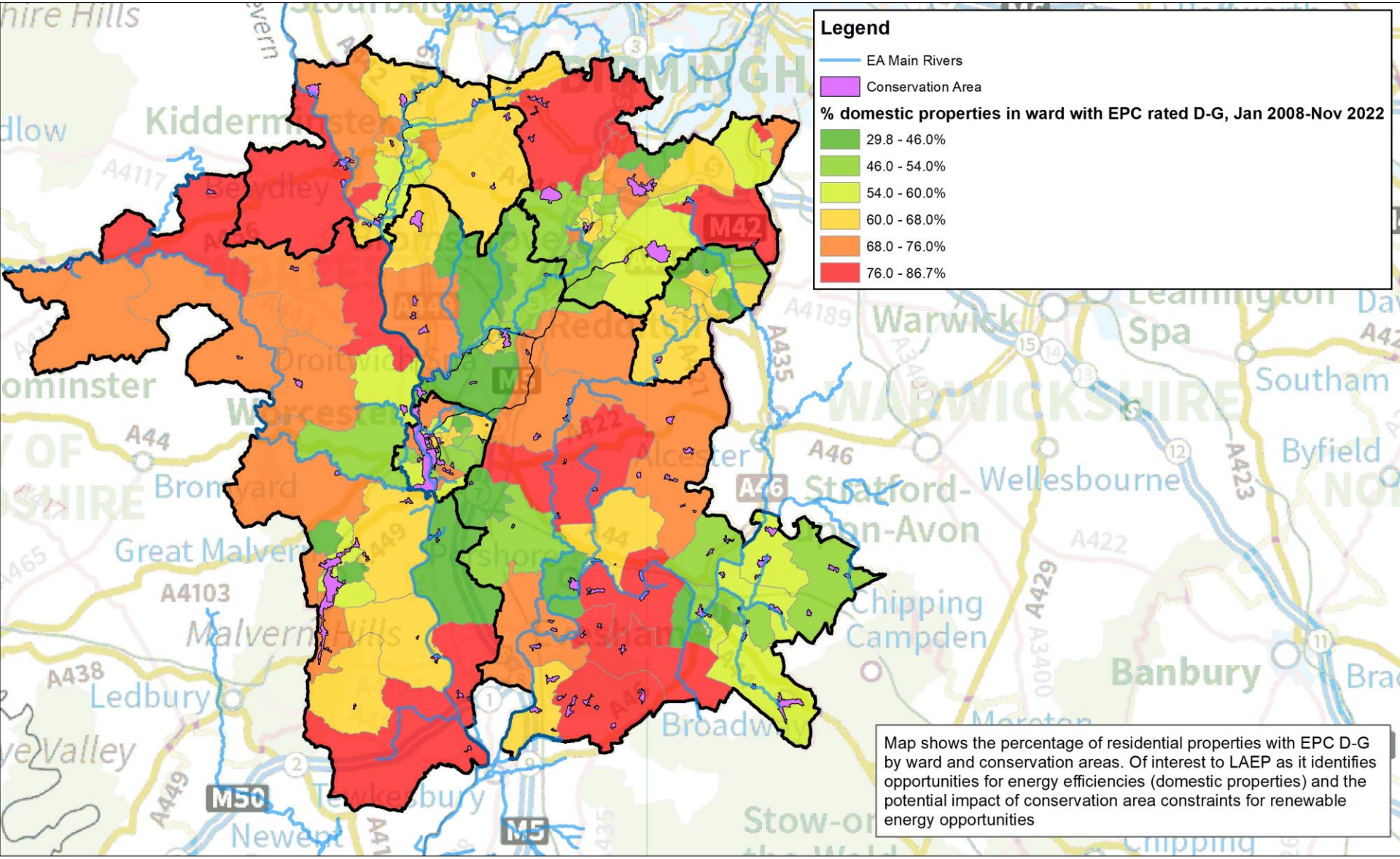
Home upgrade requirements:

76% - 87% of domestic properties have EPC D-G in wards:

- Upton Snodsbury
- Fladbury
- Emley Castle & Somerville
- South Bredon Hill

Main Fuel Type:

Wychavon wards (as above) 40% - 78% heated by other means (excluding mains gas, electric, heat network)



© Crown copyright and database rights 2023 Ordnance Survey 100024230.
You are not permitted to copy, sub-license, distribute or sell any of this data to third parties in any form.

Local Area Energy Planning - Domestic EPC

Produced by Business Intelligence Team (March 2023)

worcestershire county council

Worcestershire
Local Enterprise Partnership

LAEP Worcestershire - Recommendations

31.03.2023

Local Area Energy Planning - Worcestershire

RECOMMENDATIONS

- Recommend that all Local Authorities adopt a Net Zero Expert as Statutory Consultee for Local Planning so they are equipped to make informed decisions. Lost opportunity for heat network at Abbey Road, Evesham development site
- Consideration to set up formal governance for LAEP Group. Formalise Lead organisation for LAEP work
- Decision on who should be the custodian for the evidence base and how it can be kept up to date to inform future planning for SWDP & other Local Authority Plans; Energy Network Operators and inward investment (business seeking establish & invest in area)
- Develop digital interactive maps – to enable dynamic interrogation by LPA's etc (recognition that some material would not be made public /subject to data sharing permissions). Would require funding. DESNZ not in favour of funding LAEP development as cost of refreshing is prohibitive (costs for England c. £60m, prefer to spend on digital twinning)
- Consideration to pitch for Local Industrial Decarbonisation Plan funding expected via DESNZ in summer 2023. Potential to map Industrial clusters/micro clusters with LAEP (e.g. Evesham Vale, Worcestershire Parkway)

WLEP Board Considerations

Worcestershire Local Enterprise Partnership

The 'Ask' of the Board is as follows:

- Recognition that this topic is and will continue to be important?
- And thusly a view on the level of priority / resourcing WLEP should commit to this agenda?

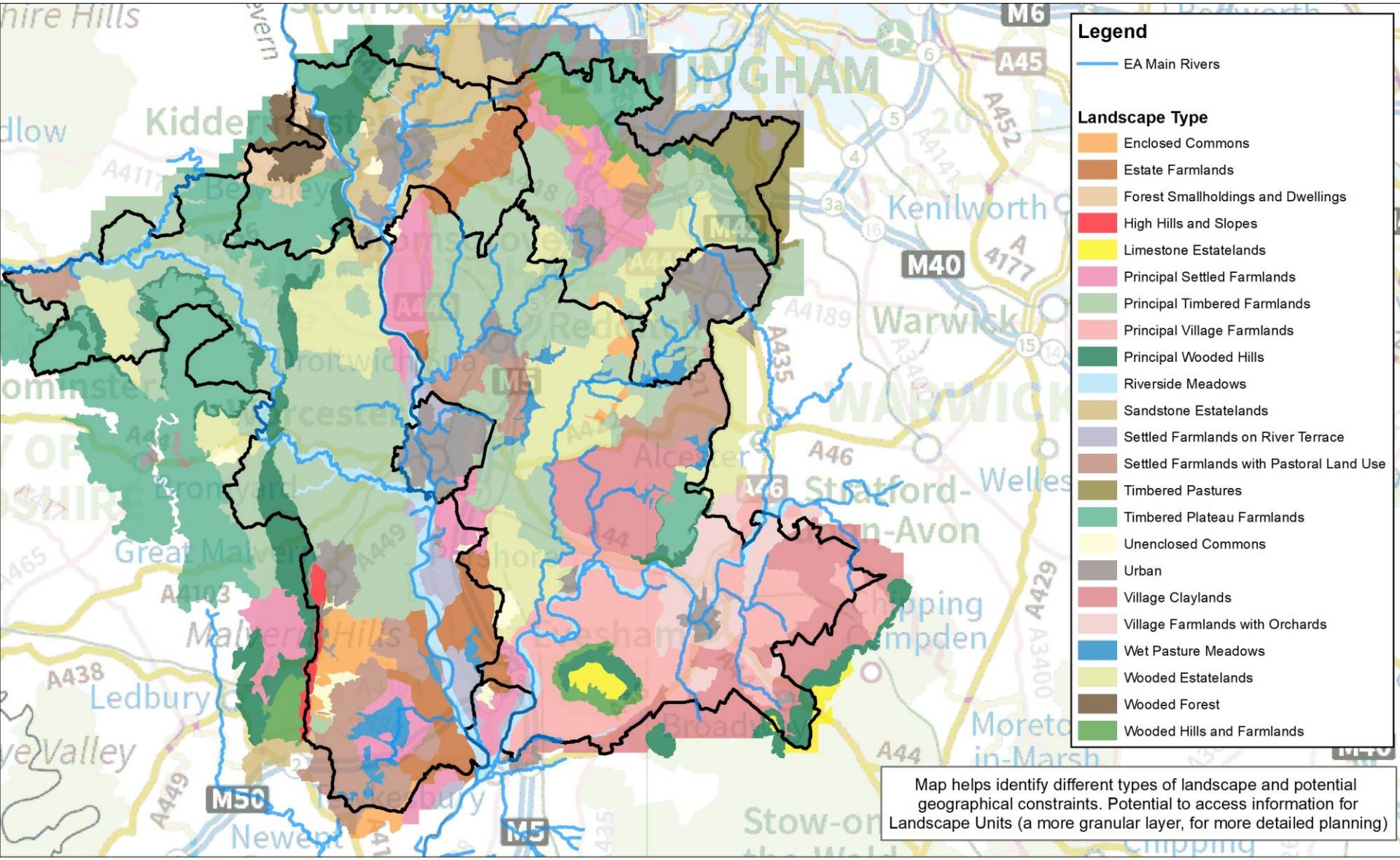
Views on above questions will then shape the following:

- Approval to share the results/findings thus far with partners and wider stakeholders and work with them to improve outcomes;
- Undertaking of further work (modelling and analysis) on the economic and development impact of findings thus far; and
- The role of the LEP in:
  a) keeping data current and accessible (ideally dynamic),
  b) identifying key areas for attention (geographical and technical / economic / skills),
  c) leading on LAEPs or supporting LAs as appropriate recognising that there will be cost and resource implications.

Worcestershire
Local Enterprise Partnership

Appendices – LAEP Maps

For information and review

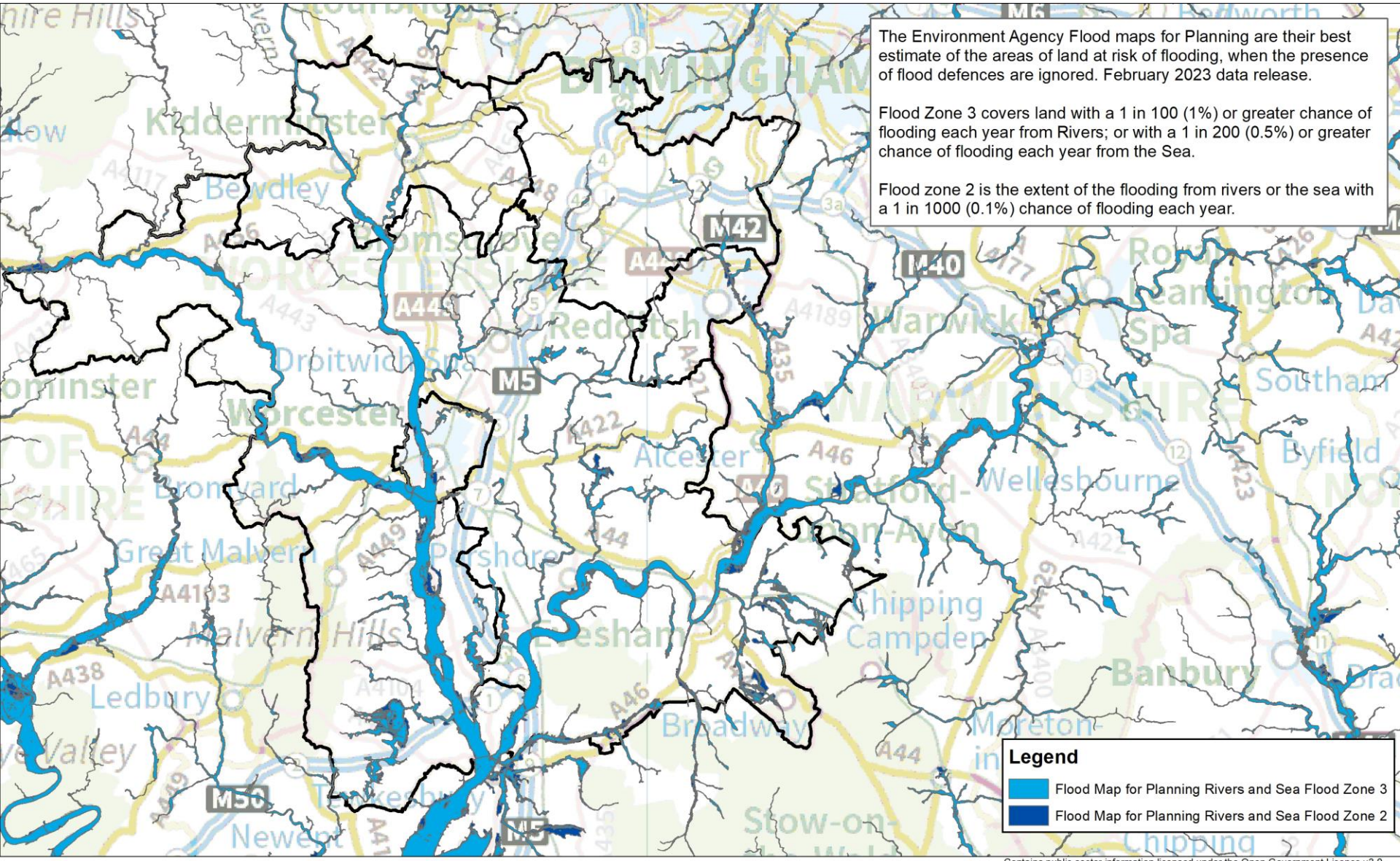


© Crown copyright and database rights 2023 Ordnance Survey 100024230.
You are not permitted to copy, sub-license, distribute or sell any of this data to third parties in any form.

Local Area Energy Planning - Landscape Character Assessment, Landscape Types

Produced by Business Intelligence Team (March 2023)

worcestershire county council



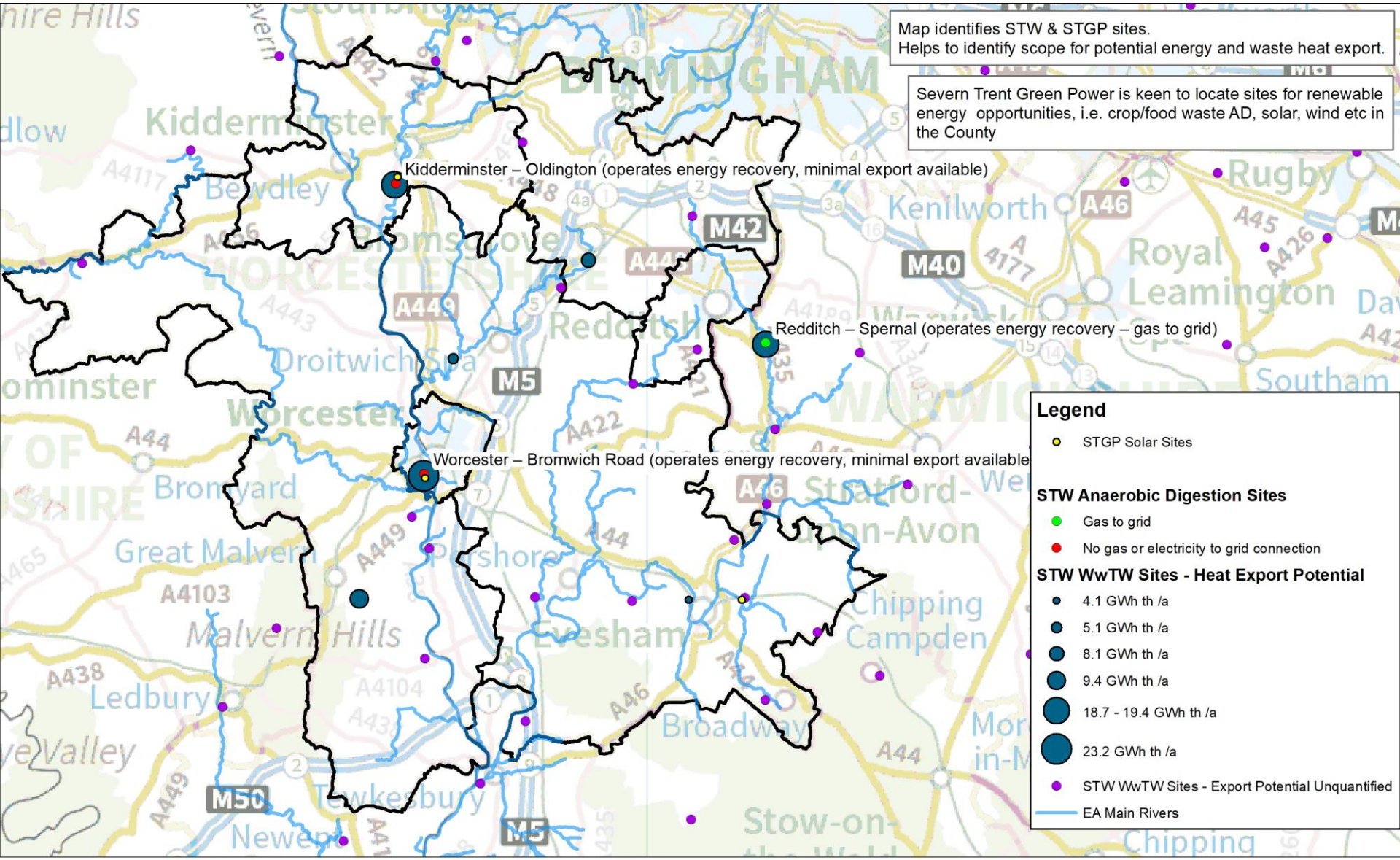
© Crown copyright and database rights 2023 Ordnance Survey 100024230.
You are not permitted to copy, sub-license, distribute or sell any of this data to third parties in any form.

Local Area Energy Planning - Environment Agency Flood Map

Contains public sector information licensed under the Open Government Licence v3.0.
© Environment Agency copyright and/or database right 2018. All rights reserved.
Some features of this map are based on digital spatial data from the Centre for Ecology & Hydrology, © NERC (CEH).
© Crown copyright and database rights 2018 Ordnance Survey 100024198

Produced by Business Intelligence Team (March 2023)

worcestershire county council

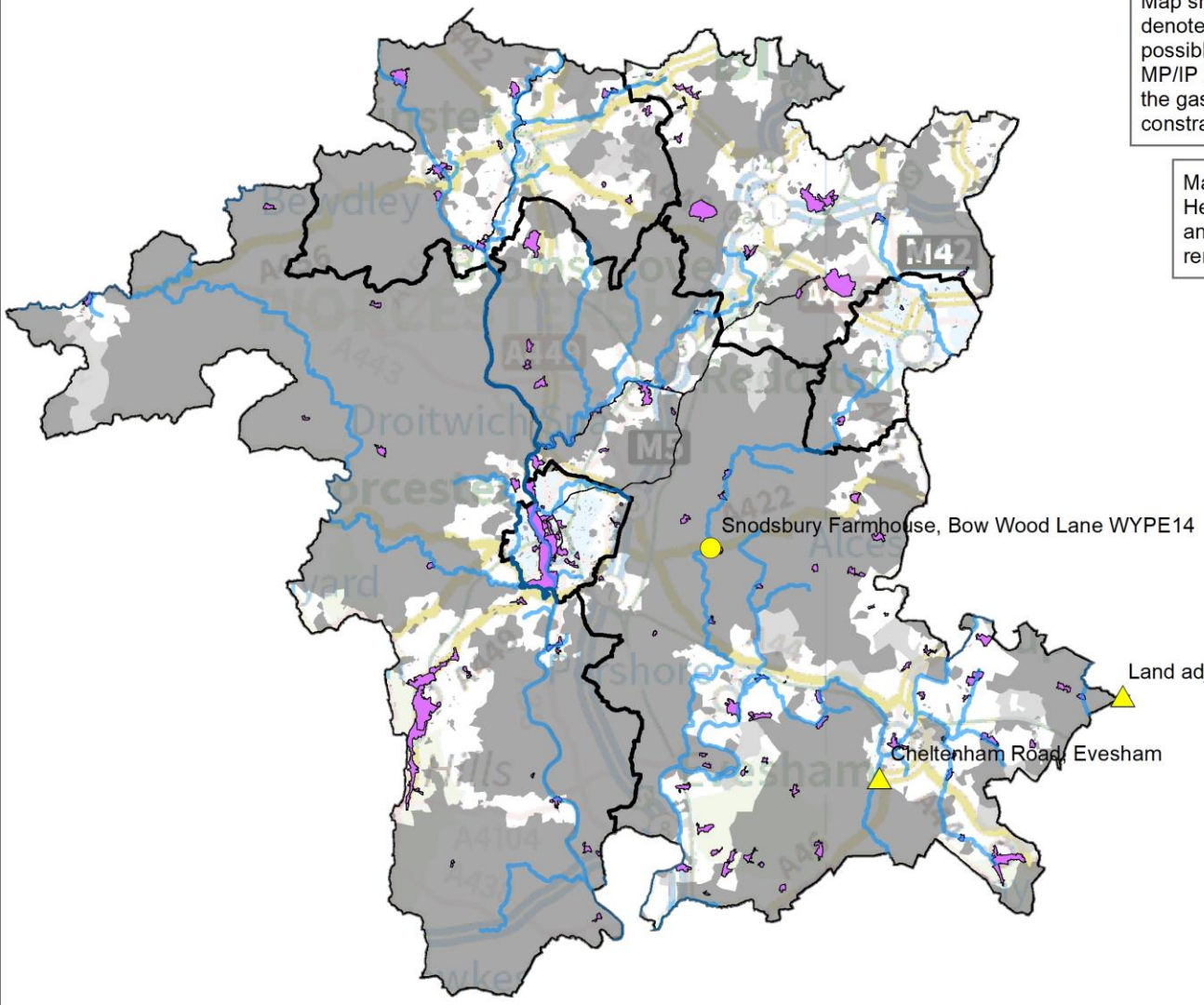


© Crown copyright and database rights 2023 Ordnance Survey 100024230.
You are not permitted to copy, sub-license, distribute or sell any of this data to third parties in any form.

Local Area Energy Planning - Severn Trent Water / Severn Trent Green Power: Energy & Heat Export Potential

Produced by Business Intelligence Team (March 2023)

worcestershire county council



Map shows Cadent & Wales & West gas network coverage and denotes areas that are known to be off gas grid and areas that are possibly off gas grid (where some domestic properties may be on MP/IP network). Helps to understand areas that are not served by the gas network and the potential impact of conservation area constraints for renewable energy opportunities

Map shows 3 x development sites that are off gas network. Helps to understand energy constraints for development sites and the potential impact of conservation area constraints for renewable energy opportunities

Legend

- Employment Development Site NOT on gas grid
- Residential Development Site NOT on gas grid
- EA Main Rivers
- Conservation Area

Cadent and W&W Combined Coverage

- On grid for Cadent or W&W
- OFF GAS GRID
- Possibly off-grid (MP/IP only)

© Crown copyright and database rights 2023 Ordnance Survey 100024230.
You are not permitted to copy, sub-license, distribute or sell any of this data to third parties in any form.

Local Area Energy Planning - Areas Off Gas Grid, Development Sites not on Gas Grid & Conservation Areas

Produced by Business Intelligence Team (March 2023)

worcestershire county council

Worcestershire
Local Enterprise Partnership

Worcestershire 2040 Vision:

"A **connected, creative, dynamic economy** for all."

Contact:
alison.dickinson@wlep.co.uk
Project Manager
Worcestershire Local Enterprise Partnership