

## **CLIMATE CHANGE AND ENVIRONMENT SCRUTINY COMMITTEE**

**WEDNESDAY 9 NOVEMBER 2022  
7.00 PM**

**Bourges/Viersen Room - Town Hall**  
**Contact: Charlotte Cameron, Democratic Services Officer,**  
[charlotte.cameron@peterborough.gov.uk](mailto:charlotte.cameron@peterborough.gov.uk), 01733 384628

### **AGENDA**

**Page No**

**1. Apologies**

**2. Declarations of Interest and Whipping Declarations**

At this point Members must declare whether they have a disclosable pecuniary interest, or other interest, in any of the items on the agenda, unless it is already entered in the register of members' interests or is a "pending notification" that has been disclosed to the Solicitor to the Council. Members must also declare if they are subject to their party group whip in relation to any items under consideration.

**3. Minutes of Climate Change and Environment Scrutiny Committee Meeting held on 5 September 2022** **3 - 10**

**4. Call In of Any Cabinet, Cabinet Member or Key Officer Decisions**

The decision notice for each decision will bear the date on which it is published and will specify that the decision may then be implemented on the expiry of 3 working days after the publication of the decision (not including the date of publication), unless a request for call-in of the decision is received from any three Members of a Scrutiny Committee. If a request for call-in of a decision is received, implementation of the decision remains suspended for consideration by the relevant Scrutiny Committee.

**5. Portfolio Progress Report from the Cabinet Member for Waste, Street Scene and the Environment** **11 - 20**

**6. Local Area Energy Plan** **21 – 166**

**7. Monitoring Scrutiny Recommendations** **167 - 172**

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8. **Forward Plan of Executive Decisions** **173 - 192**
9. **Work Programme 2022/2023** **193 - 198**
10. **Date of Next Meeting**

Extraordinary Joint Meeting of the Scrutiny Committees – 29 November 2022

Climate Change and Environment Scrutiny Committee – 4 January 2023

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**Committee Members:**

Councillors: N Day (Chair), C Burbage, G Casey, M Farooq, JA Fox, A Jones, D Jones, M Perkins, M Sabir, L Sharp, and C Wiggin (Vice Chairman)

Substitutes: Councillors: C Fenner, N Sandford and S Qayyum

**Non Statutory Co-opted Members:**

Parish Councillor June Bull, Independent Co-opted Member (non-voting)

Matthew Barber, Independent Co-opted Member (non-voting)

Stuart Dawks, Independent Co-opted Member (non-voting)

Dr Esther Norton, Independent Co-opted Member (non-voting)

Further information about this meeting can be obtained from Charlotte Cameron on telephone 01733 384628 or by email – [charlotte.cameron@peterborough.gov.uk](mailto:charlotte.cameron@peterborough.gov.uk)

**MINUTES OF THE CLIMATE CHANGE AND ENVIRONMENT SCRUTINY COMMITTEE  
MEETING  
HELD AT 7.00PM, ON  
MONDAY 5 SEPTEMBER 2022  
BOURGES/VIERSEN ROOMS, TOWN HALL, PETERBOROUGH**

**Committee Members Present:** Councillors N Day (Chair), C Wiggin (Vice-Chair), N Bi, C Burbage, G Casey, M Farooq, C Harper, A Jones, D Jones, M Perkins, L Sharp and Co-opted Member Parish Councillor Michael Samways and Independent Co-opted Members Matthew Barber, Stuart Dawks and Dr Esther Norton

**Also in attendance:** Zara Miftari and Miriam Sellick, Youth Council Representatives

**Officers Present:** Adrian Chapman, Executive Director Place and Economy  
Hannah Swinburne, Principal Climate Change Officer  
Darren Sharpe, Natural and Historic Environment Manager  
Jim Newton, Assistant Director Planning & Building Control  
Sue Addison, Insurance Manager  
Paulina Ford, Senior Democratic Services Officer  
Charlotte Cameron, Democratic Services Officer

**Also Present:** Cllr Marco Cereste, Cabinet Member for Climate Change, Planning, Housing and Transport

**1. APOLOGIES FOR ABSENCE**

Apologies for absence were received from Councillor Judy Fox and Councillor Harper attended as substitute.

Apologies were also received from Councillor Sabir and Councillor Bi attended as substitute.

Apologies were also received from Parish councillor June Bull and Parish Councillor Michael Samways attended as substitute.

**2. DECLARATIONS OF INTEREST AND WHIPPING DECLARATIONS**

No declarations of interest or whipping declarations were received.

**3. MINUTES OF THE CLIMATE CHANGE AND ENVIRONMENT SCRUTINY COMMITTEE MEETING HELD ON 6 JULY 2022**

The minutes of the Climate Change and Environment Scrutiny Committee Meeting held on 6 July 2022 were agreed as a true and accurate record.

**4. CALL IN OF ANY CABINET, CABINET MEMBER OR KEY OFFICER DECISIONS**

No call ins were received.

## 5. **TREE MANAGEMENT: REVIEW OF EXISTING POLICY FOR MANAGING TREE RELATED SUBSIDENCE CLAIMS AGAINST THE COUNCIL**

The Climate Change and Environment Committee received a report in relation to a review of the policy for managing tree related subsidence claims against the Council.

The purpose of the report was to allow the Committee to make comments on the draft Tree Related Subsidence Policy and make any recommendations to Cabinet regarding the pressures of tree subsidence.

The Natural and Historic Environment Manager accompanied by the Assistant Director Planning & Building Control and Insurance Manager introduced the report and highlighted key points including:

The Officers advised that the report considered the procedure the Council would follow when there had been a proven subsidence claim against a council owned tree under a Tree Protection Order (TPO). It was identified that the key point within the report related to whether the claim would automatically be deferred to the Planning Committee.

It was highlighted that a review of the existing policy had been conducted as a result of the felled oak tree in Bretton. The process had been determined to be lawful, but procedures could have been dealt with better. The review helped to identify improvements in the way the Council would respond to proven subsidence claims in the future.

Officers referred to the case law that governs subsidence claims and emphasised the importance of dealing with the claims on a case-by-case basis.

The Climate Change and Environment Scrutiny Committee debated the report and in summary, key points raised and responses to questions included:

- Members queried why the number of insurance claims had only been reported up to 2019. Members were advised that there was typically lag in insurance claim data and that the Council only know about a claim about two years after the event.
- Members were concerned that the approach blamed the tree and did not acknowledge the effect of climate change on insurance claims. Officers advised that insurance companies work on event years which determine abnormal years which would be used to justify the effect of climate change on subsidence. However, the trends now would make it difficult to defend subsidence claims against climate change.
- Members acknowledged the graph of insurance costs on page 20 of the report and asked if a proactive team reviewing the City's tree stock would see a reduction in costs related to insurance claims. The Officers advised that a cost had not been calculated but that this would be a method of invest to save whereby proactive management would minimise claims against the Council.
- The Officers followed up and highlighted that a blanket approach would not be effective enough. However, tress where there had been historic claims would justify a proactive felling approach to save costs in the future.
- Members were pleased that Officers had confirmed that felled trees would be replaced.
- Members referred to refinement 3 and queried how the effects of aging trees would be mitigated. Members were advised that the report allowed for a review of high-valued trees in terms of their Capital Asset Value for Amenity Trees (CAVAT value) which would allow for better protection of trees determined to be ancient.
- Members were supportive of the suggestion to take cases of Council owned TPO trees to the Planning Committee but queried how realistic that would be. Officers advised that it would not be a requirement and would be an opportunity for the

Committee to review a case. However, Members were advised that due to the sensitive nature of the information with each case, these sessions could not be held in public.

- Members sought further clarification on how bringing these TPO cases to the Planning Committee would benefit the Council. Members were advised that the Committee's role would be to either endorse or overturn the recommendations made by Officers after reviewing all the relevant information.
- Members queried why the cases would go to planning if it was just for final approval. The Officer identified that this would be to help increase the transparency, credibility and accountability of the decisions making process.
- Members asked how many TPO's the Council had and sought clarification on how many of those would be referred to the Planning Committee. Members were advised that less than 5% of the Council owned TPO trees as it was deemed to be bad practice for a Council to TPO their own tree stock.
- Members noted their concerns with the costs of taking a case to the Planning Committee should there be a delay with relevant assessments.
- Members referred to the Bretton Oak Tree and the issue that had been raised regarding the original planning permission and asked if there had been work with the planning department to avoid these errors. Members were advised that planning practice had evolved with time compliant standards and best practice rules.
- Members were advised that the Council's arboriculturist had and would continue to engage with Planning Officers on all application that related to trees.
- Members referred to the development of properties built in the past 40 years and sought clarification on how they would be determined to be endangered by trees or not. Members were advised that the foreseeability of tree as an issue would come from claims where risk management funding had been used to mitigate costs.
- Members sought further clarification on how costs were forecasted if trees that could be endangering a household were only identified after a claim had been made. The Insurance Manager advised that the forecasting was developed by looking back and conducting a review of all tree subsidence claims.
- Members referred to the proposal to bring tree subsidence claims to the Planning Committee and noted the delegated authority that Planning Officers had. Members offered a counter which would require a review of each TPO and if there had been significant interest, it would be at the discretion of the Committee to review the claim.
- Members were advised that the suggestion to bring claims to the Planning Committee would ensure a clear and transparent decision-making process.
- The Youth Councillor referred to the removal of a tree as a result of structural implications and asked if the Council had reviewed structural measures to prevent buildings from damage. Members were advised that there were options to save a tree, however, each option would come with both risk and cost to the authority.
- Members referred to the categorisation of the treatment of trees in refinement 4 and queried if all options would be explored before they are felled. Members were advised that there could not be a guarantee that an alternative to felling would be found. The Officer highlighted that the value of trees would be reviewed annually and that felling would only be an option if the tree had been proven to be causing the damage.
- Members referred to the use of independent reports and queried if there had been policy cases that would help avoid the use of multiple reports. The Officers highlighted that there would be arguments for and against the use of independent reports and that Officers were duty bound to balance the value of the tree against authority financial expectations.
- Members were advised that the Council appointed competent individuals who undertook the assessment of all claims, within a documented process.

- The Officers also highlighted that lessons had been learnt from the Bretton Oak Tree and hoped it would lead to improvements in the future.
- Members noted that the report did not include reference to trees that had been felled to avoid insurance claims and sought clarification as to why this was. Members were advised that the Council would only fell a tree if there had been evidence to show that it had been causing an issue.
- Members suggested the development of a tree forum to discuss tree felling issues and asked for Officers views. The Officer advised that this would be a good platform for discussion however there would be issues related to the sensitive information included in subsidence claims.

The following recommendation was made by Cllr Sharp and seconded by Cllr M Farooq, that Peterborough City Council do not automatically refer claims against Council owned TPO trees to the Planning Committee and instead rely on the existing procedures in place.

A vote was taken on the recommendation from Cllr Sharp (8 voted in favour, 2 voted against, 1 abstained from voting) and the recommendation was **CARRIED**.

### **AGREED ACTIONS**

The Climate Change and Environment Scrutiny Committee considered the report and **RESOLVED** to:

1. Note the current pressures imposed on the council by tree related subsidence and note the lessons learned from the recent Bretton Oak tree felling and offer any further views which will subsequently be reported to Cabinet.
2. Endorse the draft revised policy and recommend it to Cabinet.

### **RECOMMENDATION**

The Climate Change and Environment Scrutiny Committee considered the report and **RESOLVED** to **RECOMMEND** to Cabinet the draft revised Tree Subsidence Risk Mitigation Policy.

The Climate Change and Environment Scrutiny Committee also **RESOLVED** to endorse the draft revised policy subject to the **RECOMMENDATION** to amend the proposal so that Peterborough City Council do not automatically refer claims against Council owned TPO trees to the Planning Committee and instead rely on the existing procedures in place.

## **6. PORTFOLIO PROGRESS REPORT OF CABINET MEMBER FOR CLIMATE CHANGE, PLANNING, HOUSING AND TRANSPORT**

The Climate Change and Environment Scrutiny Committee received a report in relation to the portfolio progress of the Cabinet Member for Climate Change Planning Housing and Transport.

The purpose of the report was to allow the committee to scrutinise work being done under the portfolio of Cabinet member for climate change planning housing and transport.

The Principal Climate Change Officer and the Cabinet Member for Climate Change, Planning, Housing and Transport introduced the report and moved straight to questions.

The Climate Change and Environment Scrutiny Committee debated the report and in summary, key points raised and responses to questions included:

- The Youth Councillor referred to the Local Cycling and Walking Infrastructure Plan (LCWIP) and queried when the plan would go to official consultation. The Principal Climate Change Officer advised that the Cycling and Walking Task and Finish Group would conduct a review of the LCWIP to determine next steps.
- The Executive Director Place and Economy referred to the possibility of co-opted members on a task and finish group and suggested that the Youth Council Representative express an interest in that role.
- Members referred to the bikability numbers on page 28 and sought clarification on why the number was low. The Officer advised that they pass the question onto the relevant Officer who would be able to review and provide the correct figure.
- Members asked how the Committee would be informed of the Net Zero City Work that would be reliant on bids for funding. Members were advised that there would be constant communication with the Committee and reports would be brought to the Committee as and when required.
- Members sought clarification on how that communication would work. The Officer advised that the action plans would go to Council for adoption and update reports could be brought in the future.
- Members referred to biodiversity net gain (BNG) and questioned why the Council were not looking at doubling nature ambition targets across all work and not just 10%. The Natural and Historic Environment Manager was invited to speak and advised that BNG had not been mandated until 2023 so the Council had begun their approach cautiously to allow for higher aspirations later.
- Members noted that BNG plans favoured greenfield land and cautioned against the use of mitigation efforts instead of the use of the existing land bank.
- Members asked if the target for BNG had been set higher than 10%, would it have caused a risk to investment. Members were advised that any target above 10% would undertake viability analysis.
- The Natural and Historic Environment Manager advised the Committee that he would recommend a viability analysis on any target above 10% to review if it would be suitable for the Peterborough environment.
- Members referred to the Trees and Woodland Strategy and sought clarification on the progress to meeting the target of planting 150,000 trees. Members were made aware that Officers had applied for the Woodland Accelerator Grant Fund which would help the Council identify suitable sites for tree planting and boost the figures to meet the target.
- Members sought clarification on the progress of the application to the Department for Environment, Food and Rural Affairs (DEFRA) for the Treescape 2 funding. Members were advised that no decision had been made.
- The Youth Councillor referred to the implementation of cycling and walking paths and queried how they would be promoted to the public. The Principal Climate Change Officer advised that the active travel forums in the city would be utilised, and that the communication team would share information via social media and press releases.
- The Youth Councillor followed up and asked whether the school streets scheme had been connected to the LCWIP. Members were advised that both schemes were run by the same team within the Council and all options to strengthen the link between the two were being explored.
- Members referred to the BNG requirement and that it would not be mandatory till 2023 and queried what the planning obligation for that would be. The Natural and Historic Environment Manager advised that this would be the inclusion of a Section 106 agreement and the use of conditions dependent on each case.
- Members referred to the Cycling and Walking Task and Finish Group and noted the importance of both the maintenance of existing infrastructure and development of new routes. Members were advised that these comments would be fed back to the LCWIP team.

- Members referred to Active Travel funding and queried if the Council had asked national Government for guidance on how applications to funding schemes could be improved to result in larger sums. Members were advised that the teams had been attending webinars and had had discussions with relevant departments but that an update on this could be provided.
- The Executive Director Place and Economy advised that senior Whitehall representatives from the Department for Transport (DfT) had been invited to the city for a walk around to display assets and highlight what investment would be needed.

## **AGREED ACTIONS**

The Climate Change and Environment Scrutiny Committee considered the report and **RESOLVED** to:

1. Consider and scrutinise this report and endorse the approach being taken under the portfolio of the Cabinet Member for Climate Change, Planning, Housing and Transport

The Climate Change and Environment Scrutiny Committee also requested that the Principal Climate Change Officer:

- Check the figures reported on the uptake of Bikeability Cycle Training and clarify, if correct, why the numbers are lower than usual.
- Explore ways in which the School Streets Scheme can strengthen the links between improving cycle networks and active travel for young people.
- Consider including the maintenance of existing cycle routes in the production of the Local Cycling and Walking Infrastructure Plan.
- Provide an update on applications to funding schemes and how the Council were working towards being successful in their applications.

## **7. CLIMATE CHANGE PUBLIC ENGAGEMENT APPROACH**

The Climate Change and Environment Scrutiny Committee received a report in relation to the Council's climate change public engagement approach.

The purpose of the report was to scrutinise the proposed process for the public engagement in the development of the city-wide climate change action plan.

The Principal Climate Change Officer introduced the report and highlighted key points including:

The aim of the report was to look at the proposed public engagement approach that would support Peterborough to become a net zero carbon city. For this target to be met, everyone's voices would need to be heard to best determine how the city would decarbonise. This would include input from residents, businesses, community groups, public sector organisations and school children.

This paper set out the approach on how to have those discussions with the public and notes that the feedback gathered would be used to build the City Wide Climate Change Action Plan.



The Climate Change and Environment Scrutiny Committee debated the report and in summary, key points raised and responses to questions included:

- Members welcomed the report and noted that it was a great initiative.
- Members referred to paragraph 4.3 and sought clarification on how the Parish Councils would be involved in the process. The Officer advised that she had been invited to speak at the Parish Council Climate Change working group and discussions would be focused on how the Parish Councils could get involved with the engagement plan.
- Members asked if the consultation process would avoid being focussed on decarbonisation and would look at the climate change agenda as a whole. Members were advised that this was an opportunity to have lots of discussions that could be targeted at other ambitions and climate change work.
- Members sought clarification on how Council Members would be involved in the discussions and engagement plan. The Officer advised that the proposal included workshops hosted by Officers and expert witnesses and that Councillors were free to hold their own sessions with support from the team if they would be interested in doing so.
- Members noted the report as great work and extended their support through the external organisation Peterborough Environment City Trust (PECT).
- Members queried if the eight-week consultation period would be long enough to receive a high level of engagement. Members were advised that there would be a balance between getting responses and moving the approach forward. This would not be the final pieces of engagement work and it would be an ongoing process.
- The Cabinet Member for Climate Change, Planning, Housing and Transport noted that this would be an ongoing project and the teams would continue to interact with relevant parties.
- Members appreciated that the work would let a range of people contribute and noted that if the plan is successful, the work should be done to improve other forms of consultation.
- Members queried if Officers would consider inviting ward councillors to schools when the City-Wide Action Plan would be promoted. The Officer acknowledged the suggestion.

## **AGREED ACTIONS**

The Climate Change and Environment Scrutiny Committee considered the report and **RESOLVED** to:

1. Note and comment upon the proposed approach to public engagement.
2. Note and comment upon the proposed approach to utilising consultation feedback the development of the city-wide climate change action plan.

The Climate Change and Environment Committee also requested that:

- The Principal Climate Change Officer consider inviting ward councillors to schools when promoting the consultation for the City-Wide Action plan.

## **8. MONITORING SCRUTINY RECOMMENDATIONS**

The Democratic Services Officer introduced the report which enabled the committee to monitor and track the progress of recommendations made to the Executive or Officers at previous meetings.

- There were no points raised.

## **AGREED ACTIONS**

The Climate Change and Environment Scrutiny Committee considered the report and **RESOLVED** to note the responses from Cabinet Members and Officers to recommendations made at previous meetings as attached in Appendix 1 to the report.

### **9. FORWARD PLAN OF EXECUTIVE DECISIONS**

The Democratic Services Officer introduced the report which included the latest version of the Council's Forward Plan of Executive Decisions containing decisions that the Leader of the Council, the Cabinet or individual Cabinet Members would make during the forthcoming month. Members were invited to comment on the plan and where appropriate, identify any relevant areas for inclusion in the Committee's Work Programme.

- There were no points raised.

## **AGREED ACTIONS**

The Climate Change and Environment Scrutiny Committee considered the current Forward Plan of Executive Decisions and **RESOLVED** to note the Forward Plan of Executive Decisions.

### **10. WORK PROGRAMME FOR 2022/2023**

The Democratic Services Officer presented the report which looked at the work programme for the municipal year 2022/23 to determine the Committees priorities.

- Members referred to the recent flooding in Pakistan and suggested that a topic on this issue be reviewed and added to the Work Programme for 2022/2023.

## **AGREED ACTIONS**

The Climate Change and Environment Scrutiny Committee considered the Work Programme for 2022/2023 and **RESOLVED** to note the report.

### **11. DATE OF NEXT MEETING**

The date of the next Joint Scrutiny Meeting was noted as being 11 October 2022.

The date of the next Climate Change and Environment Scrutiny Committee meeting was noted as being 9 November 2022.

CHAIR

Meeting began at 7.00pm and ended at 20:38 pm

<b>CLIMATE CHANGE AND ENVIRONMENT SCRUTINY COMMITTEE</b>	AGENDA ITEM No. 5
<b>9 NOVEMBER 2022</b>	<b>PUBLIC REPORT</b>

Report of:	Cabinet Member for Waste, Street Scene, and Environment Adrian Chapman – Executive Director, Place and Economy	
Cabinet Member(s) responsible:	Cllr Nigel Simons - Cabinet Member for Waste, Street Scene, and Environment	
Contact Officer(s):	James Collingridge – Assistant Director of Operations Richard Pearn - Head of Waste, Resources and Energy	Tel. (01733) 864736/864739

**PORTFOLIO PROGRESS REPORT FROM THE CABINET MEMBER FOR WASTE, STREET SCENE AND THE ENVIRONMENT**

<b>RECOMMENDATIONS</b>	
<b>FROM: Councillor Simons</b> Cabinet Member for Waste, Street Scene, and Environment	<b>Deadline date: N/A</b>
<p>It is recommended that the Climate Change and Environment Scrutiny Committee:</p> <p>Considers and scrutinises this report and endorses the approach being taken under the portfolio of the Cabinet Member for Waste, Street Scene, and Environment.</p>	

**1. ORIGIN OF REPORT**

- 1.1 This report is provided to update the Climate Change and Environment Scrutiny Committee on the progress of items under the responsibility of the Cabinet Member for Waste, Street Scene, and Environment.

**2. PURPOSE AND REASON FOR REPORT**

- 2.1 The report is being presented by Cllr Simons at the request of the Climate Change and Environment Scrutiny Committee. The report will provide an overview of all the key portfolio areas. It will also provide an overview of the current performance of Aragon Direct Services, including recycling rates and open space management.

- 2.2 This report is for the Growth, Environment and Resources Scrutiny Committee to consider under its Terms of Reference Part 3, Section 4 - Overview and Scrutiny Functions, paragraph No. 2.1 Functions determined by Council:

- 2. Environmental Capital
- 6. Waste Strategy and Management

- 2.3 The Cabinet Portfolio for Waste, Street Scene and the Environment covers the following areas: -

- a) Peterborough Limited trading as Aragon Direct Services (ADS), ADS have responsibility for the following Services: -
- Street Cleansing
  - Waste and Recycling Collections
  - Grounds Maintenance and Arboriculture
  - Home to School Transport

- Property Maintenance
- Vehicle Maintenance and Taxi MOTs
- Catering

Peterborough Limited additionally cover: -

- Vivacity Leisure

- b) Waste Strategy and Management
- c) Leads on the Council's energy strategy
- d) Responsible for Westcombe Engineering

### 3. **TIMESCALES**

Is this a Major Policy Item/Statutory Plan?	<b>NO</b>	If yes, date for Cabinet meeting	N/A
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### 4. **BACKGROUND AND KEY ISSUES**

#### 4.1 **Aragon Direct Services (ADS)**

- 4.1.1 ADS is a trading name for part of the Peterborough Ltd company. Since ADS was formed in February 2019 it has seen many back-office changes to streamline operations and reduce overhead costs to the authority. More recently, it has also taken on certain services previously delivered by Vivacity which has led to efficiencies as a result of the cross-business sharing of resources. This has really helped to bolster ADS in areas such as Communications, Finance, and HR.

The current ADS contract now delivers a breadth of services including:

- Street Cleansing
- Waste and Recycling Collections
- Grounds Maintenance and Arboriculture
- Home to School Transport
- Property Maintenance
- Vehicle Maintenance and Taxi MOTs
- Catering

- 4.1.2 ADS is overseen by a board of directors which includes senior ADS officers and Councillors. The board is in place to oversee the running of the company and maintain an overarching view on spend and business development.

PCC have fortnightly contractual meetings with the Managing Director of Peterborough Ltd and fortnightly operations meetings with its senior managers. Ultimately any changes to the governance or structure of Peterborough Ltd, as well as overall performance, is reported into the Shareholder Cabinet Committee.

Daily the contract is monitored by Assistant Director for Operations, who also uses contractual key performance indicators (KPIs) to ensure ADS are delivering cost effective services.

#### 4.2 **Overview of Service Areas and Performance**

##### 4.2.1 **Street Cleansing**

- (i) ADS undertake street cleansing throughout the city, currently emptying 1,386 litter bins and 355 dog waste bins on varying schedules. Between April 2021 and March 2022 ADS have collected 1,322.65 tonnes of street sweepings.
- (ii) ADS has also been fully supportive and actively helping the Peterborough Wombles and the

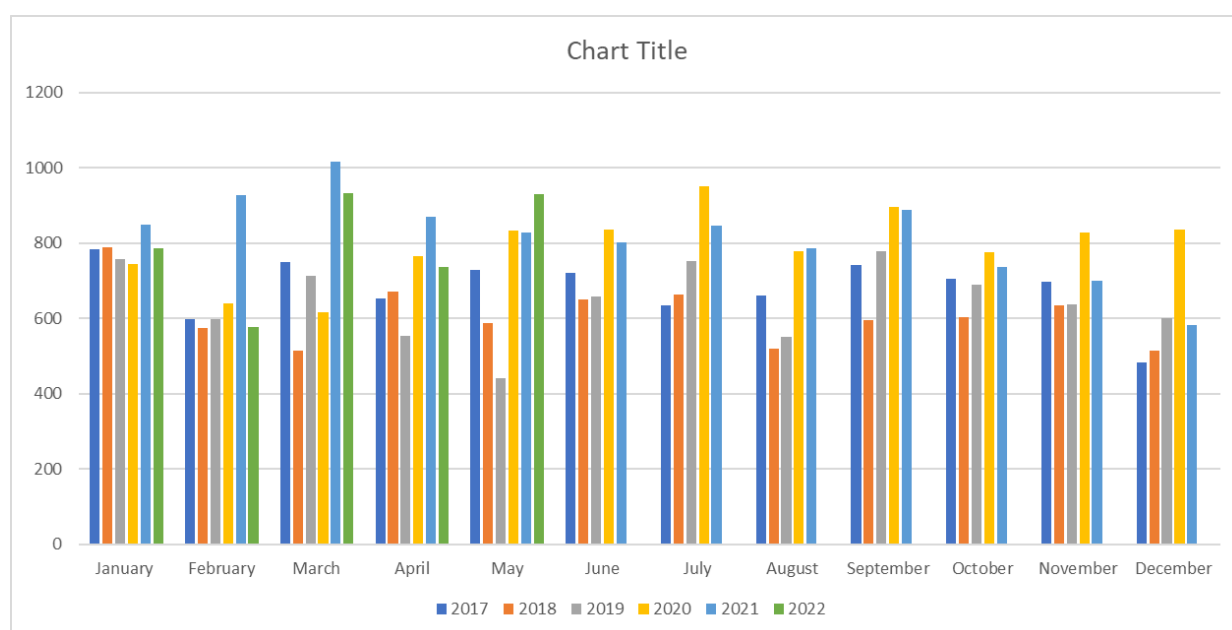
magnificent work they have been doing around the city, via provision of litter pickers and bags, as well as collecting the waste gathered.

We are now currently working jointly to produce a litter strategy that we will adopt for the city including the types of bins we will install, signage and working with groups such as the Wombles.

We have continued to see a positive increase in the number of residents and groups wanting to volunteer to carry out litter picks and have recently purchased 500 litter pickers to help support volunteer activity.

- (iii) Fly tipping continues to be an issue across the city and country. ADS are working hard to clear fly tipping within the KPI timeframe of 24 hours for hazardous waste and 48 hours for non-hazardous waste as soon as this is reported to them.

The following table gives a monthly comparison on fly-tip numbers per month since 2017. As you can see the data shows that we have continued to see a high-level rate of fly tipping across the board and at this point this does not seem to be reducing.



Between April 2021 and March 2022, 68 Fixed Penalty Notices have been issued for fly tipping offences and 18 cases have been prepared for court action. In this period ADS have collected 1,709.38 tonnes of fly tipping.

We have been working with third party enforcement companies that are bringing different technologies including surveillance and CCTV to the city, in an attempt to catch the culprits. A director-led cross-council/ADS working group has also been established to examine long term options to reduce fly tipping in the city.

#### 4.2.2 RECAP Fly Tipping Group / Task and Finish Group

RECAP - Recycling for Cambridgeshire and Peterborough – is a partnership comprising all councils across Cambridgeshire and Peterborough, including the County Council, and is focussed on tackling fly tipping together using a nationally available toolkit.

The RECAP fly tipping group continues to meet monthly and is currently focussed on:

- social media / awareness campaigning linked to the fly tipping SCRAP It campaign
- submitting a funding submission to the Police and Crime Commissioner around environmental crime, for equipment to support surveillance and enforcement
- Sharing of best practice / intelligence around environmental crime, in particular fly tipping across the districts

#### 4.2.3 **Waste, Recycling Collection and Waste Treatment**

- (i) ADS operate a fortnightly collection of residual and recycling waste from circa 85,000 properties, with food waste being collected weekly.

Garden waste continues to be a paid-for service and we have 20,408 subscriptions this year compared to 20,183 last year. Residents continue to take up the Direct Debit option, with 9,429 choosing to pay by breaking down the charge over 3 payments and making it a recurring subscription. Of these totals, 4,229 households subscribe to two bins.

Current recycling rates are shown below compared to the previous financial year; we are currently slightly down which is a situation many councils have found following the impacts of Covid-19. Projects are in hand to drive this rate back up, recognising that with each 1% that can be diverted into the correct recycling waste stream we can save the authority circa £65,000.

- April 20 - March 21 = 40.90% Recycled/Composted
- April 21 - March 22 = 38.90% Recycled/Composted

- (ii) The tender for the new refuse vehicle fleet has been completed by Dennis Eagle, who have delivered the new core fleet with food pods and moving from all diesels to new diesel body with electric bin lifts. We are also awaiting delivery of two fully electric refuse collection vehicles (RCVs) which will be used on the garden waste service as they do not require the food pods. The use of food pods restricted the ability to source all electric RCVs for the main service with presently available vehicles.
- (iii) ADS recognise there is currently a limited number of HGV drivers applying for positions as refuse drivers, and as such they have been internally training staff and have already seen 5 operatives now qualify for their HGV licence.

#### 4.2.4 **Bulky Waste Collections**

This service presently is booked through the call centre at Peterborough Direct, with payment being required at time of booking before the collection is approved and scheduled with ADS.

The service can offer up to 30 collections per day on a Tuesday to Friday inclusive and is very well used with available slots booked up for at least 3 to 4 weeks in advance.

The existing customer interface is a legacy system which is not fit for the future demands of the service, and as such a project is underway to directly connect the customer interface on the council's website with the back-office computer system ADS use to streamline the user experience and reduce administrative costs. This work was required irrespective of the status of charging or otherwise.

#### 4.2.5 **Recycling Improvement - Education and Awareness Raising**

Members may well have seen some of the good work undertaken in 2021-22 with the Waste and Resources Action Programme (WRAP) supported food waste communications campaign, bin stickers and associated social media engagement.

In February and March 2021 all residents in the city were delivered a food waste leaflet and a roll of liners with a No Food Waste sticker applied to the black residual waste bin with the aim to increase participation in the weekly food waste service and thus increase tonnes captured. Annual results show it has been a success with 1,247 tonnes of additional food waste collected between April 2021 - March 2022 compared to the previous year, an impressive 30% increase. In addition, requests for food waste caddy's increased with 5,214 indoor caddy requests and 6,168 outdoor caddy requests being made.

Caddy requests:

<b>Caddy type</b>	<b>Requests</b>
Inside only	843
Outdoor only	1797
Indoor and Outdoor	4371
<b>Total Indoor</b>	<b>5214</b>
<b>Total Outdoor</b>	<b>6168</b>

Tonnes of Food Waste collected:

	<b>2020</b>	<b>2021</b>	<b>Increase in tonnes</b>	<b>% Increase</b>
February	304	315	11	3.61%
March	336	386	50	14.88%
April	376	504	128	34.04%
May	367	480	113	30.79%
June	333	478	145	43.54%
July	319	489	170	53.29%
August	324	379	55	17.13%
September	351	404	53	14.97%
October	339	418	79	23.30%
November	340	430	90	26.47%
December	331	492	161	48.64%
	<b>2021</b>	<b>2022</b>	<b>Increase in tonnes</b>	<b>% Increase</b>
January	376	469	93	24.73%
February	315	412	97	30.79%
March	386	449	63	16.32%

Total increase over 12 months post project is 1,247 tonnes which equates to a saving of £107,000.

Officers are now working on proposals to develop and deliver a targeted education programme, which, subject to funding, would commence in early 2023. Dedicated education and communication staff will target areas where contamination, poor participation or other issues are affecting the recycling performance of the city as a whole. Using information gathered from crews, inspections of collected material and data gathered by the onboard equipment areas can be identified and communication efforts targeting the key issues can be undertaken in conjunction with ADS.

#### 4.2.6 Household Recycling Centre (HRC)

The HRC has been performing well in segregating material away from disposal and performance to year ending March 2022 is 71.11% of received materials separated for recycling, reuse, and composting. This is above the performance achieved at the Dogsthorpe site. However, the development of the service is not yet complete. Part of the facility is specifically designed to permit the hand sorting of any bags of mixed waste that contain recycling and included within the contract is a role for educating site users as to how to prepare for recycling on site. This will improve the resident's next visit, as segregated materials are often quicker to deposit and allows an opportunity to engage in the wider recycling and environmental message at home. Due to the implications of Covid-19 this development is under review with and a starting date to be arranged when it is deemed safe to regularly come into close contact with residents using the service.

#### 4.2.7 Resources and Waste Strategy – RECAP

A project was undertaken across the RECAP authorities to develop proposed ways of waste and recycling collection to allow partners to move services towards aligning with the developing national government Resources and Waste Strategy.

The strategy, arising from the Environment Act 2021, aims to bring consistency to the materials collected by councils across the country to improve the quality and quantity of recycling collected nationally. By working with RECAP partners, funding for a modelling exercise was secured from DEFRA with the ultimate aims being to align to the national strategy, reduce cost and improve services to residents. It is not expected that the government will publish their response to the second round of consultations until sometime during late 2022, and therefore RECAP partners will wait to revisit this modelling to ensure it reflects any update to previously published policy direction.

Other provision in the expected strategy aims to legislate to influence the producers of packaging to simplify its design for improved recycling and to ensure the costs of recycling, and treating non-recyclable packaging, is borne by the producers themselves. This aims to assist councils in future service design and delivery subject to how this is implemented, and the modelling work aims where possible to take account of these implications to futureproof developing services.

#### 4.2.8 Grounds Maintenance and Arboriculture

- (i) ADS have completed all the city-wide grass cutting and have commenced shrub cutting. We have seen some great resident and community group engagement in the city this year with our biodiversity areas with both enhancements and creating new wildflower areas. We have been working closely with PECT who have supported both PCC and community groups in further enhancing natural habitats in our local areas.

ADS have retained Green Flag status at 4 parks across the city and continue to work with friends' groups to improve park facilities, including working more closely with the groups to apply for external funding for improvements and events within the parks. All our parks received incredibly positive feedback from the judges and is a credit to the works of not only ADS but the friends' groups who work hard to improve the parks and put on events.

Towns Fund money that was received for improving parks is continuing to be implemented with several new parks already completed across the city. The new Parks App, which we are jointly creating with Cambridgeshire, is also nearing completion and will offer residents key information on our parks and events.

- (ii) The committee specifically requested information relating to grass cutting. At present we have several regimes for grass cutting ranging from 1 cut per year in our biodiversity areas to 8 cuts per year in most open space and parks environments.

We have been working with PECT in some of our biodiversity areas to complement the long grass with wildflower planting and are also looking to trial an area under trees where grass may struggle to establish with a woodland wildflower mix.

Currently we have 3,602,111 m<sup>2</sup> of grass that we cut 8 times per year, mostly open space and recreation areas and verges directly outside residents' homes and along pathways. In contrast at present, we have 230,252 m<sup>2</sup> of biodiversity grass. When these areas were originally installed, we did receive some negative comments, however we are now seeing more groups wanting to get involved in their own biodiversity areas with some great initiatives in Hastings Road and John Clare Rec.

High speed road verges used to be cut the full length back to the fence line every year. However,



this was reduced to 3 cuts and only the first 1.5 metres and following this change we have seen natural regeneration in the rear sections. Most recently we have reduced the cutting regime further and now cut the high-speed road verges twice per year to a 1.5m width; this reduction offers both cost savings to the authority due to less traffic management being needed but also increased natural regeneration.

The main areas of the city where we have a more intense mowing regime are those used for sports purposes such as bowls, croquet, and tennis facilities.

#### 4.2.9 **Home-to-School Transport**

ADS currently operate 30 home-to-school routes for PCC, including services for both mainstream and special schools. They additionally operate the Community Link Service that takes residents who cannot use public transport to get their shopping and back home, which continues to be a well-used service and utilises the staff in between their school runs to undertake the work.

ADS are also looking to upskill their staff members as they have seen a lack of skilled PSV drivers in the market for the hours required to cover home-to-school routes. As such they are training non-PSV drivers and passenger assistants to obtain their PSV licence. This will allow greater flexibility in the services delivered and offer the resilience needed to cover for sickness etc.

#### 4.2.10 **Property Maintenance**

ADS provide a repairs and maintenance helpdesks function for all PCC properties with a 24 hour on call service where required. They also ensure that all our statutory servicing obligations on our properties are fulfilled, and a 5 yearly condition survey of our estate is conducted.

This is seen as an area of the business that can be further expanded with some schools already signing up to SLAs with ADS, although we want to expand this further as ADS can offer a complete package with property, grounds maintenance, and cleaning,

#### 4.2.11 **Energy Generation and Consumption**

- (i) In 2020-21, the council purchased and utilised 10,941 MWh of electricity, 14,732 MWh of gas and 1.9 MWh of propane.
- (ii) The council owns solar panels installed on council owned buildings. In 2021, the council generated 2,583 MWh electricity through these solar panels. Much of this electricity is used directly in the buildings. Since their installation around 2% of all electricity generated has been exported back to the national grid.

Between April 2022 and the entry into the planned maintenance period in July, the Energy Recovery Facility generated 17,703 MWh of electricity. Following the maintenance period, the facility has returned to a steady state of operation and is exporting electricity again. Subject to unforeseen events, the facility is on target to achieve its expected target output.

- (iii) The Peterborough Integrated Renewable Infrastructure (PIRI) project has completed the current phase of work. An application has been submitted to the government's Green Heat Network Fund to complete further commerciality work.

#### 4.2.12 **Westcombe Industries**

Westcombe Industries has, like most manufacturing companies, seen an impact on their works through COVID and the increase in core material costs, with subsequent negative impacts on their current pricing and cost model.

The staff within Westcombe recognised these factors and have re-priced all their products working with core material suppliers and customers to put these in place. These price increases are now impacting through the budgets which are now in a more favourable position.

We continue to look to bring in further work and have potentially two new suppliers coming online for parts with one being a large corporate company.

Most recently the company has been reviewed for its BSI standards and we are pleased to advise the company retained this with no negatives.

## **5. CONSULTATION**

5.1 Consultation relevant to each aspect of the portfolio has been carried out as part of 'business as usual' operations.

## **6. ANTICIPATED OUTCOMES OR IMPACT**

6.1 It is anticipated that the Climate Change and Environment Scrutiny Committee will note the content of this report and any comments will be fed back to aid in future improvements to the services delivered.

## **7. REASON FOR THE RECOMMENDATION**

7.1 To allow scrutiny of the Portfolio of the Cabinet Member for Waste, Street Scene, and Environment.

## **8. ALTERNATIVE OPTIONS CONSIDERED**

8.1 The alternative option was to not present this report to the Climate Change and Environment Scrutiny Committee; this option was not taken forwards as it is important to allow clear and transparent scrutiny of these front-line services.

## **9. IMPLICATIONS**

### **9.1 Financial Implications**

9.1.1 This report is to give an overview / progress update, and as such there are no financial implications.

### **9.2 Legal Implications**

9.2.1 This report is intended to give an overview / progress update, and as such there are no direct legal implications. As regards specific projects, legal advice has been sought on a case-by-case basis.

### **9.3 Equalities Implications**

9.3.1 This report is to give an overview / progress update, and as such there are no anticipated equality implications.

### **9.4 Rural Implications**

9.4.1 This report is to give an overview / progress update, and as such there are no rural implications.

### **9.5 Carbon Impact Assessment**

9.5.1 The report contains no proposals for changes to service delivery and therefore there is no decision to take which may impact carbon emissions of the council or the city.

Under this portfolio Cllr Simons is looking at all options to reduce our CO2 including through mitigation with tree planting, looking at new low CO2 vehicles, and energy production.

**10. BACKGROUND DOCUMENTS**

Used to prepare this report, in accordance with the Local Government (Access to Information) Act 1985

10.1 None

**11. APPENDICES**

11.1 None

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<b>CLIMATE CHANGE AND ENVIRONMENT SCRUTINY COMMITTEE</b>	AGENDA ITEM No. 6
<b>9 NOVEMBER 2022</b>	<b>PUBLIC REPORT</b>

Report of:	Adrian Chapman, Executive Director Place and Economy	
Cabinet Member(s) responsible:	Cllr Marco Cereste, Cabinet Member for Climate Change, Planning, Housing and Transport	
Contact Officer(s):	Hannah Swinburne, Principal Climate Change Officer	Tel. 01733 453479

**LOCAL AREA ENERGY PLAN**

<b>RECOMMENDATIONS</b>	
<b>FROM:</b> Adrian Chapman, Executive Director of Place and Economy	<b>Deadline date:</b> Cabinet 14 <sup>th</sup> November 2022
It is recommended that the Climate Change and Environment Scrutiny Committee:	
<ol style="list-style-type: none"> <li>1. Endorse the adoption of the Local Area Energy Plan and recommend that Cabinet endorses the Local Area Energy Plan.</li> </ol>	

**1. ORIGIN OF REPORT**

- 1.1 The report is brought to the Scrutiny Committee to seek endorsement to adopt the Local Area Energy Plan by Council.

**2. PURPOSE AND REASON FOR REPORT**

- 2.1 The report presents the findings of the Local Area Energy Plan and seeks endorsement to adopt the Local Area Energy Plan by Council. The report includes the final version of the Local Area Energy Plan and follows a previous report to the Scrutiny Committee which detailed some of the findings.
- 2.2 This report is for Climate Change and Environment Scrutiny Committee to consider under its Terms of Reference No. Part 3, Section 4 - Overview and Scrutiny Functions, paragraph No. 2.1 Functions determined by the Council:
  4. Climate Change;
  5. Reducing Carbon Emissions and achieving Net Zero Carbon Emissions
  10. Energy Generation and Consumption.
- 2.3 The Council declared a climate emergency and have made tackling climate change a corporate priority. The Local Area Energy Plan provides insight to inform plans to decarbonise Peterborough.

### 3. TIMESCALES

Is this a Major Policy Item/Statutory Plan?	<b>YES</b>	If yes, date for Cabinet meeting	<b>14 November 2022</b>
Date for relevant Council meeting if applicable	<b>7 December 2022</b>	Date for submission to Government Dept. (Please specify which Government Dept.)	<b>N/A</b>

### 4. BACKGROUND AND KEY ISSUES

4.1 The Climate Change and Environment Scrutiny Committee have previously discussed the findings of the Local Area Energy Plan and have supported its use in informing the development of the City Wide Climate Change Action Plan and establishing a partnership group to continue delivery of the Local Area Energy Plan. This report presents the final version of the Local Area Energy Plan to seek endorsement for the Council to adopt the plan.

A summary of the findings of the Local Area Energy Plan are detailed below. The full report can be found in appendix 1, and the methodology used to develop the Local Area Energy Plan in appendix 2.

**The Local Area Energy Planning approach.** Peterborough City Council declared a climate emergency in 2019 and committed to supporting the city to become net zero carbon. The council has also committed to developing a city wide climate action plan. This will cover actions to decarbonise buildings, transport, energy production, industry, purchases, waste and land use. In order to produce an ambitious action plan which is grounded in solid foundations, the action plan will need to be built on some key information, including a strong knowledge of our current infrastructure and behavioural choices and a reliable projection of future scenarios.

Energy Systems Catapult (ESC) have developed the local area energy planning (LAEP) approach to deliver a comprehensive, data-driven and cost-effective plan for decarbonisation. Importantly, the approach requires working closely with stakeholders to build upon progress being made and ambitions for the city.

The LAEP evaluates the current and future energy demands of the city, considering electricity demand, heating demand, retrofitting buildings for energy efficiency and electric vehicle charging demand to produce a plan to get to net zero carbon. To note, the LAEP does not cover all areas which will feature within the city wide climate change action plan, such as land use and transport emissions from commercial vehicles such as vans, lorries, buses etc. This LAEP therefore considers almost 70% of emissions, see figure 1.

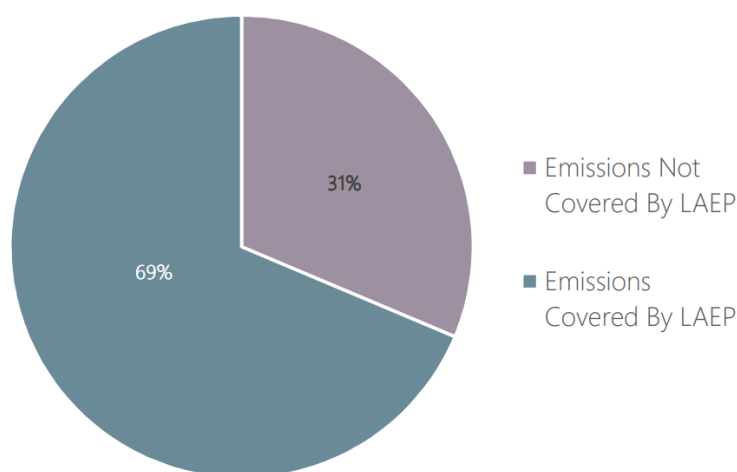


Figure 1: Approximate proportion of Peterborough CO2 emissions (2019) covered by the LAEP

A LAEP aims to define the extent of the transformation required to transition an area's energy system to net zero in a given timeframe. This is achieved by an exploration of potential pathways that considers a range of technologies and scenarios, and when combined with stakeholder engagement leads to the identification of the most cost-effective preferred pathway and a sequenced plan of proposed actions to achieving an area's net zero goal. The scope of the LAEP covers the current energy consumption as well as the carbon savings.

To meet a net zero target of 2040, this plan would require capital investments of £8.8 billion into Peterborough. This would save 4.3 million tonnes of CO<sub>2</sub> cumulatively to 2050 against a business as usual pathway. This expenditure is expected to be realised from multiple sources including private investment, residential home upgrades and government grants. The vast expenditure required to tackle carbon emissions necessitates that the city takes an evidence based approach to selecting the most cost-effective pathway to net zero carbon. This will allow decarbonisation and the associated co-benefits to be realised, for the minimal expenditure.

There is no recommendation to select a particular pipeline of projects; these decisions will be undertaken within the development of the City Wide Climate Change Action Plan.

**4.2 Research findings.** Several pathways to net zero were modelled; actions that are common across all scenarios are considered low regret and can be undertaken as soon as possible. Actions that are not common to all scenarios will require decision points and early enabling actions to remove barriers.

Peterborough has been divided into ten zones. These are based on areas served by primary electricity substations, rather than any political or geographical boundary. These zones are: Barnack and Wittering; Castor and Marholm; City Central; City East; City North; City South East; City South West; East Rural; Glington and Newborough; and North East Rural, see figure 2. Proposed decarbonisation solutions differ across the ten areas. See figure 2.



Figure 2: The ten zones of the Peterborough LAEP.

The research has produced the following conclusions.

**4.2.1 Buildings.** Peterborough currently has around 87,000 dwellings and plans to add another 15,000 dwellings between 2022 and 2036. In order to reach net zero, energy efficiency upgrades will need to be carried out on up to 66,000 dwellings, as well as on public, commercial and industrial buildings, by retrofitting insulation, upgrading glazing and various other measures.

Retrofitting was found to be “low regret” almost universally under all scenarios. The exceptions are in the City Central and City East Zones. In these more urban areas, there is a higher proportion of flats where individual flat retrofit is unlikely to make a large impact due to the limited number of applicable measures. Rural areas, however, were found to have a proportionately higher number of dwellings requiring a “deep” retrofit, i.e. more expensive and intrusive measures such as solid wall insulation, floor insulation, and triple glazing. Buildings in these areas currently have lower energy efficiency and higher fuel poverty, meaning that the improvements would have a positive social impact in addition to the carbon/energy impact.

New build dwellings are expected to be designed and constructed to a standard where they are not going to require insulation upgrades before the chosen net zero target; however, there is an opportunity to bring forward the use of low-carbon heating systems for new builds from the current 2025 date, to avoid more expensive retrofit at a later time. This will likely depend on developers selecting low carbon heating rather than achieving this through planning policy.

In total, domestic retrofits are expected to cost over £800m to reach net zero (an average of around £12,750 per dwelling, although the cost for a specific dwelling will vary significantly depending on its individual requirements).

**4.2.2 Heating.** The decarbonisation of heat is one of the greatest challenges in the transition to net zero, the predominant heating system in Peterborough being fossil gas (88% of homes) or oil (4%). Around 80,000 of these will need to be replaced by heat pumps (mostly air source) and over 16,000 homes connected to a heat network.

The rural off-gas areas are low-regret areas for the installation of heat pumps; specifically, the zones of Barnack & Wittering, Glinton & Newborough, Castor & Marholm, and East Rural are key deployment areas for heat pumps.

Air source heat pumps are typically the most cost-effective heat pump type due to their lower capital costs compared to ground source heat pumps. However, in City South East, a cluster of ground source heat pumps could be considered due to the properties being detached and having a significant amount of land available to use as the heat source. For large properties, the higher heat demand can justify the higher upfront cost of ground source, since it achieves higher efficiencies and lower running costs. Where clusters like this exist, small communal systems could also be considered.

The PIRI (Peterborough Integrated Renewables Infrastructure) project includes a proposed district heat network which focuses on the Fengate and city centre area. The delivery of PIRI will be subject to further commerciality work and securing investment. Modelling within the LAEP showed the heat network to be viable. In scenarios with more ambitious net zero target dates, the heat network becomes increasingly important and cost-effective as a solution for domestic dwellings in urban areas.

For non-domestic buildings, much of the space heating can be decarbonised using heat pumps, however there is a sizeable proportion of high-temperature and/or process heat required where heat pumps are not going to be suitable. Before the mid-2030s, this is an issue as hydrogen will not be available at scale meaning that this part of the economy will continue to rely on fossil gas and produce carbon emissions. If decarbonisation is required before hydrogen is available at scale, on-site generation of hydrogen via electrolysis could be considered although it is likely to be at a higher cost than fossil gas.

After the mid-2030s, hydrogen is expected to become a viable option to decarbonise the remaining non-domestic buildings. At this stage, it may also be worth considering extending the hydrogen offering to nearby dwellings.

**4.2.3 Transport.** HM Government have legislated to ban the sale of new fossil fuelled cars from 2030. By this date, it is expected that almost 40% of private vehicles in Peterborough will be EV or plug-in hybrid, and by 2040, there will be around 80,000 plug-in vehicles registered in Peterborough. Figure 3 shows the projected uptake of electric vehicles across the city. Electric vehicle uptake



of this scale will require over 50,000 domestic EV charging points (at a capital cost of around £32m) and consume 78GWh of electricity per year. A low emissions zone could help accelerate the transition to electric vehicles.

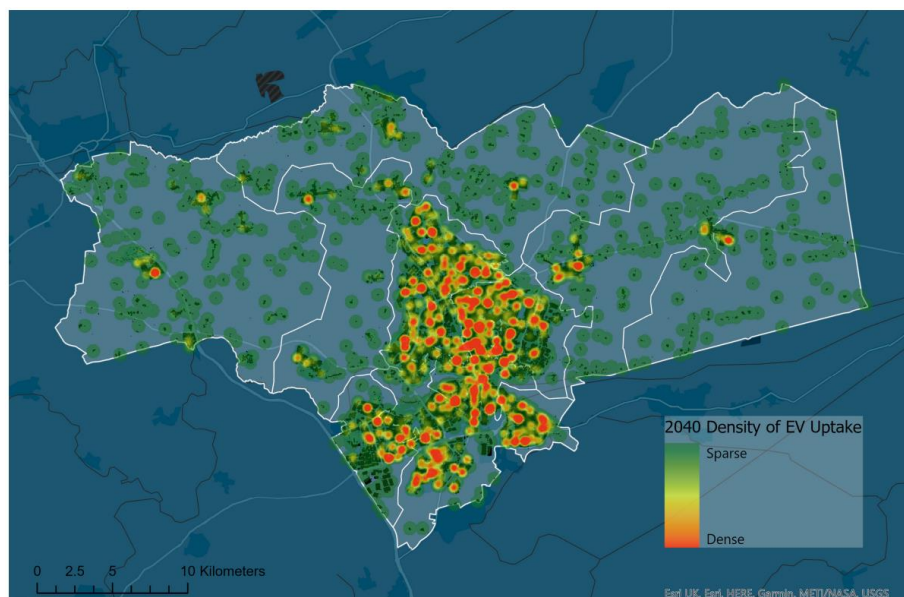


Figure 3: Projected density of electric vehicle uptake by 2040

Charging infrastructure will need to be installed to keep up with demand and provide consumer confidence to encourage the transition to electric vehicles. A mixture of publicly accessible and private residential chargers will be required. Residents with off street parking are assumed to charge their vehicles at home, whereas those without are expected to require public charging hubs, including at the kerb-side and in car parks. Areas of high density housing without off-street parking exist towards the city centre, as shown in figure 4. There are a number of fast (7-25 kW) and rapid (25-99 kW) chargers already installed in these areas. However given the projected increase in electric vehicle demand, a subsequent increase in charging infrastructure is required in these areas.

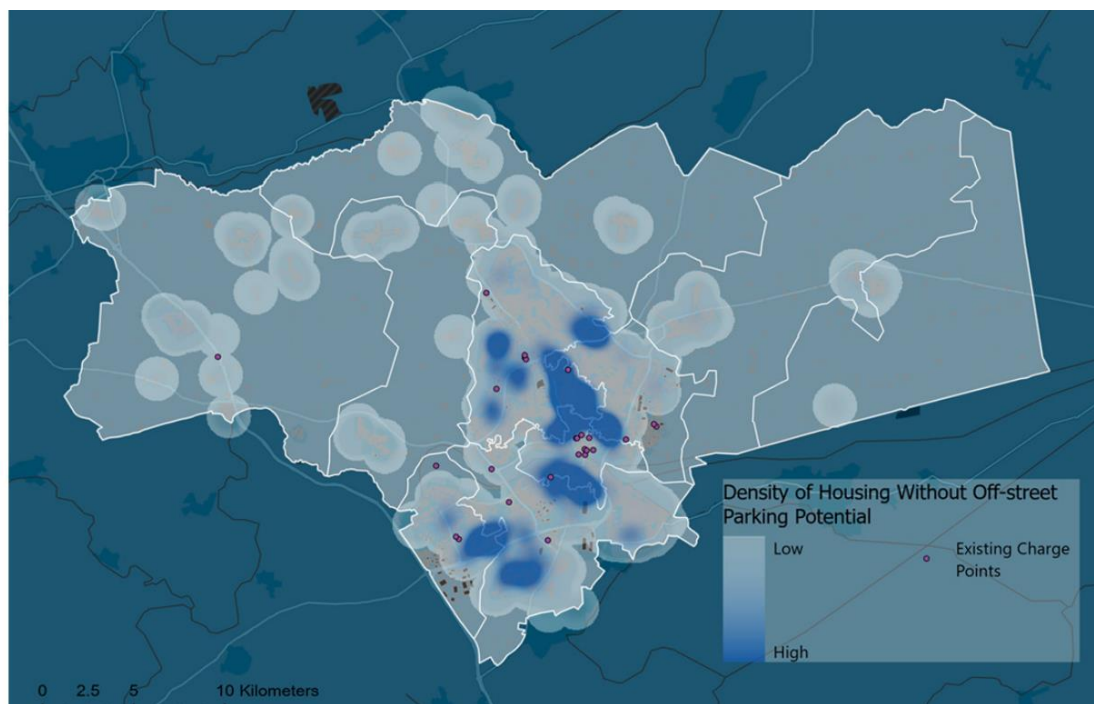


Figure 4: Density map showing houses without off-street parking

A survey carried out as part of this work found that a majority of residents of Peterborough are considering EVs as their next vehicle, but this was dominated by those with off-street parking available to them.

**4.2.4 Local generation.** Electrification of heat and transport is core to decarbonisation, and this will increase Peterborough's annual demand for electricity from 880 GWh to 1,290 GWh by 2040. If this electricity demand is supplied by the national grid, then Peterborough's rate of decarbonisation will be limited by the rate that the grid decarbonises. The grid is expected to reach zero carbon by 2035 at the earliest.

Local renewable generation can bring economic benefits, reduce emissions earlier, and contribute to the decarbonisation of the national electricity system. Rooftop and ground-mounted solar have been studied to demonstrate the scale of local renewable capacity which would decarbonise Peterborough, however generation should be diversified alongside the deployment of storage to give a better security of supply.

A high-level assessment was conducted to give a high-level indication of the maximum contribution of ground-mounted solar to the future energy system. From this land area, it was found that deploying 1.35GWp (peak) of ground-mounted solar could be cost-optimal (subject to full feasibility analyses and site visits), which would generate approximately 1,975 GWh of energy per year. Again, in practice, this should be varied generation by a mixture of low carbon sources, including consideration of onshore wind.

Domestic rooftop solar could also provide a large contribution. It is estimated that deploying around 157 MWp of rooftop solar capacity could be cost-optimal (subject to full feasibility and site visits). This would require a capital investment in the region of £166m, however there would be significant social benefits to residents, especially those in fuel poverty. By adding in-home battery storage, more of the generated electricity could be consumed by the household, reducing the reliance on the network during peak times and reducing the amount of electricity purchased. The economic case for batteries can be marginal in today's market, but is likely to change with the emergence of novel incentives such as time-of-use tariffs, and falling battery costs.

**4.2.5 Electricity Network & Flexibility.** To meet the new demand from electric heating and transport, there will be a need to upgrade the electrical network, since some areas could see capacity increases to as much as 4x current levels. The current capacity on the high-voltage network should be suitable to accommodate electrification without the need for capacity upgrade in most zones, with only City North likely requiring an upgrade of the high-voltage feeders.

However, there is a significant constraint on the low-voltage network with capacity upgrades being required for both substations and feeders across the whole of Peterborough (especially in rural zones).

The core approach used assumes that additional demand is met through increased capacity however further work would be required with District Network Operators to identify the most cost-effective means of providing the capacity. This may be via flexibility services which could be considered and deployed to reduce the investment required and make the network suitable for the future. Smart appliances which can shift the times they use electricity without any loss in performance can provide this flexibility. By shifting demand such that EVs were charged overnight and large thermal stores were used in dwellings, ESC's modelling showed the overall peak electrical demand for Peterborough could be reduced by around 20%.

Without flexibility, the total capital investment required would be between £300m and £400m.

**4.2.6 Gas Network & Hydrogen.** Although much of the current fossil gas demand for heating is expected to become electrified within Peterborough, the gas network still has an important part to play in the future energy system. Some areas of the non-domestic sector require high temperature heat for specialised industrial processes that cannot be electrified and therefore will remain on fossil fuel gas before considering the transition to hydrogen in the mid-2030s. This provides an opportunity for nearby properties to also connect to a hydrogen network.

Many of the proposals for hydrogen however will depend on the Government's policy position which they are expected to lay out in 2026.

**4.3 Socio-economic costs and benefits.** Net zero offers the opportunity to achieve localised and immediate benefits. For example, warmer retrofitted dwellings means less damp and mould and therefore a reduction in asthma and other respiratory diseases. Reduced energy usage would also assist those in fuel poverty. Economic benefits through net increases in jobs to design, install, upgrade, and maintain the low carbon measures would likely also be seen.

More generally, the transition away from fossil fuel burning would likely increase the health of residents through improved air quality.

**4.4 Project identification.** The LAEP identifies both early actions and long-term scale-up activities needed to decarbonise in a cost-effective way, along with key enabling actions and decision points to stay on track and navigate future uncertainty.

Several pathways to net zero were modelled; actions that are common across all scenarios are considered low regrets and can be undertaken as soon as possible. Actions that are not common will require decision points and early enabling actions to remove barriers.

#### **4.4.1 Pipeline of projects**

##### Low regrets activities

- Basic efficiency upgrades for almost every home with remaining upgrade opportunities
- Heat pumps installed in off-gas grid homes, where neither district heat networks or hydrogen are likely to reach
- Heat pumps installed in on-gas grid homes which are far from any likely heat networks or industrial users of hydrogen
- District heat network expanding from the proposed PIRI scheme to serve public, commercial and private buildings in core city centre locations
- EV chargers for homes with off-street parking
- Solar PV on rooftops and low value areas of land

##### Activities which require a decision to be made in the future

- Deeper building efficiency upgrades which will tend to have long payback periods, but can have additional benefits such as fuel poverty alleviation and employment creation
- Further expansion of heat networks to serve many more homes beyond the core city centre areas – if this can be implemented in the near future it could provide additional carbon savings and put Peterborough on a path to net zero in a shorter timeframe, but would be an exceptionally ambitious scale of project.
- Hydrogen to heat homes close to areas of industrial use instead of heat pumps; once more evidence is available around the viability, cost, emissions and policy around hydrogen for building heating in Peterborough, a decision can be made about homes in these areas.
- Further deployment of ground-mounted solar PV to reduce emissions from consumption of grid electricity. In theory, very large areas of land could be used to produce most of Peterborough's energy requirements on an annual basis, though the occupation of this extent of land could be challenging and will need to be balanced against alternative land uses. A balance can be found between larger heat network coverage or larger renewable deployment, although the scale of both in any combination is likely to be challenging.
- Delivery of electric vehicle charging infrastructure through by EV hubs, kerbside charging or other options.

##### Enabling actions

- Target an information and engagement campaign at rural homeowners around energy efficiency and heat pumps
- Collaborate with social landlords to identify properties for retrofit
- Work with experts to advance plans for the district heat network
- Seek advice, funding and planning permissions for energy efficiency roll-out

**4.5 Risks.** There are risks and benefits associated with each of the technologies and options explored in the LAEP. Peterborough’s actual transition is expected to vary from what is presented in the LAEP. Therefore, before making any widescale and significant commitment to one option or technology over another, evaluation of multiple factors will be needed. In addition, there may be additional market, policy and regulatory change that could also result in a need to reconsider aspects of the pathway and LAEP.

**4.6 Delivery approach to developing and connecting projects to unlock investment.** The Energy Systems Catapult recommends the following five next steps to unlock investment to fund delivery of projects within the LAEP.

Prioritise – Prioritise projects based on ownership of assets, carbon emission saving potential, delivery of co-benefits and risk profile

Assess – Undertake desktop feasibility to understand costs, conditions and impacts to develop business cases

Connect – Assess business model delivery routes

Engage – Identify key stakeholders, including local residents

Design – Undertake engineering design to progress the project design and investment plan

**4.7 Next steps.** The LAEP was developed in collaboration with council officers and staff from the local District Network Operators and the Gas Distribution Operator. The Energy Systems Catapult and Peterborough City Council have jointly-hosted a workshop with a wider range of stakeholders to discuss the findings of the LAEP and explore potential projects and solutions to any barriers that may exist. It is intended that this group meets regularly to continue delivery of the Local Area Energy Plan and inform the “prioritise” stage of the delivery approach.

It is proposed that this stakeholder group is established as a longstanding group to continue to lead the delivery of the LAEP and progress towards the development of viable business cases and unlock investment. It is proposed that Peterborough City Council act as the group chair. Additional stakeholders may join to reflect proposed decarbonisation activities.

It is proposed that the findings of the LAEP be used to develop the City Wide Climate Change Action Plan. This base line of the current and projected energy demands of the city will be used to demonstrate the scale of the challenges and highlight any areas which need urgent and significant activity to decarbonise. The identified and prioritised projects, as supported by the stakeholder group, will be included in the City Wide Climate Change Action Plan. As delivery of the proposed LAEP projects progresses, later versions of the City Wide Climate Change Action Plan may include details of activities across the Prioritise, Assess, Connect, Engage and Design stages. The activities which have been identified as requiring key decisions will be explored within the City Wide Climate Change Action Plan. This information will be supplemented with data and insight relevant to areas not covered within the LAEP (an estimated 30% of the city’s emissions). The City Wide Climate Change Action Plan will be developed following engagement with the public and local businesses and organisations.

The Climate Change and Environment Scrutiny Committee have endorsed the above next steps.

This report seeks endorsement for adopting the Local Area Energy Plan by Council. If adopted, the Local Area Energy Plan would be shared widely amongst local and national organisations and to the public. It is anticipated that Council adoption will add weight to the document, encouraging other local stakeholders to also use the research to inform their decarbonisation plans.

## **5. CONSULTATION**

**5.1** The LAEP was developed in collaboration with council officers and staff from the local District Network Operators and the Gas Distribution Operator. The Energy Systems Catapult and Peterborough City Council have jointly-hosted a workshop with a wider range of stakeholders to discuss the findings of the LAEP and explore potential projects and solutions to any barriers that may exist. It is intended that this group meets regularly to continue delivery of the Local Area

Energy Plan and inform the “prioritise” stage of the delivery approach.

## **6. ANTICIPATED OUTCOMES OR IMPACT**

- 6.1 It is anticipated that the Climate Change and Environment Scrutiny Committee will endorse the adoption of the Local Area Energy Plan by the Council.

## **7. REASON FOR THE RECOMMENDATION**

- 7.1 The Local Area Energy Plan represents the most comprehensive insight known about Peterborough’s current and future energy demand. Adopting the Local Area Energy Plan and developing the City Wide Climate Change Action Plan using the modelled findings and proposed projects will lead strengthen the action plan as it features reliable, evidence based projections. Adoption is also expected to add weight to the document, encouraging other local stakeholders to also use the research to inform their decarbonisation plans.

## **8. ALTERNATIVE OPTIONS CONSIDERED**

- 8.1 The alternative options considered were:

Do not adopt the Local Area Energy Plan. This was rejected as the plan is the strongest evidence of future energy demands of the city and is expected to be of use to inform future decarbonisation plans. Adoption will also demonstrate Council support of the research and can be used by external organisations to inform their decarbonisation plans.

## **9. IMPLICATIONS**

### **Financial Implications**

- 9.1 There are no direct financial implications associated with this report.

The LAEP highlights the £8.8 billion investment needed to decarbonise the city. This significant value will require multiple sources of funding, which may include private investment, payment of households retrofitting their own properties and government grants. Council investment may be sought in the future to fund feasibility or enabling works to occur. Any council investment sought in the future would be subject to the submission of a business case for approval.

This level of investment has the potential to support significant local employment.

### **Legal Implications**

- 9.2 This paper does not seek authorisation to deliver upon an individual project, and any legal implications will be explored when doing so.

### **Equalities Implications**

- 9.3 The Independent Commission on Climate, established by the Cambridgeshire and Peterborough Combined Authority, detailed an approach to a just transition to net zero. This will be followed in development of the City Wide Climate Change Action Plan.

This paper does not seek authorisation to deliver upon an individual project, and any equalities implications will be explored when doing so.

### **Rural Implications**

- 9.4 Some actions identified in the LAEP differ between rural and urban areas, due to differences in housing build type, density of housing and availability of off-street parking.

This paper does not seek authorisation to deliver upon an individual project, and any rural

implications will be explored when doing so.

### **Carbon Impact Assessment**

- 9.5 There are no direct carbon impacts associated with adopting the Local Area Energy Plan. Use of the evidence and projections included in the Local Area Energy Plan to develop the City-Wide Climate Change Action Plan, will strengthen the action plan, giving a higher chance of deliverability, and therefore it is expected that city wide carbon emissions will reduce due to the use of the Local Area Energy Plan as a guide.

### **10. BACKGROUND DOCUMENTS**

Used to prepare this report, in accordance with the Local Government (Access to Information) Act 1985

- 10.1 None

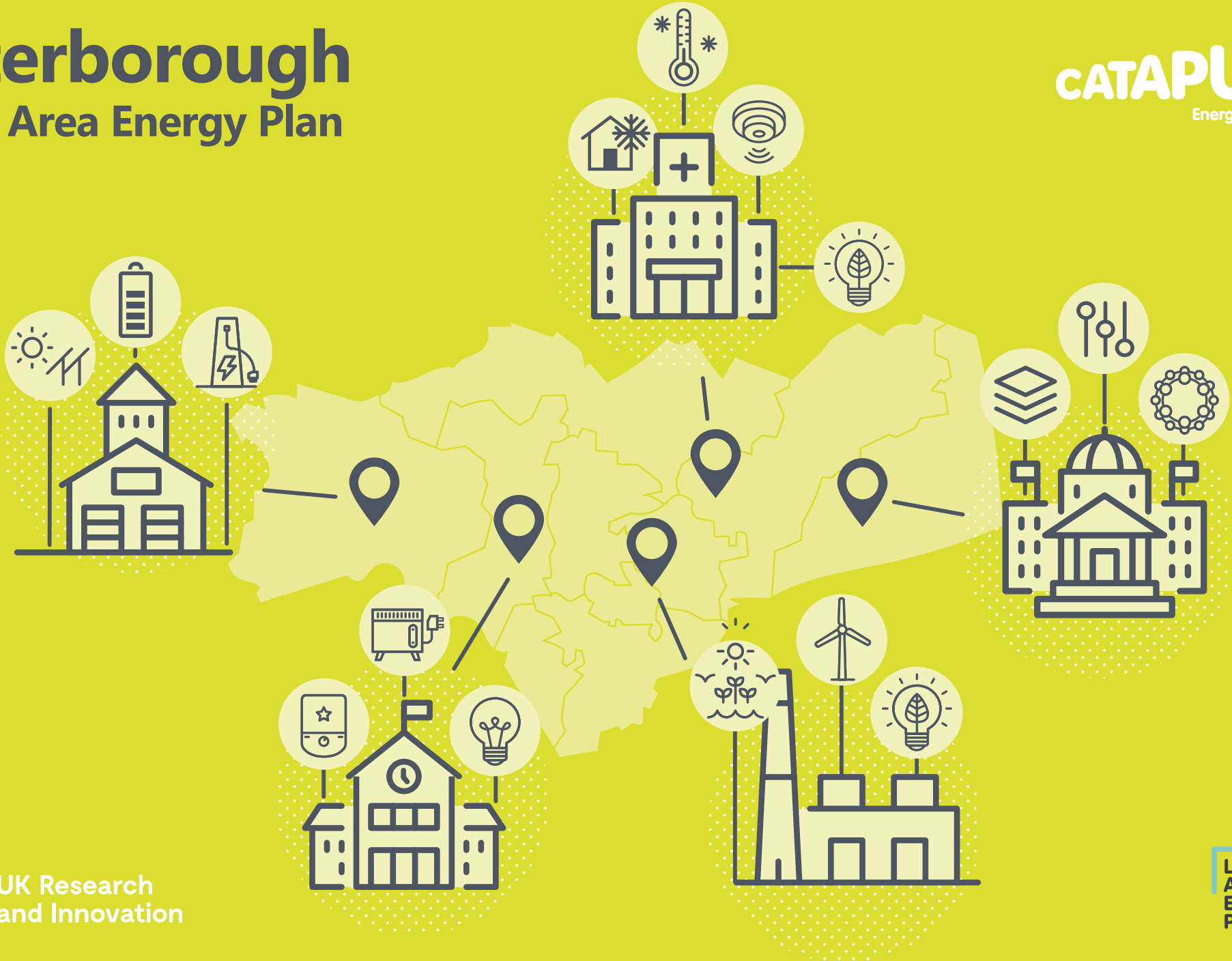
### **11. APPENDICES**

- 11.1 Appendix 1: Peterborough's Local Area Energy Plan  
Appendix 2: Local Area Energy Plan - Methodology

# Peterborough

## Local Area Energy Plan

**CATAPULT**  
Energy Systems



31

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# Executive Summary

To meet a net zero target of **2040**, this plan requires capital investment of:

**£8.8 billion**  
total

Including:  
**£2.1 billion**  
in domestic properties

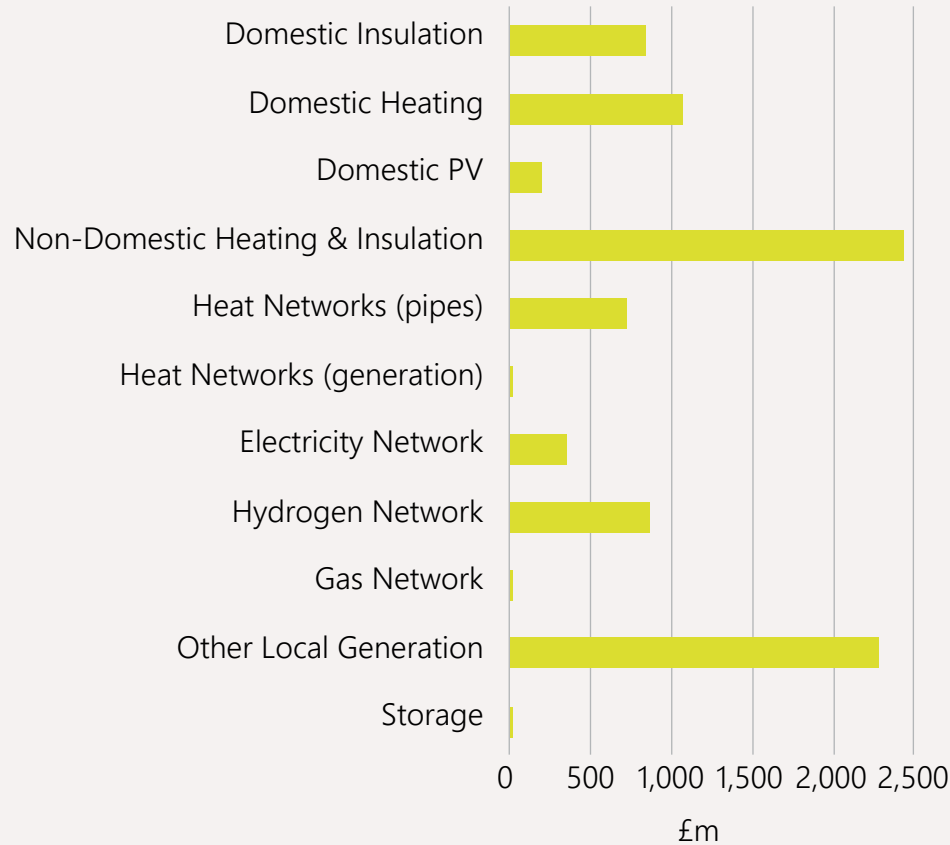
**£1.6 billion**  
in energy networks

34

Saving:

**4.3 million**  
tonnes CO<sub>2</sub>  
cumulatively to 2050 against a  
business-as-usual pathway

**Total Capital Investment**



Peterborough's energy system will have transformed, with:

**80,000**  
heat pumps installed in homes

At least **16,000** new  
connections to a district heat network

**66,000**  
homes retrofitted with insulation,  
glazing and draughtproofing  
improvements

**72%**  
of cars fully electric or plug-in hybrid

**35%**  
homes generating their own  
electricity with rooftop solar

Up to **1,350 MW**  
of large scale renewable generation

## Context & Current State

In July 2019, Peterborough City Council (PCC) declared a climate emergency and noted that local governments *"have a duty to act"* and *"should not wait for...national governments"*. To address this challenge, PCC committed to *"make the Council's activities net zero carbon by 2030, and to support the city to achieve the same."* The additional benefits of reaching net zero were also noted including *"reducing fuel poverty, improving physical and mental health, improving air quality, stimulating our economy and providing jobs to the local area"*.

Yet, few local authorities have a clear plan on how to reach net zero or realise the benefits. To meet this need and further decarbonisation of local areas, Energy Systems Catapult (ESC) pioneered the local area energy planning (LAEP) approach to deliver a comprehensive, data-driven and cost-effective plan for decarbonisation. Importantly, the approach requires working closely with stakeholders to build upon progress being made and incorporate existing plans. An example of this is the PIRI (Peterborough Integrated Renewables Infrastructure) programme which is looking to develop an integrated energy system design for electricity, heat and transport that will provide benefits to the community and business.

To contextualise the costs given in the LAEP, PCC have a gross annual budget of around £423m\* (although this likely includes ringfenced funding) and their 'core spending power' is around £171m\*\*.

\* <https://www.peterborough.gov.uk/news/matt-gladstone-announced-as-new-chief-executive>

\*\* <https://commonslibrary.parliament.uk/local-authority-data-finances/>

## Scenarios

To carry out the modelling and analysis required to produce a LAEP, Peterborough was split into ten geographical areas or 'zones' based on connections to the electricity network (these do not follow any typical political or geographical boundaries).

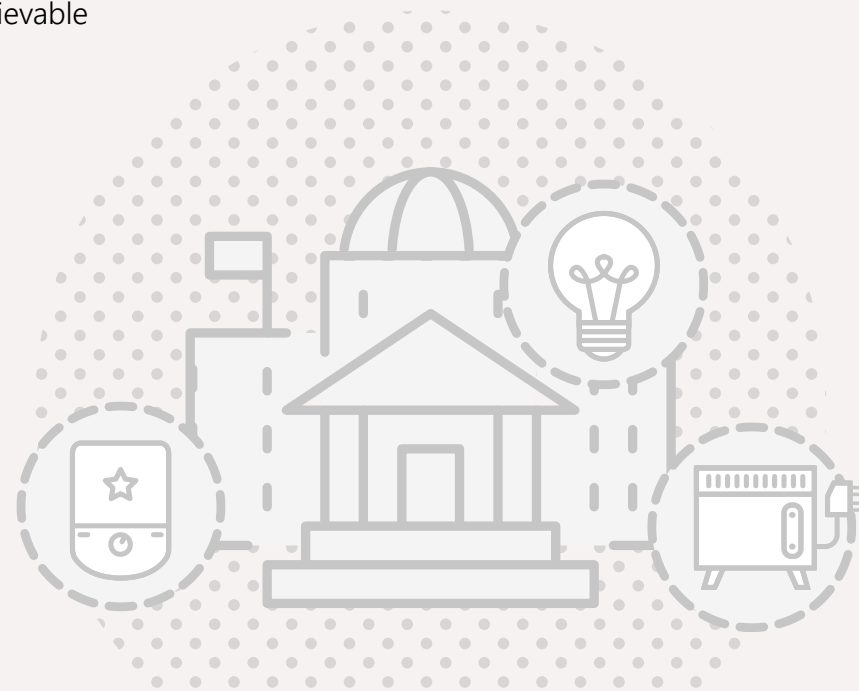
Following discussions with PCC and key stakeholders, the zoning was agreed and three main future scenarios were identified for consideration: a 2030 net zero target, a 2040 net zero target, and a 2050 net zero target in line with the UK as a whole. Further to this, some comparisons were modelled: a "business-as-usual" scenario where no carbon target was set, and a 2030 target where a greater number of flexibility options were available, such as cars charging and heat pumps running during off-peak hours to reduce network demand. This plan centres on the 2040 target as the earliest plausible date that net zero is likely achievable across Peterborough.

## Pathway

From this a pathway has been developed which identifies the key projects and decision points on the transition to net zero. The key short-term aspects of this pathway are:

- Decide whether a small or large district heat network is desirable.
- Begin roll-out of energy efficiency measures and heat pumps to rural, off-gas grid dwellings.
- Develop a scheme to widely and rapidly deploy home EV chargers.

As part of the pathway to net zero, some near-term projects have been identified for further feasibility study or 'low regret' deployment.



## Buildings

Peterborough currently has around 87,000 dwellings and plans to add another 15,000 dwellings between 2022 and 2036. In order to reach net zero, energy efficiency upgrades will need to be carried out on up to 66,000 dwellings, as well as public, commercial and industrial buildings, by retrofitting insulation, upgrading glazing and various other measures.

Retrofitting was found to be 'low regret' almost universally under all scenarios. The exceptions are in the City Central and City East zones where a concerted effort to create a larger heat network scheme would affect the number of dwellings requiring retrofit. In these more urban areas, there is a higher proportion of flats where individual flat retrofit is unlikely to make a large impact due to the limited number of applicable measures. Rural areas, however, were found to have a proportionately higher number of dwellings requiring a 'deep' retrofit i.e. more expensive and intrusive measures such as solid wall insulation, floor insulation, and triple glazing. These areas currently have poor energy performance certificate (EPC) ratings and higher fuel poverty meaning that the improvements would have a positive social impact in addition to the carbon/energy impact.

New build dwellings are expected to be designed and constructed to a standard where they are not going to require insulation upgrades before the chosen net zero target; however, there is an opportunity to bring forward the use of low-carbon heating systems for new builds from the current 2025 date, to avoid more expensive retrofit at a later time.

In total, domestic retrofits are expected to cost over £800m to reach net zero (an average of around £12,750 per dwelling, although the cost for a specific dwelling will vary significantly depending on its individual requirements).

## Heating

The decarbonisation of heat is one of the greatest challenges in the transition to net zero, the predominant heating system in Peterborough being fossil gas (88% of homes) or oil (4%). Around 80,000 of these will need to be replaced by heat pumps (mostly air source) and over 16,000 homes connected to a heat network. Although lower in population, the rural off-gas areas are those that are 'low regrets' i.e. those that will need to transition to heat pumps regardless of when net zero will be achieved. Specifically, the zones of Barnack & Wittering, Glinton & Newborough, Castor & Marholm, and East Rural are key deployment areas for heat pumps.

The PIRI (Peterborough Integrated Renewables Infrastructure) heat network was shown to be viable in all net zero scenarios modelled. In scenarios with more ambitious net zero target dates, the heat network becomes increasingly important – and cost-effective – as a solution for domestic dwellings in urban areas. From a delivery perspective, this means the longer it takes to connect buildings to the heat network, the less cost-effective the scheme overall.

For non-domestic buildings, again, much of the space heating can be decarbonised using heat pumps, however there is a sizeable proportion of high-temperature and/or process heat required where heat pumps are not going to be suitable. Before the mid-2030s, this is an issue as hydrogen will not be available at scale meaning that this part of the economy will continue to rely on fossil gas and produce carbon emissions. If decarbonisation is required before hydrogen is available at scale, on-site generation of hydrogen via electrolysis could be considered although it is likely to be at a higher cost than fossil gas.

After the mid-2030s, hydrogen is expected to become a viable option to decarbonise the remaining non-domestic buildings. At this stage, it may also be worth considering extending the hydrogen offering to nearby dwellings.

## Transport

HM Government have legislated to ban the sale of new fossil fuelled cars from 2030. By this date, it is expected that almost 40% of private vehicles in Peterborough will be EV or plug-in hybrid, and by 2040, there will be around 80,000 plug-in vehicles registered in Peterborough. This will require over 50,000 domestic EV charging points (at a capital cost of around £32m) and consume 78GWh of electricity per year.

In urban areas, housing is more densely concentrated and often does not have off-street parking, meaning a network of public charging points will be required.

A survey carried out as part of this work found that a majority of residents of Peterborough are considering EVs as their next vehicle, but this was dominated by those with off-street parking available to them.

37

## Local Generation

The electricity demand in 2040 is likely to have increased by almost 50% compared to current levels due to the decarbonisation of transport and heating. Therefore, for Peterborough to decarbonise at a rate faster than the UK as a whole, a significant amount of locally generated low-carbon electricity will be required. Rooftop and ground-mounted solar have been studied to demonstrate the scale of local renewable capacity which would decarbonise Peterborough, however generation should be diversified alongside the deployment of storage to give a better security of supply.

A high-level assessment was conducted to give a high-level indication of the maximum contribution of ground-mounted solar to the future energy system. From this land area, it was found that deploying 1.35GW<sub>p</sub> of ground-mounted solar could be cost-optimal (subject to full feasibility analyses and site visits), which would generate approximately 1,975 GWh of energy per year. Again, in practice, this should be varied generation by a mixture of low carbon sources, including onshore wind.

Domestic rooftop solar could also provide a large contribution. It is estimated that deploying around 157 MW<sub>p</sub> of rooftop solar capacity could be cost-optimal (subject to full feasibility and site visits). This would require a capital investment in the region of £166m, however there would be significant social benefits to residents, especially those in fuel poverty. By adding in-home battery storage, more of the generated electricity could be consumed by the household, reducing the reliance on the network during peak times and reducing the amount of electricity purchased. The economic case for batteries can be marginal in today's market, but is likely to change with the emergence of novel incentives such as time-of-use tariffs, falling battery costs, and with an increase in electricity prices.



## Electricity Network & Flexibility

To meet the new demand from electric heating and transport, there will be a need to upgrade the electrical network, since some areas could see capacity increases to as much as 4x current levels. The current capacity on the high-voltage network should be suitable to accommodate electrification without the need for capacity upgrade in most zones, with only City North likely requiring an upgrade of the high-voltage feeders.

However, there is a significant constraint on the low-voltage network with capacity upgrades being required for both substations and feeders across the whole of Peterborough (especially in rural zones).

38 The core approach used assumes that additional demand is met through increased capacity however, in reality, further work would be required with DNOs to identify the most cost-effective means of providing the capacity. This may be via flexibility services which could be considered and deployed to reduce the investment required and make the network suitable for the future. Smart appliances which can shift the times they use electricity without any loss in performance can provide this flexibility. By shifting demand such that EVs were charged overnight and large thermal stores were used in dwellings, ESC's modelling showed the overall peak electrical demand for Peterborough could be reduced by around 20%.

Without flexibility, the total capital investment required would be between £300m and £400m.

## Gas Network & Hydrogen

Although much of the current fossil gas demand for heating is expected to become electrified within Peterborough, the gas network still has an important part to play in the future energy system. As highlighted earlier, there are some areas of the non-domestic sector that cannot be electrified and therefore will remain on fossil gas before considering the transition to hydrogen in the mid-2030s. This provides an opportunity for nearby properties to also connect to a hydrogen network.

Many of the proposals for hydrogen however will depend on the Government's policy position which they are expected to lay out in 2026.

## Socio-Economic Costs & Benefits

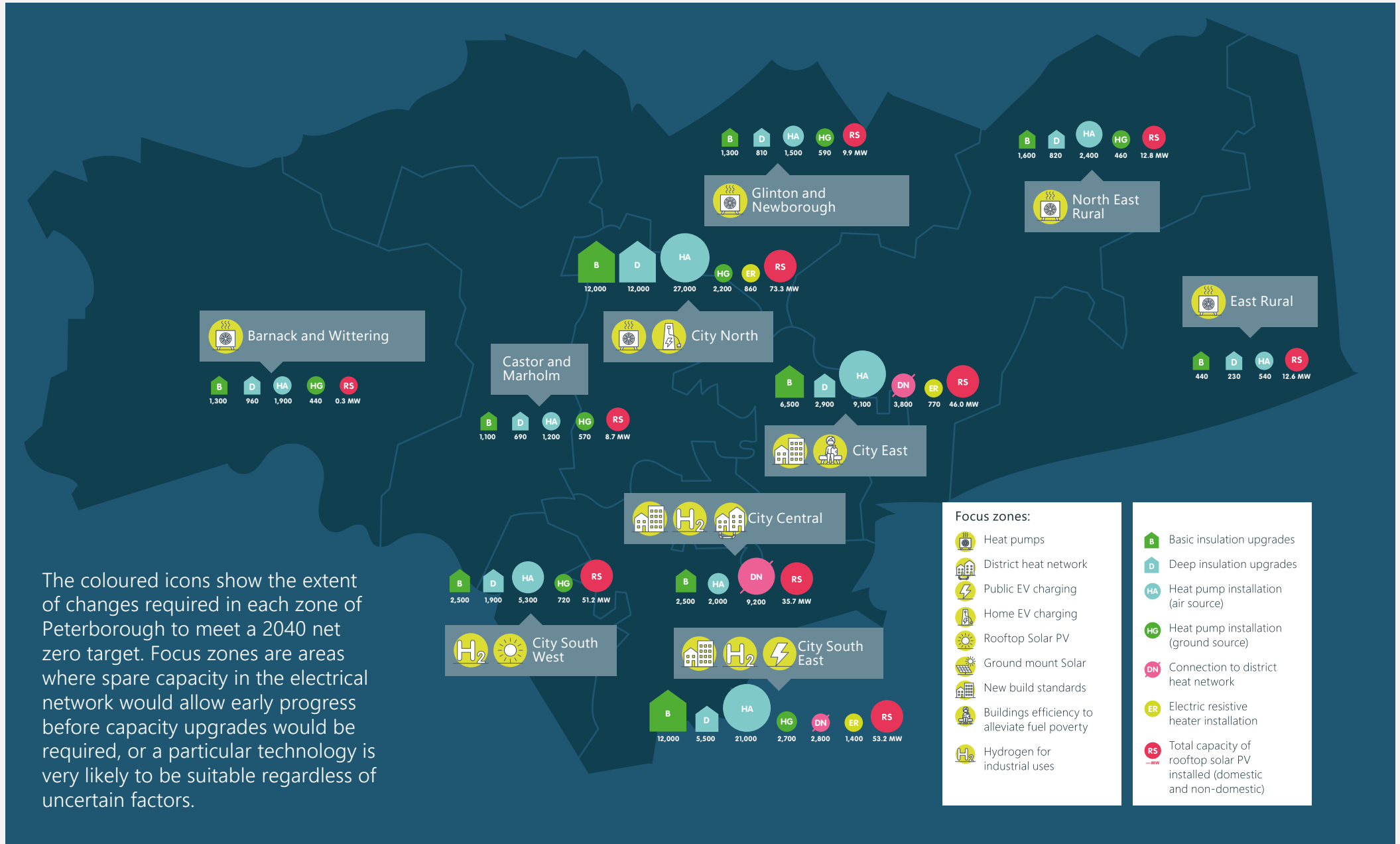
Net zero offers the opportunity to achieve localised and immediate benefits. For example, warmer retrofitted dwellings means less damp and mould and therefore a reduction in asthma and other respiratory diseases. Reduced energy usage would also assist those in fuel poverty. Economic benefits through net increases in jobs to design, install, upgrade, and maintain the low carbon measures would likely also be seen.

More generally, the transition away from fossil fuel burning would likely increase the health of residents through improved air quality.



# Plan on a Page

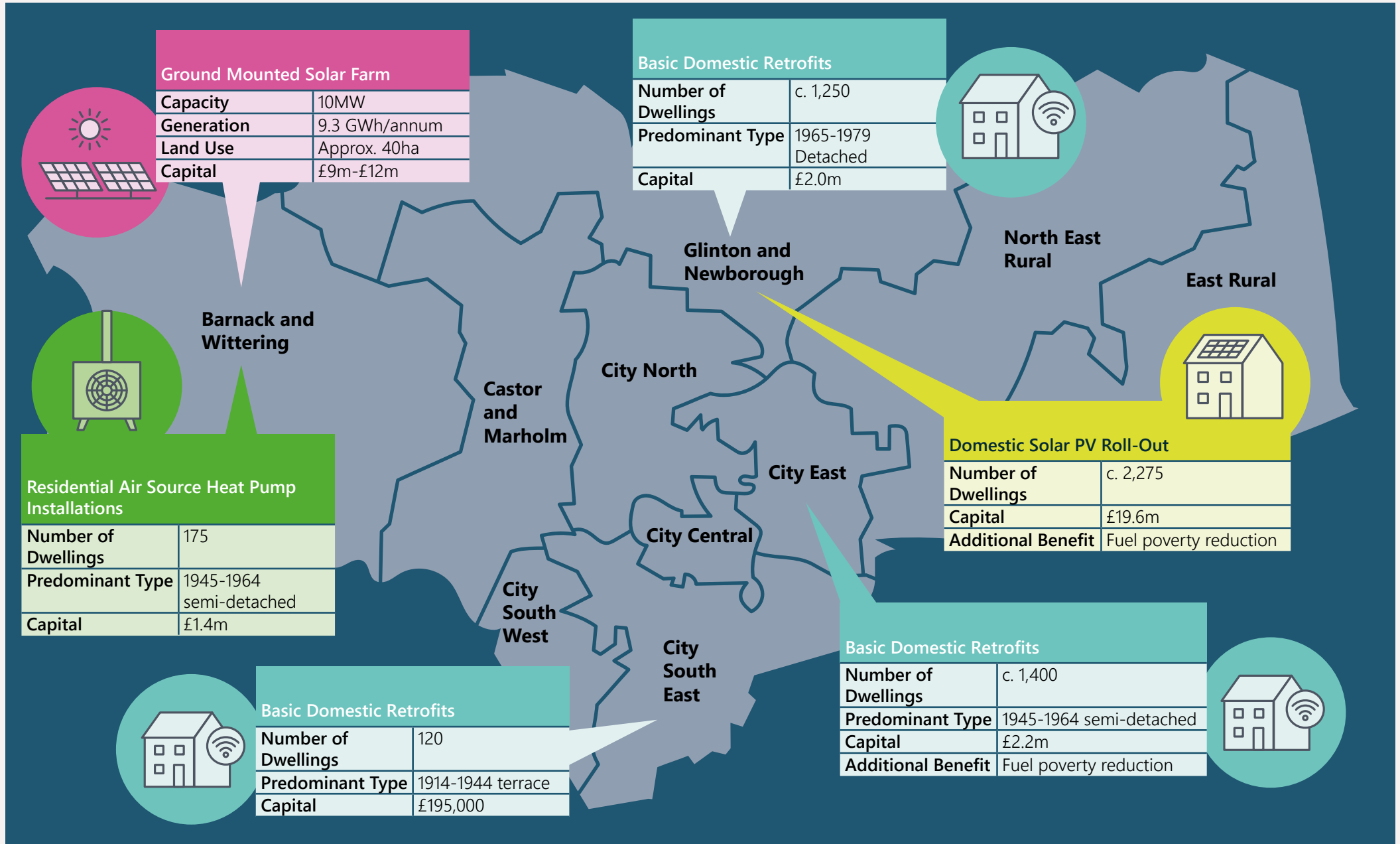
39



The coloured icons show the extent of changes required in each zone of Peterborough to meet a 2040 net zero target. Focus zones are areas where spare capacity in the electrical network would allow early progress before capacity upgrades would be required, or a particular technology is very likely to be suitable regardless of uncertain factors.

# Project Summary

40



### Ground Mounted Solar Farm

Capacity	10MW
Generation	9.3 GWh/annum
Land Use	Approx. 40ha
Capital	£9m-£12m

### Basic Domestic Retrofits

Number of Dwellings	c. 1,250
Predominant Type	1965-1979 Detached
Capital	£2.0m

### Barnack and Wittering

### Residential Air Source Heat Pump Installations

Number of Dwellings	175
Predominant Type	1945-1964 semi-detached
Capital	£1.4m

### North East Rural

### Domestic Solar PV Roll-Out

Number of Dwellings	c. 2,275
Capital	£19.6m
Additional Benefit	Fuel poverty reduction

### Castor and Marholm

### City North

### City East

### City Central

### City South West

### City South East

### Basic Domestic Retrofits

Number of Dwellings	120
Predominant Type	1914-1944 terrace
Capital	£195,000

### Basic Domestic Retrofits

Number of Dwellings	c. 1,400
Predominant Type	1945-1964 semi-detached
Capital	£2.2m
Additional Benefit	Fuel poverty reduction



# Introduction



# Introduction to LAEP

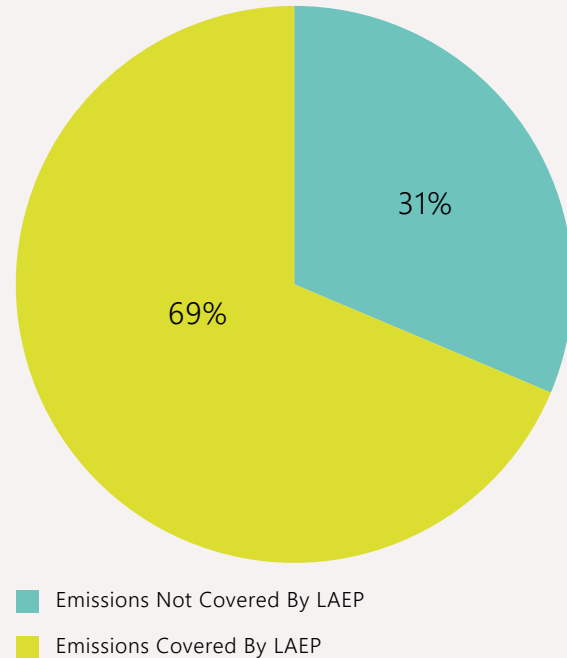
## What is a Local Area Energy Plan?

A Local Area Energy Plan (LAEP) aims to define the extent of the transformation required to transition an area's energy system to net zero in a given timeframe. This is achieved by an exploration of potential pathways that considers a range of technologies and scenarios, and when combined with stakeholder engagement leads to the identification of the most cost-effective preferred pathway and a sequenced plan of proposed actions to achieving an area's net zero goal.

42 The scope of the LAEP covers the current energy consumption as well as the projected consumption in a defined area, primarily focussing on the area's built-environment (all categories of domestic, non-domestic, commercial and industrial buildings) and some aspects of energy used for transportation. Excluded are: land-use, land-use change and forestry (LULUCF), and transport from non-private vehicles (taken here as non-cars). This LAEP therefore considers almost 70% of emissions (see 'Context and Historical Emissions').

A LAEP identifies both early actions and long-term scale-up activities needed to reach the target in a cost-effective way, along with key enabling actions and decision points to stay on track and navigate future uncertainty.

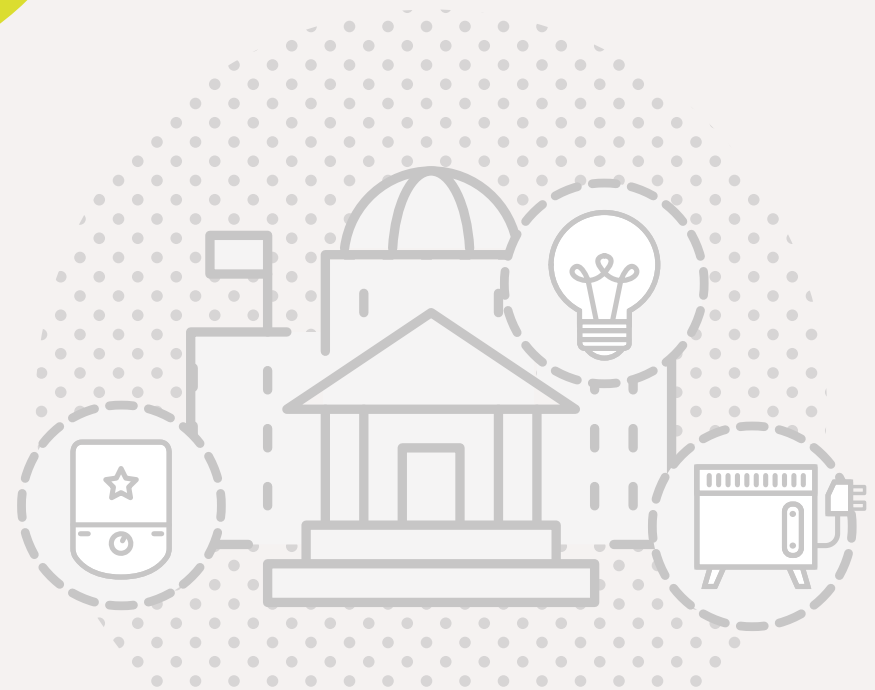
Approximate Proportion of Peterborough 2019 CO<sub>2</sub> Emissions Covered By LAEP



## What to expect in this LAEP

The LAEP will set the scene by considering the current position of emissions and technology deployment in Peterborough. Each subsequent section will investigate a different part of the energy system and aims to identify low regret zones and focus zones for deployment.

Finally, projects will be outlined for PCC and stakeholders to prioritise for feasibility assessment and further consideration.



# Zones

In order to carry out this work, it was necessary to separate Peterborough into smaller 'zones' to allow for a better understanding and assessment of options for decarbonisation.

Zones for analysis were identified based on areas served by primary substations, using data provided by the electrical networks (WPD and UKPN) that identifies buildings connected to secondary substations that are in-turn connected to each primary substation.

43 In total, ten zones were created using this method:

- Barnack and Wittering
- Castor and Marholm
- City Central
- City East
- City North
- City South East
- City South West
- East Rural
- Glinton and Newborough
- North East Rural

The zones therefore do not follow other standard geographical boundaries such as LSOAs, MSOAs, constituencies, or electoral wards.



# Current State

An aerial photograph of Peterborough, Ontario, Canada, showing the Peterborough Cathedral as a central landmark. The image is overlaid with a semi-transparent dark grey filter. The text 'Current State' is prominently displayed in the center in a bright yellow font.

# Context & Historical Emissions

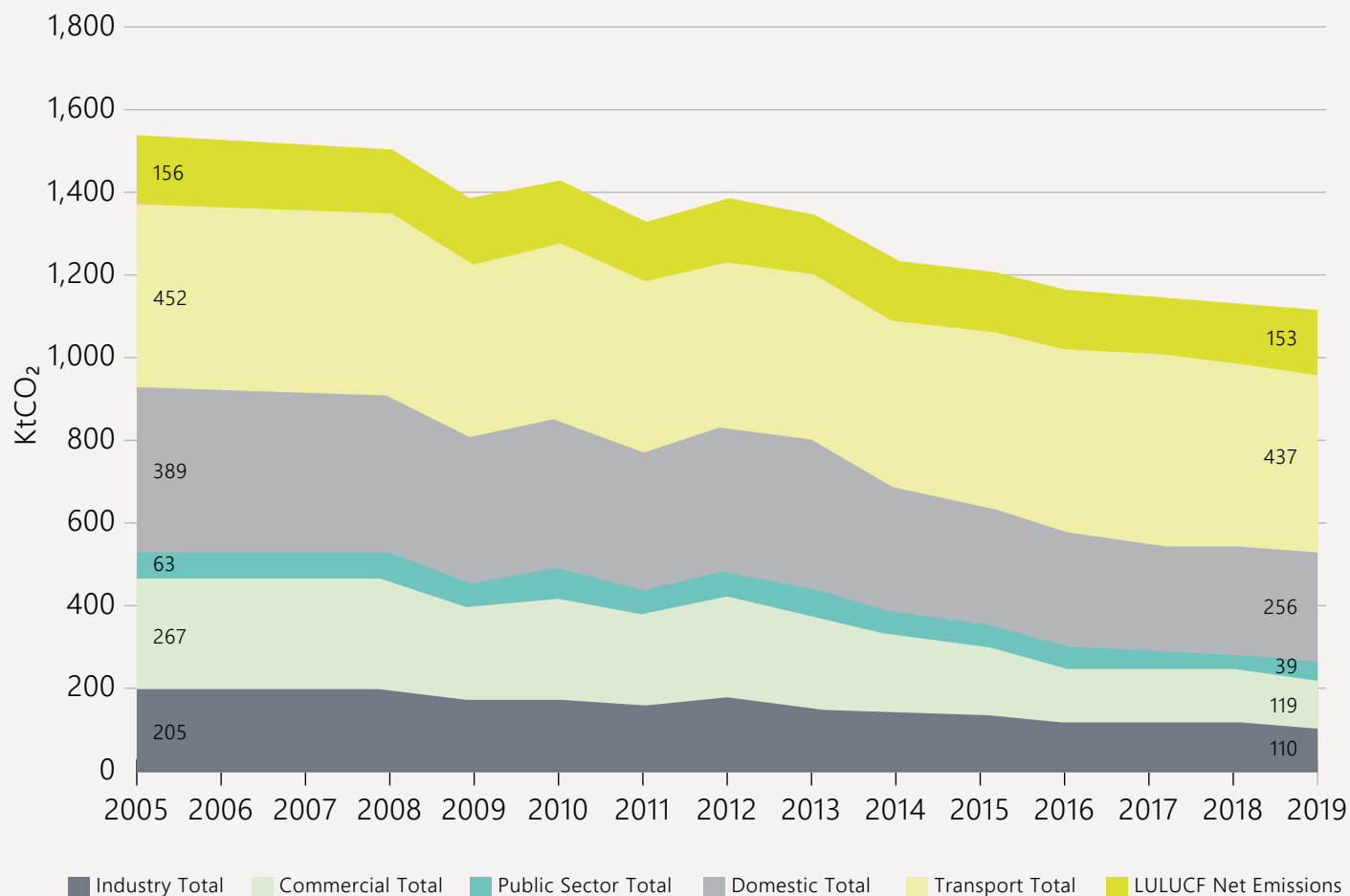
Peterborough City Council (PCC) has committed to **make the council's activities net zero carbon by 2030, and to support the city to achieve the same.**

PCC further committed to:

- ensure that net zero is embedded into all work and **decisions made are in line with reaching net zero by 2030.**
- **use planning powers to help deliver net zero** and increase tree planting.
- achieve **100% clean energy across the council's full range of functions by 2030** and explore renewable generation and storage.
- **replace all council vehicles with low carbon vehicles, provide electric vehicle infrastructure** and encourage alternatives to private car use across the city.
- **increase the efficiency of buildings**, which will **help to address fuel poverty.**
- **engage with residents, businesses and communities** to raise awareness, share best practice and keep everyone updated.
- **call on the UK Government** to provide the powers, resources and help with funding to make this possible.

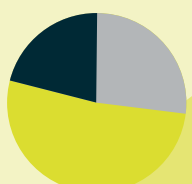
45

CO<sub>2</sub> Emissions by Sector in Peterborough



# Setting the Scene: Peterborough Today

46



**21%**  
of homes already  
high efficiency

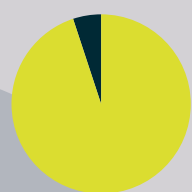


## BUILDINGS

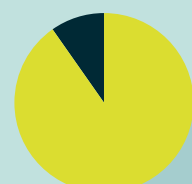
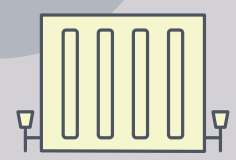
Currently 21% of Peterborough's buildings are insulated to a good standard, or do not have potential for further insulation. 52% can be upgraded cost-effectively with a payback under 5 years, while 27% have potential for insulation which would take longer to pay back.

## HEATING

95% of buildings currently use gas, oil or LPG for heating. The remainder already use some form of low carbon heating.



**5%**  
of heating already  
low carbon



fewer than  
**10%**  
of vehicles already  
low carbon

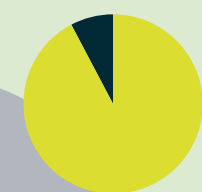


## VEHICLES

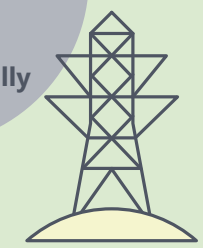
Under 10% of cars and small vans currently owned in Peterborough are either plug-in hybrid or pure electric. The remainder, and vast majority, are petrol, diesel or hybrid.

## ELECTRICITY

91% of electricity consumed comes from the National Grid. At least 11% of homes have solar panels, and the energy from waste scheme contributes significantly to local demand.



**9%**  
of electricity  
consumed in  
Peterborough  
produced locally



# Destination



# The Destination: 2040

48



**67%**  
of homes receiving upgrades



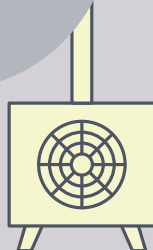
## BUILDINGS

Around 67% of Peterborough's buildings will require insulation upgrades, bringing almost all homes up to a good standard of efficiency. The supply chain would need to provide upgrades to around 66,000 homes by the year 2040.

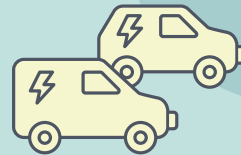
## HEATING

All fossil fuelled heating systems need to be replaced in order to reach net zero. This can occur as current heating systems reach their natural end-of-life.

**100%**  
low carbon



**72%**  
low carbon



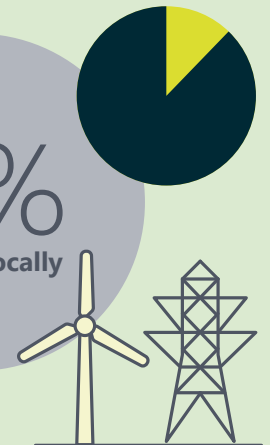
## VEHICLES

Electric vehicle ownership is projected to rise rapidly, with pure electric and plug-in hybrid vehicles reaching 72% by 2040. Steps will need to be taken to cater for these owners with public charge points, and assist residents to install domestic chargers. These chargers will place new demands on the electrical distribution system.

## ELECTRICITY

The push to generate low carbon electricity results in a greater proportion of Peterborough's energy being produced locally. As an upper bound analysis, using all available land for solar PV would generate most of the energy needed on an annual basis, however, using this much land is not likely to be possible in practice.

**88%**  
generated locally





# The Pathways

There are key similarities and differences between the pathways to net zero under each scenario that was modelled. Actions that are common across these scenarios are considered to be 'low regrets' and can be undertaken as soon as possible. Actions that are not common and are identified later on in the pathway will require decision points and early enabling actions to remove barriers.

## Low regrets

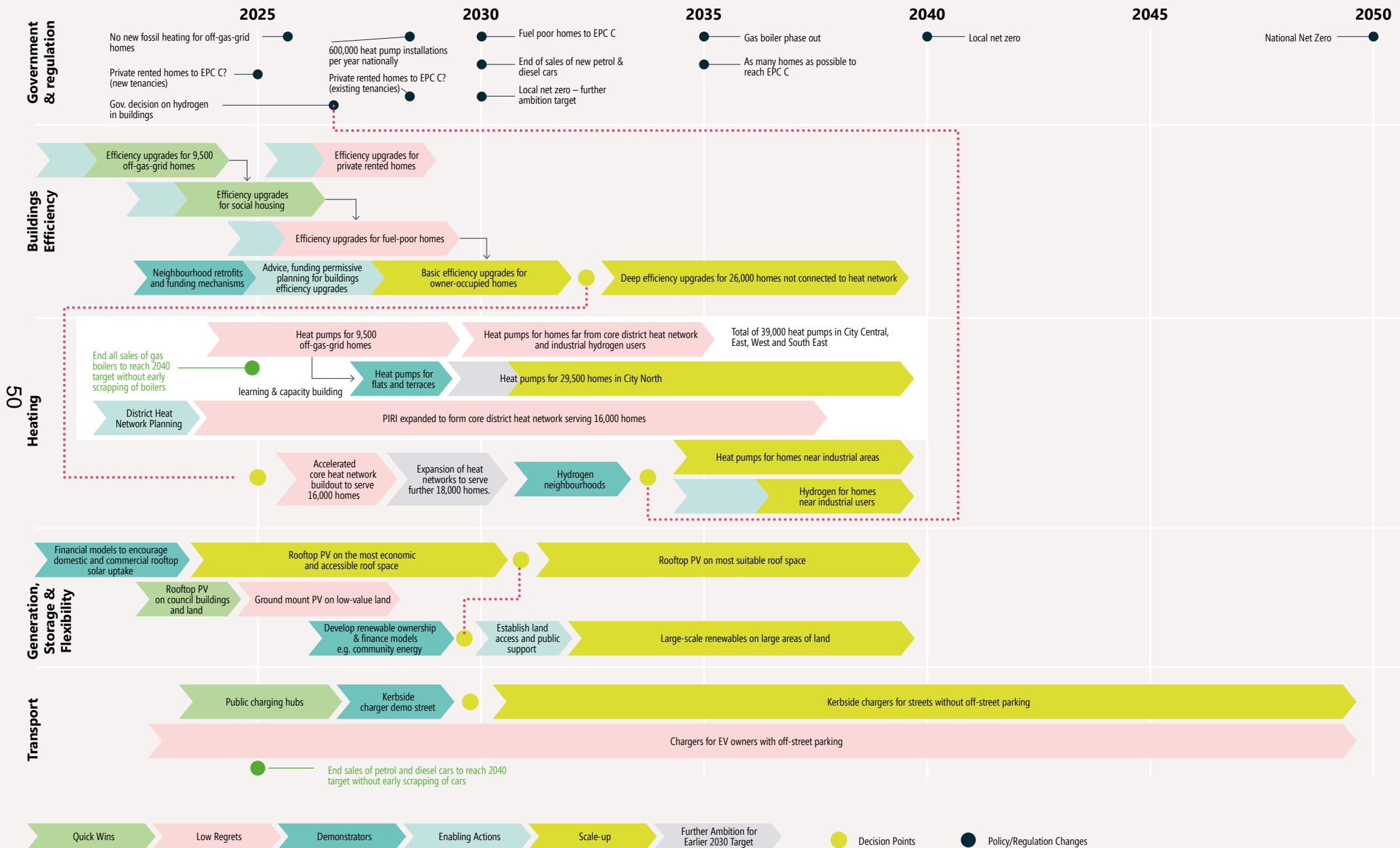
- 49 • Basic efficiency upgrades for almost every home with remaining upgrade opportunities
- Heat pumps installed in off-gas-grid homes, where neither district heat networks or hydrogen are likely to reach
- Heat pumps installed in on-gas grid homes which are far from any likely heat networks or industrial users of hydrogen
- District heat network expanding from the PIRI scheme to serve public, commercial and private buildings in core city centre locations
- EV chargers for homes with off-street parking and public charging points in key hubs such as retail parks, supermarkets, etc.
- Solar PV on rooftops and on low value areas of land

## Key decisions

- Deeper building efficiency upgrades which will tend to have long payback periods, but can have additional benefits such as fuel poverty alleviation and employment creation
- Further expansion of heat network to serve many more homes beyond the core city centre areas – if this can be implemented in the near future it could provide additional carbon savings and put Peterborough on a path to net zero in a shorter timeframe, but would be an exceptionally ambitious scale of project
- Hydrogen to heat homes close to areas of industrial use instead of heat pumps: once more evidence is available around the viability, cost, emissions and policy around hydrogen for building heating in Peterborough, a decision can be made about homes in these areas.
- Further deployment of ground-mount solar PV to reduce emissions from consumption of grid electricity. In theory, very large areas of land could be used to produce most of Peterborough's energy requirements on an annual basis, though the occupation of this extent of land could be challenging. A balance can be found between larger heat network coverage or larger renewable deployment, although the scale of both in any combination is likely to be challenging.

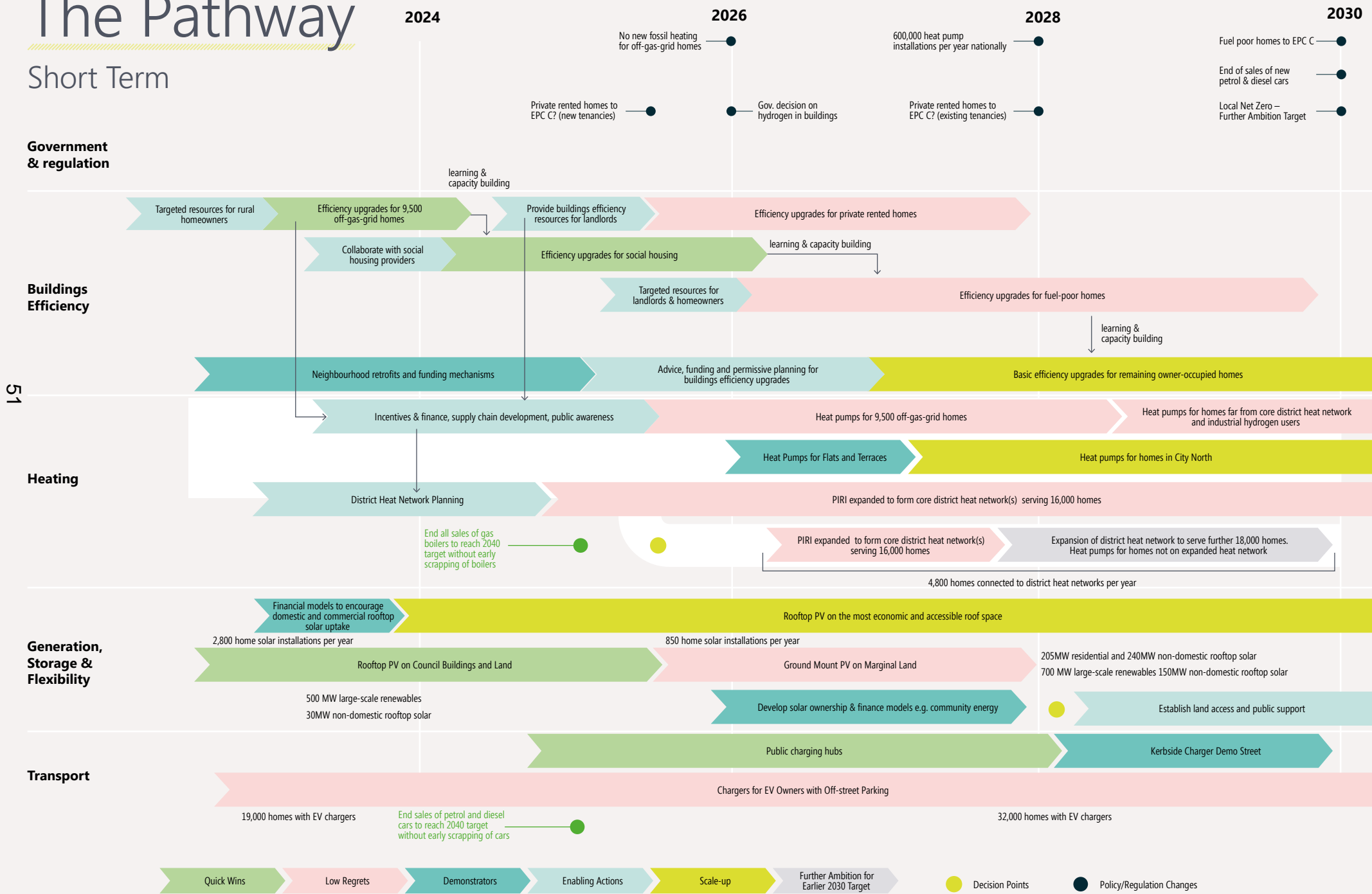


# The Pathway



# The Pathway

## Short Term



# Buildings



# Overview

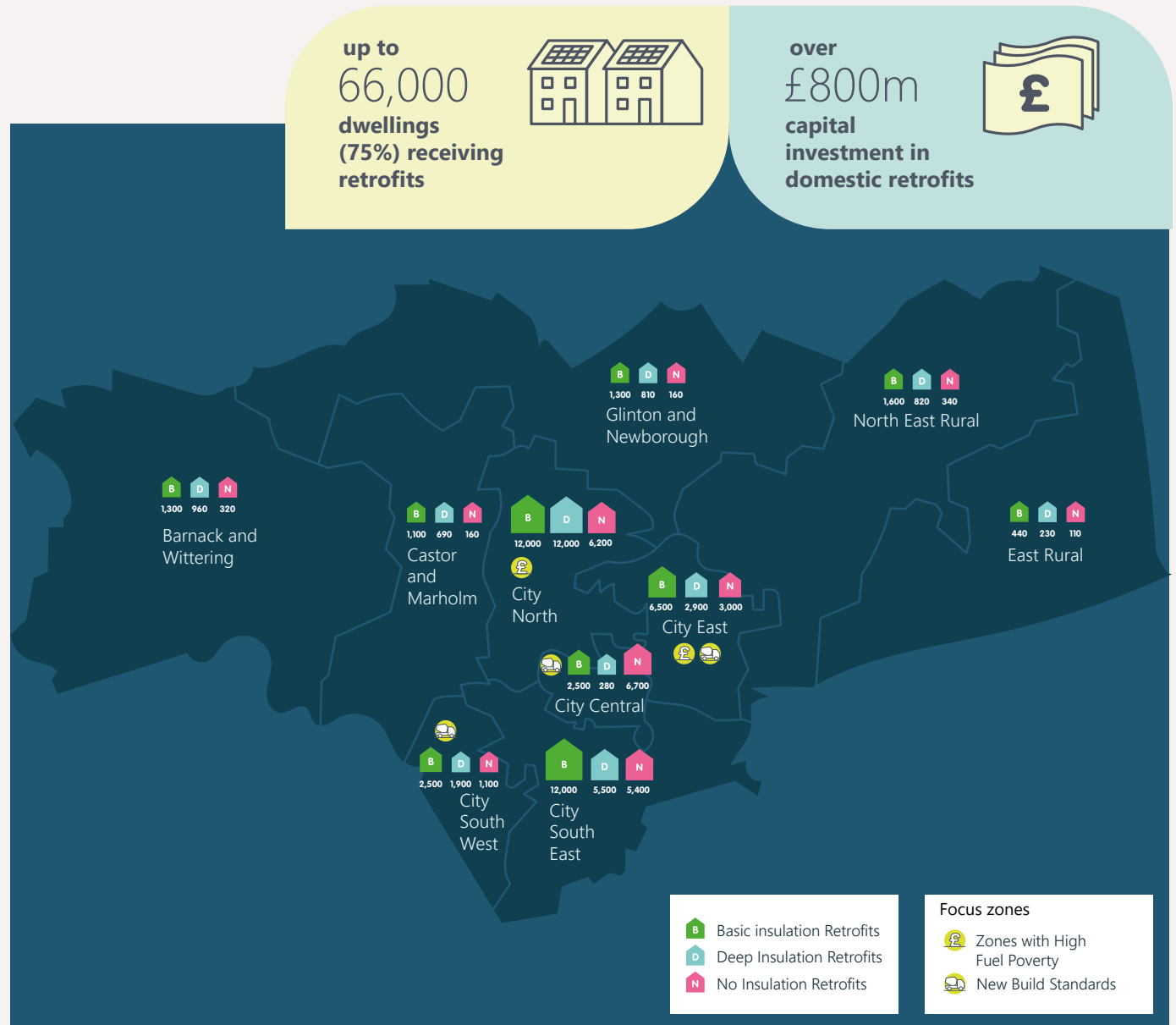
All zones of Peterborough see the majority of dwellings receive retrofits – the map shows how these are distributed. A total of 66,000 dwellings at a cost of over £800m for the 2040 target scenario receive retrofits. The number of retrofits is highest in the densely-populated city zones. However, there are a greater proportion of dwellings in these zones which do not receive retrofits, owing to the higher number of flats\* and modern buildings. Retrofits are split into “basic” and “deep”, explained on the following pages.

53 The scale of retrofits required in the more urban zones (particularly City North and City South East) is dependent upon the scale of the district heat network. If an expansive heat network is developed, then fewer domestic retrofits would be required.

The large scale improvement of dwelling energy performance overlaps favourably with higher rates of fuel poverty in City North and City East, where retrofits will help alleviate fuel poverty.

Areas where large numbers of new dwellings are expected to be built (particularly City North and City East) provide opportunities to ensure high efficiency and carbon standards are achieved.

\* Flats are considered individually and therefore are not often suitable for retrofit. However, they can be considered collectively as blocks to improve their thermal performance.



# Zones and Dwelling Types

Retrofits are improvements to the fabric of domestic and non-domestic buildings to reduce heat loss. This retrofit can include loft and cavity wall insulation (“basic”), double or triple glazing, solid wall insulation, floor insulation, draught-proofing and door upgrades (“deep”). These measures can improve comfort and health of occupants, reduce bills, and make it easier to transition to low carbon heating systems, whilst also reducing the need to upgrade the electrical network. Since retrofits can reduce the size and cost of heating system needed, it makes practical sense to complete them before heating system replacements take place, or at the same time to minimise disruption to occupants.

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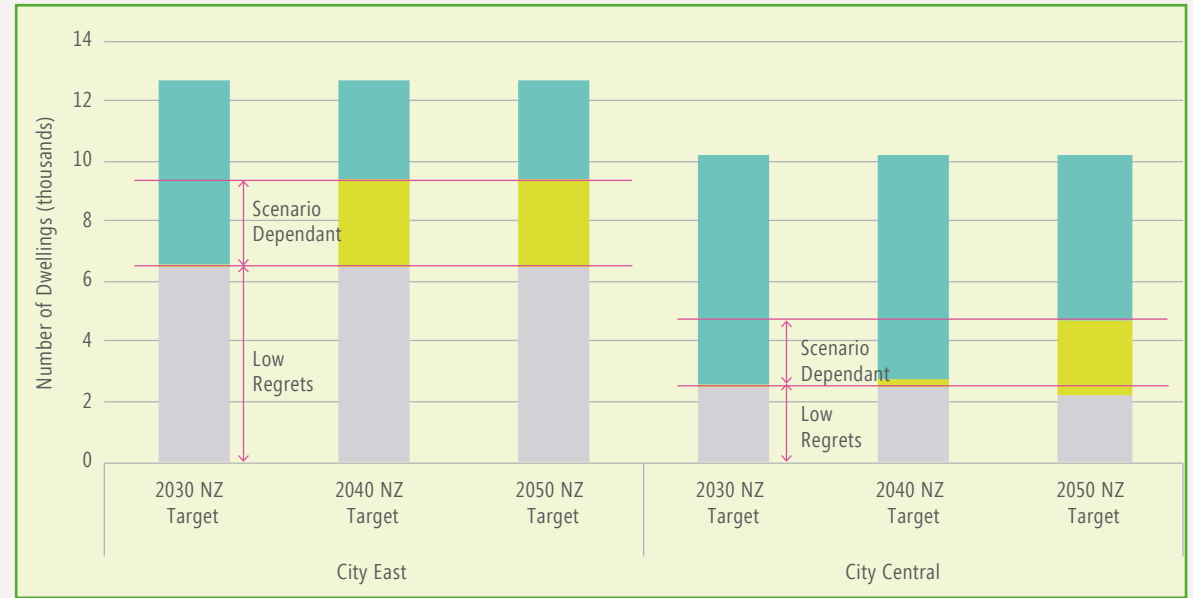
The graphs show the extent of retrofits across each zone of Peterborough (above) and over the various housing types (below). Modern buildings have little potential for cost-effective retrofits, and opportunities in flats are limited. However, planned new builds present an opportunity to maximise insulation and include rooftop solar, EV charging and low-carbon heating at much lower cost than retrofit and remove the requirement for retrofit at a later date. This can be mandated through local and national new build standards. Retrofits for non-domestic buildings are included with the heating upgrades described later in this plan.



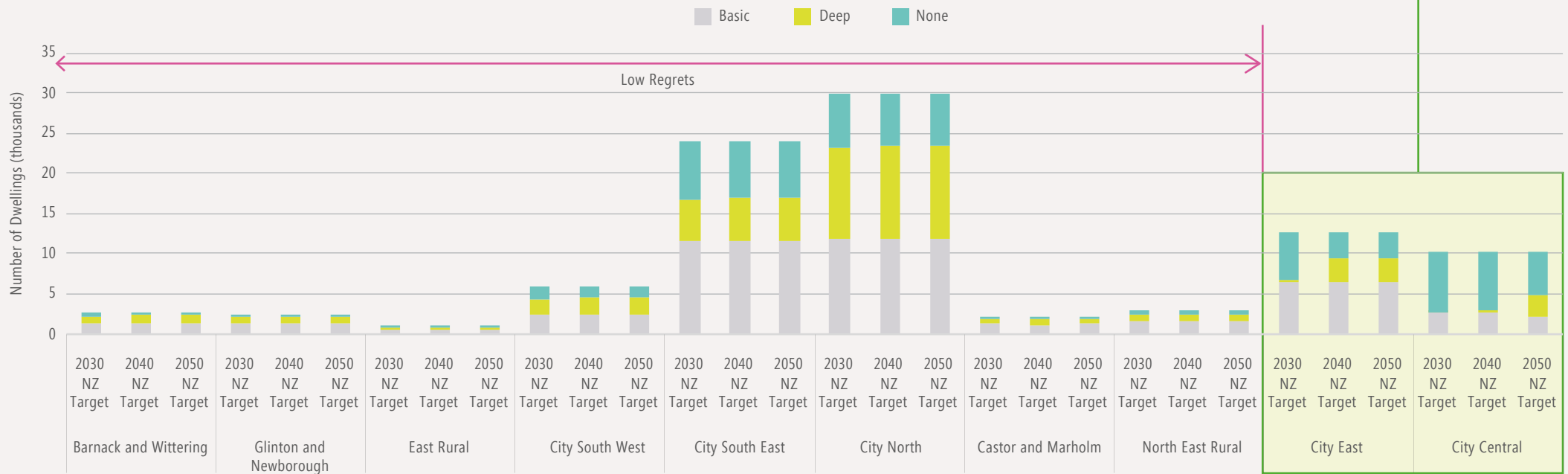
# Low Regrets & Scenarios

The graph below compares the levels of domestic retrofit that are required in each of the scenarios. Because the vast majority of retrofits are consistent across the scenarios, they can be considered to be 'low regrets'. These can be carried out even if there is uncertainty around the net zero target that will be aimed for.

The only zones where significant uncertainty is found are City East and City Central, where more deep retrofits are carried out in the scenarios with later net zero targets (shown in the graph to the right). This is due to more dwellings being connected to heat networks in the 2030 scenario, and these dwellings not needing retrofits for the heating system to work effectively.



55



# Focus Zones

City North and City East are **focus zones** for 'basic' energy efficiency upgrades due to the large number of existing dwellings requiring retrofit – 23,400 (79%) and 9,400 (75%) respectively. Both of these zones also have relatively high fuel poverty levels (right), meaning residents in this area will also benefit from reduced heating costs. The lower maps show the density of homes receiving basic upgrades in these areas.

## City North

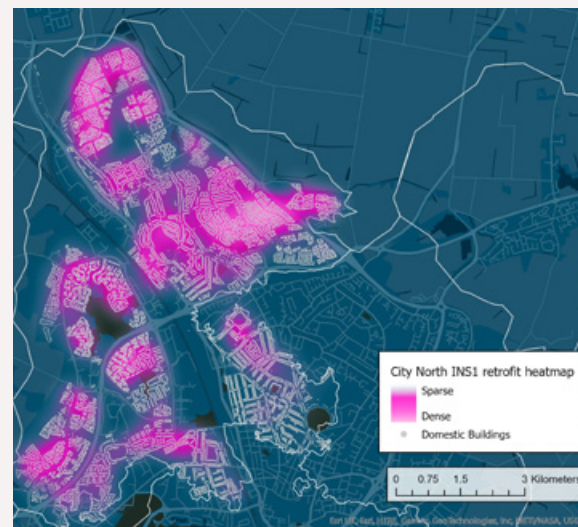
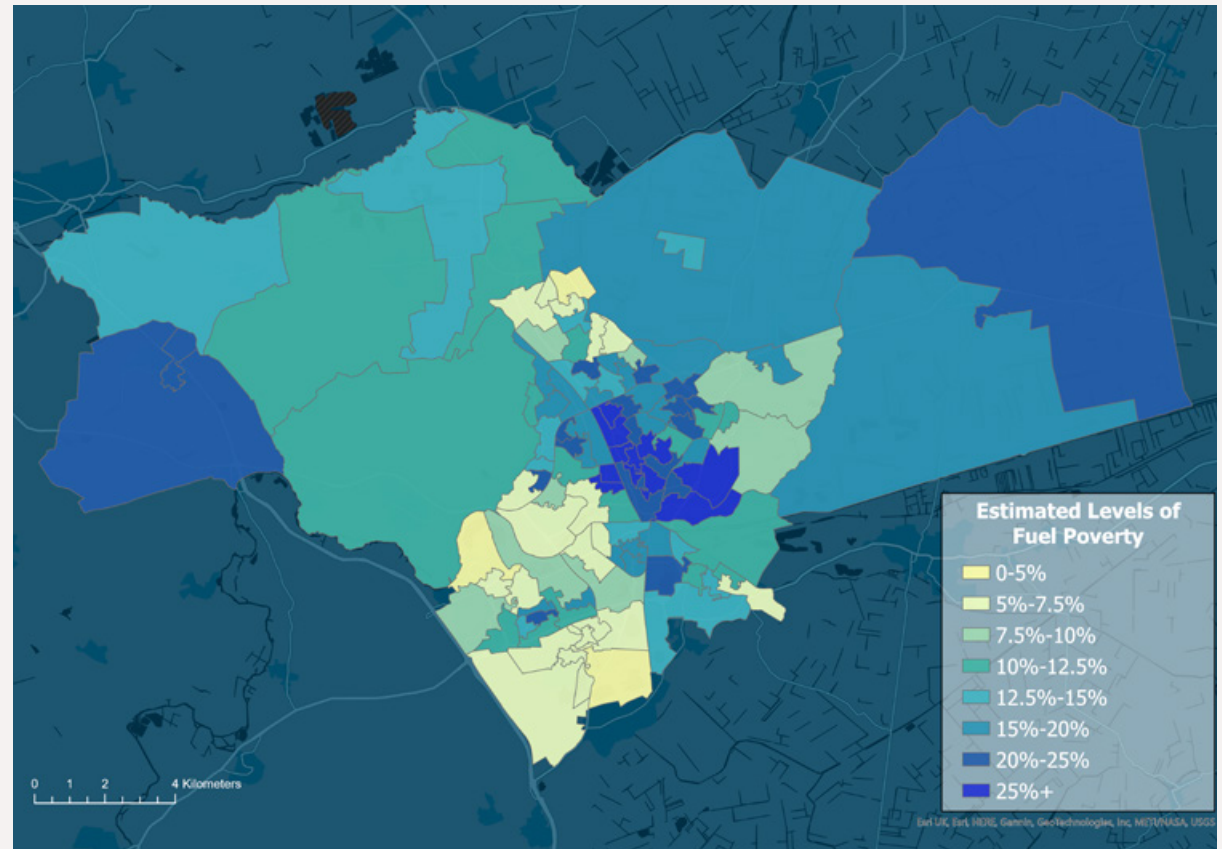
Housing in this zone is made up predominately of semi-detached and terraced dwellings, with approximately one-fifth being detached. Around 4,000 dwellings for each archetype receive basic retrofit. Energy efficiency upgrades are relatively consistent in both the 2030 and 2040 net zero target scenarios. Housing archetypes receiving upgrades include:

- Pre-1914 terraces (over 4,200 receiving deep upgrades)
- 1980-present detached (over 2,200 receiving basic upgrades)
- 1965-1979 terraces (almost 2,000 receiving basic upgrades)

## City East

Almost 4,000 semi-detached and 4,000 terrace dwellings require upgrades, with 1,500 detached dwellings also requiring upgrades. Housing archetypes receiving upgrades include:

- 1945-1979 semi-detached (over 1,800 dwellings receiving basic upgrades)
- 1945-1979 terraced (almost 1,900 dwellings receiving basic upgrades)



Note: INS1 = 'basic' retrofit



# Heating

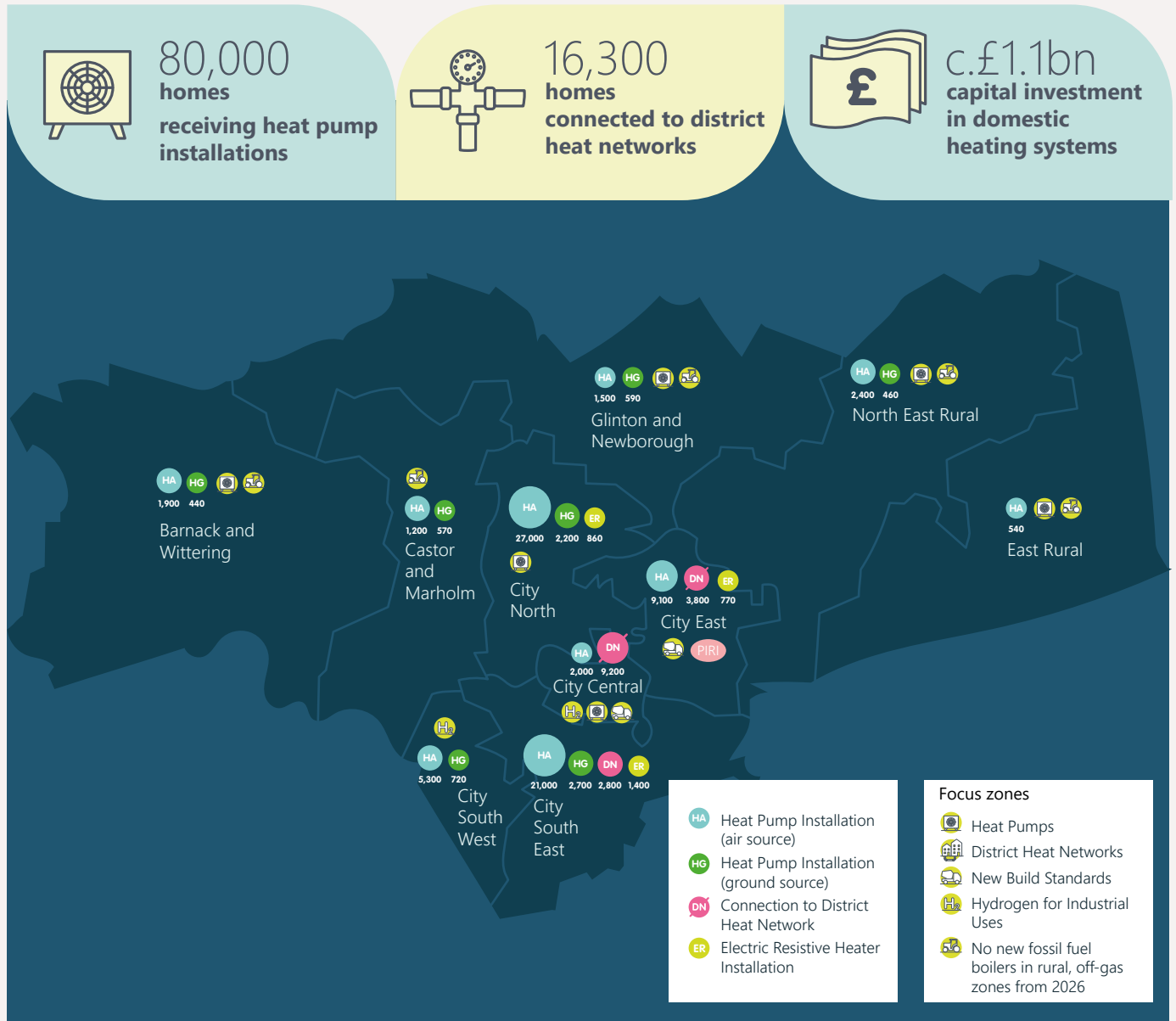


# Overview

Fossil fuel boilers make up the majority of heating systems in dwellings and non-domestic buildings, and these account for a large proportion (38%) of Peterborough's emissions. To reach net zero, these will need to be replaced with low carbon heating systems. Heating systems can be replaced at their natural end-of-life, however early preparations are needed to ensure the low carbon options are available, straightforward and attractive when replacements occur, which can often be during a break-down. The sale of new fossil fuel heating systems would need to end by 2025 to meet a 2040 net zero target in order to avoid early replacements of working boilers (assuming a 15 year lifespan).

Air source heat pumps are the most suitable technology for decarbonising heating within Peterborough, with growing evidence\* that they are suitable for the full range of property archetypes. Expansion of the PIRI heat network serves dense city centre locations (supported by some electric resistive heating), and ground source heat pumps are deployed for some homes in rural zones. Rural zones off the gas grid are low regret for heat pumps, with a end to new fossil heating installations for these homes set for 2025. Some of the City areas may have opportunities to use hydrogen for heating for homes near industrial users.

\* <https://es.catapult.org.uk/news/electrification-of-heat-trial-finds-heat-pumps-suitable-for-all-housing-types>





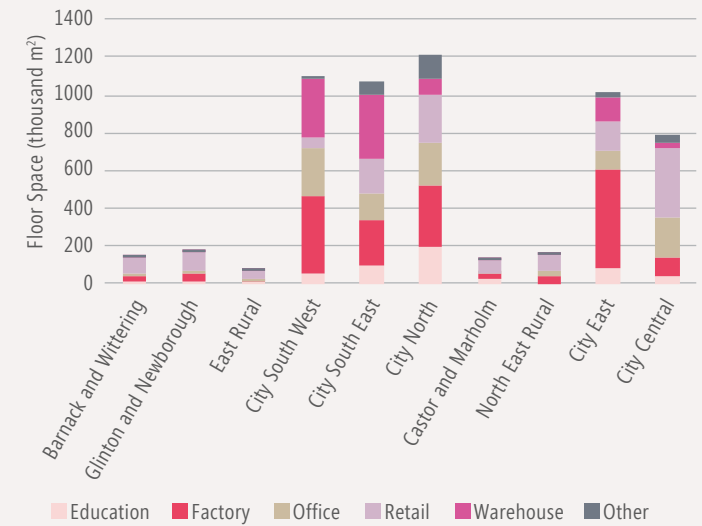
# Non-domestic Buildings

Non-domestic buildings follow a similar pattern to domestic. Most of the heat demand is for space heating and hot water, and can typically be decarbonised using heat pumps, or by connecting to district heat networks in areas of high heat density. A similar split occurs between the low regrets buildings that are likely to use the same heating technology regardless of the scenario that is followed, and those that switch from heat pumps to district heating if aiming for a 2030 target, as buildings in areas looking to decarbonise quickly need to make the most efficient use of the carbon in the national grid until it becomes decarbonised (shown in the graph below).

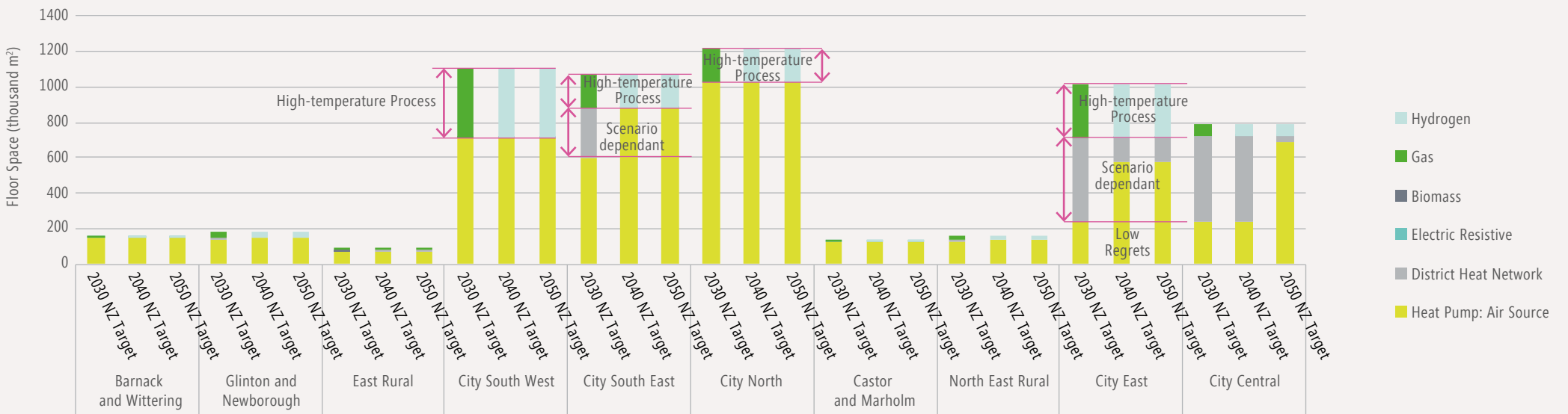
Building energy efficiency upgrades are bundled with the heating system upgrades shown here.

Some non-domestic buildings need high temperature heat for specialised industrial processes (see graph on the right for breakdown of non-domestic building types). The only viable alternative to fossil gas for this purpose is hydrogen. Since hydrogen is assumed to become available in the mid-2030s, these buildings are unable to transition from fossil gas until just prior to the 2040 net zero target date therefore requiring significant planning and rapid deployment once available.

Types of Non-domestic Building



09



# Low Regret Zones

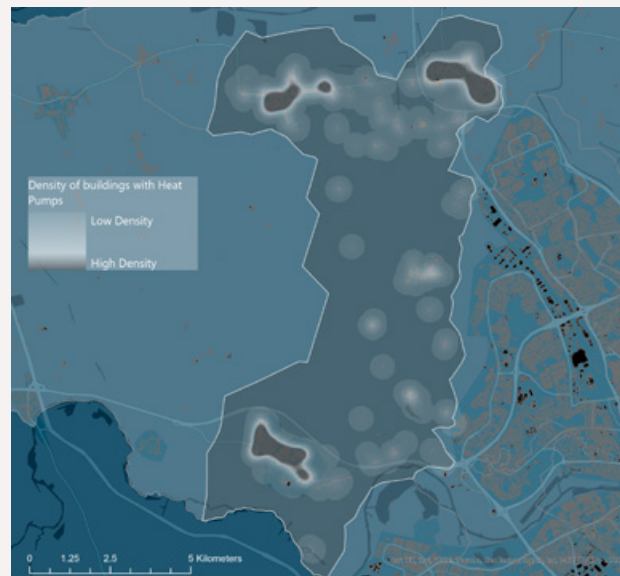
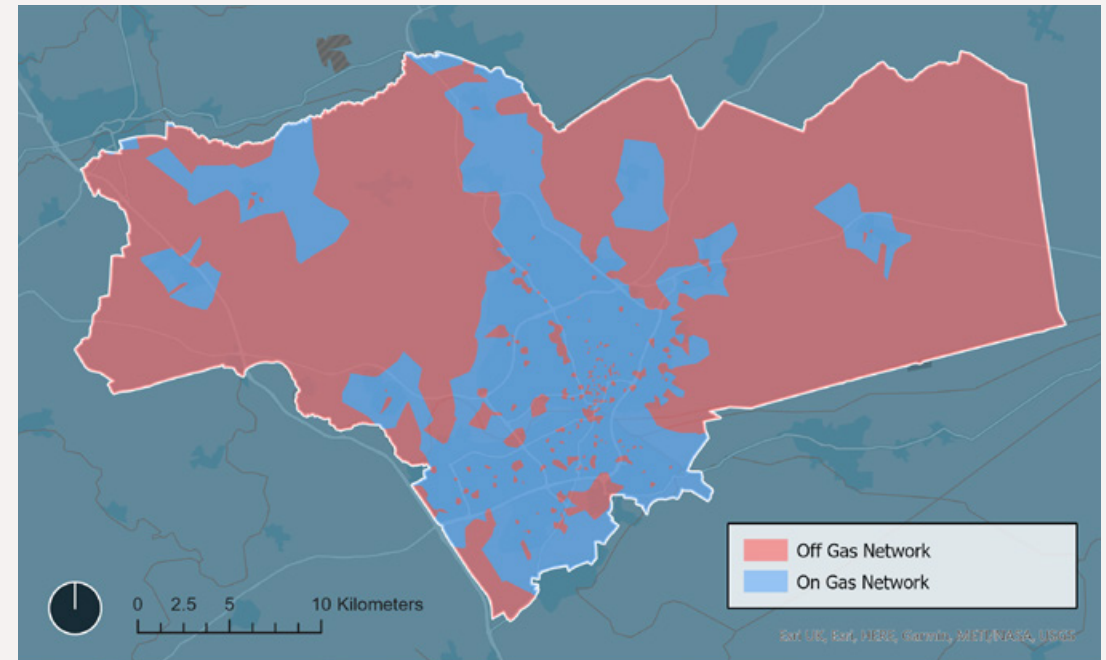
Barnack and Wittering, East Rural, Castor and Marholm, and North East Rural, and Glinton and Newborough are all rural zones within Peterborough that are predominately off-gas, with domestic off-gas properties totalling around **3,400**.

The government's Heat and Buildings Strategy proposes to end the installation of fossil-fuelled heating systems in off-gas dwellings from 2026, meaning rural properties (shown in upper map) will decarbonise in an earlier wave than most of the housing stock.

61

With no gas network to carry hydrogen, or dense areas of dwellings to make a heat network financially viable in rural zones, it is very likely that heating will be electrified, making them **low regrets** for heat pump installations. Of these rural zones, Castor and Marholm and North East Rural have the most headroom in the electrical network to begin installing heat pumps before a need for capacity upgrade arises.

Electrification of heating typically requires the building to be insulated to a certain level to ensure that both capital and operational costs are kept low.



Heat Pump Density in Castor and Marholm



Heat Pump Density in North East Rural

# Heat Pump Focus Zones

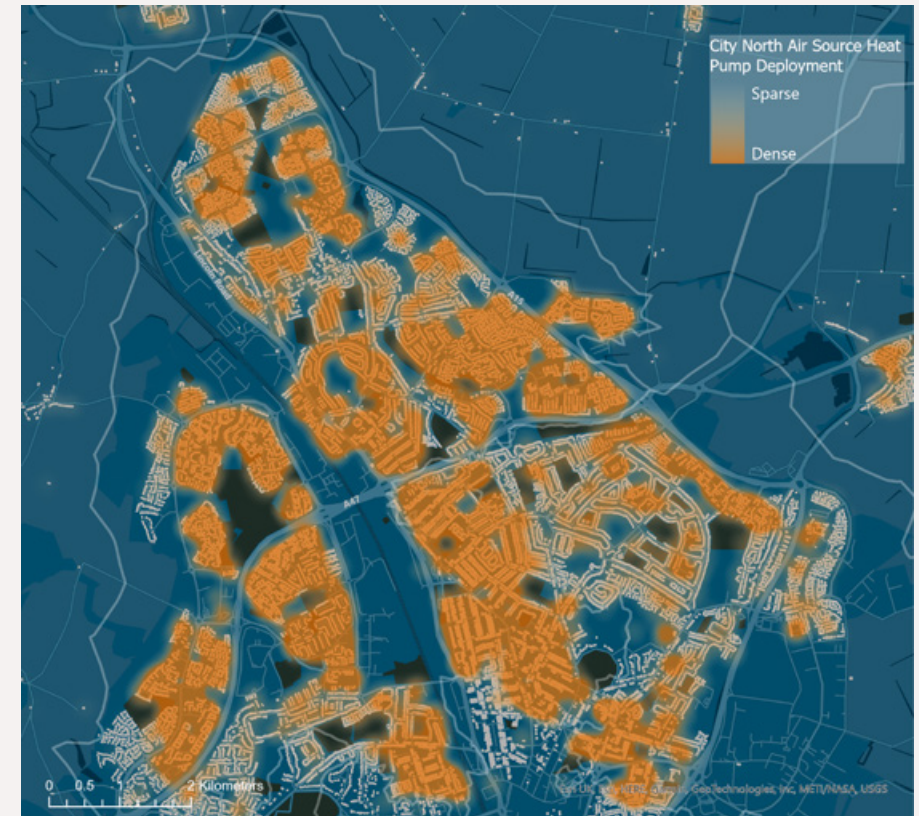
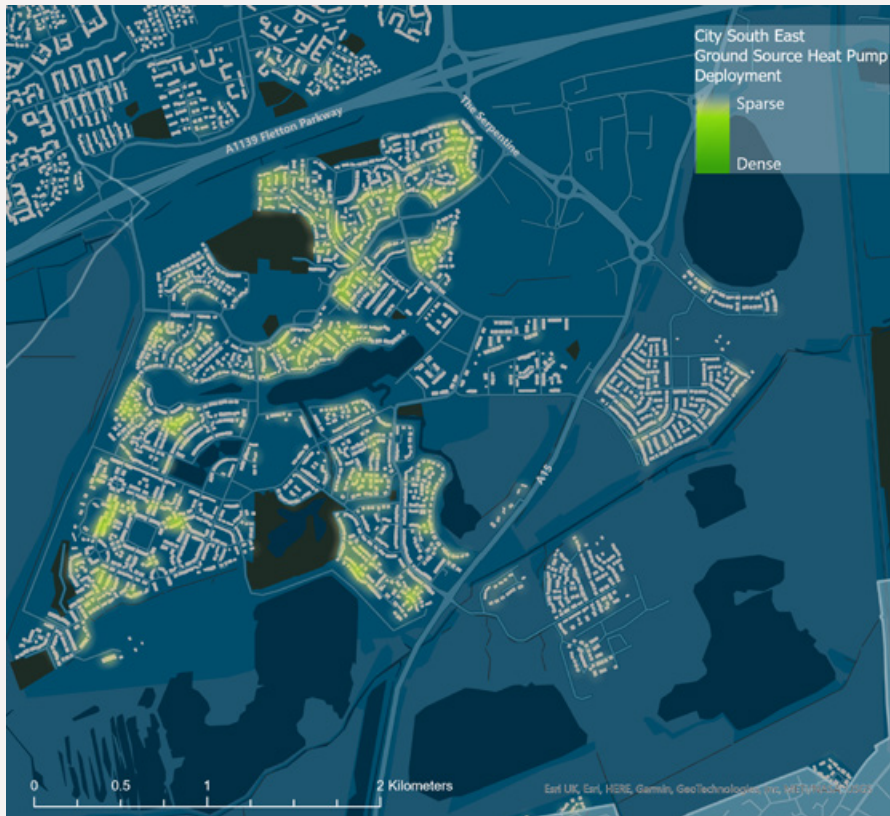
City North has the largest roll-out of air source heat pumps, numbering at least 29,400. This will require significant supply chain scale-up, citizen awareness and buy-in, and attractive commercial offerings to compete with existing fossil fuel options. This zone also has available demand headroom in its electricity network to allow for roll-out to begin immediately.

Given the large number of heat pumps planned, eventually network capacity upgrades and/or flexibility solutions will be required to meet the increased electricity demand.

Air source heat pumps are typically the most cost-effective heat pump type due to their lower capital costs compared to ground source heat pumps. However, in City South East (left), a cluster of GSHPs could be considered due to

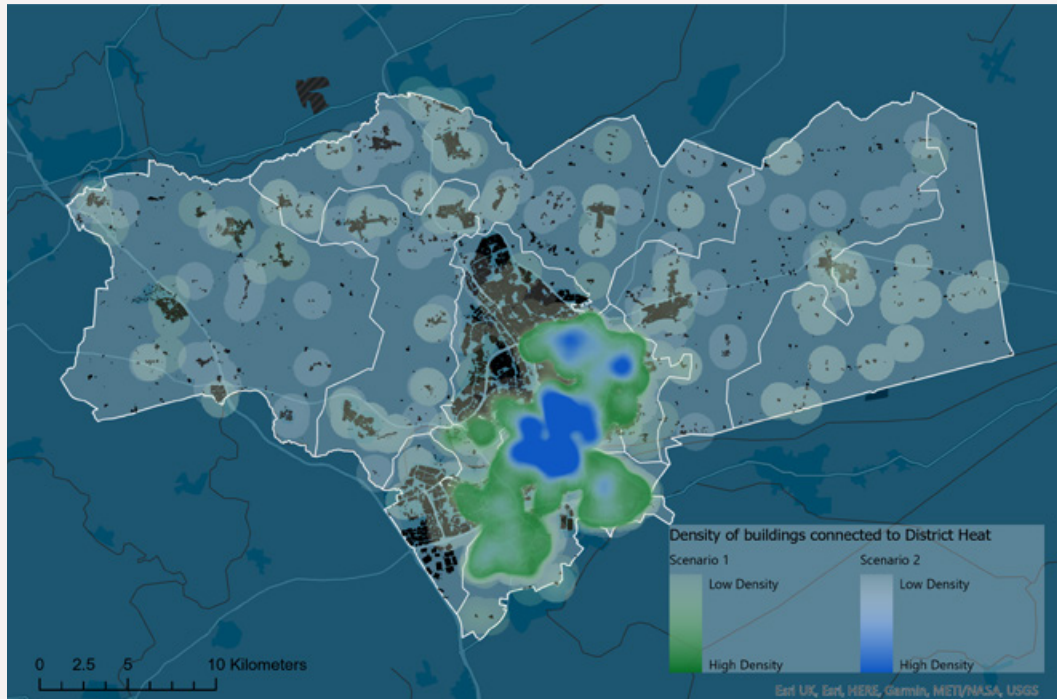
the properties being detached and having a significant amount of land available to use as the heat source. For large properties, the higher heat demand can justify the higher upfront cost of ground source, since it achieves higher efficiencies and lower running costs.

Where clusters like this exist, small communal systems could also be considered.



# District Heat Networks (DHN)

63



	Domestic Peak Demand (MW)	Non-domestic Peak Demand (MW)	Total Peak Demand (MW)	Domestic buildings connected
City East	4.8	6.8	10.2	3,800
City Central	20.6	18.4	35.4	9,200

Heat supplied through underground pipes from a centralised energy centre, or a network of decentralised energy centres, tends to be the most suitable solution for denser urban zones, particularly where there are large numbers of dwellings that require either too expensive or impractical retrofit to make them suitable for heat pumps. Heat networks cause less disruption in dwellings during installation compared to some other options, though there are wider considerations such as traffic disruption during pipe laying, and space restrictions in city centres.

The 2040 scenario (blue area on map) shows district heat networks proposed predominately in dense areas around the city centre. The Peterborough Integrated Renewables Infrastructure (PIRI) project, already underway, provides a valuable starting point for a heat network that can be extended to serve other areas proposed by this plan. Regardless of decisions made on the eventual extent of the heat network, the full PIRI scheme forms a low-regrets core. Heat networks across the city should be built to common standards to allow them to expand and merge at future dates however this

would require a long-term planning approach to ensure that network infrastructure can be planned appropriately.

In the core area (blue), 16,300 properties are connected to district heat networks. In the higher ambition 2030 scenario (green), this would increase to 34,200, taking the place of some heat pump installations.

In 2030, the carbon content of the electricity supply will still be high enough to warrant minimising use of grid electricity, and therefore a more efficient heat network is preferred by the model to decarbonise quickly and at scale. For a 2040 target, the carbon content of national grid electricity is expected to have reached a low level, meaning fewer homes connect to a heat network and instead opt for individual heat pumps.

The Green Heat Network Fund\* will have quarterly application rounds from March 2022 until 2025, and could provide funding for heat networks in Peterborough.

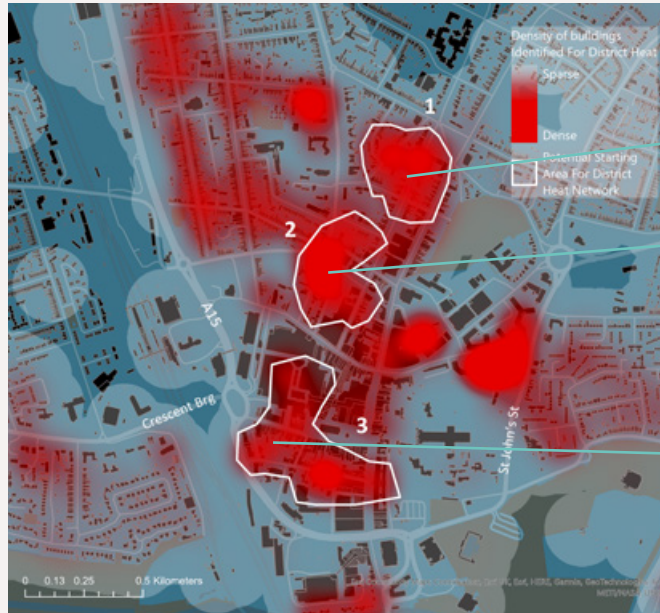
\* <https://www.gov.uk/government/publications/green-heat-network-fund-ghnf>

# City Central Heat Network

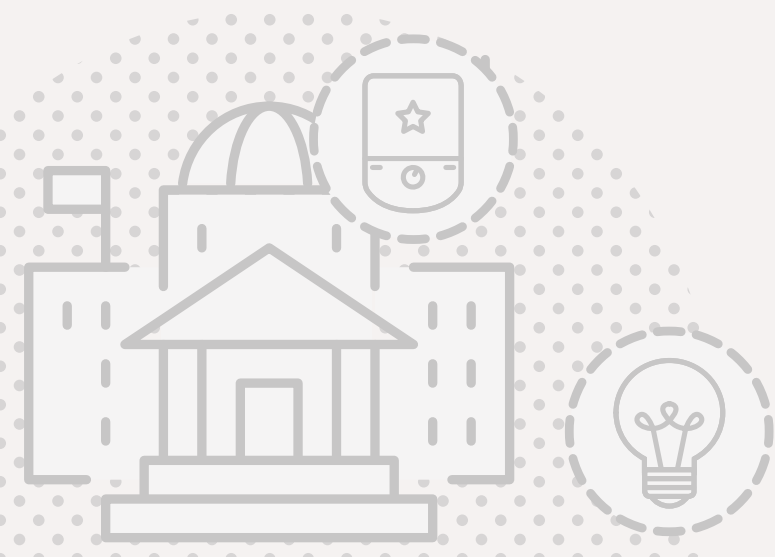
Within the City Central zone, there are three areas (shown in the maps) with potential for district heat network deployment due to the higher heat demand density (a large amount of heat requirement in a small area).

The mixture of domestic and non-domestic buildings allows for more of a balanced load across the network at any given time. Nevertheless, anchor loads (such as large schools, hospitals, leisure centres) with a steady and constant heat requirement should be sought if possible.

64 The table shows the split of domestic and non-domestic properties and the peak demands. (Note: peaks are not additive as domestic and non-domestic peaks will not occur at the same time.)



	Number of Domestic Dwellings	Number of Non-Domestic Properties	Domestic Peak Demand (MW)	Non-Domestic Peak Demand (MW)	Total Peak Demand (MW)
<b>Top DHN (1)</b>	283	61	0.69	0.33	0.87
<b>Middle DHN (2)</b>	297	78	0.67	0.49	1.0
<b>Bottom DHN (3)</b>	165	321	0.39	3.2	3.4





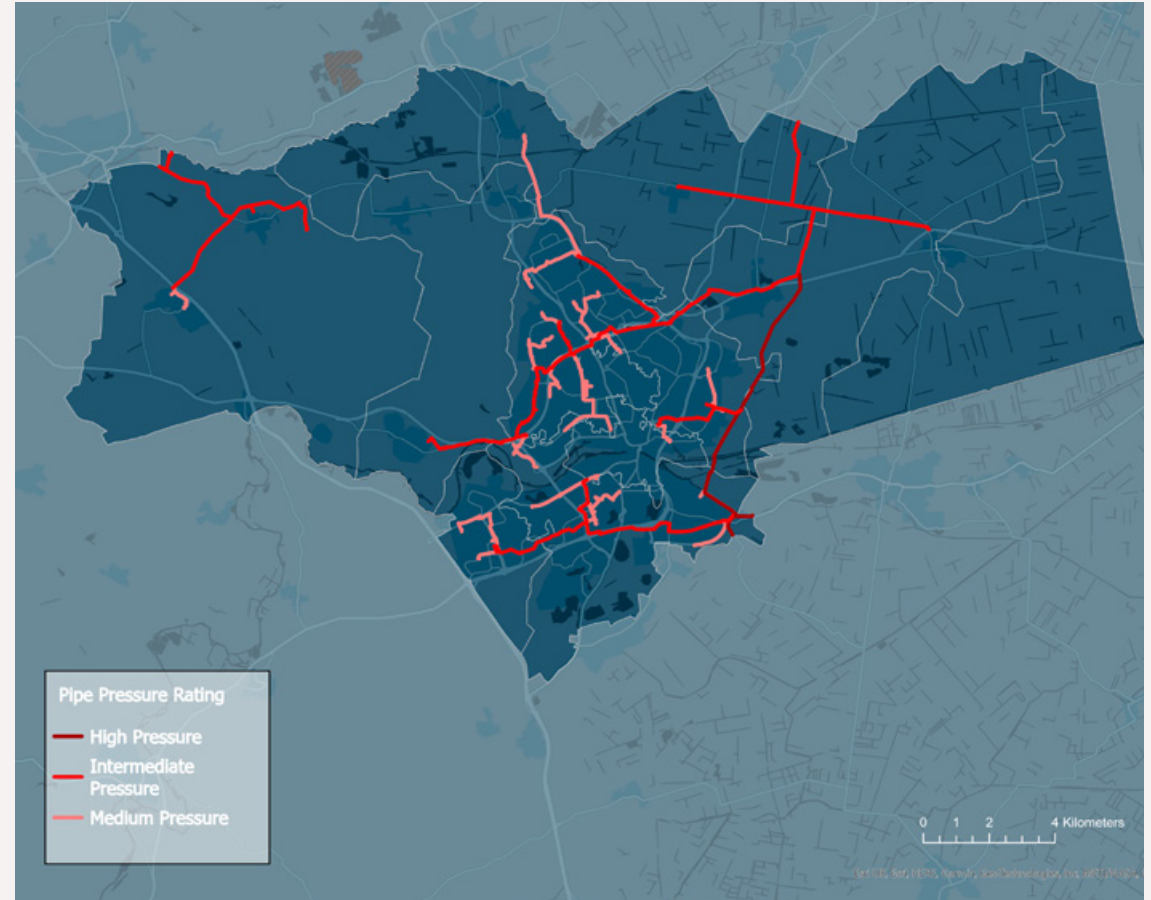
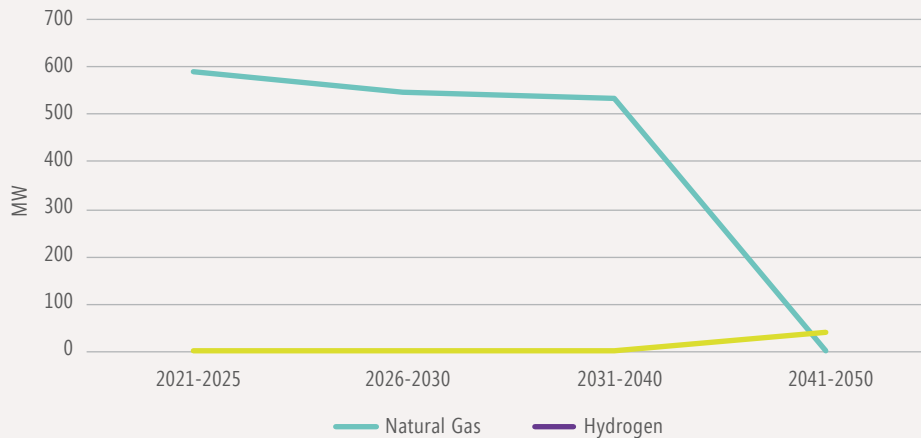
# Gas Network

The gas network in Peterborough is operated under license by Cadent and currently supplies gas to the majority of dwellings in Peterborough (extents of the high-pressure network shown in the map). It is used predominantly for domestic heating, hot water and cooking, but also supports a range of non-domestic and industrial local energy demands.

The current total gas consumption across Peterborough is around 1,370 GWh per year. Meeting the net zero goal would mean a steep decline in fossil gas consumed across Peterborough, illustrated in the graph below (based on following the 2040 net zero pathway).

Meanwhile, parts of the gas network could be repurposed to supply hydrogen around industrial areas – this is detailed on the following page.

Peak Gas Demand



Map of the high-pressure gas network in Peterborough.

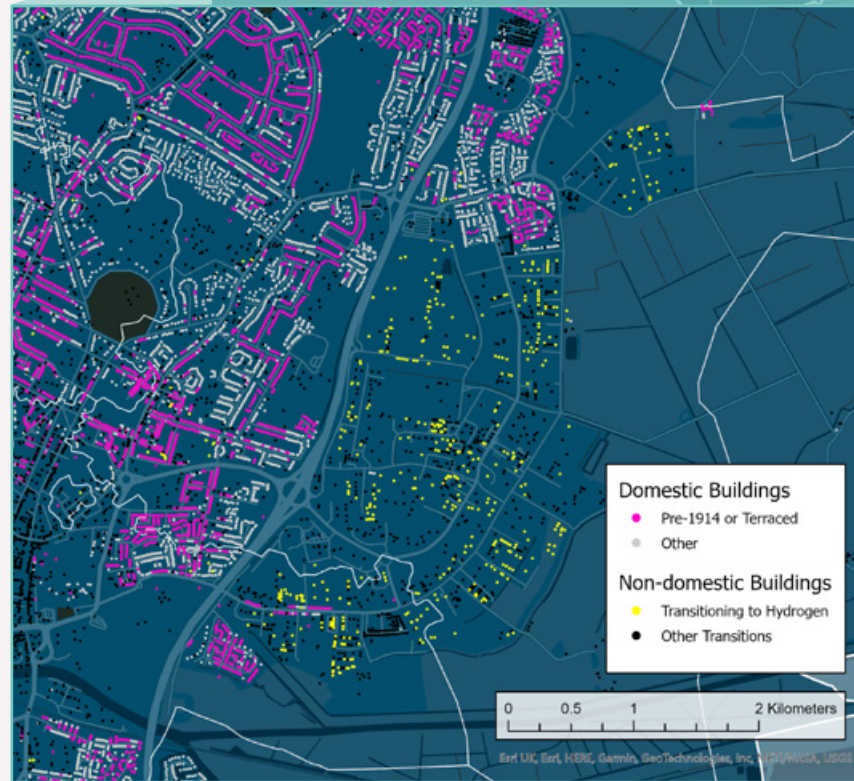
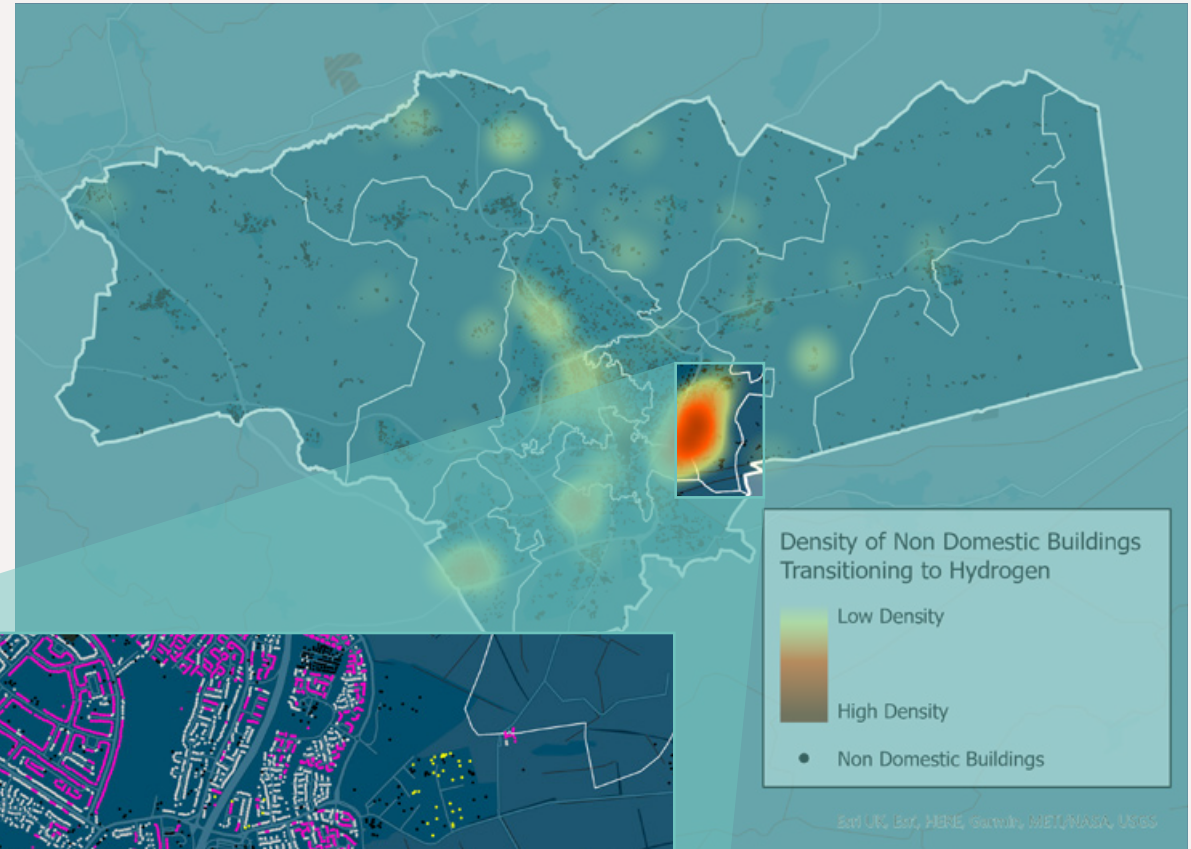
# Hydrogen

It is assumed that hydrogen will become available in the mid 2030s from the East Coast Hydrogen scheme and therefore cannot contribute to the 2030 target. Even by 2040, the use of hydrogen for building heating is likely to be minimal, as the cost and carbon factors modelled for hydrogen\* result in electrification of heat being preferred.

There are, however, uses of fossil gas in industry for high temperature processes that would be difficult to electrify, and this is where hydrogen could be usefully deployed. Once these industrial clusters are supplied by hydrogen, it could make sense for nearby buildings, including any homes in the area, to also be heated by hydrogen, avoiding the disruption, upfront cost and space requirements of heat pump installation. This could be valuable in dwellings where space for heat pump equipment is constrained and insulation is poor, such as the pre-1914 terraces in City East and City Central.

Recognising that there is uncertainty associated with the cost and carbon projections used for hydrogen, near-term focus can be centred on the identified heat pump and district heat network focus zones, keeping options open for areas outside the focus zones. The UK government is expected to clarify its strategy on the use of hydrogen for heating buildings in 2026, which will give a steer on the decisions for these areas.

\* Hydrogen production cost based on BEIS figures; carbon intensity based on the East Coast Hydrogen project feasibility study



66

# Public Survey

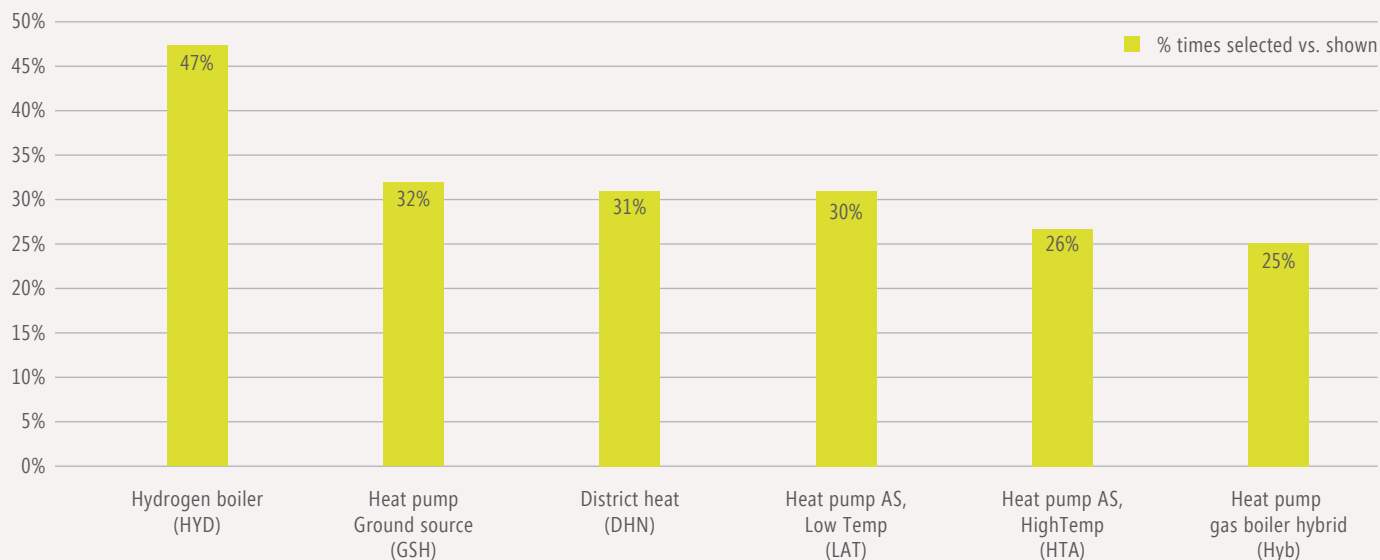


A survey was carried out by Energy Systems Catapult using the "ZeroCarbon.Vote" platform to engage a sample of Peterborough's population (approximately matching demographic, household tenure, etc). Participants were presented with heating technology options relevant to their specific house type, and a little information about each option (e.g., relative capital and running costs, disruption, etc). They then expressed preferences and provided a justification for their preferences. The results give an indication of the extent to which (based on the simple initial information provided to them) residents' preferences align with the potential recommendations for each zone within the plan.

67

Residents in most zones voted for a spread of relevant technologies, with district heat networks featuring more in urban areas and various heat pump technologies more in rural areas. Hydrogen boilers were also frequently voted for, where that option was offered\*.

Running cost was the factor most often cited in making these choices, with installation cost cited about half as often. Disruption to the home was cited less, and disruption to the street was cited by very few. However, heat pumps and district heat networks would actually fit this set of preferences better than hydrogen boilers, which are likely to have higher running costs.



\* Three of the heating options were provided to each respondent. This therefore shows some favour towards hydrogen boilers (being picked more than one-third of the time) and some disfavour towards high temperature and hybrid heat pumps (being picked less than one-third of the time).

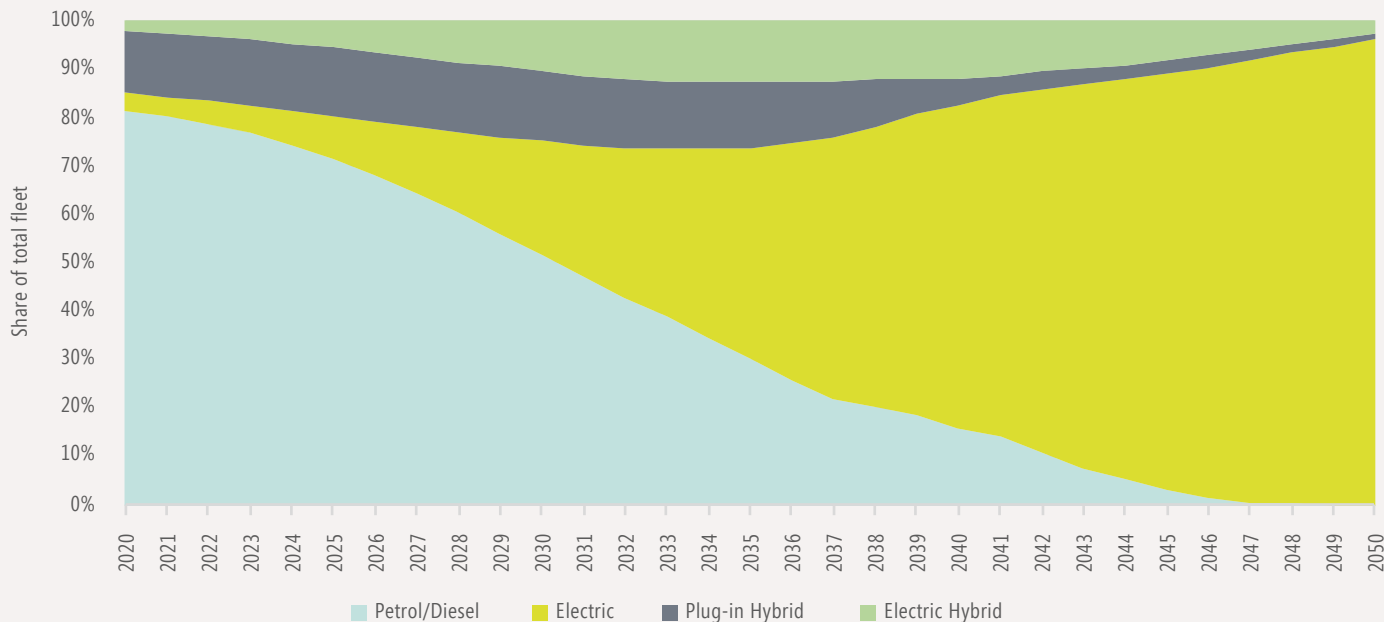
# Transport



# EV Overview

Electric vehicles (EVs) are expected to grow significantly as a proportion of total vehicle fleet, as costs match or fall below those of petrol and diesel vehicles, local clean air zones favour clean vehicles, and national policy phases out petrol and diesel vehicle sales by 2030 and hybrids by 2035. Reaching net zero ahead of the national target would require encouragement for residents to shift to electric vehicle purchases earlier.

69 Projections of an increasing proportion of private electric vehicles are used to anticipate the electricity demand across Peterborough for charging these vehicles, and the associated infrastructure upgrades that would be required.



**80,000**  
Electric cars  
(including plug-in hybrids) by 2040



**78 GWh/year**  
Energy consumption  
for charging in 2040



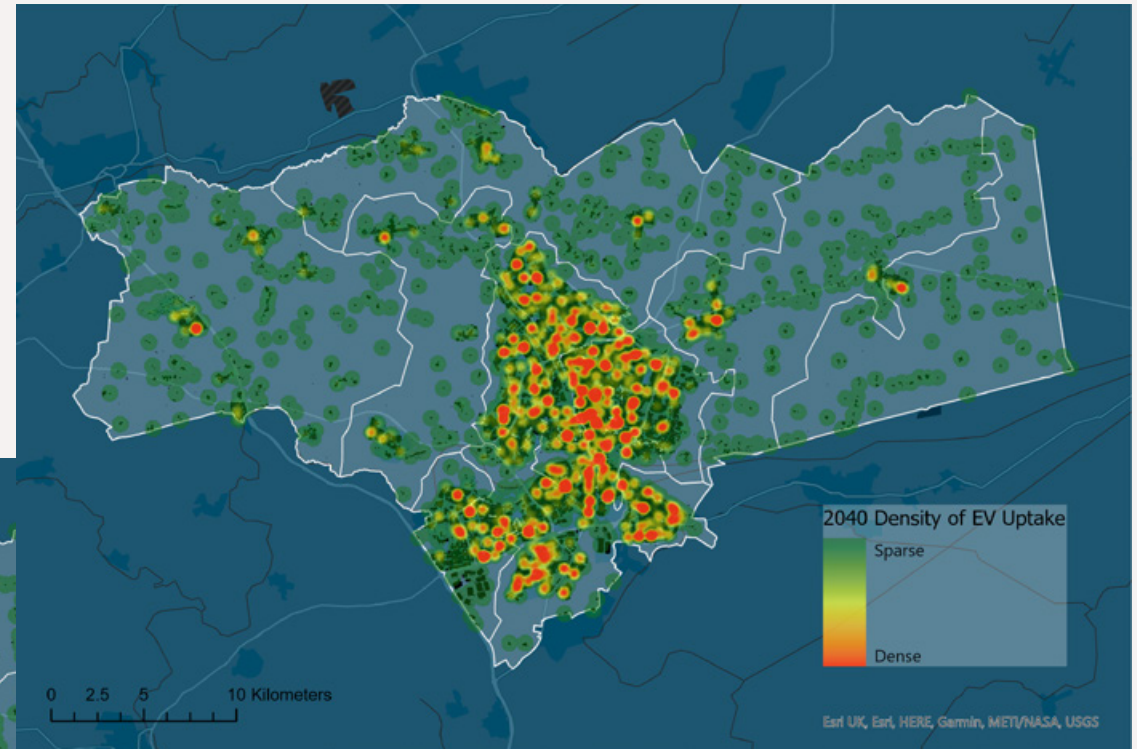
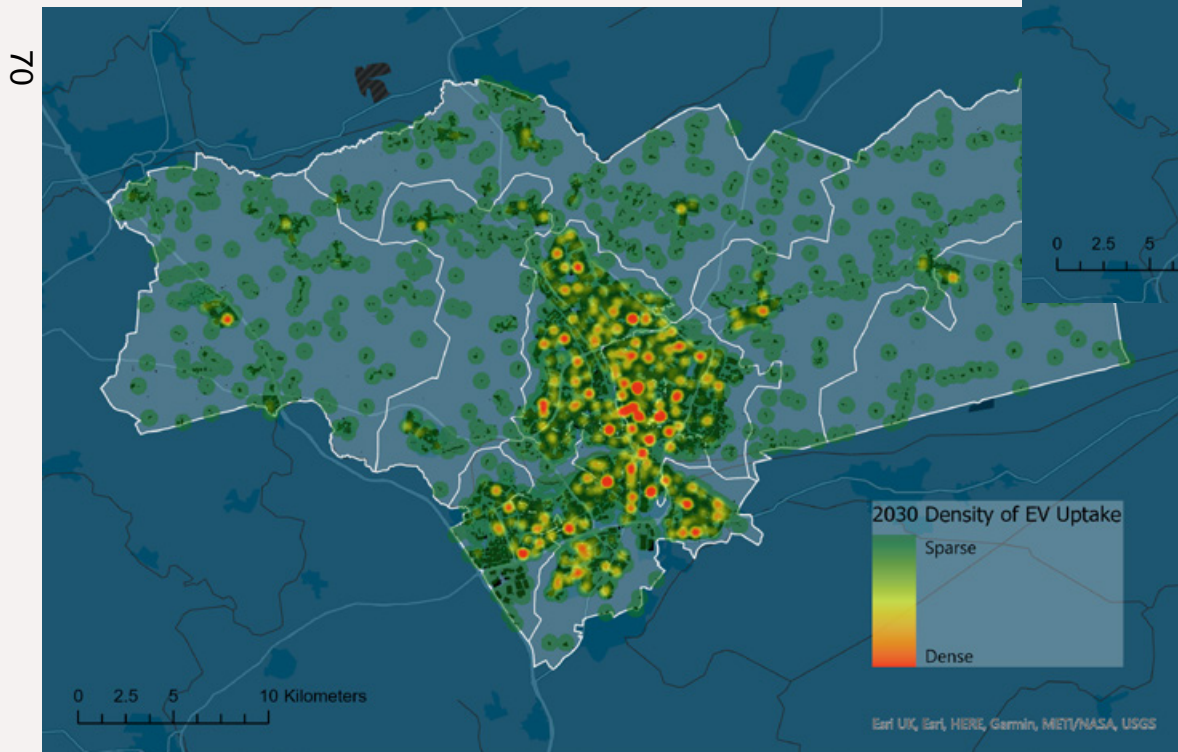
**53,700**  
Domestic chargers  
installed



**£24m**  
Install costs for  
domestic chargers

# EV Projections

Based on national projections, fully electric and plug-in hybrid vehicles in Peterborough are expected to grow from their current level to 24,000 vehicles (24% of the total fleet) by 2030 and over 80,000 (72%) by 2040. To reach net zero before 2050, this transition would need to happen faster still, with the sale of new petrol and diesel vehicles having to end by 2025 if early replacement of vehicles is to be avoided (assuming a 15 year vehicle lifespan). A low emissions zone could help accelerate the transition.



Charging infrastructure will need to be installed to keep up with demand, and provide consumer confidence to encourage this transition. A mixture of publicly accessible and private residential chargers will be required.

EV uptake is naturally higher in the more densely populated areas of Peterborough. The far lower density of homes in the rural areas results in correspondingly fewer EVs, although the number of vehicles per household will tend to be higher.

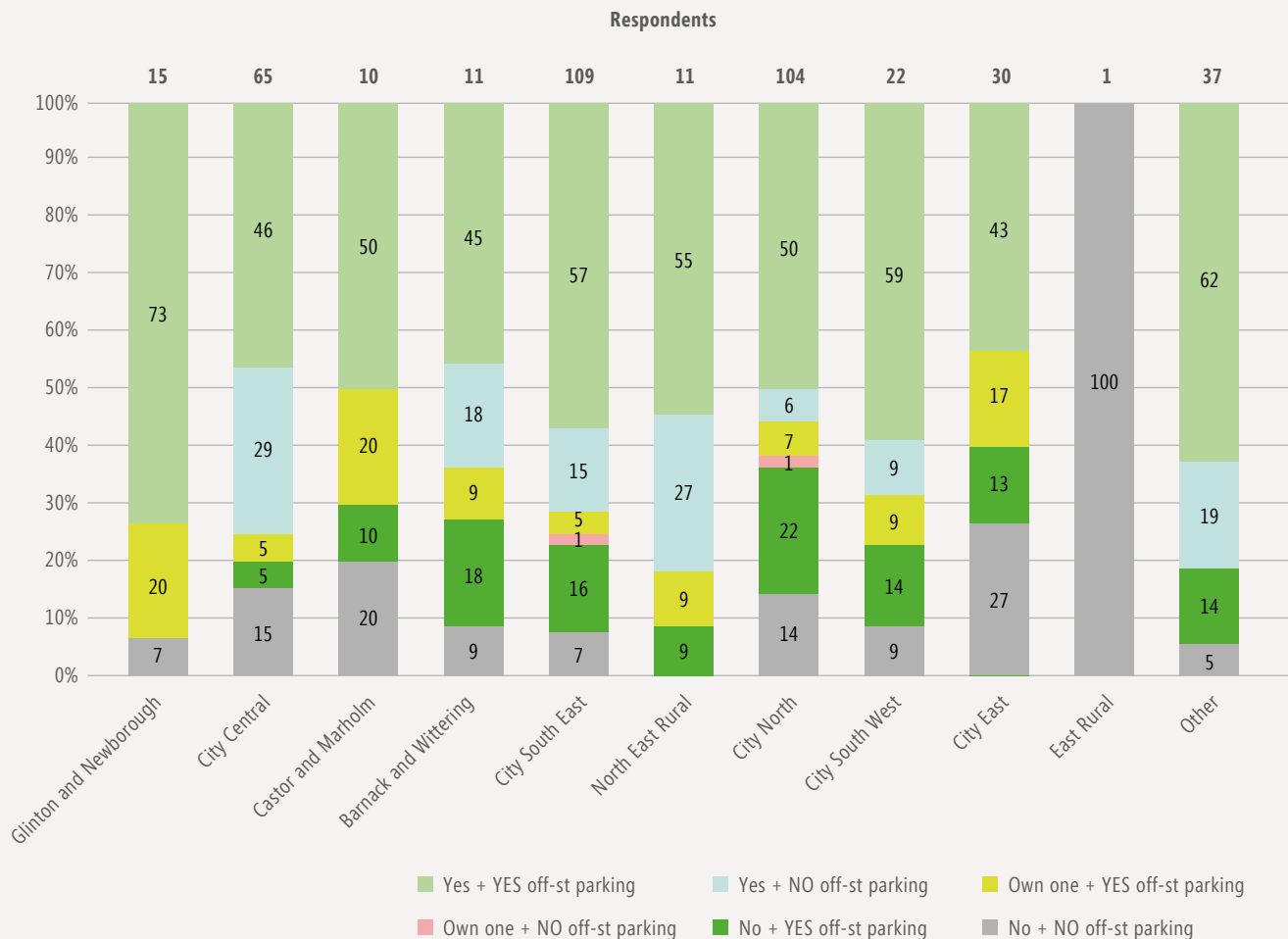
# Off-Street Parking and Charging



Analysis of respondents from a sample\* of residents engaged through the ESC's "ZeroCarbon.Vote" survey provides some insight into the influence of availability of parking and charging infrastructure and their vehicle choices.

- The majority of respondents (**74%**) are either considering an EV as their next car (66%) or already own one (7%).
- Of those who are considering an EV as their next car, **80%** have off-street parking.
- However, of those who are not considering an EV as their next car, **54%** have off-street parking.
- Of those who live in City Central, **45%** reported they have **no off-street** parking, the highest proportion of any area.
- City East (40%) and City North (36%) have the largest proportion of respondents who are **not considering an EV** as their next car

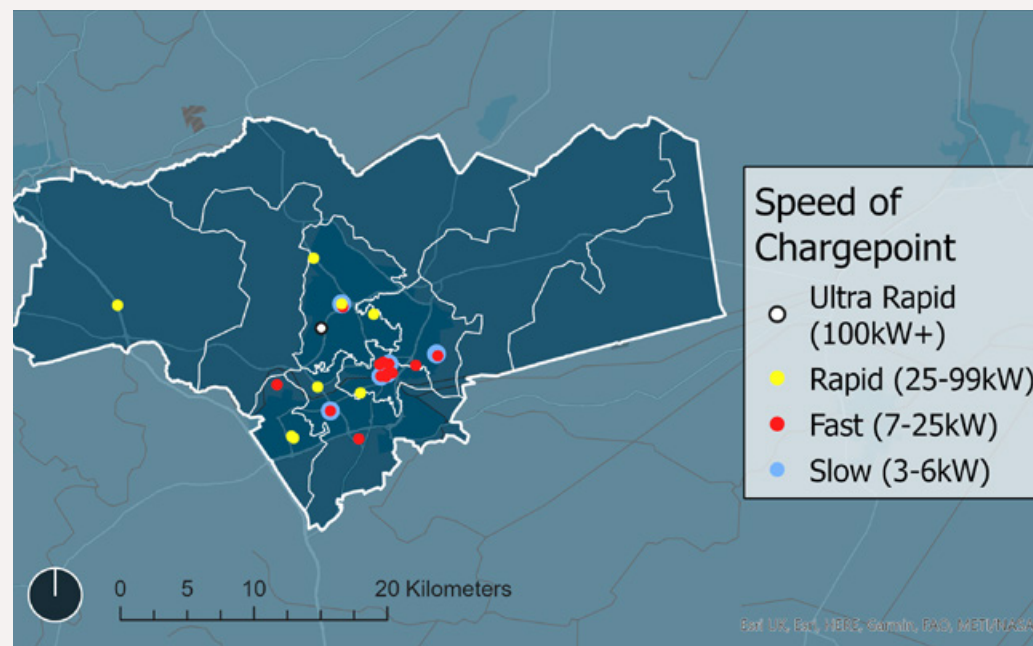
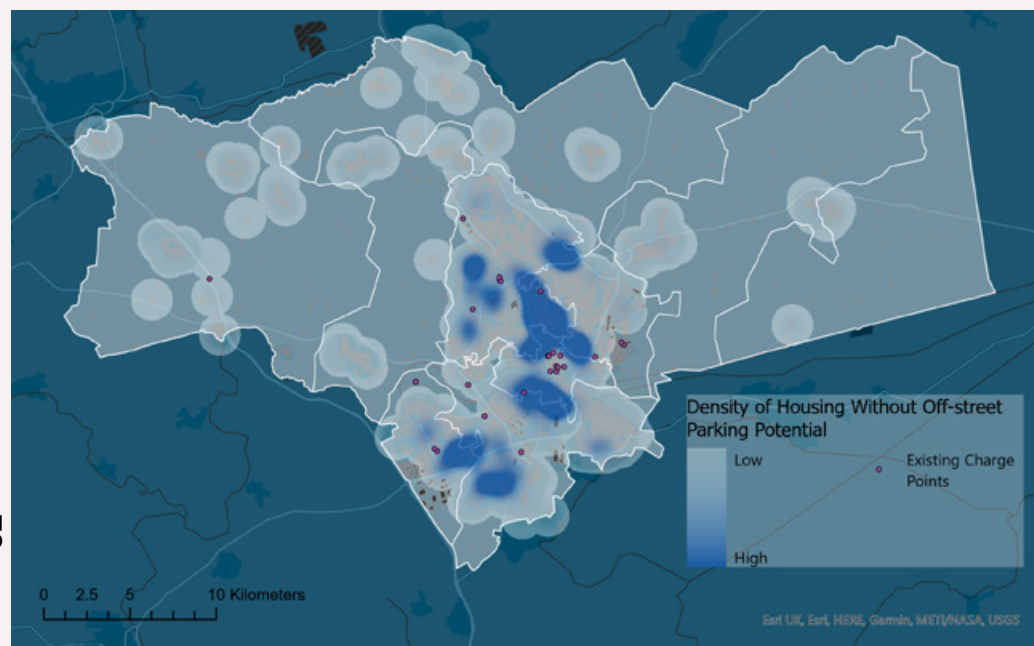
71



NB: low number of votes in East Rural zone

\* 535 residents completed the survey. Details of breakdown by zone, demographic, etc can be found in the Evidence Base. Numbers may not sum due to rounding.

# EV Charging Infrastructure



Residents with off-street parking are assumed to charge their vehicles at home, whereas those without are expected to require public charging hubs, including kerb-side and site-based charging (e.g. car parks).

Areas of high density housing without off-street parking exist towards the city centre, and there is a number of fast and rapid chargers already installed in these areas. However, given the projected increase in demand from EVs, a subsequent increase in charging infrastructure is required in these areas, and this could include a large increase in kerb-side technologies.

The ZeroCarbon.Vote results show that there is a proportion of respondents who are not considering purchasing an EV and don't have off-street parking. Having more readily available charging infrastructure near to their homes may encourage their transition to EVs.



# EV Focus Zones

The City South East area has high EV uptake anticipated, with plenty of capacity on the electricity network. City South East is therefore a **focus zone** for public EV charging infrastructure that includes both car parks and on-street charge points.

The City North area has the fastest expected roll-out of EVs, and given there is capacity on the network, this has been identified as a **focus zone** for installations of home chargers.

73 Zones where substantial numbers of new homes are anticipated can ensure EV charging is fitted during construction, incentivising EV ownership and avoiding the need for costlier retrofit. Strategic transport planning in these areas to provide access to quality public transport and active travel routes could encourage behaviour changes that reduce car dependency, while promoting health.



# Local Generation

An aerial photograph of Peterborough, Ontario, Canada, showing the Peterborough Cathedral as a central landmark. The image is overlaid with a semi-transparent dark grey filter. The text 'Local Generation' is prominently displayed in the center in a bright yellow, bold, sans-serif font. The background shows a mix of residential buildings, trees, and a large body of water in the distance.

# Overview

Electrification of heat and transport is core to decarbonisation, and this will increase Peterborough's annual demand for electricity from 880 GWh to 1,290 GWh by 2040.

If this electricity demand is supplied by the national grid, then Peterborough's rate of decarbonisation will be limited by the rate that the grid decarbonises. This is likely to limit Peterborough's ability to meet the more ambitious 2030 target, as the grid is expected to reach zero carbon by 2035 at the earliest.

To aim for the earlier target, Peterborough could explore generating more electricity locally in a low carbon way. Even for a 2040 target, local renewable generation can bring economic benefits, reduce emissions earlier, and contribute to the decarbonisation of the national electricity system. There are a number of options for this which are explored on the following pages.

75

## 47%

Increase in  
electricity demand  
when decarbonised



## 62,000 tCO<sub>2</sub>

Annual carbon emissions in  
2030 to meet all electricity  
demand from the grid



## 2035

Year in which the grid  
is expected to fully  
decarbonise



## £135m

Annual cost of the  
imported electricity

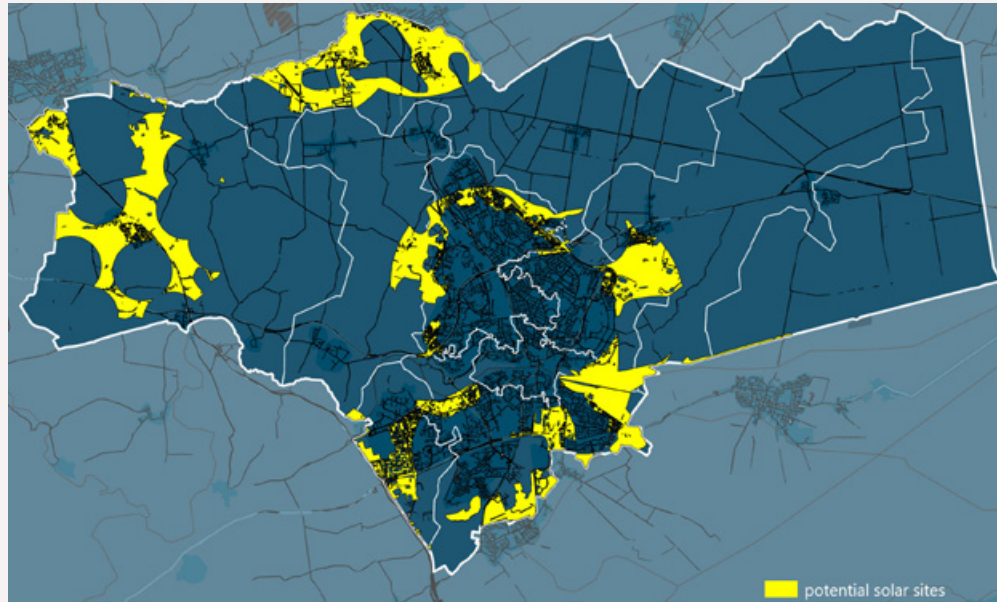


# Large-scale Renewables

Large-scale renewable generation, particularly ground-mounted solar PV and wind turbines, is the most cost-effective way to produce low-carbon electricity, due to economy of scale. However, arrangements such as power purchase agreements would be required to capture this value locally, rather than it being exported to the national grid. Many examples of community ownership models can be found in the UK, with local residents enjoying income or bill savings from the schemes. The requirements for land purchase, planning permission, public acceptance and connection to the grid can put limits on their scale and deployment.

76 To give an impression of scale, land in Peterborough has been assessed for its suitability for ground-mounted solar, with the areas highlighted in yellow on the map having potential for development, totalling just under 40 km<sup>2</sup> (4,000 hectares). Just over half of this space was used in the cost-optimisation to build solar, resulting in a capacity of **1.35GW<sub>p</sub>** being installed. This would produce 1,975 GWh of electricity annually, covering all of Peterborough's consumption on a net annual basis, including electrified heating and car charging.

This quantity of ground-mounted solar is **representative of the amount of local renewable energy which would be needed to reach net zero targets** ahead of the national grid, but the energy could be generated by a



mix of sources including wind (requiring a wind resource study). If less ground-mounted solar is installed, emissions reductions would need to be found elsewhere, for example by increasing the number of properties connected to district heat networks, or deploying more roof-mounted PV.

Since solar generation will occur in the daytime and vary between the seasons, Peterborough would still need to import from the electricity network when supply from local generation does not meet demand, and export to the network when there is excess supply. Battery storage would enable more of the generated solar to be utilised.

Zone	Capacity Installed by ESC's Model (MW <sub>p</sub> )
Barnack and Wittering	88
Glington and Newborough	91
East Rural	8
City South West	151
City South East	412
City North	239
Castor and Marholm	47
North East Rural	216
City East	87
City Central	11

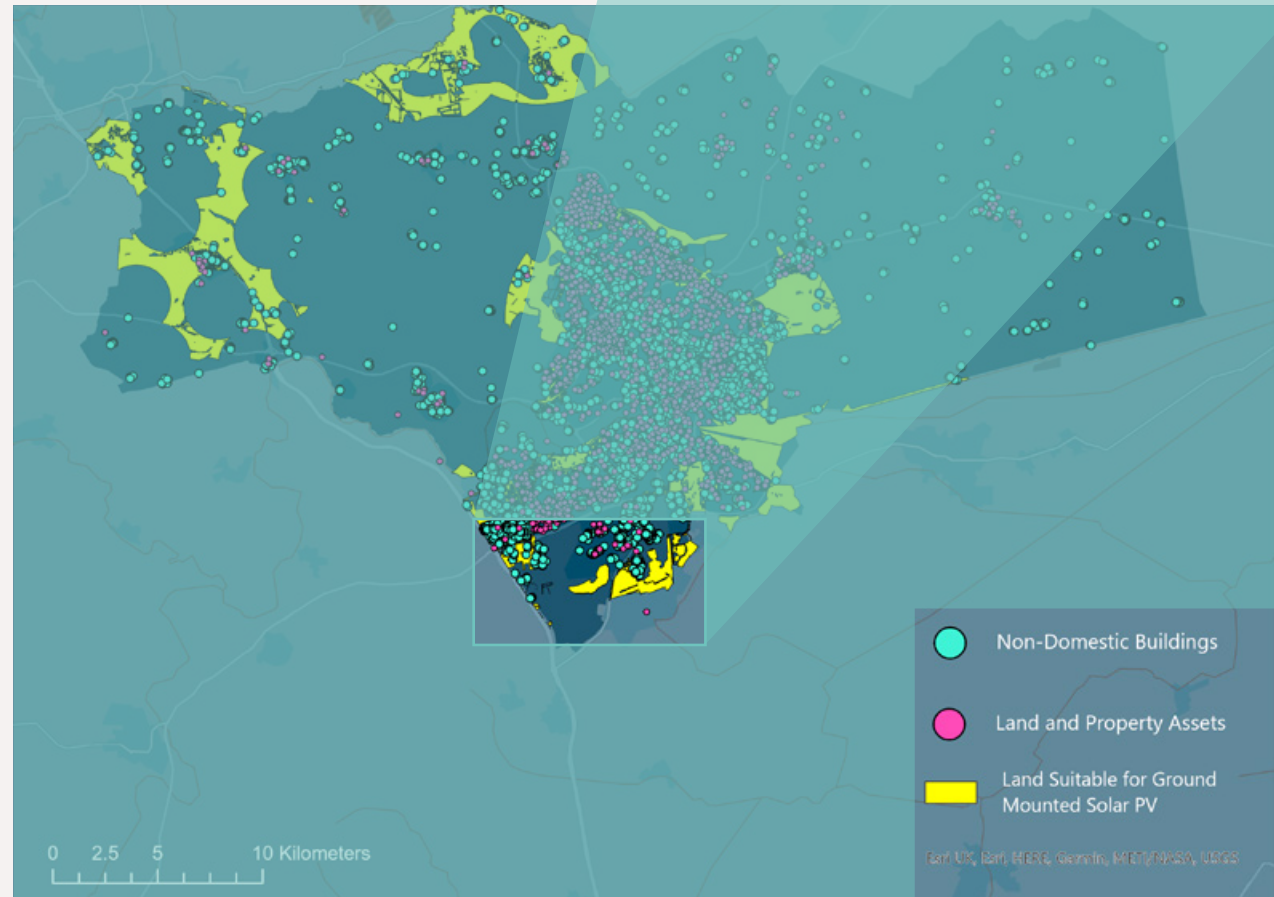
# Managing Local Generation

It is not expected that ground-mounted solar would be built upon a single piece of land, but over a large number of distributed plots across Peterborough. This would enable a local energy marketplace to be created where generation assets could be matched with off-takers requiring electricity, allowing local businesses to directly benefit from the production of locally generated low carbon electricity.

The map highlights where the PCC-owned assets and non-domestic buildings are alongside land which has been deemed suitable for ground-mounted solar. As an example, there are warehouses in City South East where potentially suitable land has been identified for solar PV. These businesses could be direct consumers of the generated electricity. Similarly, buildings owned by PCC could also engage in similar contracts.

Due to the variable nature of solar, storage and flexibility could optimise the benefits realised. Battery storage could be co-located with ground mounted solar, which would reduce the land available for solar panels, but increase the value generated from the project. Co-located battery storage can also help to smooth generation and participate in grid balancing services, increasing revenue streams available.

Long term storage, such as hydrogen production and storage, could support inter-seasonal balancing and allow excess summer generation to be utilised in the winter, as well as providing a hydrogen source for harder to decarbonise industrial buildings and processes.

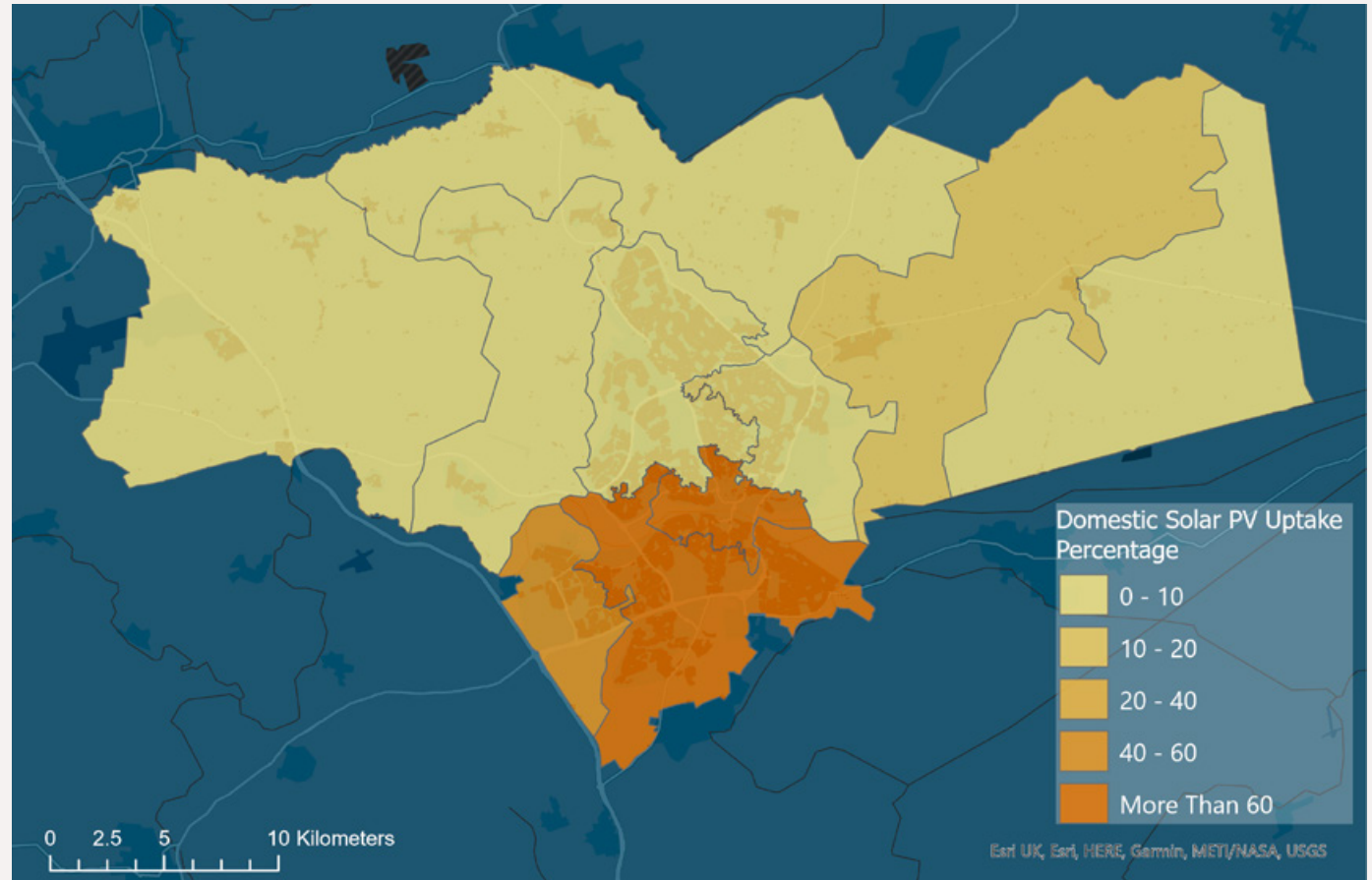


# Domestic Solar PV

Although likely to be more expensive per kW generated than ground mounted solar, domestic PV makes use of roof space that would otherwise be unused and can provide direct financial benefits to householders (funding can be more complicated where the building owner is not also the bill payer). A large rollout of domestic PV is of value regardless of the net zero target date chosen and therefore is **low regret**.

Based on roof orientation and pitch, homes are identified for solar PV suitability. If fully developed, these could contribute 360MW of low carbon generation. In this plan, **157MW** of this potential is built at a total capital cost of **£166 million** under the 2040 scenario. This accounts for a significant proportion of homes having already installed solar, based on available government feed-in tariff data. More of the potential could be deployed to compensate for a smaller buildout of ground-mounted solar.

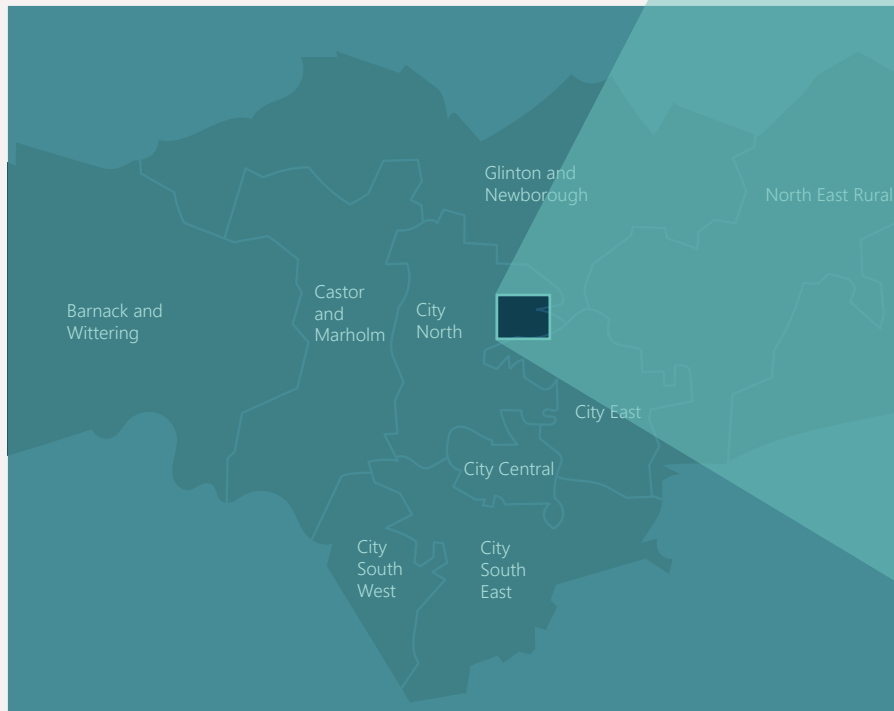
The map (right) shows the percentage of dwellings in each zone where solar was deployed in the 2040 scenario. Domestic PV is more cost effective when as much of the energy generated as possible is consumed by the dwelling. It is therefore sensible to explore deploying the solar as a package in conjunction with electrified heating and transport in a home and looking at battery storage options. The economic case for batteries is likely to change rapidly with the emergence of novel incentives such as time-of-use tariffs and falling battery costs.



# Domestic Solar Focus Zone

City North is a zone with relatively high levels of fuel poverty. Generating electricity on-site can reduce the requirement to purchase electricity from suppliers which can reduce costs to the household (depending on how the PV installation is paid for). The roll-out of a scheme like this could start with social housing by working with key stakeholders.

A roll-out of 7MW of solar PV could be undertaken in the City North zone under both 2030 and 2040 net zero scenarios and therefore is seen as a focus zone.

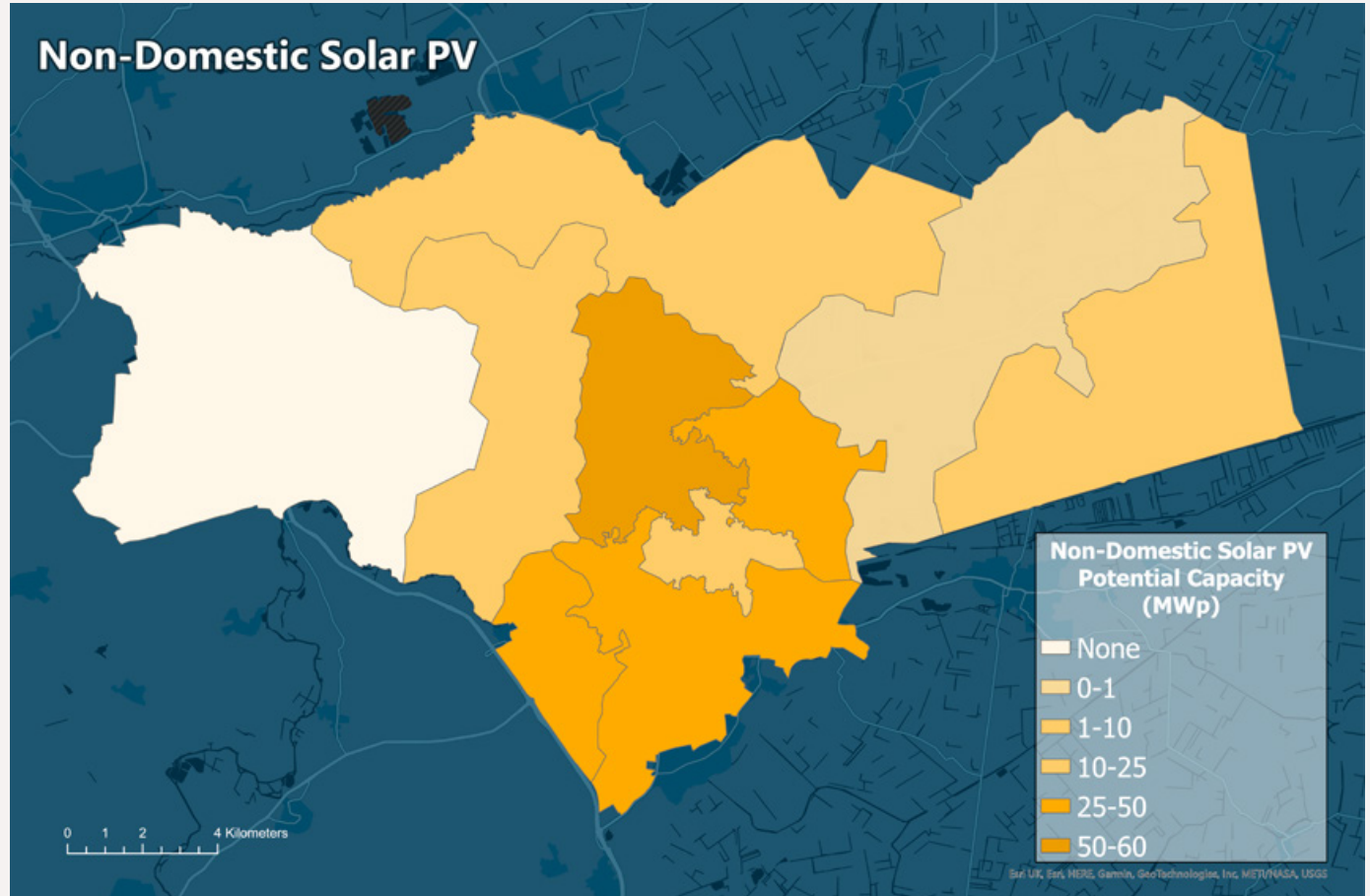


# Non-Domestic Solar

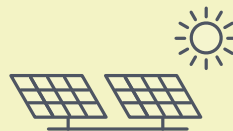
Non-domestic solar installations are larger than domestic and so have the potential to be more cost-effective, although complexity can arise in realising the benefits if the building owner is not also the bill payer. Similarly to domestic, the analysis for this plan has shown that a significant roll out of non-domestic solar is a sensible part of a plan regardless of the net zero target date. These projects would therefore be low regret, and should give confidence that it is an appropriate investment. The map opposite shows a potential capacity for non-domestic solar deployment, based on available roof space and assumptions about the extent to which it could be developed.

Non-domestic building construction is more variable than domestic, and it is not possible to say if a building is suitable for PV without a site survey of the roof construction, load bearing capacity and the extent to which other building services such as cooling vents are present.

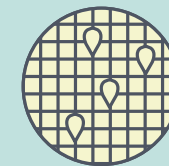
Sites to target initially for further survey might be those with the largest amount of roof space available on single buildings. City North has a large number of significant educational and industrial sites, while City South West and City South East also have a significant number of factories which could be utilised.



240 MW  
Non-domestic  
solar potential

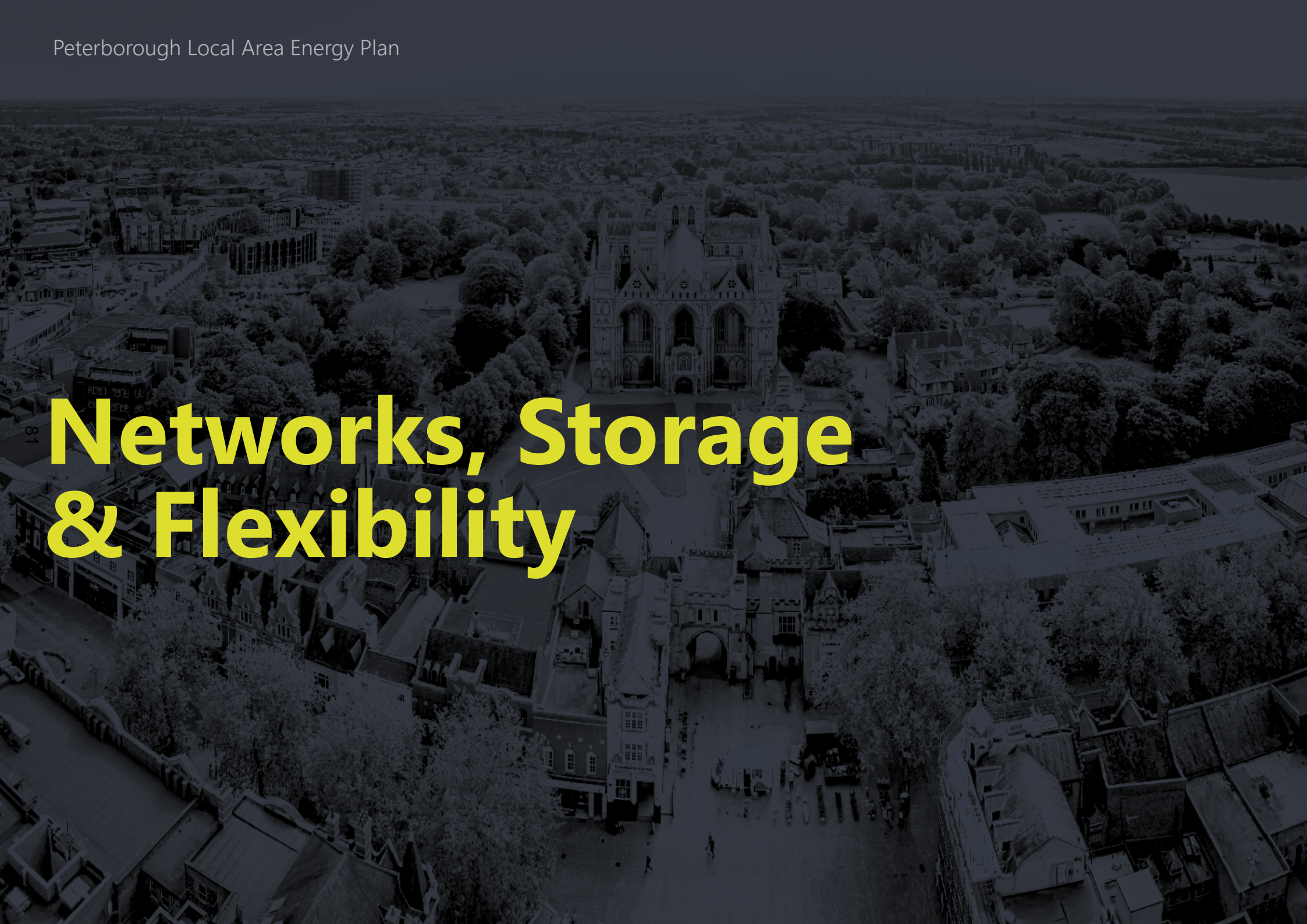


City North, South  
East and South West  
have a large number  
of factories with  
rooftop space for PV



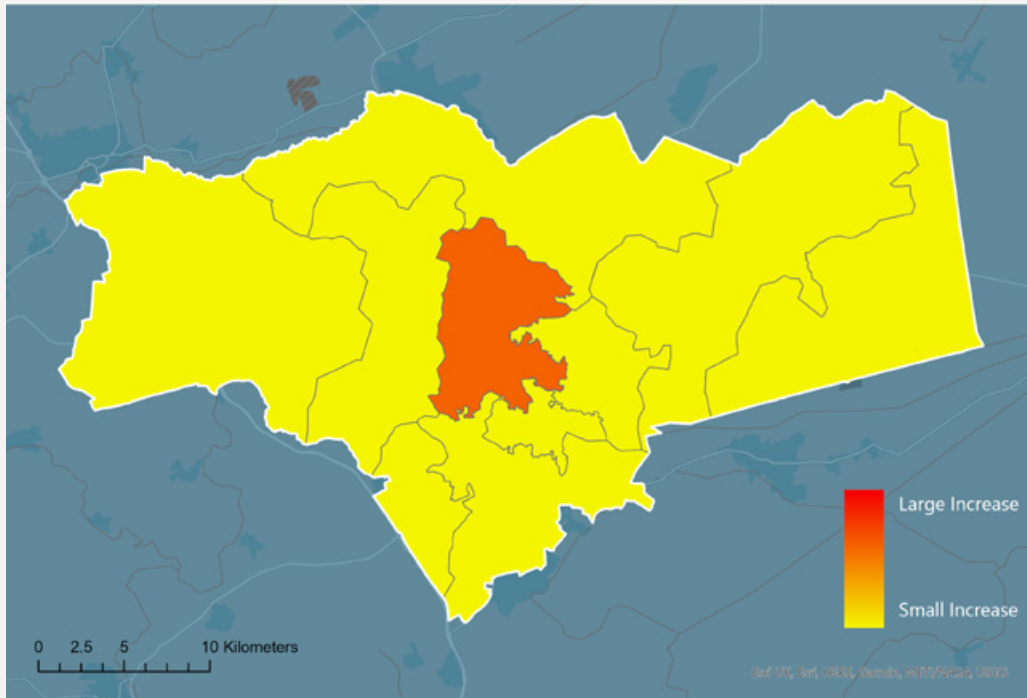


# Networks, Storage & Flexibility

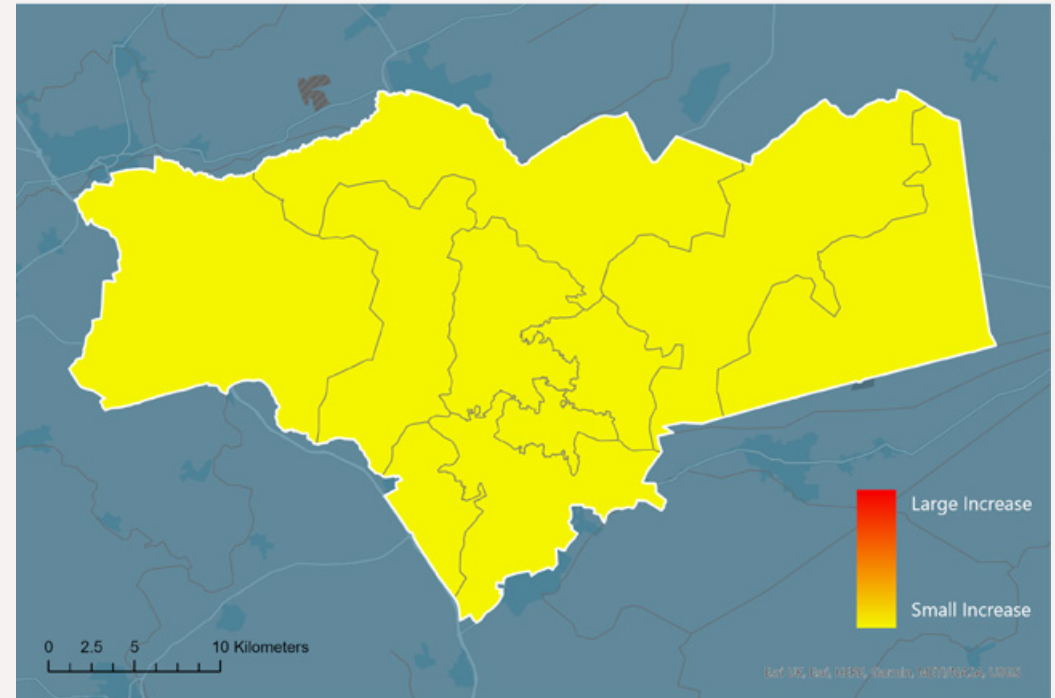


# Upgrading the High Voltage Network

82



Increases in the required capacity on the high voltage feeder network



Increases in the required capacity on the high voltage substation network

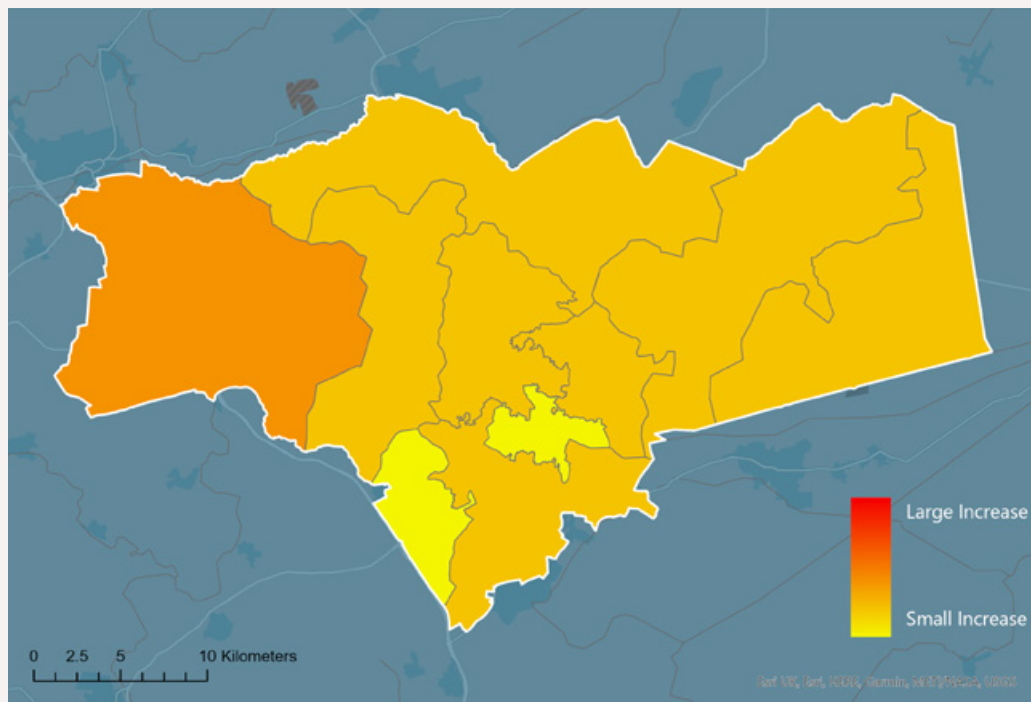
Electrification of heating and transport increases demands on the electricity networks, which will trigger a need for capacity upgrades in areas. The maps show the need for capacity increase as a proportion of the current capacity in each zone. However, this could be met through a combination of conventional investment in capacity alongside flexibility and storage, explored in following pages.

Present day capacity on the high voltage network will accommodate electrification without the need for capacity upgrade in most zones. Only in City North do we see a requirement for a large upgrade of the feeders.

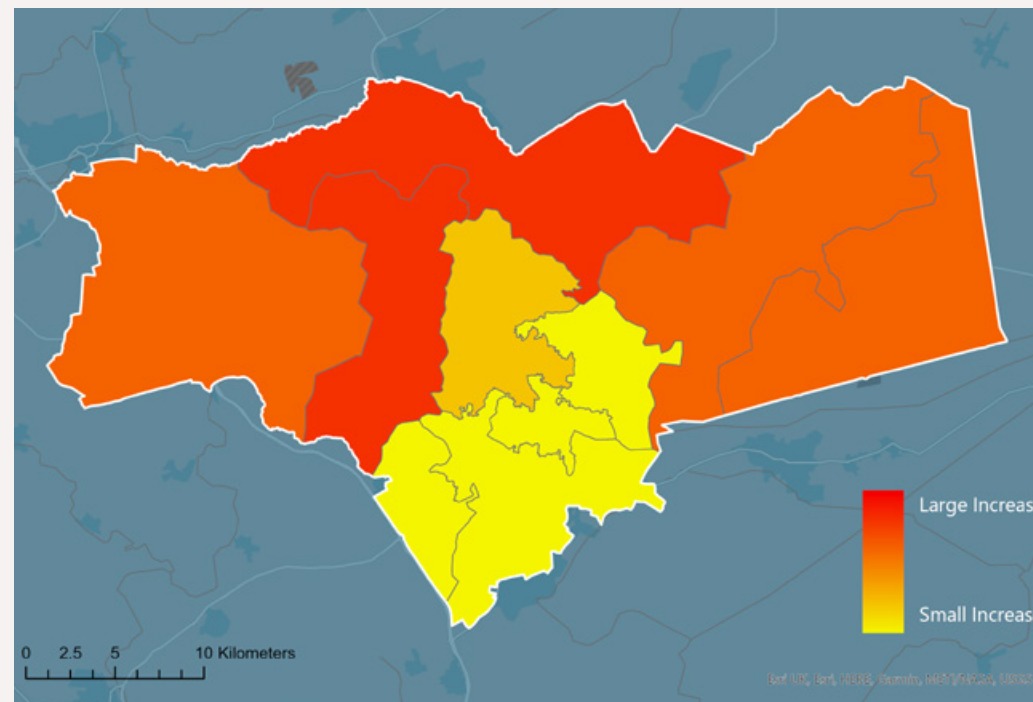
The high voltage network consists of substations on land owned by the distribution network operator, supplying feeders which run to secondary substations, which in turn serve multiple streets.

# Upgrading the Low Voltage Network

83



Increases in the required capacity on the low voltage feeder network



Increases in the required capacity on the low voltage substation network

The low voltage network consists of smaller neighbourhood substations, supplying feeders which run under pavements or roads to each building or on overhead wires in rural areas.

The maps show the need for capacity upgrades as a proportion of the current capacity in each zone. This part of the network sees a need for significant capacity upgrades to both substations and feeders in most zones (over 3x increase for

several substations), particularly rural zones. The rural areas of Peterborough require the largest increases proportionately, compared to the urban areas which start from higher capacities presently.

This significant increase in demand is an opportunity to take advantage of flexibility. DNOs could tender for flexibility services on the market and look to delay upgrades.

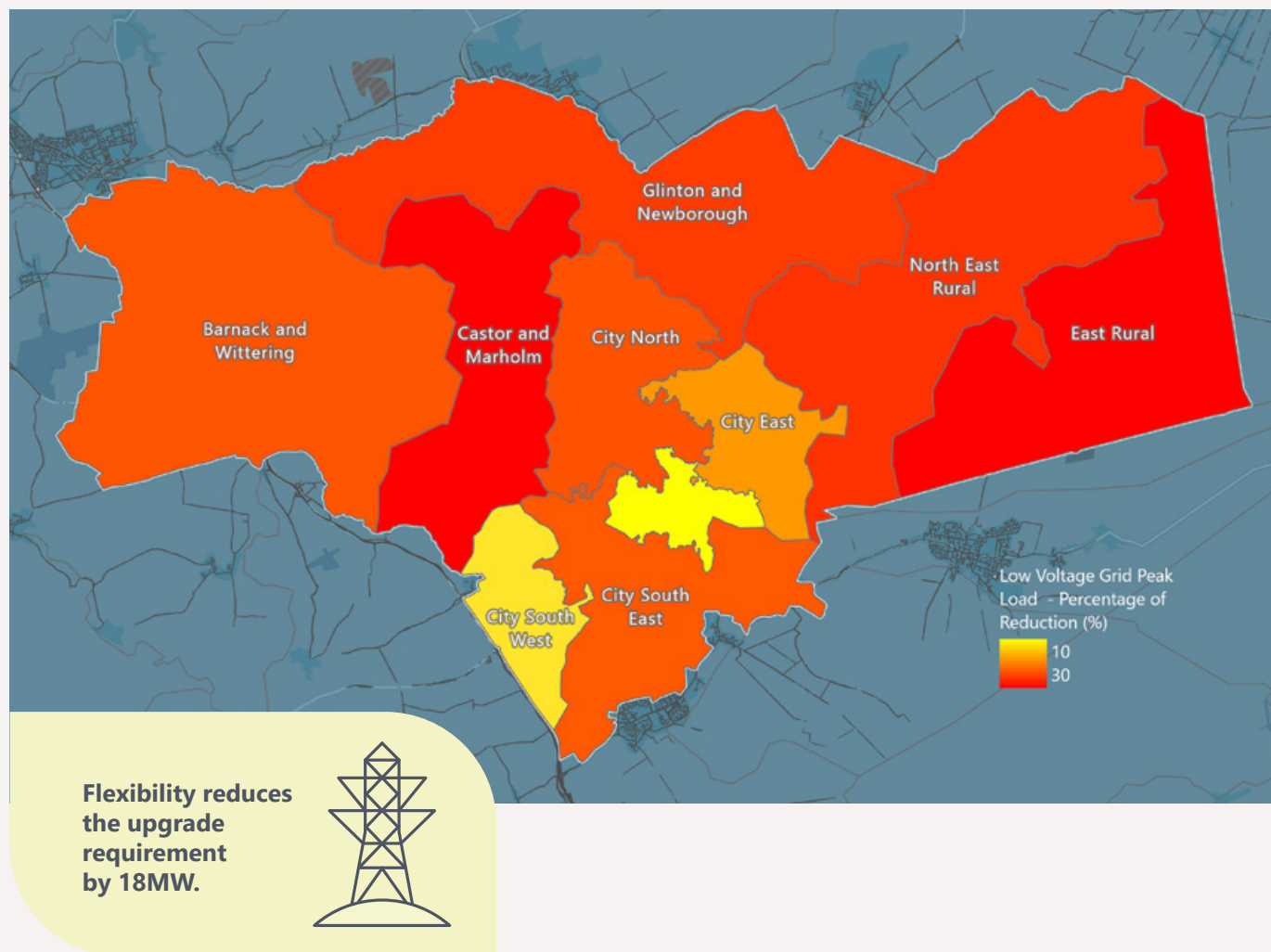
However, further work would be needed to identify solutions, aligning with the DNOs' business planning processes.

# Demand Side Flexibility

Aside from the capital cost, the need for capacity upgrades discussed in previous pages could slow down the rollout of low carbon technologies. The regulatory process (i.e., RII0) can limit the pace of investment in capacity. Flexibility provided by demand side response and storage could help to shift demand from peak times, reducing the need for capacity upgrades.

Demand shifting provided by charging EVs overnight and using large thermal stores in homes with heat pumps has been modelled to explore the benefits of flexibility. These measures were found to reduce the overall peak electrical demand for Peterborough by **20%** in 2030. However, these reductions in DNO costs do not come for free and could have significant cost, and space implications for households.

Barnack and Wittering has been selected as a **focus zone** as it currently has very limited headroom. This creates an opportunity for both behind-the-meter solutions such as installing storage in homes, and in front of the meter solutions such as the DNO procuring flexibility services.



# Implementation

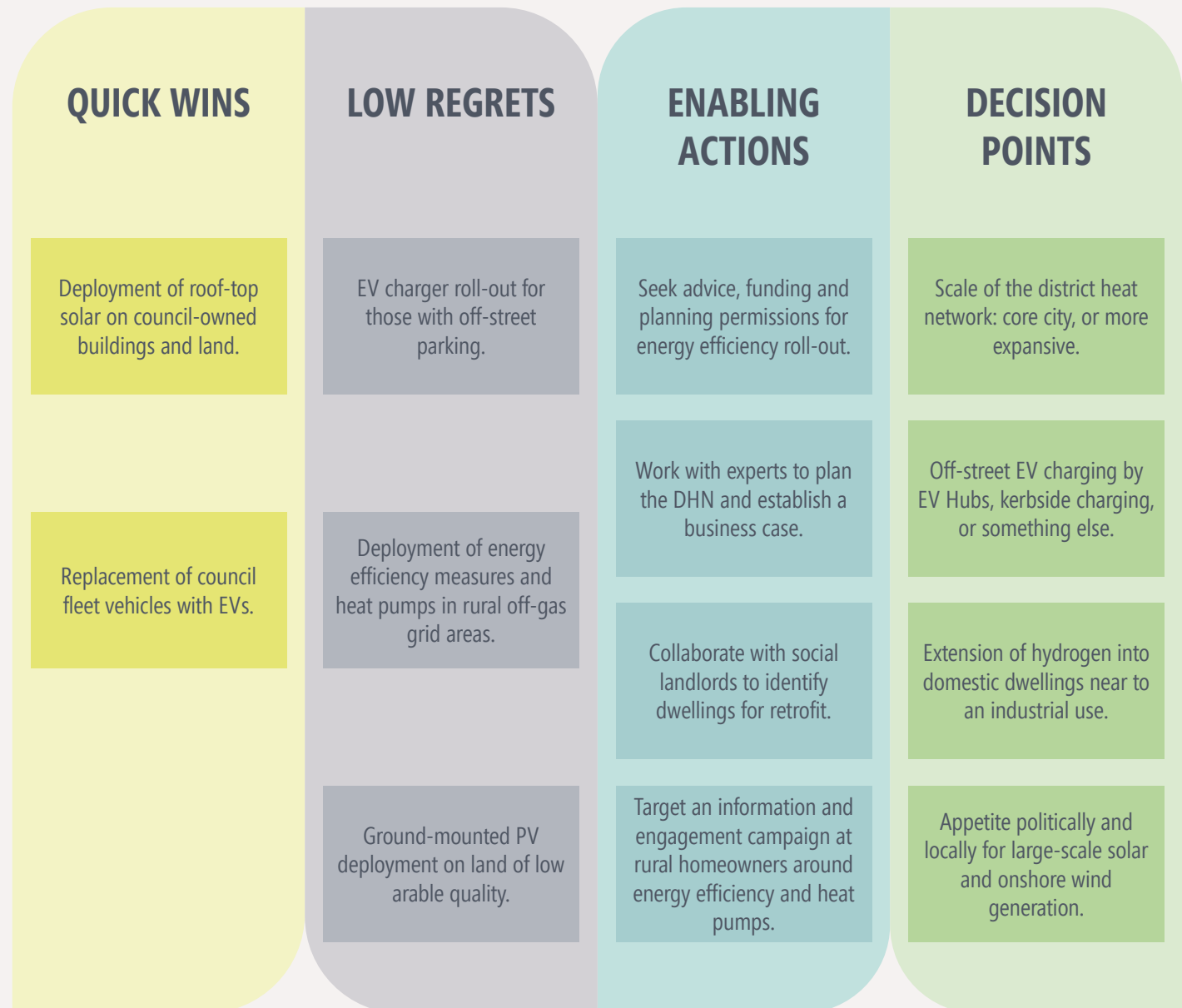


# Overview of Implementation

Recognising the scale of the transition needed to support Peterborough's net zero ambitions, this LAEP is broken down into:

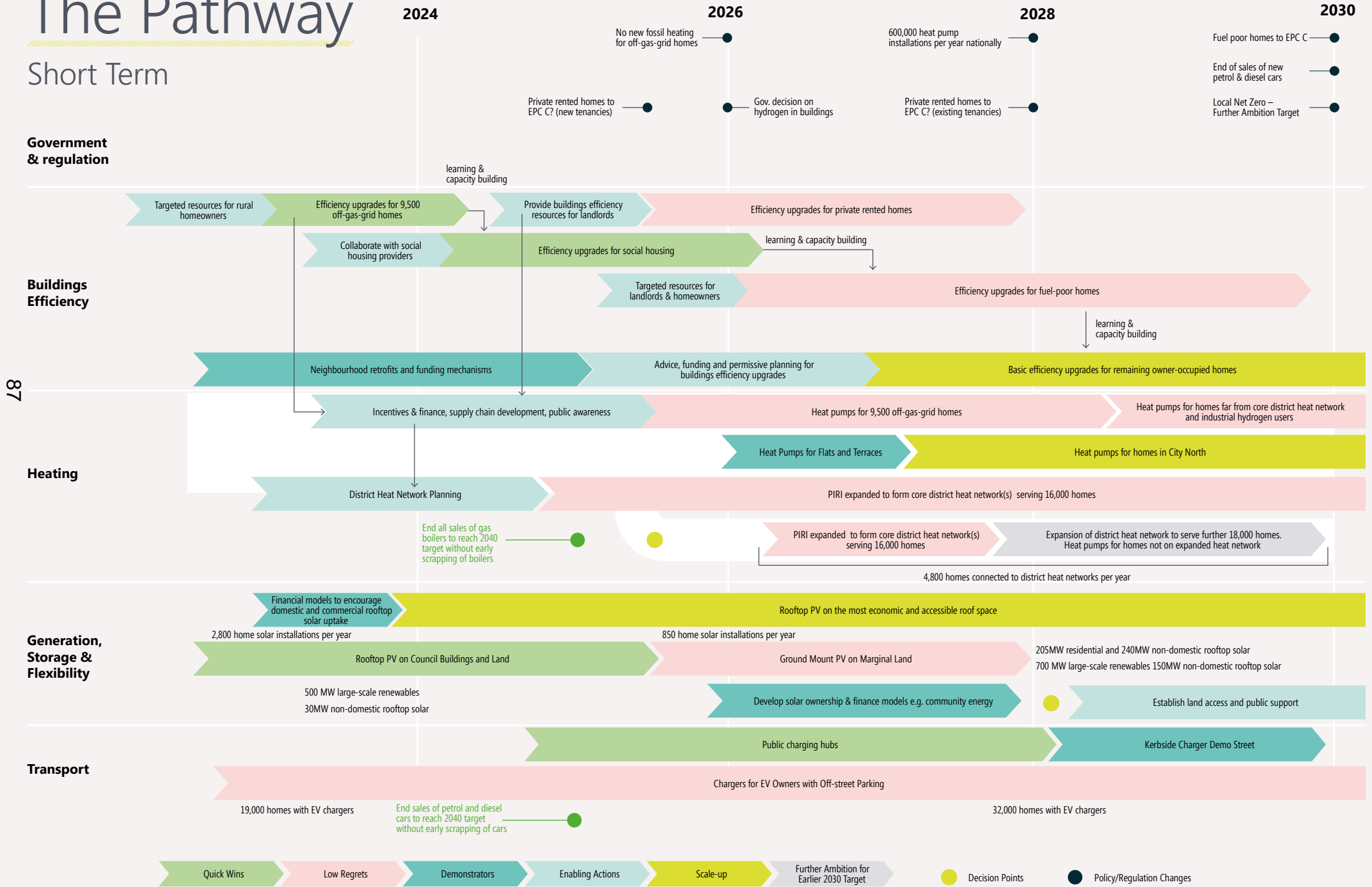
- Near-term components made up of "Quick Wins" which can be carried out in the near-term without major blockers. & "Low Regrets" projects which are common under various scenarios but may require further enabling action before they can be progressed
- Long-term components made up of "Enabling Actions" which need to be carried out ahead of time to pave the way for later solutions & "Decision Points" where the most appropriate solution is chosen at some point in the future once more information is known. These decision points may be needed before widespread scale-up and deployment of solutions.

Some of these are summarised opposite which along with other components feed into The Pathway. The Pathway is followed by a series of Next Steps which highlight the aspects Peterborough should consider to progress the LAEP; working with the Key Stakeholders to determine roles in supporting the implementation of this LAEP.



# The Pathway

## Short Term



# Outline Priority Projects

An aerial photograph of Peterborough, UK, showing the Peterborough Cathedral as the central landmark. The cathedral is a large, Gothic-style building with a prominent spire. It is surrounded by a dense residential area with many houses and a few larger commercial buildings. A river is visible in the foreground, and the city extends to the horizon. The image is overlaid with a semi-transparent dark grey filter.



In creating the LAEP, near-term projects have been identified that PCC could start the process of implementation. These near-term projects are either:

- Low regrets – are common under various scenarios but may require further enabling action before they can be progressed.
- Quick wins – are carried out in the near-term without major blockers
- Focus zones - are specific areas within the LAEP boundary that have a cluster of near-term components

88 The purpose of identifying specific outline priority projects is to provide PCC with projects that can immediately be implemented to make progress towards net zero. The following section specifies details of these near-term projects, including details such as locations and financial information



# PCC Projects: Social Housing



North of Peterborough City Hospital, the Ravensthorpe area of Peterborough has a large number of social houses. Some of these houses are suitable for rooftop PV.

South of the Highlees Community Primary School is a large number of social houses which have been proposed for retrofit.

South of Hartwell way, there is a cluster of social houses which are proposed for rooftop PV. This is based on rooftop orientation – some of these homes will already be fitted with PV, which will need to be established at the address level.

Areas such as these, with a high concentration of dwellings of the same archetype, are ideal for PCC to begin low-regret and quick win projects.

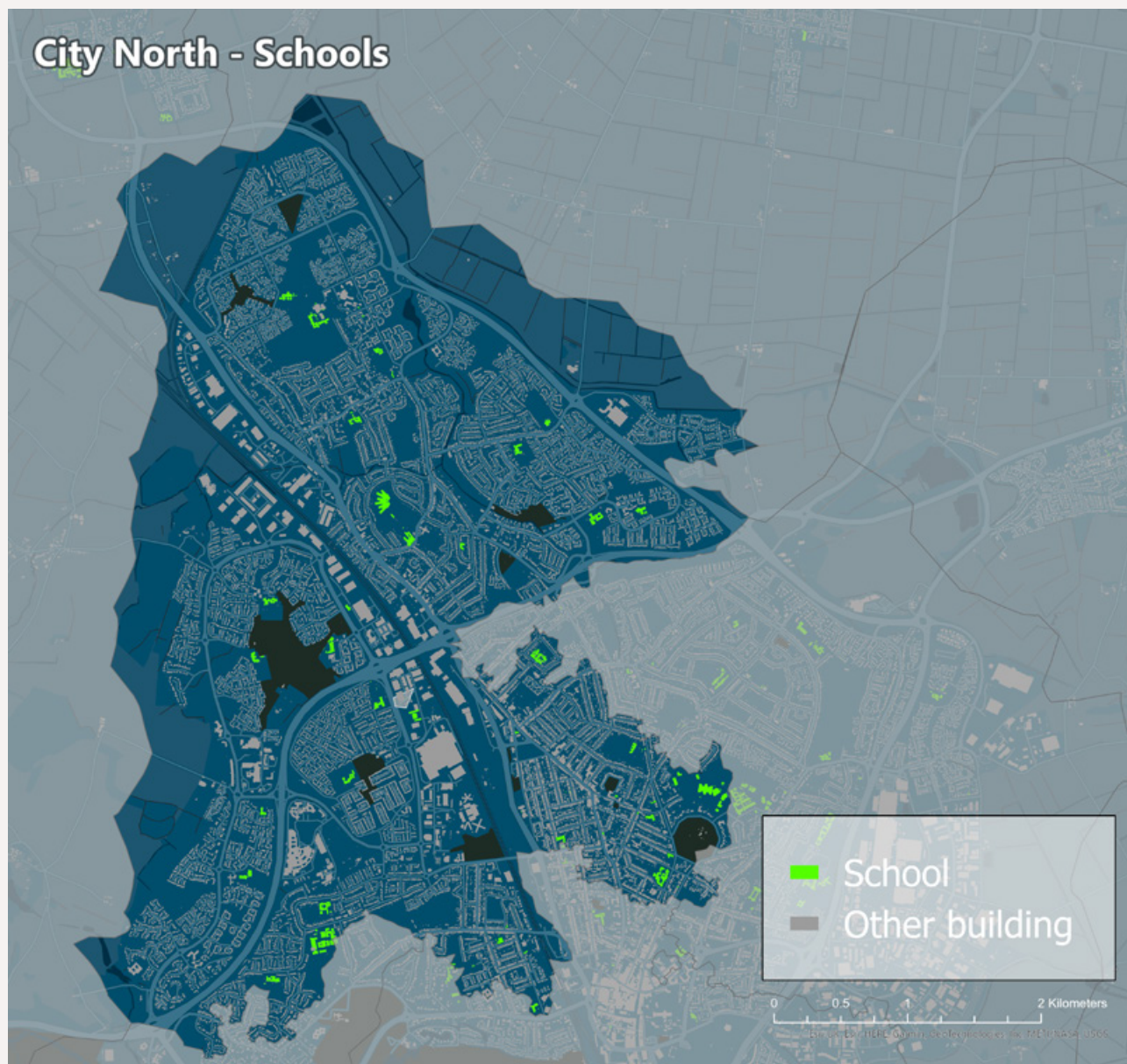
96

# PCC Projects: Schools

City North has several schools with a large area of roof space that are suitable for solar PV installations. Schools are reasonable candidates for solar PV as they are used during the day, however, the high-generation period of the year is typically during the summer holiday when the school is not in use. Yet, solar PV installations will reduce their electricity import requirements, thus reducing their electricity bills and also reducing their carbon emissions.

91 Previous Public Sector Decarbonisation Scheme (PSDS) assessments for schools align well with this plan for the most part – assuming PCC ownership – typically focussing on PV and heat pumps. However, co-ordination is needed for schools in areas suitable for heat networks, to ensure plans align and opportunities to join heat networks are not missed. For example, Beeches and Bewster schools near the city centre have PSDS assessments based on individual heat pump installations, but would be prime candidates for district heat connections in this plan.

Schools could also integrate other assets such as batteries and work with local flexibility markets to help optimise the balancing of supply and demand locally. Feasibility studies would need to be undertaken on each site to understand the exact potential.



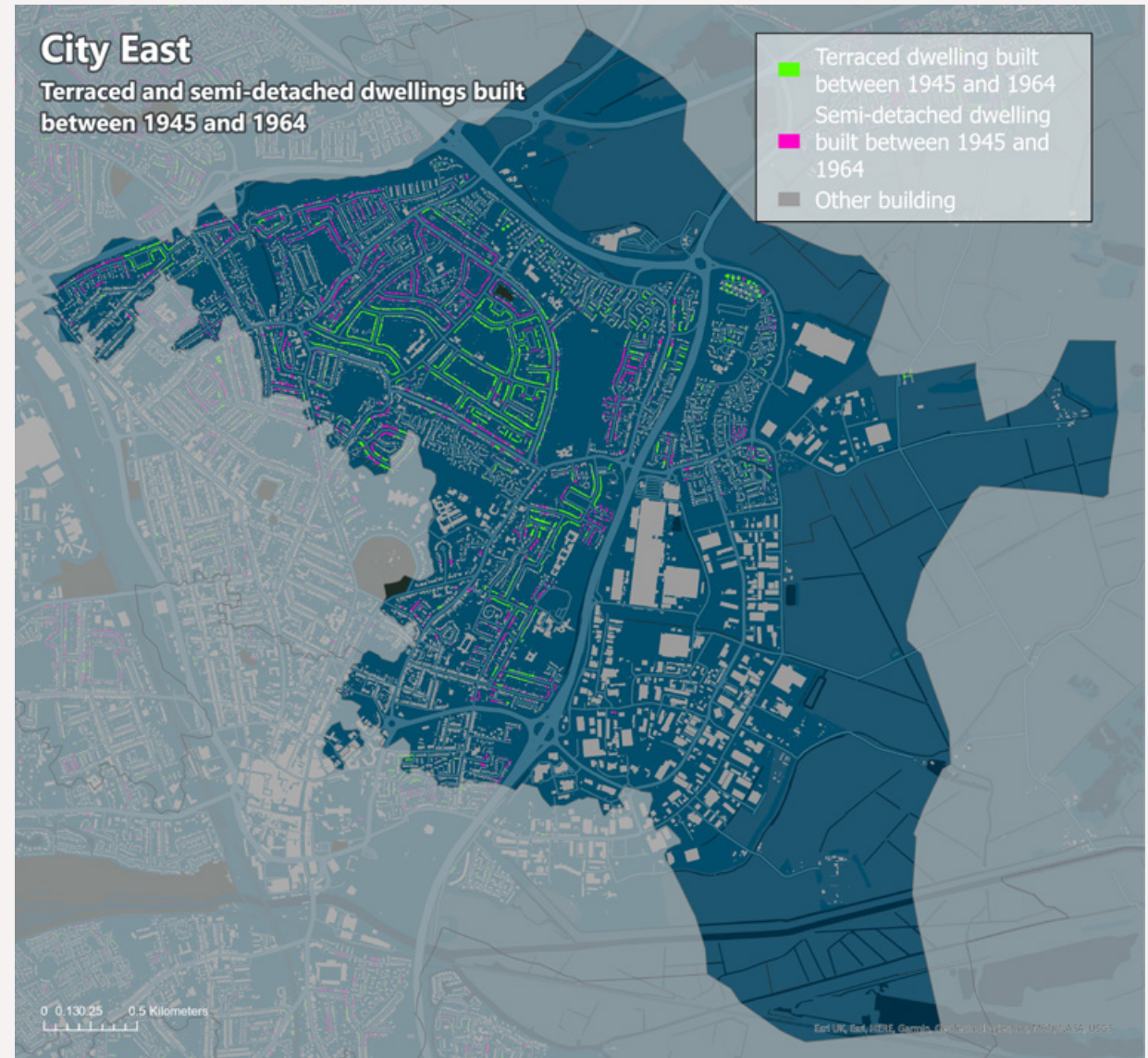
# Domestic Retrofit in Fuel Poor Areas

City East has one of the highest levels of fuel poverty in Peterborough (~20%). The Local Authority Delivery scheme, Energy Company Obligation, and Social Housing Decarbonisation Fund\* could provide a portion of funds for retrofit in these areas where appropriate.

Around 1,400 semi-detached dwellings which were built between 1945-1964 can be retrofitted with basic measures at a cost of £2.2m. Many of these dwellings are located in Garton End.

Approximately 1,000 terraced dwellings built between 1945-1964 can be retrofitted with basic measures at a cost of £1.6m. These are mostly near Dogsthorpe in the north west of the zone.

Further survey work is required to assess the dwellings to undergo retrofit.



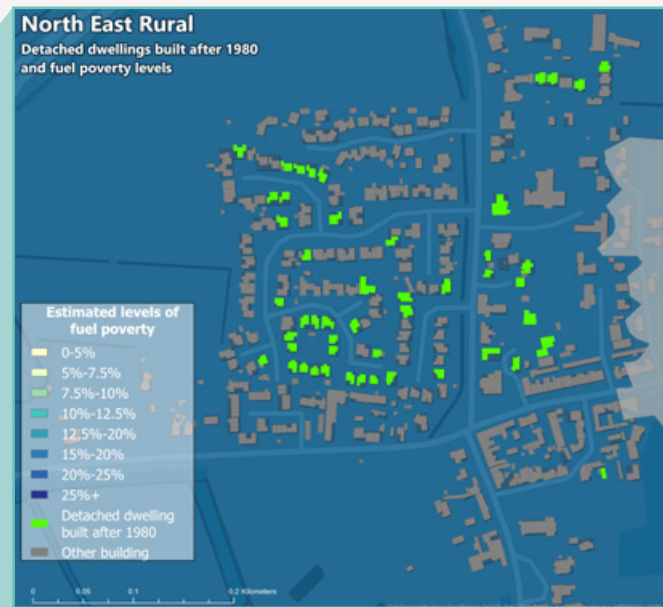
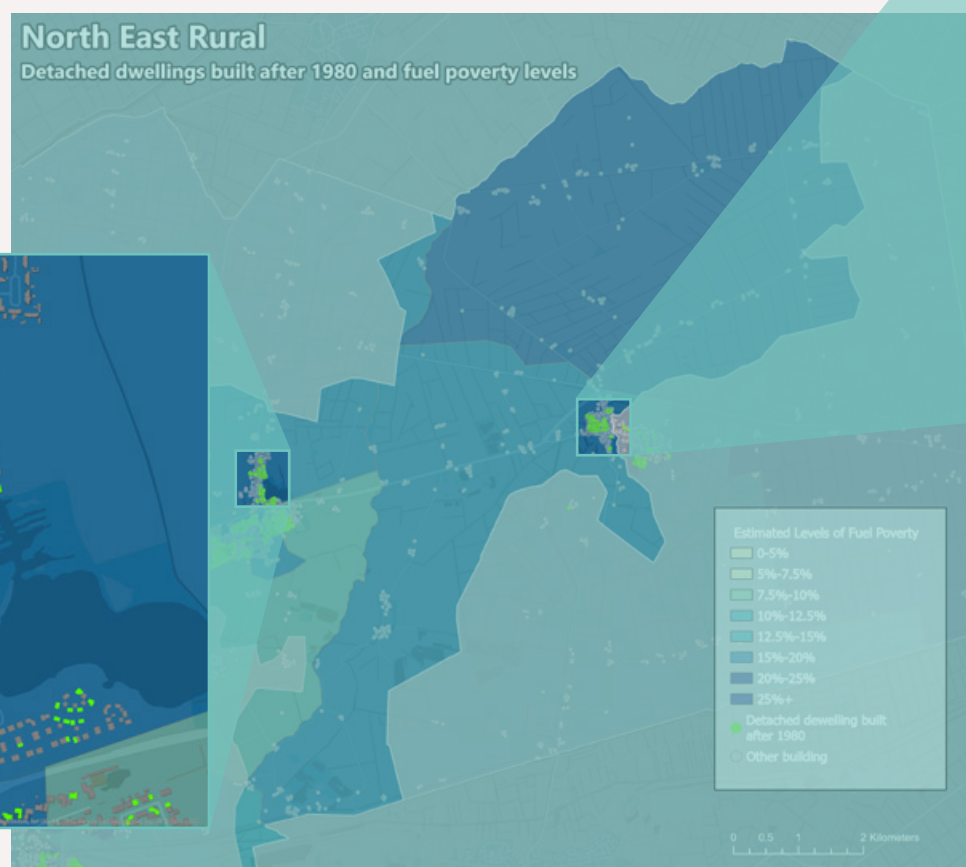
Note: Highlighted dwellings are post-war terraced and semi-detached dwellings in an area with relatively high fuel poverty; the household themselves may not be classified as fuel poor.

\* <https://www.gov.uk/government/publications/sustainable-warmth-protecting-vulnerable-households-in-england/sustainable-warmth-protecting-vulnerable-households-in-england-accessible-web-version>

# Domestic Retrofit

Basic retrofit projects in fuel poor areas are low-regret options. For rural, off-gas areas, the Home Upgrade Grant\* scheme can provide funding for low income households with inefficient homes.

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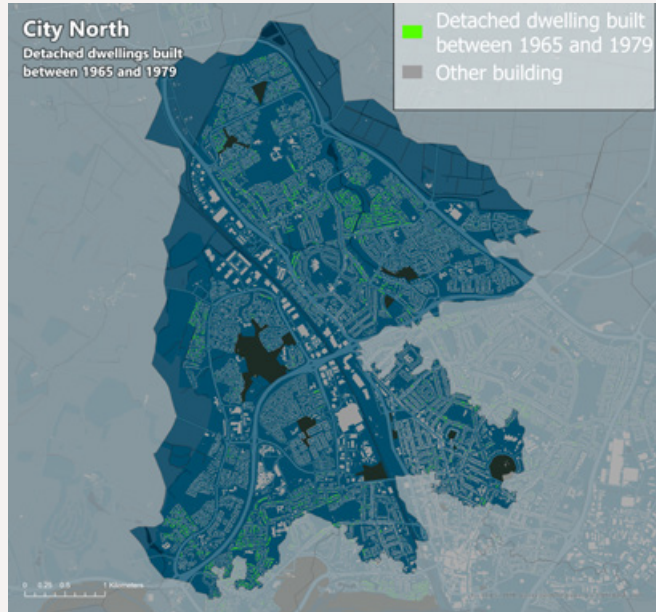
Detached homes built after 1980 may be suitable for loft insulation top-up and/or cavity wall insulation.

<b>Zone</b>	North East Rural
<b>Building Type</b>	Post-1980 detached
<b>Number of homes</b>	c. 425
<b>Total Cost</b>	£630,000

\* <https://www.gov.uk/government/publications/sustainable-warmth-protecting-vulnerable-households-in-england/sustainable-warmth-protecting-vulnerable-households-in-england-accessible-web-version>

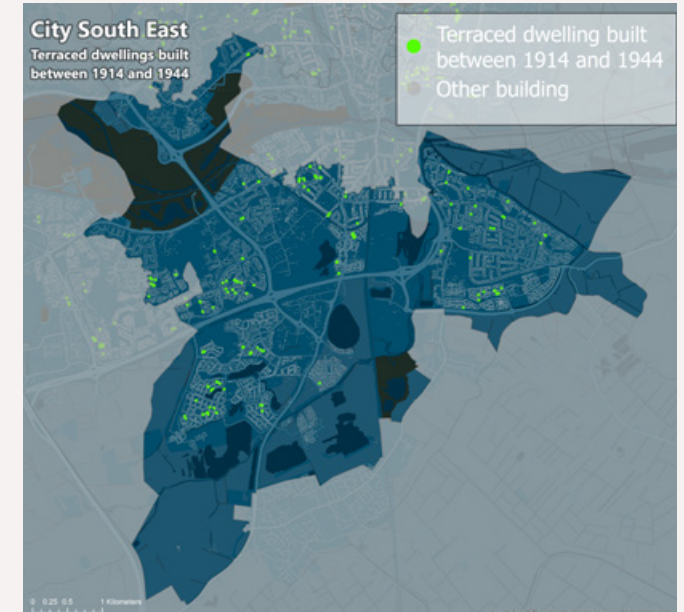
Note: Highlighted dwellings are post-1980 detached dwellings in an area with relatively high fuel poverty; the household themselves may not be classified as fuel poor.

# Domestic Retrofit



A large number of homes in these areas are private rental or owner-occupied. Work can be undertaken in partnership with residents and landlords to help realise energy efficiency savings through the installation of basic retrofit measures such as cavity wall and loft insulation. Various delivery mechanisms can be tested and best practises can be developed for wider adoption in the area.

<b>Social Housing</b>	Prioritise assets which are in direct control to develop supply chains.
<b>Delivery Mechanism</b>	Develop scheme to demonstrate value of delivery mechanism such as Energisprong



<b>Zone</b>	City South East
<b>Building Type</b>	Terraced built between 1914-1944
<b>Number of dwellings</b>	c. 120
<b>Total Cost</b>	£195,000



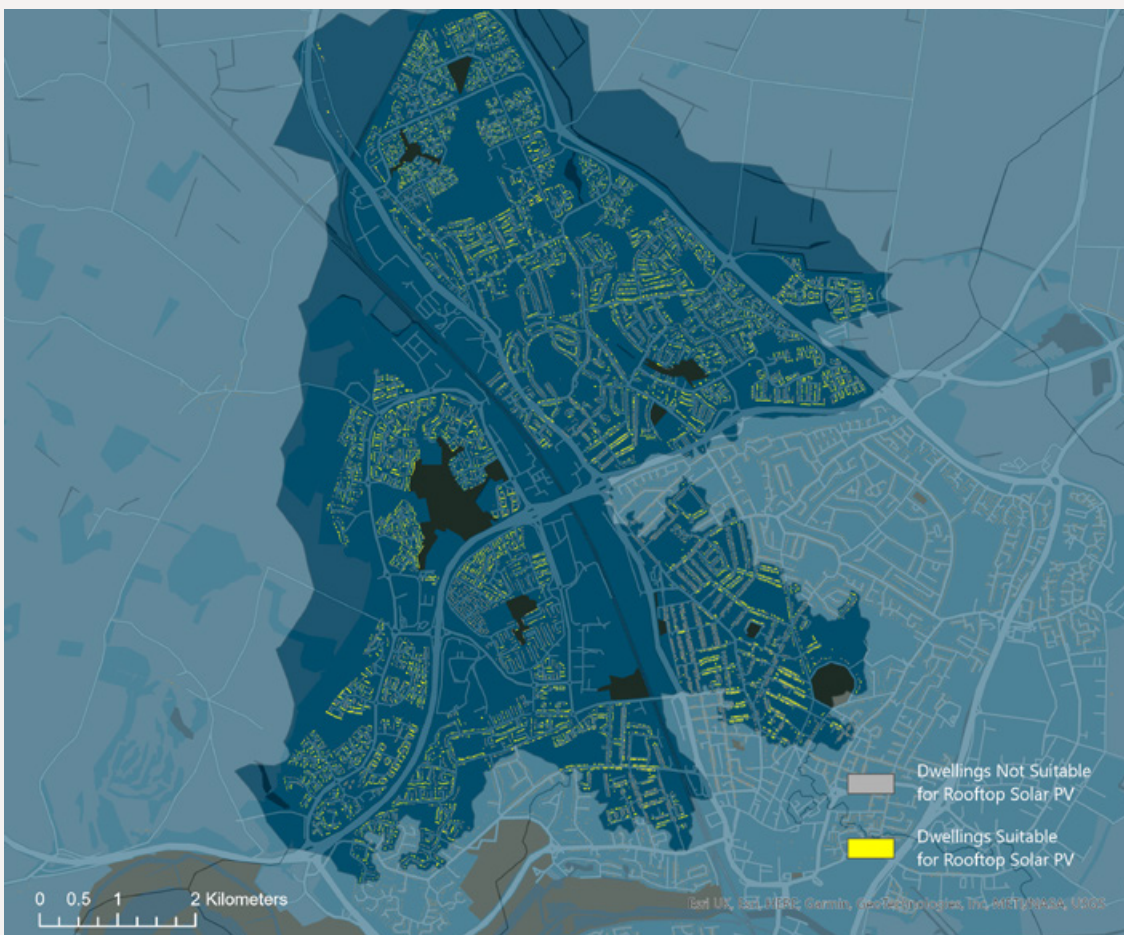
<b>Zone</b>	City North
<b>Building Type</b>	Detached dwellings built between 1965-1979
<b>Number of homes</b>	c. 1,250
<b>Total Cost</b>	£2m

# Domestic PV

Specific homes to be targeted for such projects can be decided based on a number of socio-economic factors e.g. fuel poverty, and further feasibility studies should be undertaken to fully understand options and potential benefits to individual households. Site surveys will also be required to identify limits based on localised DNO restrictions. For example, some dwellings identified would have a peak capacity of over £3.68kW and therefore would require an application to be submitted.

<b>Fuel Poverty</b>	Prioritising fuel poor areas to reduce bills
<b>Social Housing</b>	Supporting roll-out in owned assets
<b>Solar Together</b>	Supporting community buying programmes to reduce cost

<b>Zone</b>	City North
<b>Size</b>	83,550m <sup>2</sup>
<b>Number of homes</b>	c. 2,275
<b>Total Cost</b>	£19.6m



City North dwellings suitable for solar PV



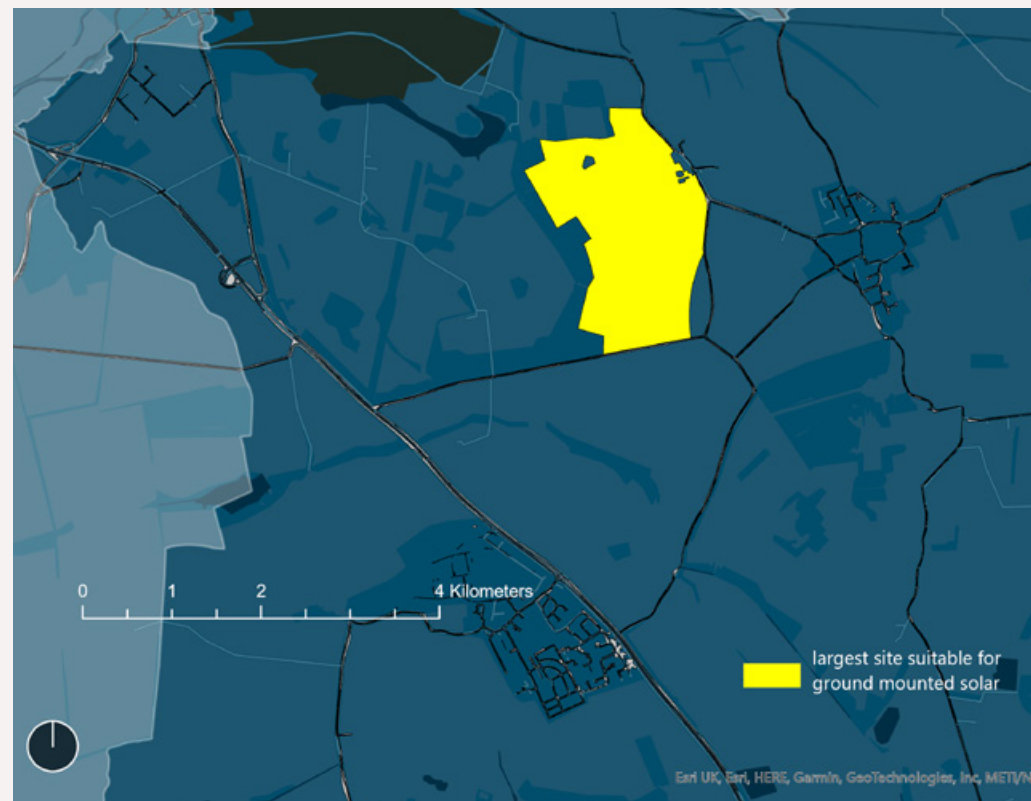
# Commercial PV

<b>Zone</b>	Barnack and Wittering
<b>Size</b>	10MW
<b>Total Cost</b>	£9m to £12m
<b>IRR</b>	Up to 9%
<b>Payback period</b>	Around 10 years

This 125.5 hectare site in Barnack and Wittering is a potential site for ground-mounted PV, with potential for an array of up to 75MW. An array of this size would be one of the largest in the UK, hence, it is expected that a smaller array would be deployed then potentially expanded over time.

As an illustration, a 10MW solar PV array would cost in the region of £9-12m and have a best-case basic payback period of around 10 years (assuming a 10p/kWh power purchase agreement).

Options: Highlighted in the table opposite are ways in which land owners can create value, depending upon their risk appetite.

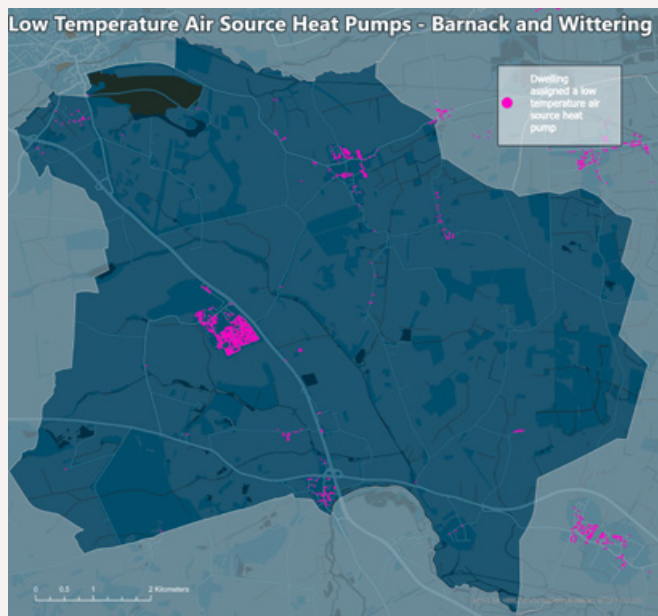


<b>Project Development</b>	Local authority owns the land and builds a project on it.
<b>Investor</b>	Local authority partners with an organisation and jointly invests.
<b>Land Lease</b>	Local authority leases the land it owns for others to develop ground mounted PV.
<b>Energy Off-Taker</b>	PCC, via power-purchase-agreements, can secure low-cost electricity with low associated emissions counting towards their footprint.
<b>Energy Off-taker - Utilities</b>	Via a power purchase agreement (PPA), a utilities company can be an off taker of all or some of the generation.



# Air Source Heat Pumps

97

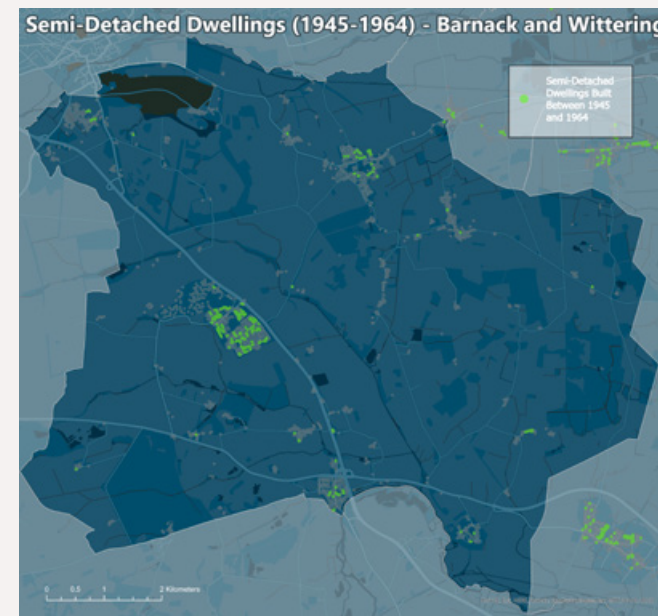


Air source heat pumps are an extremely efficient low carbon technology which can provide the heating requirements for residents and businesses.

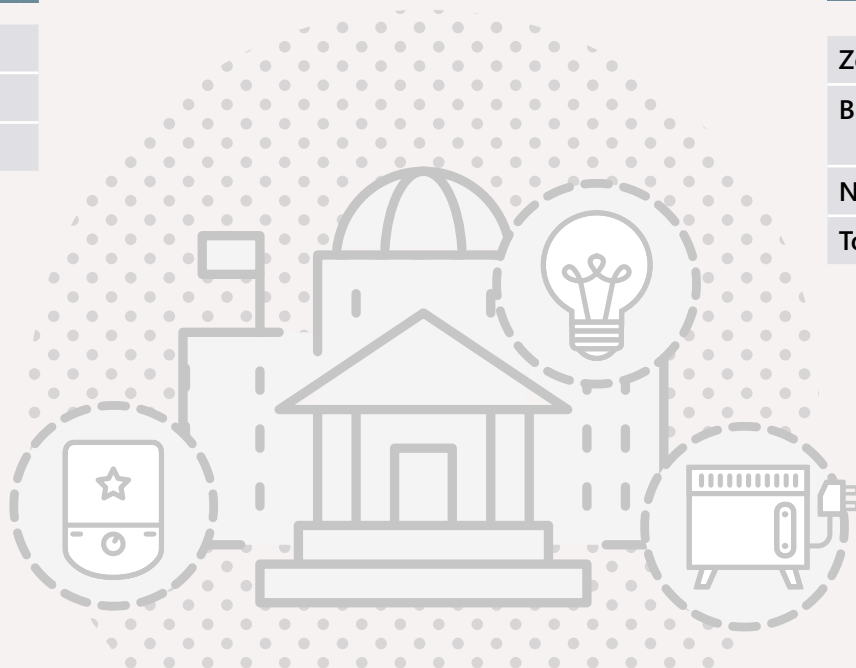
Circa 1,100 homes in Barnack and Wittering are proposed to have their heat decarbonised via low temperature ASHP, and on the right we highlight a particular project that could support that endeavour.

- Funding** Local Authority can help in funding mechanisms for roll-out of heat pumps
- Skills** Local Authority can support the up-skilling of personnel required to deliver projects

<b>Zone</b>	Barnack & Wittering
<b>Number of homes</b>	c. 1,100
<b>Total Cost</b>	£9.1m



<b>Zone</b>	Barnack & Wittering
<b>Building Type</b>	Semi-detached built between 1945-1964
<b>Number of homes</b>	c. 175
<b>Total Cost</b>	£1.4m



# District Heat Networks (DHN)

These two proposed networks represent a combination of domestic and non-domestic buildings. The City Central zone is heat dense i.e. buildings requiring heat are closely packed therefore requiring less piping between heat loads which keeps the cost lower. Flats and non-domestic buildings can act as great anchor loads for a heat network, strengthening the business case.

Further work would need to be conducted to assess the feasibility of connecting the buildings.

City Central	Total Peak Demand (MW)
DHN 1	0.9
DHN 2	1.0

**Owner** The LA can own the asset and generate a return on investment.

**Off-taker** The LA can be a consumer on the network.



The map above shows non-domestic buildings (yellow), flats (green), terraces (blue), semi-detached (turquoise) and detached (pink) buildings.

# Next Steps



# Taking LAEP Forward: Next Steps

The Local Area Energy Plan for Peterborough has highlighted initial 'low regret' outline priority projects for consideration. In order to take these projects forward and assess the role Peterborough City Council (PCC) wishes to play in the future low carbon system, ESC has developed an initial approach illustrated on the following page.

## Prioritise

The first stage recommends PCC works to prioritise the projects identified within the LAEP and commissions desktop feasibility to assess their viability in meeting the councils aims and objectives. Prioritisation of the LAEP projects should be influenced by what is currently within the PCC's direct control, for example social housing or land assets owned by the council. Projects should then be assessed in line with PCC's own regional targets to assess impact on fuel poverty, air quality, local economic growth plans etc.

Prioritisation should also include understanding the role PCC wishes to play as regional decarbonisation projects are further developed. For example, PCC could work with a partner organisation to assess its risk profile, its desired role in any future energy system and then look to match outcomes against different types of local energy business models.

Prioritised projects should subsequently undergo desktop feasibility to assess their viability and to understand the low carbon interventions and renewable technologies required in further detail. This could include sizing commercial renewable technologies, assessing co-located storage options, consideration of network connection requirements and an initial outline business case.

## Assess

In the next phase of energy project development, various options can be assessed with the aim of exploring investible delivery mechanisms. Dependent on project type, a partner organisation with experience of innovative business modelling can assess how technologies can be connected and delivered to residents in a way that matches the risk profile of PCC and the role they wish to play. This could include assessing different types of Smart Energy Tariffs that incorporate costs for retrofit for social housing, exploring ways for PCC to invest into infrastructure projects while ensuring commercial revenues are secured or assessing business models where PCC are an off-taker or customer.

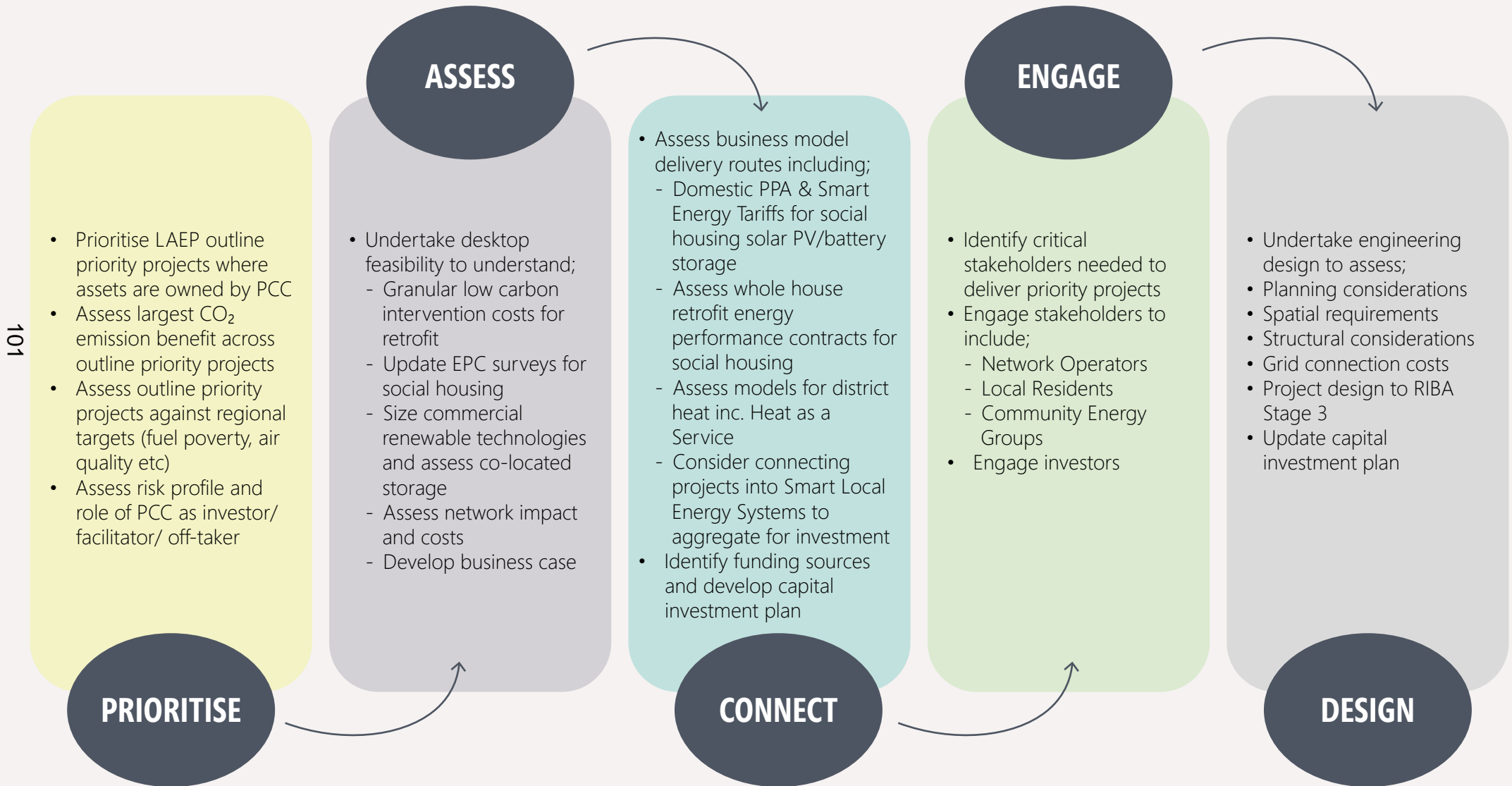
## Connect

Further consideration should be given to how technologies and projects can be connected together through Smart Local Energy Systems, which can aggregate to unlock private investment and create numerous co-benefits. Once a firm Capital Investment Plan has been formed and initial sources of investment and funding have been identified, the Design phase needs to firm up assumptions made during desktop feasibility. This involves working with partner organisations with engineering expertise to assess spatial, planning and structural considerations. Connection costs should be fully understood and a finalised capital investment plan produced.

## Engage

Engagement is another key part of taking outline priority projects identified in the LAEP forward. Key stakeholders need to be identified and consideration should be given to how residents are consulted and bought into the potential benefits of decarbonising homes and estates. A partner organisation with strong digital engagement experience and relationships with network operators can support this process.

# Unlocking Investment



Energy Systems Catapult is well placed to help Peterborough City Council and other stakeholders with these to move from LAEP towards design and delivery.

# Risks



There are risks and benefits associated with each of the technologies and options presented in this LAEP. Because of these, Peterborough's actual transition is expected to vary from what has been presented. Therefore, before making any widescale and significant commitment to one option or technology over another, evaluation of multiple factors will be needed. The key

risks associated with this LAEP are summarised below. Consideration of these aspects during implementation must be reflected as outcomes may necessitate an update to this LAEP, in addition there may be additional market, policy and regulatory change that could also result in a need to reconsider aspects of the pathway and LAEP.

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Risk	Description	Mitigation
Domestic and non-domestic heat decarbonisation using hydrogen	The LAEP is based on projected figures for hydrogen availability, carbon content and cost; these have influenced the heat pump and heat network focus in a number of zones	Focus zones of least regret identified for heat pump and district heating; moving forward, consideration of UK heat strategy and Cadent plans will be needed before planning wider scale-up
Domestic heat decarbonisation and resident acceptance	Transitioning away from fossil gas boilers to heat pumps or district heating will require innovative solutions to overcome resident acceptance of solutions that are more expensive to purchase and potentially disruptive	Focusing implementation in off gas grid areas reduces risk associated with picking a technology type, where heat pumps would be a low regret solution. These areas could be used to test models and approaches that appeal to residents before considering wide scale up
Level of district heating	The rationale of transitioning large numbers of homes to district heating is based on the ability to cost effectively provide districting heating systems in comparison to other options. This LAEP has only been able to consider the effectiveness of the proposed district heating areas at a high level, where more detailed consideration will be needed	Considering domestic areas around the PIRI project, which could potentially be extended, reduces risk, although further detailed heat network assessment would be required in this instance and for any other areas
Level of local generation (solar PV)	The significant proposed level of Solar PV is most effective at reducing carbon in the earlier years of the plan and therefore presents many considerations; recognising that it is primarily related to the requirement to cost effectively reduce carbon emissions ahead of the decarbonisation of grid supplied electricity	Further consideration of the benefits to Peterborough, potential operating models, system design (e.g. considering smart local energy systems), land use and whether large volumes of locally generated renewable energy should be exported to the grid
Non-domestic buildings and suitable solutions	The decarbonisation options that have been assessed are based on high level information regarding the buildings, their energy systems and the operation/processes of the site. More detailed information will be required to refine preferred solutions	Identify an approach to better understand non-domestic buildings and preferred solutions, potentially targeting the City East area where a high proportion of industrial site types have been identified; this could also inform consideration of hydrogen to this area

Risk	Description	Mitigation
Practicality and disruption associated with heat decarbonisation	Both heat networks and heat pumps can work in most of the building types in Peterborough, however, replacing gas based boilers with these options presents challenges; for example, installation costs and the potential disruptive internal works associated with adapting/changing the heating distribution system	Focusing any transition away from gas in the identified areas of least regret; aligning with the associated hydrogen based risk. In addition, consider any wider roll out once UK heat strategy is in place
Social and community benefits and impacts	Each heat decarbonisation option results in varying benefits and impacts; for example, heat pumps could result in lower energy bills than a hydrogen or heat network system but the installation cost would likely be notably greater without policy intervention	Use socio-demographic indicators when considering implementation; alongside targeting where corresponding whole home based solutions, such as providing deeper retrofit and domestic solar PV systems can best support those residents in most need
Funding and investment	The LAEP has not considered how identified interventions will be funded.	Peterborough will need to work with regional partners and central government to identify potential funding routes
Ability to rapidly scale and implement measures; considering supply chain and impacts of implementation rates	The ability to achieve a net zero target ahead of the UKs 2050 target will require the scale up and deployment of measures far beyond anywhere near current or historical rates; in addition, the benefit of measures (e.g. solar PV) also depends on the ability to install extremely quickly and at highly ambitious scales	Consideration of the corresponding projections for implementation will be needed to determine if and how ambition can be met.





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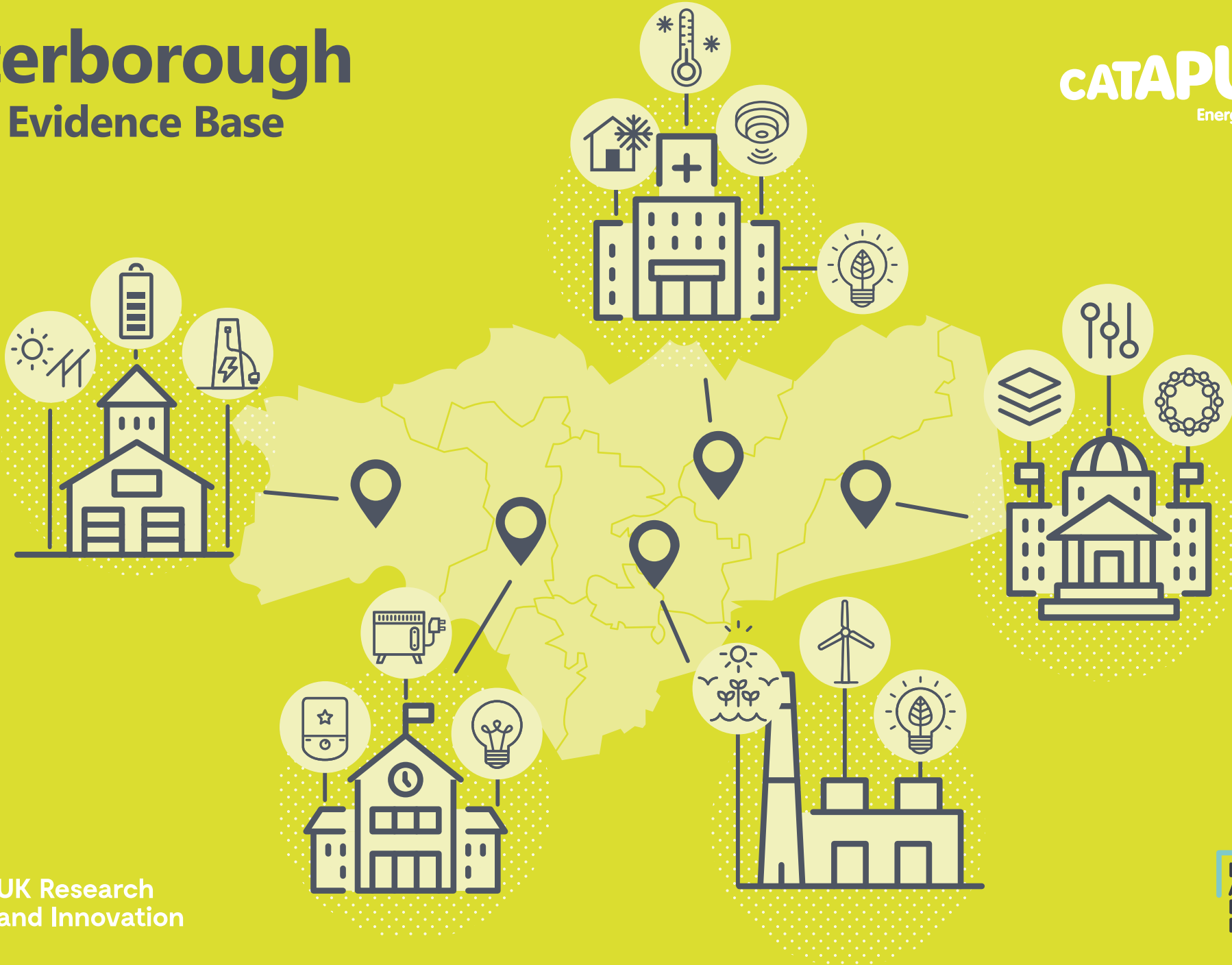
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# Peterborough

## LAEP Evidence Base

**CATAPULT**  
Energy Systems



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# Introduction

This Evidence Base aims to complement the main document by adding more information about the starting point for Peterborough, how the future-looking modelling was carried out, which data sources were used, and providing some supplementary data/graphs/maps to support the plan.

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# Methodology and Data

An aerial photograph of Peterborough, UK, showing the city center with a prominent Gothic cathedral (Peterborough Cathedral) in the center. The image is overlaid with a semi-transparent dark grey filter. The title 'Methodology and Data' is written in a large, bold, yellow font across the middle of the image. There are faint 'iStock by Getty Images' watermarks visible in the background.

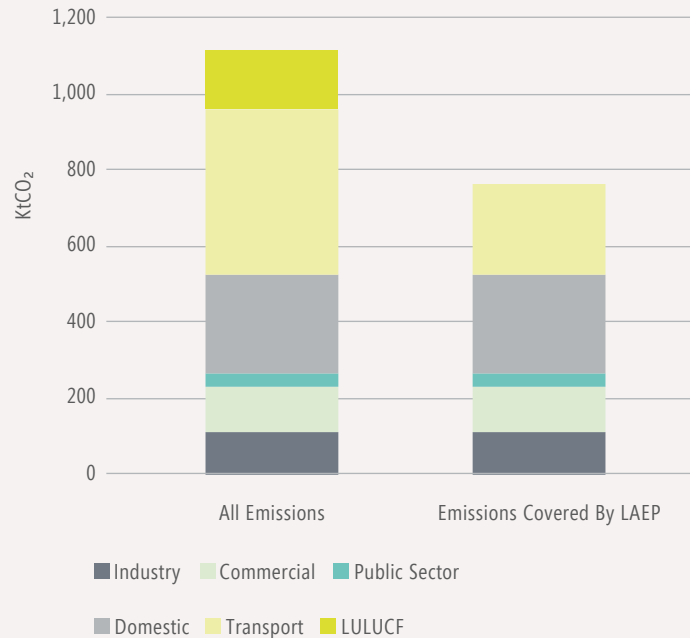
# Scope of LAEP and Emissions

The local area energy plan (LAEP) for Peterborough covers roughly 70% of the CO<sub>2</sub> emissions identified in the Local Authority CO<sub>2</sub> data released by the UK Government. Excluded from this LAEP are: land-use, land-use change and forestry (LULUCF), and transport from 'non-private' vehicles. In Peterborough, cars account for 79% of kilometres driven accounting for around 55% of transport emissions.

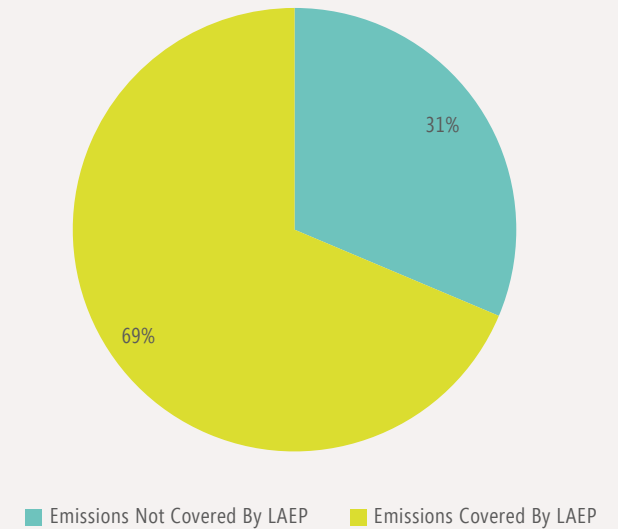
In total, Peterborough's CO<sub>2</sub> emissions in 2019 were approximately 1.1MtCO<sub>2</sub>, with transport accounting for 40% of the total emissions.

Carbon offsetting is not included.

Peterborough 2019 CO<sub>2</sub> Emissions Estimates



Proportion of Peterborough 2019 CO<sub>2</sub> Emissions Covered By LAEP

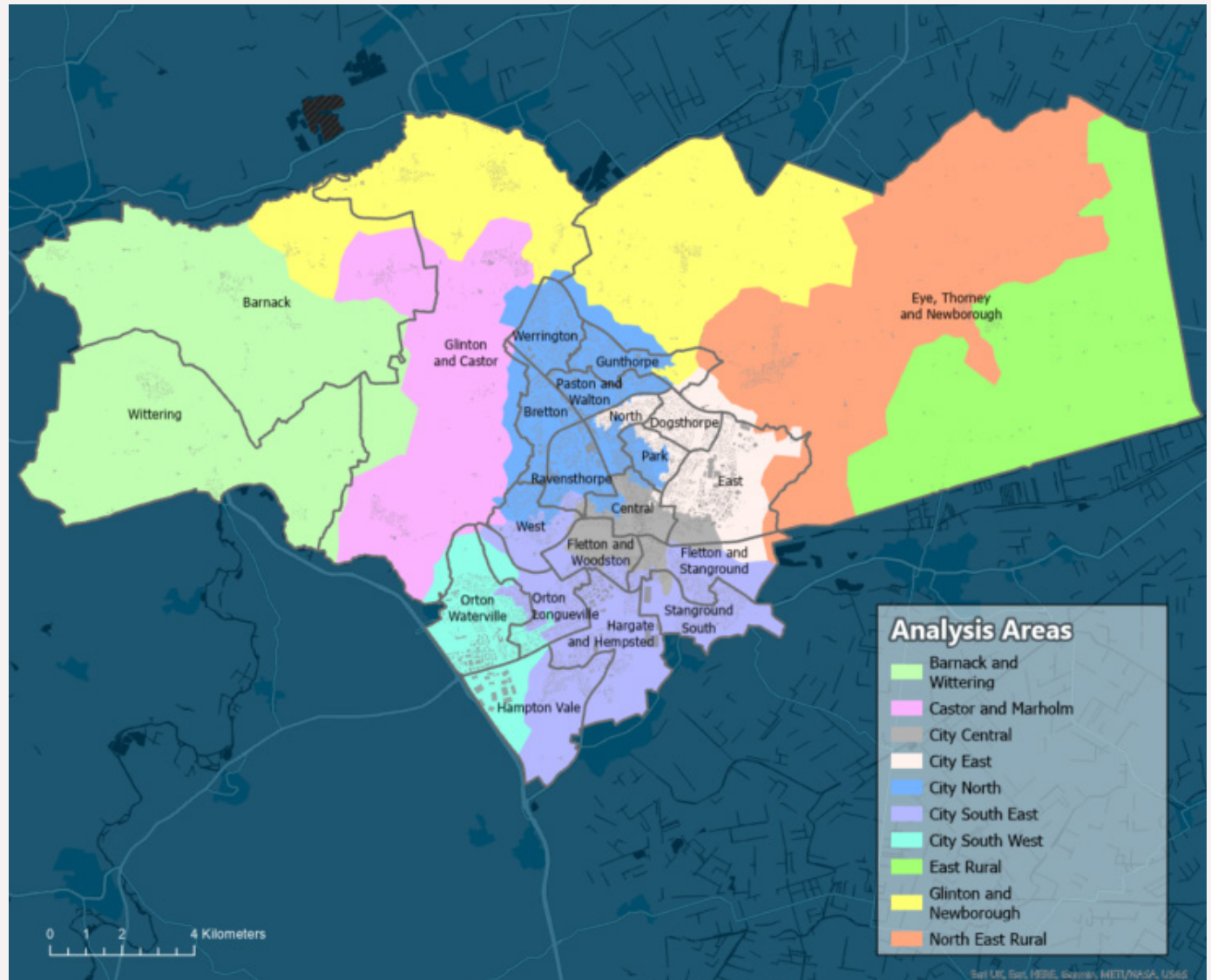


# Analysis Zones with Ward Boundaries

To support the conversation with locally elected members, the relationship between analysis zones and electoral wards is shown on this map.

The ten **analysis zones**, defined in the main LAEP report are shown by colour – according to the legend box.

The **electoral wards** are labelled on the map, with ward boundaries overlaid in grey.





# Modelling Approach

We have used the ESC-developed EnergyPath Networks™ tool to produce a series of future local energy scenarios for Peterborough. This tool seeks to develop a full range of decarbonisation options for the local area and then use an optimisation approach to identify the combination that best meets the carbon ambitions in a cost-effective way across the whole system.

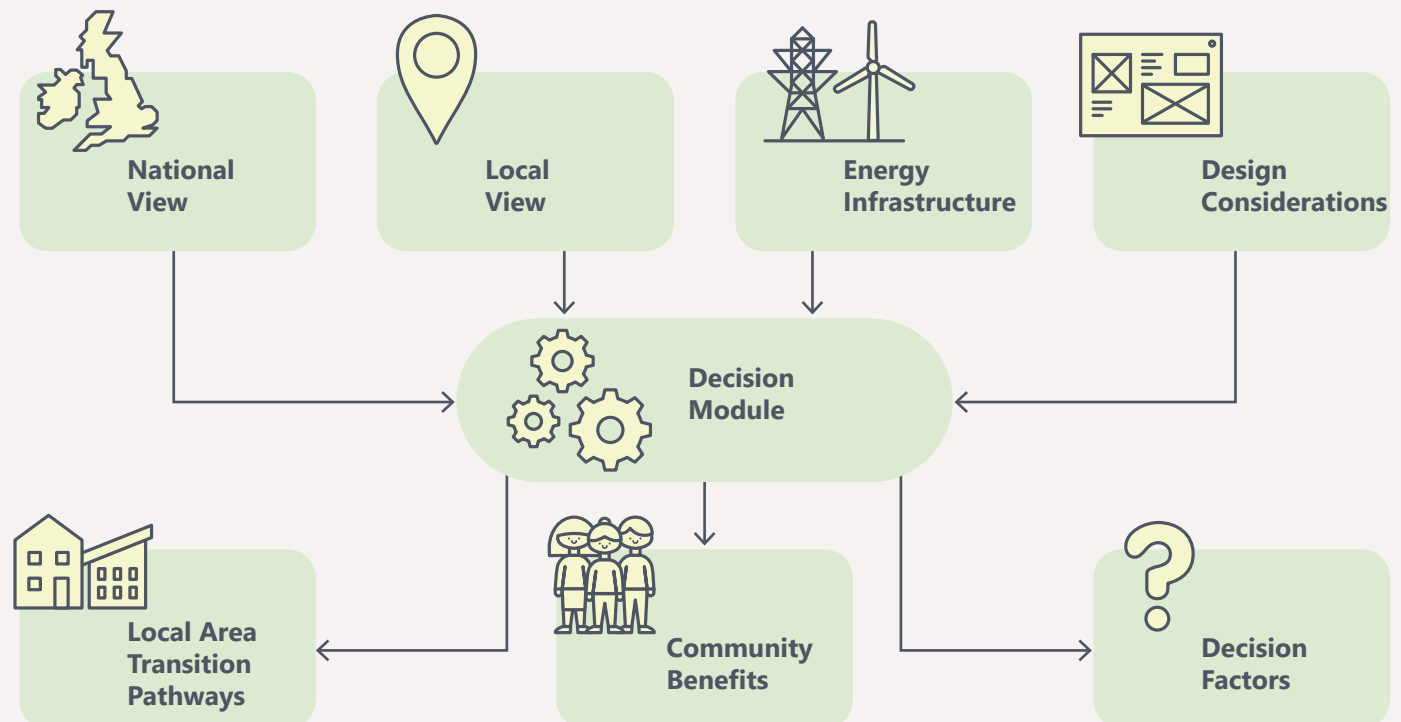
EnergyPath Networks (EPN) is a whole system optimisation analysis framework that aims to find cost effective future pathways for local energy systems to reach a carbon target whilst meeting other local constraints. EPN is spatially detailed, covers the whole energy system and all energy vectors, and projects change over periods of time. The focus is decarbonisation of energy used at a local level.

An overview of EPN is shown in the diagram to the right.

At the core of EPN, a Decision Module compares decarbonisation pathways and selects the combination that meets the CO<sub>2</sub> emissions target set for the local area at the lowest possible total cost to society .

A variety of local energy system pathways are possible to meet emissions targets. Running multiple EnergyPath Networks scenarios and doing detailed sensitivity analyses reveals decarbonisation themes that are prevalent across all scenarios.

EPN uses optimisation techniques in the Decision Module to compare many combinations of options (tens of thousands) rather than relying on comparisons between a limited set of user-defined scenarios (although scenarios of different inputs are still typically used and the Decision Module then runs within each of these scenarios).



# Modelling Approach

EnergyPath Networks is unique in combining several aspects of energy system planning in a single tool:

- Integration and trade-off between different methods of meeting heat demand – e.g. gas, solid/liquid fuels, electric power, hydrogen, district heating schemes, etc.
- Integration through the energy supply chain from installing, upgrading or decommissioning assets (production, conversion, distribution and storage) to upgrading building fabric and converting building heating systems.
- Inclusion of existing and new build domestic and commercial buildings.
- The spatial relationships between buildings and the networks that serve them, so that costs and benefits are correctly represented for the area being analysed.
- Spatial granularity down to building level when the input data is of appropriate quality.
- A modelled time frame of 2020 to 2050.

Taken together, the analyses enable informed, evidence-based decision-making and can be used to ensure long-term resilience in near-term decisions, mitigating the risks of stranded assets.

The approach to modelling these aspects of the energy system is described in detail over the following pages.



# Modelling Approach

## Domestic Buildings

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The thermal efficiency of domestic buildings is related to the construction methods used, the level of any additional insulation that has been fitted and any modifications that have been undertaken since construction. The oldest buildings in the UK generally have poor thermal performance compared with modern buildings. In addition to building age, the type and size of a building also have a direct influence on thermal performance. For example large, detached buildings have a higher heat loss rate than purpose-built flats, due to their larger external surface area per m<sup>2</sup> of floorspace.

Buildings are categorised into five age bands in EnergyPath Networks, from pre-1914 to the present, shown in the table on the top right. These are broadly consistent with changes in building construction methods (as defined in building regulations) and so represent different levels of 'as built' thermal efficiency. The thermal efficiency of future new homes represents the minimum efficiency level required by current building regulations. There are ten modelled domestic building types, shown in the table on the bottom right. This allows approximately 60 different age and building type combinations which are used to define the thermal characteristics of existing and planned domestic buildings.

Once the current characteristics of a building have been defined, based on its age and type, the basic construction method can then be categorised. For example, the oldest buildings in the region can be expected to be constructed with solid walls. Buildings constructed between 1914 and 1979 are more likely to have been built with unfilled cavity walls. Buildings constructed from 1980 onwards are likely to have filled cavity walls. Where data (for example, Energy Performance Certificates) shows that they are likely to be present, thermal efficiency improvements that have been carried out since construction (such as filling cavity walls) are also included.

Where available, address level data is utilised in the EnergyPath Networks modelling to provide accurate building attributes. Missing building attributes, for example types of wall or windows are filled using rules based on English Housing Survey data.

### Property Age Band

Pre – 1914
1914 – 1944
1945 – 1964
1965 – 1979
1980 – Present
New Build

### Property Type

Converted Flat: - Mid Floor / End Terrace
Converted flat: - Mid Floor / Mid Terrace
Converted Flat: - Top Floor / End Terrace
Converted Flat: - Top Floor / Mid Terrace
Detached
End Terrace
Mid Terrace
Purpose-Built Flat: - Mid Floor
Purpose-Built Flat: - Top Floor
Semi-detached

# Modelling Approach

## Domestic Heating Systems

The definition of current (primary) heating systems is handled in a similar way to the definition of the building fabric. Information is used to identify the heating system as follows:

1. Xoserve data is first used to identify which buildings in the local area are not connected to the gas grid.
2. Direct user input is used where the actual heating system in individual buildings is known (e.g. from Energy Performance Certificates).
3. Defining logic rules based on the most likely heating system combinations within each archetype group.

Once the current thermal efficiency of a building has been defined, Ordnance Survey MasterMap and LIDAR data is used to establish its floor area and height. With this knowledge of a building's characteristics there is sufficient information to perform a Standard Assessment Procedure (SAP) calculation. SAP calculations are used to calculate the overall heat loss rate and thermal mass of domestic buildings in the study area.

EnergyPath Networks utilises these SAP results, as well as detailed retrofit and heating system cost data, to group buildings into similar archetypes. EnergyPlus is used to calculate dynamic energy profiles for heat and power demand for each group, for the current and all potential future pathways. These pathways include potential to install varying levels of fabric retrofit and different future heating systems in multiple combinations. Restrictions are applied so that inappropriate combinations are not considered, so for example loft insulation cannot be fitted to a mid-floor flat. EnergyPath Networks also filters out heating systems and storage combinations that cannot be sized to a large enough power within a home to meet a predefined target comfort temperature and hot water requirements based on the EnergyPlus analysis.

Three primary elements are defined in each heating system combination:

1. The main heating system.
2. A secondary heating system which can provide additional heat or hot water.
3. Thermal storage – either not present or a hot water tank.

For each domestic building the modelling assumes that the heating system will be replaced twice between now and 2050. This assumes that heating systems are replaced at their end of life (generally around 15-20 years). On each of these occasions there is an opportunity to change to an alternative heating system and perform some level of building fabric retrofit. Different heating systems reach end of life at different times, but there would need to be some coordination of the change if transitioning to a district heat or community system. Three different levels of retrofit (thermal performance enhancement) are considered, ranging from do-nothing to a full retrofit. In addition, each heating system option can be combined with advanced heating controls and each level of retrofit. Options will be excluded if a new heating system technology is unable to provide sufficient power to meet heat demand in a building with a given level of retrofit. These combinations mean that for each building there can be as many as 126 different future pathways which must be considered.

# Modelling Approach

## Non-Domestic Buildings

Non-domestic (commercial and industrial) building stock is more diverse than domestic stock. There are a wide variety of construction methods and few robust data sets are available defining the design of any particular building, its heating system or thermal performance. Due to these limitations, an energy benchmarking approach is used to establish the energy demand of the non-domestic stock.

117 Different building types are given an appropriate energy use profile per unit of floor area. The building type represents how the building is used (e.g. industry, retail, offices, school) and is sourced from a variety of datasets including OS Address Base and Energy Performance Certificates.

Benchmarks are defined for electricity (direct electric, ground source heat pump and air source heat pump), gas, hydrogen, oil and heat demand in 30-minute time periods for different characteristic heat days. The characteristic heat days for which energy demand profiles are defined are shown in the table to the right. Benchmarks are defined for current and future use to represent changing energy use over time.

The footprint floor area and height for each building is derived from the OS MasterMap and LIDAR data. The building height is then used to establish the number of storeys, from which the total building floor area is estimated. Using an energy benchmark (derived from CIBSE and CARB2 data) appropriate to the particular use class, the half hour building energy demand for gas, electricity and heat is calculated for each of the characteristic days.

For both domestic and non-domestic pathway options, EnergyPath Networks includes costs of replacing all technologies at their end of life. At these points technologies can be replaced with a lower carbon system or like-for-like. For example, even in a scenario without a local carbon target, costs will be incurred when boilers and windows are replaced with analogous technologies.

### Characteristic Heat Day

Autumn Weekday
Autumn Weekend
Peak Winter
Spring Weekday
Spring Weekend
Summer Weekday
Summer Weekend
Winter Weekday
Winter Weekend

# Modelling Approach

## Electricity Network Infrastructure

In order to assess potential options for future changes to energy systems, knowledge of current electricity, gas and heat network routes and capacities is required. From this the costs of increasing network capacities in different parts of the local area, as well as extending existing networks to serve new areas, can be calculated.

The road network is used in EnergyPath Networks as a proxy to calculate energy network lengths. Substation capacities are established using DNO data and steady-state load flow modelling of networks. For example, EnergyPath Networks will find the load at which a Low Voltage (LV) feeder will require reinforcement and the costs associated with doing so. The cost of operating and maintaining the networks varies with network capacity and is modelled using a cost-per-unit length, broken down by network asset and capacity.

The EnergyPath Networks method does not replicate the detailed network planning and analyses performed by network operators. Rather, the energy networks are simplified to a level of complexity sufficient for numerical optimisation and decision-making. The method is used to model the impact of proposed changes to building heat and energy demand on the energy networks that serve them, for example increased or reduced capacity. The costs of these

impacts can then be estimated and the effects of different options on different networks can be compared. Only network reinforcements required inside the study area are explicitly considered as options in EPN.

Western Power Distribution (WPD) and UK Power Networks (UKPN) provided the following data for the current electricity network as both DNOs supply Peterborough:

1. Locations and nameplate capacities of the HV (33kV to 11kV) and LV (11kV to 400V) substations.
2. HV to LV substation connections.

EnergyPath Networks synthesises the routes of the HV to LV substation connections assuming that feeders follow the shortest route allowed by the road network. Customer connections are then derived based on nearest substation and peak load constraints for each feeder. Non-domestic buildings with high demands are assumed to connect directly to the HV network. Network feeder capacities are then calculated based on the current load on each feeder and a headroom allowance. Voltage drop and thermal limits are considered when establishing asset capacity requirements.

EnergyPath Networks performs steady state load flow modelling for electricity and heat networks using the Siemens tool PSS® SINICAL.

Once all the building data has been analysed and the buildings located, it is possible to identify their nearest roads, which shows where the buildings are most likely to be connected to energy networks. In this way the total load and the load profile for each energy network can be calculated at different scales from individual building level, through local networks up to aggregate values for the whole study area. This allows an understanding of different energy load scenarios in different parts of the local area and the energy flows between those locations. In addition, an understanding of network lengths and required capacities can be established.

# Modelling Approach

## Analysis Areas

Due to the complexity of the number of different options available in EnergyPath Networks (for buildings, networks and generation technologies) the total problem cannot be solved at individual building or network asset level. The study area (Peterborough) is divided into a number of spatial analysis areas, shown in the map below. Decisions are made at this level based on aggregating similar buildings and network assets within each area.

The analysis areas are necessary within the EnergyPath Networks model but do not correspond directly to local districts, wards or neighbourhoods.

Within each analysis area, different components of the system are aggregated. Aggregation of buildings is performed based on energy demand and cost of retrofitting insulation and new heating systems. This way, similar buildings within an individual analysis area will all follow the same pathway. Similarly, decisions on network build and reinforcement are made at an aggregated level. If the electricity loads in one analysis area increase, such that the aggregated capacity of the low voltage feeders is exceeded, then reinforcement of all low voltage feeders within that area will be assumed to be required. The same applies for all other aspects of the energy networks such as low voltage substations,

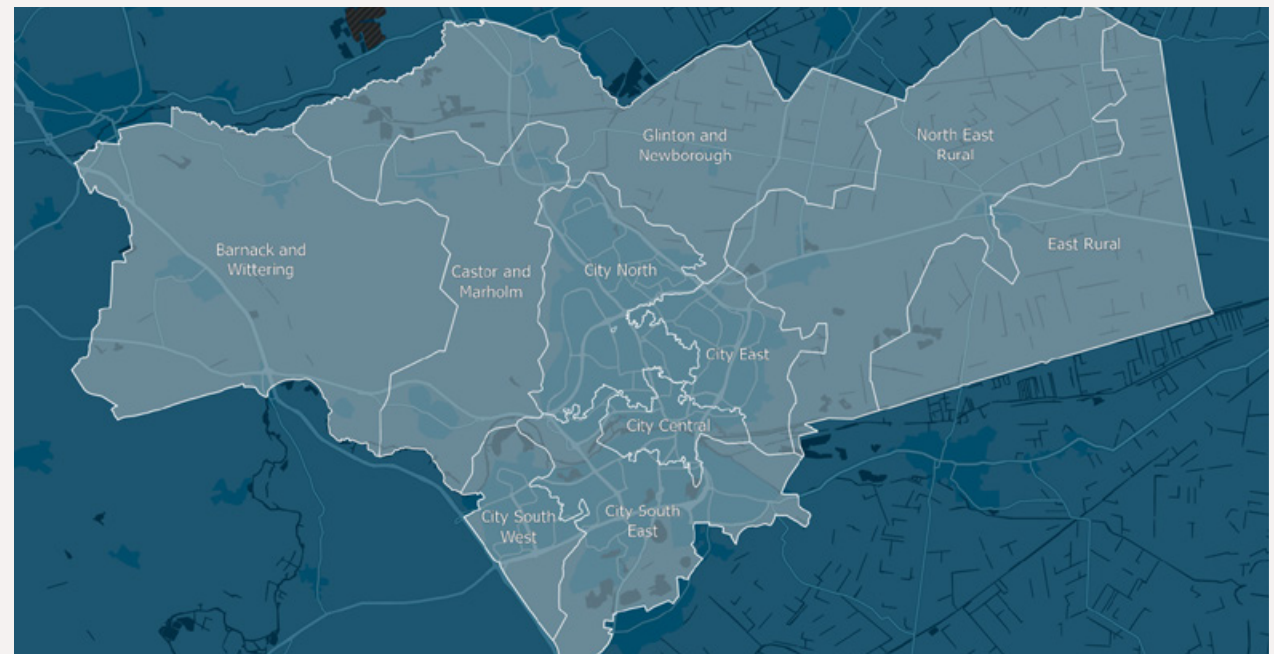
high voltage feeders and substations and heat network capacity.

Since the network options are aggregated, it is important that the boundaries between analysis areas do not cut across the electricity network. It would not be realistic to reinforce the 'downstream' end of an electricity feeder without considering the impact of the loads on those components further upstream in that network.

To ensure consistency in the analysis of electricity network options, the study area was divided

by considering each high voltage substation within the local area and all of the electricity network downstream of each substation to give the analysis areas discussed above. Some simplifications to create continuous areas and to remove a low usage private wire substation were applied.

Once the analysis areas had been defined, energy network links between them were defined. This allows transmission of heat, gas and electricity across the analysis area boundaries.



# Modelling Approach

## Local Energy System Design Considerations

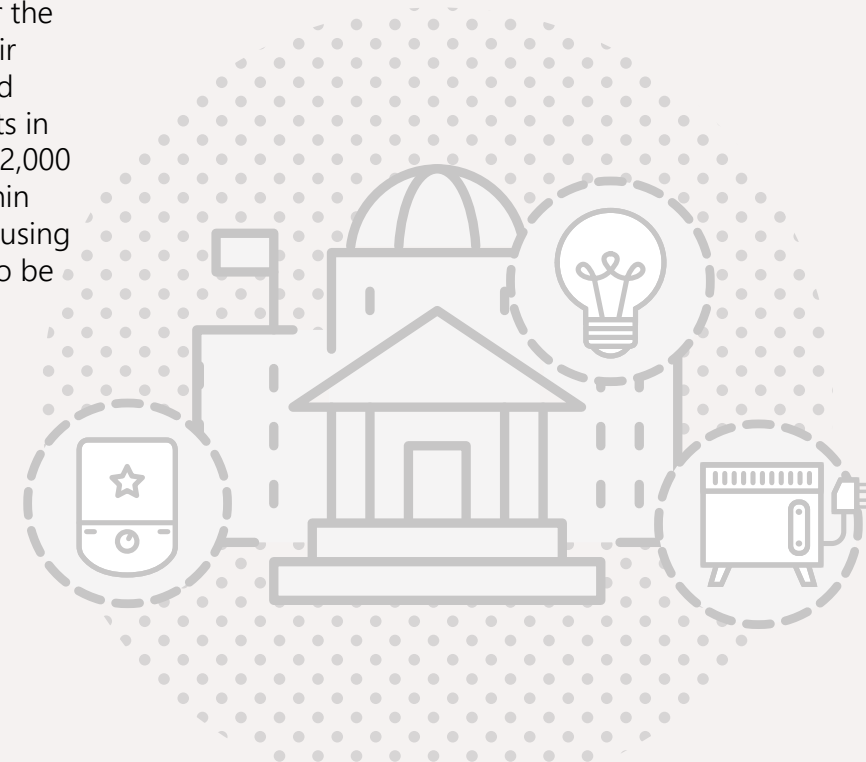
Options which are not considered technically feasible are excluded from EnergyPath Networks – for example, fitting loft insulation into a mid-floor flat or cavity wall insulation to a building which has solid walls.

There are other options which, whilst they may be possible, are not practical in a real-world environment. For example, the use of ground source heat pumps in areas of dense terraced housing: a lack of space means that cheaper ground loop systems cannot be fitted, whilst there is insufficient access for the equipment required to create vertical boreholes. In addition, the heat demand for a row of terraced houses may cause excessive ground cooling in winter leading to inefficient heat pump operation and a need for additional top-up heat from an alternative source.

Consumer preferences also influence suitability of certain options. The installation of domestic hot water tanks for heat storage is a good example. Many low-carbon heat technologies, such as air source heat pumps, work at a lower output power than conventional gas boilers, and this can require the use of heat storage in order to be able to meet peak demand for heat on cold days. However, many households have removed old hot water tanks and fitted combi-boilers to provide hot water on demand. This allowed

the space previously occupied by the hot water tank to be repurposed for other uses, which householders find valuable, such as additional household storage.

For example, the English Housing Survey shows that 54% of homes had a combi-boiler in 2016 with this figure rising by around 2% a year since 2001. These consumers often place a high value on the space that has been made available by doing this and are unlikely to embrace heat solutions that require large amounts of domestic space to be sacrificed. A proxy for the value that consumers place on space in their homes is property market values normalised by floor area. With median house price costs in England and Wales in 2017 varying from £32,000 (within County Durham) to £2,900,000 (within Westminster) it is clear that the options for using space for domestic heat storage are likely to be heavily dependent on local factors.





# Assumptions and Inputs

Any technical modelling exercise requires decisions to be made as to the level of complexity and detail that is appropriate. There are several areas where limitations have been applied to limit the complexity of the EnergyPath Networks analysis to keep the scale of the analysis practical, such as grouping buildings into archetypes.

## Fixed Input Parameters

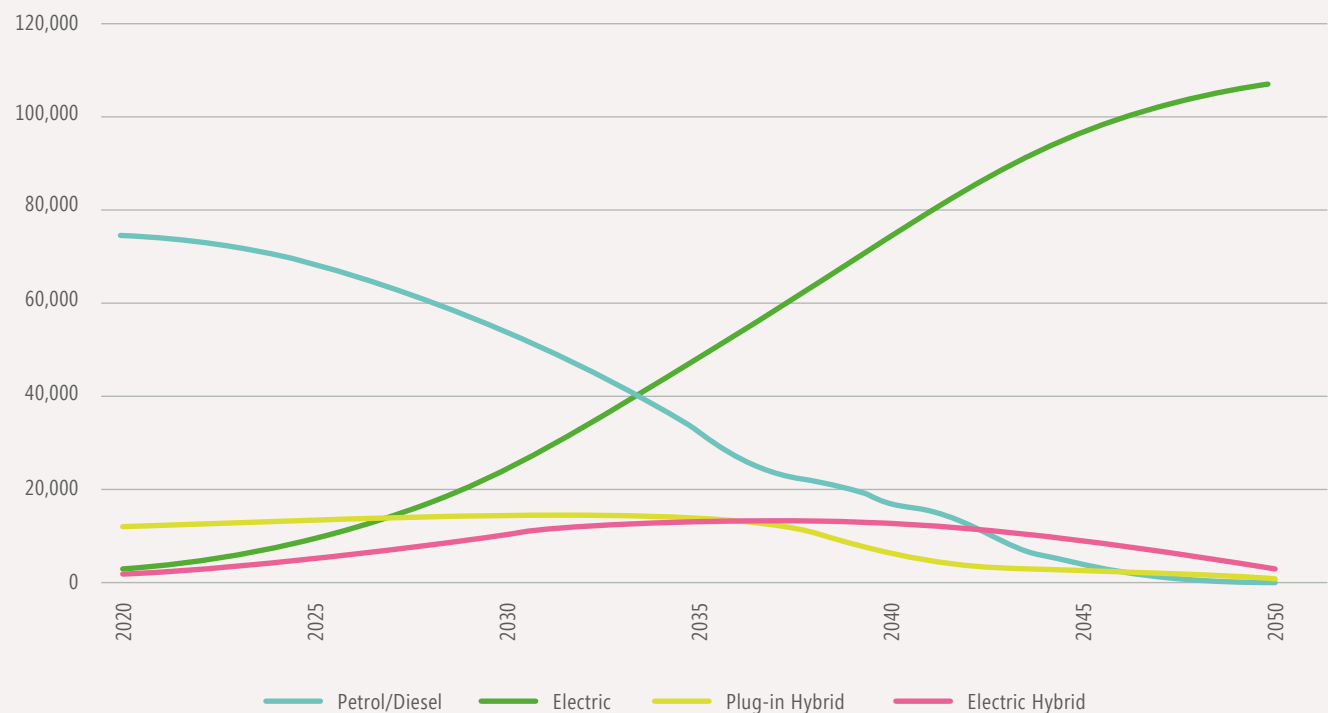
Some parameters are considered as fixed inputs within EnergyPath Networks. That is, they are derived externally and presented as inputs to the tool. Any options to vary these parameters are excluded from the decision module. The following energy demands are modelled as inputs:

- Domestic lighting and appliance demands are based on data from DECC's (Department of Energy and Climate Change) household electricity survey which gives these demands for different house types.
- Electric vehicle numbers and charging profiles are based upon assumed take-up rates for electric vehicles and are based on car journeys extracted from the Department for Transport's National Travel Survey. This means that distances travelled (level of charge required) and times of arrival (time of charging) reflect the diversity of real world use. The assumed uptake profile of Electric Vehicles for Peterborough is shown in the

graph below.

- The EV charging profiles reflect a vehicle charging immediately after it returns home and so represent a worst case scenario for peak network loads.
- Non-domestic building demands for current systems and future transition options are calculated based on building use and a set of energy benchmarks.

Total number of cars by type



# Assumptions and Inputs

## Building Modelling

Within the domestic building simulation, a standard target temperature profile is taken from SAP and used for all domestic buildings. This is intended to reflect typical building use patterns. It is recognised that real-world building use will deviate from this profile, as shown by the Energy Follow-Up Survey (EFUS). To reflect this, diversity factors are applied within EnergyPath Networks when individual building energy demands are aggregated to calculate total network demands. These diversity factors modify both the magnitudes of the demands and the times at which they occur.

Construction standards are assumed for buildings of different ages. For example, all pre-1914 buildings are assumed to have solid walls. Similarly, for some building ages the thermal conductivity of the walls is assumed to be the same for each level of insulation. For example, all walls in buildings constructed between 1945 and 1964 which now have filled cavities are assumed to have the same thermal performance. Note that these performance assumptions are based on 'traditional' brick construction and assume that insulation is correctly installed and performs to its technical potential. Buildings constructed in other ways may not be correctly represented in terms of their thermal performance.

## Network Modelling

The network modelling approach assumes that development of future energy systems should be driven by consumer needs. On this basis, the EnergyPath Networks modelling framework works on a traditional network reinforcement model. If load on a network is calculated to exceed capacity, then the network will be reinforced to meet that load.

There is limited capability within the model to consider 'Smart' network control or all aspects of Demand Side Response. For example, if a particular feeder in a street was overloaded, a demand side response could be to raise the price of electricity at peak times to decrease consumer demand on the network. EnergyPath Networks will deploy technologies that minimise electricity use at times of peak costs if it is cost effective to do so, but it is not designed to model the behaviours of the DNO or the consumer in this scenario.

The load-flow modelling is not intended to replace full dynamic network modelling conducted by network operators. EPN uses a steady-state approach which is appropriate for establishing peak loads and the capacity required to meet them, to understand the influence of different options on network costs. It considers both voltage and temperature constraints.

## Technology Cost and Performance

EnergyPath Networks models the future energy system which is considered to have the lowest cost to society whilst meeting defined carbon targets. The selected options are influenced by the costs associated with different technologies. The modelled technology cost should represent the cost in a fully competitive UK market, with significant volumes of the technology being sold. This is currently the case for markets for some technologies such as a gas boiler, but not for others such as heat pumps.

Where the market is not fully developed it is not appropriate to use the current price charged to consumers. Instead, an estimate of the current costs of buying and installing is made using a variety of data sources to ensure that estimated costs are within reasonable bounds.

# Optimisation Variables

A variety of technology options have been considered within the EnergyPath Networks analysis. These are described over the following pages.

## Primary Heating Systems

Different current and future heating system combinations have been considered within the analysis. The heating systems assessed are as follows:

- 123 • **Gas boilers** are the main source of heat for domestic premises in the UK at present.
- **Oil / LPG boilers** are a popular heat source for those buildings which are not connected to the gas network.
- **Biomass boilers** can provide a low-carbon heat source by burning fuel derived from sustainably sourced wood products.
- **Hydrogen boilers** could provide a low-carbon heat source once hydrogen becomes available.
- **Heat pumps** use electrical energy to transfer heat energy from one source to another. They are similar to a domestic refrigerator which transfers heat from a cold space to the surrounding room. This is reversed in a heat pump system so that the internal space is warmed by transferring heat from outside. Heat pumps have an advantage compared to other electrically powered heat sources as they produce more heat energy than the electrical energy required to power them. Different types of heat pump are considered:

- **Low Temperature Air Source Heat Pumps (ASHPs)** use the outside air as the source of heat and provide hot water to the heating system at temperatures around 45oC. This temperature is lower than that normally used for domestic heating with a gas boiler and so may require changes to heating distribution systems, such as the provision of larger radiators to allow the building to be heated effectively. These changes are accounted for in the costs of the technology used in the model.
- **Low Temperature Air Source Heat Pump – Gas Boiler Hybrids** use a combination of a low temperature ASHP to provide a large proportion of the heat demand but can top up this heat using a conventional gas boiler at times when it is not efficient to operate the heat pumps, or the heat pump cannot meet the required demand.
- **Low Temperature Air Source Heat Pumps** can also have supplementary heat provided by direct electric heating when required.
- **High Temperature Air Source Heat Pumps** are similar to a low temperature Air Source Heat Pump but provide hot water at a higher temperature (typically 55oC) which may remove the need for other modifications to the heating system. They generally operate at a lower efficiency than low temperature air source heat pumps.
- **Ground Source Heat Pumps** use heat energy stored in the ground to provide

hot water to the heating system. Since ground temperatures are higher than air temperatures in winter they can operate more efficiently and provide higher water temperatures than air source heat pumps. Space is required, however, to install pipework to extract heat from the ground and this adds considerably to the cost of installing these systems.

- **Electric Resistive storage heating** is the most commonly used system for buildings which have electric heating. Room heaters are typically charged overnight (where there can be an option to charge the system at a lower, night rate electricity tariff) and then release this heat over the course of the following day.
- **Electric Resistive heating without storage** provides instant heat through panel, fan or bar heaters.
- **District heating** provides heat to buildings through pipes that carry the heat from a central heat source. In current systems, this is typically a large gas boiler or gas fired Combined Heat and Power (CHP) plant which provides heat to the network and generates electricity which is either consumed locally or exported to the electricity network. Once installed these systems can be converted from using gas to lower carbon alternatives such as a large-scale Ground Source Heat Pump or a biomass boiler. Equally, if there is no gas supply in the first place, then systems can be designed from the outset with such alternatives.

# Optimisation Variables

## Building Retrofit Options

Domestic buildings in the UK have been constructed to a wide variety of building regulations depending on their age. Many older buildings have low levels of insulation and require much more energy to keep them warm in winter than those built to more recent regulations.

There are many options available to reduce heat loss from older buildings some of which could also be applied to more modern buildings.

Loft insulation, wall insulation (cavity or solid depending on existing building fabric) and triple glazing retrofit options are modelled within the EnergyPath Networks model.

In addition, some minor improvements are considered as secondary measures. That is, “quick wins”, such as draught proofing, that could be installed at the same time as more substantial building fabric upgrades.

## Solar

EnergyPath Networks considers the deployment of solar panels within a local area to generate electricity and hot water. Both systems can produce significant amounts of energy in summer months but may produce close to zero energy on winter days when the sun is low in the sky and days are much shorter. This may coincide with times of greatest heat demand, so alternative energy supply options need to be available at these times.

In the case of electricity generation (solar photovoltaics) the power might be used by the home owner or might be exported to the electricity network if the amount being generated exceeds the demand of the generating building.

Solar hot water systems typically heat water in a hot water tank by circulating a fluid between a heating coil within the tank and the roof mounted panel heated by the sun.

## Heat Storage

Heat storage can be considered at two scales:

- Individual domestic storage in hot water tanks.
- Large-scale storage in association with heat networks.

In both cases, it is assumed that more heat could be produced at certain times than is required to meet demand. This provides an option to store that heat and then release it back into the heating system at times when the peak demand is high. It can sometimes be a cost-effective solution as it allows a less powerful heat source to be installed that can be topped up using stored heat at times of peak demand.

Depending on the location in the UK, the value of the floor space lost could outweigh the capital savings associated with installing a heating system with a hot water tank over a more powerful heating system without a hot water tank.

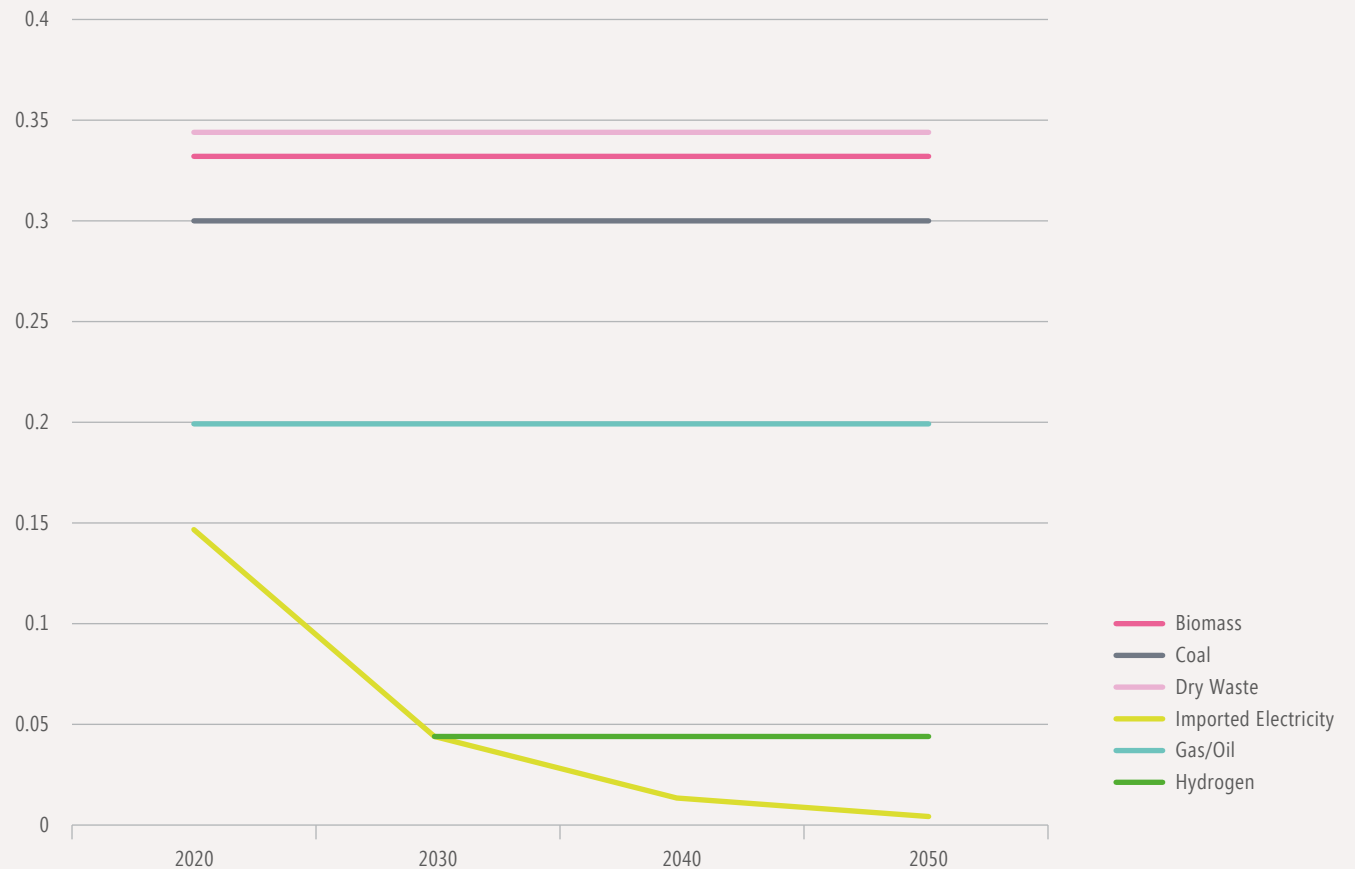
# Emission Calculations

EPN optimises to calculate the lowest cost route to meeting a defined carbon target. Domestic, industrial and commercial emissions (i.e. those related to buildings) are in scope for the model. Transport emissions (beyond personal vehicles) and those resulting from land use change are excluded from the analysis.

Some types of non-domestic buildings are projected to have reductions in demand and so emissions over the time period to 2050, even if their heat demand continues to be met using gas or electricity. Emission reductions from these buildings can occur due to:

- Conversion of the national grid to low-carbon electricity which decarbonises the emissions associated with local electricity consumption as shown in graph to the right.
- Reduced gas use in buildings where there is historical evidence to support this trajectory – mainly associated with professionally managed buildings whose managers have a commercial incentive to improve energy efficiency.

## CO<sub>2</sub> Emissions Inputs to EnergyPath Networks



Note that it is assumed Hydrogen does not become available until the mid-2030s and therefore there are no emissions for Hydrogen prior to 2030.

# Cost Optimisation Approach

EnergyPath Networks has been used to provide evidence to support local area energy planning and the development of local energy system designs able to meet local carbon reduction targets. The importance of other factors such as fuel poverty and health benefits should be recognised in the planning of the future energy system but they are not core parameters in EnergyPath Networks.

Once a set of potential options for the buildings and energy networks in the local area have been identified, the Decision Module compares all valid option combinations and selects the set that meets the local CO<sub>2</sub> emissions target at minimum cost.

The costs considered are the total cost to society for the whole energy system including capital costs, fuel costs and operation and maintenance costs to 2050.

The future costs are discounted. Discounting is a financial process which aims to determine the “present value of future cash flows”, or in other words: calculating what monies spent or earned in the future would be worth today. Discounting reflects the “time value of money” – one pound is worth more today than a pound in, say, one year’s time as money is subject to inflation and has the ability to earn interest. A discount rate of 3.5% is used, as suggested in the UK Treasury’s “Green Book” (used in the financial evaluation of UK Government projects).

Taxes and subsidies are excluded as these are transfer payments with zero net cost to society. Their inclusion in the analysis might result in the selection of sub-optimal solutions. The intention is that, once evidence has been used to define a local area energy strategy and possible future local energy system designs then appropriate delivery methods and associated policies can be developed to enable delivery.



# Summary of Data Sources

## Buildings and Roads

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Category	Data Source	Usage	Owner	Reference and Copyright (if applicable)
<b>Domestic, Non-Domestic and Roads</b>	Ordnance Survey AddressBase Premium, MasterMap Topography, Highways, Building Heights, Sites, VectorMap District, Open Roads	<ul style="list-style-type: none"> <li>Shows location, footprint and classification of buildings, plus road layout for network modelling.</li> <li>Provides status and classification of non-domestic building (e.g. office, retail).</li> <li>Informs building size and height.</li> <li>Latest data obtained September 2021 for buildings and roads.</li> </ul>	Ordnance Survey	© Crown copyright and database rights 2021 OS 100024236
<b>Domestic and Non-Domestic</b>	Lidar Data	<ul style="list-style-type: none"> <li>Used to obtain building heights</li> </ul>	Department for Environment, Food & Rural Affairs	Lidar data © Crown 2021 copyright Defra licenced under the Open Government Licence (OGL). <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
<b>Domestic and Non-Domestic</b>	Energy Performance Certificates (EPC)s	<ul style="list-style-type: none"> <li>ESC-built address matching algorithm to match housing attributes from EPCs</li> <li>Informs building-level attributes – e.g. current heating system, levels of insulation.</li> <li>Non-domestic Energy Performance Certificates (EPC) and Display Energy Certificates (DEC) to provide further building attributes and demands.</li> </ul>	Ministry of Housing, Communities & Local Government	Energy Performance Certificates obtained from <a href="https://epc.opendatacommunities.org/">https://epc.opendatacommunities.org/</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
<b>Domestic</b>	English Housing Survey	<ul style="list-style-type: none"> <li>Informs building-level attributes – e.g. current heating system, levels of insulation.</li> </ul>	Ministry of Housing, Communities & Local Government	© Crown copyright material is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland Ministry of Housing, Communities and Local Government. (2021). English Housing Survey, 2017: Housing Stock Data: Special Licence Access. [19 March 2019]. 2nd Edition. UK Data Service. SN: 8546, <a href="http://doi.org/10.5255/UKDA-SN-8546-2">http://doi.org/10.5255/UKDA-SN-8546-2</a>
<b>Domestic</b>	Off Gas Postcodes from Xoserve	<ul style="list-style-type: none"> <li>Used to determine off-gas buildings</li> </ul>	Xoserve	Off Gas Postcodes © Copyright Xoserve Limited 2020
<b>Domestic</b>	Heritage Data: Listed Buildings	<ul style="list-style-type: none"> <li>Potential constraint on retrofit for listed buildings</li> </ul>	Historic England	© Historic England 2021. Contains Ordnance Survey data © Crown copyright and database right 2021. The Historic England GIS Data contained in this material was obtained on 22/09/2021. The most publicly available up to date Historic England GIS Data can be obtained from <a href="http://www.HistoricEngland.org.uk">http://www.HistoricEngland.org.uk</a>
<b>Domestic</b>	DECC household electricity survey	<ul style="list-style-type: none"> <li>Domestic appliance use profiles</li> </ul>	UK Government	© Crown copyright, 2013. Data obtained from <a href="https://www.gov.uk/government/publications/household-electricity-survey--2">https://www.gov.uk/government/publications/household-electricity-survey--2</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
<b>Domestic</b>	ETI's Optimising Thermal Efficiency of Existing Housing Project	<ul style="list-style-type: none"> <li>Retrofit Costs</li> </ul>	ETI	<a href="https://www.eti.co.uk/library/optimising-thermal-efficiency-of-existing-housing">https://www.eti.co.uk/library/optimising-thermal-efficiency-of-existing-housing</a>
<b>Non-Domestic</b>	Land Registry	<ul style="list-style-type: none"> <li>Informs classification of non-domestic building.</li> </ul>	UK Government	© Crown copyright, 2020. Data obtained from <a href="https://use-land-property-data.service.gov.uk/datasets/inspire/download">https://use-land-property-data.service.gov.uk/datasets/inspire/download</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
<b>Non-Domestic</b>	Energy benchmarks (kWh/m <sup>2</sup> ) developed in conjunction with Arup	<ul style="list-style-type: none"> <li>Non-Domestic building energy profiles</li> </ul>	Energy Systems Catapult	
<b>Future Building Stock</b>	Peterborough Land Supply	<ul style="list-style-type: none"> <li>Identify location and number of buildings with planned construction dates</li> </ul>	Peterborough City Council	

# Summary of Data Sources

## Networks, Generation, Emissions and Transport

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Category	Data Source	Usage	Owner	Reference and Copyright (if applicable)
<b>Networks</b>	Cadent Gas	<ul style="list-style-type: none"> <li>Mapping of pipes including material, size and pressure.</li> </ul>	Cadent Gas	
<b>Networks and Generation</b>	WPD	<ul style="list-style-type: none"> <li>Substation locations, capacities and headroom (for 11kV-400V upwards)•Embedded Capacity Register used to identify registered generation assets within the region</li> </ul>	WPD	Supported by WPD Open data. Wester Power Distribution network data downloaded from <a href="https://connecteddata.westernpower.co.uk">connecteddata.westernpower.co.uk</a> licensed under the Open Government Licence v3.0 <a href="https://www.westernpower.co.uk/open-data-licence">www.westernpower.co.uk/open-data-licence</a>
<b>Networks and Generation</b>	UKPN	<ul style="list-style-type: none"> <li>Substation locations, capacities and headroom (for 11kV-400V upwards)•Embedded Capacity Register used to identify registered generation assets within the region</li> </ul>	UKPN	UK Power Networks substation network data downloaded from <a href="https://www.ukpowernetworks.opendatasoft.com">www.ukpowernetworks.opendatasoft.com</a> licensed under CC by 4.0 <a href="https://creativecommons.org/licenses/by/4.0/">https://creativecommons.org/licenses/by/4.0/</a>
<b>Networks</b>	ETI Infrastructure Calculator	<ul style="list-style-type: none"> <li>Electricity, Gas, Heat and Hydrogen Network Costs</li> </ul>	ETI	<a href="https://www.eti.co.uk/programmes/energy-storage-distribution/infrastructure-cost-calculator">https://www.eti.co.uk/programmes/energy-storage-distribution/infrastructure-cost-calculator</a>
<b>Networks</b>	ETI Macro Distributed Energy project	<ul style="list-style-type: none"> <li>Energy Centre costs and technical parameters</li> </ul>	ETI	<a href="http://www.eti.co.uk/library/macro-distributed-energy-project/">http://www.eti.co.uk/library/macro-distributed-energy-project/</a>
<b>Networks and Generation</b>	District heating study for Peterborough - HNDU Detailed Project Development stage - Techno-economic feasibility analysis review Draft report (November 2021)	<ul style="list-style-type: none"> <li>Capacity and locations of planned generation assets for PIRI heat network•Locations of buildings to be connected to PIRI heat network</li> </ul>	Element Energy and Peterborough City Council	
<b>Networks</b>	East Coast Hydrogen Feasibility Report	<ul style="list-style-type: none"> <li>Relative proportions of Blue/Green Hydrogen for East Coast Hydrogen•87 % 'blue', 11 % 'green', 0.044 tCO<sub>2</sub>e/MWh, £61.20/MWh between 2030-2040 and £54.10 for 2040-2050.</li> </ul>	National Grid	<a href="https://www.nationalgrid.com/uk/gas-transmission/document/138181/download">https://www.nationalgrid.com/uk/gas-transmission/document/138181/download</a>
<b>Networks</b>	BEIS Hydrogen Production Costs	<ul style="list-style-type: none"> <li>Hydrogen Cost and Emissions Calculations</li> </ul>	UK Government	© Crown copyright, 2021. Data obtained from <a href="https://www.gov.uk/government/publications/hydrogen-production-costs-2021">https://www.gov.uk/government/publications/hydrogen-production-costs-2021</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
<b>Networks and Emissions</b>	BEIS Green Book	<ul style="list-style-type: none"> <li>Electricity Grid Prices and Emissions</li> </ul>		© Crown copyright, 2021. Data obtained from <a href="https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal">https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
<b>Generation</b>	Renewable Energy Planning Database	<ul style="list-style-type: none"> <li>Current planned and operational renewable energy installations (above 150kw)•</li> </ul>	UK Government	© Crown copyright, 2020. Data obtained from <a href="https://www.gov.uk/government/publications/renewable-energy-planning-database-monthly-extract">https://www.gov.uk/government/publications/renewable-energy-planning-database-monthly-extract</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
<b>Generation</b>	Feed-in-tariff install reports	<ul style="list-style-type: none"> <li>Current levels of domestic PV by postcode</li> </ul>	UK Government	© Crown copyright, 2020. Data obtained from <a href="https://www.ofgem.gov.uk/environmental-and-social-schemes/feed-tariffs-fit/contacts-guidance-and-resources/public-reports-and-data-fit/installation-reports">https://www.ofgem.gov.uk/environmental-and-social-schemes/feed-tariffs-fit/contacts-guidance-and-resources/public-reports-and-data-fit/installation-reports</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
<b>Generation</b>	Peterborough planning database	<ul style="list-style-type: none"> <li>Used to identify planned local generation sites.</li> </ul>	Peterborough City Council	<a href="https://www.peterborough.gov.uk/council/planning-and-development/planning-and-building/search-applications">https://www.peterborough.gov.uk/council/planning-and-development/planning-and-building/search-applications</a>
<b>Emissions</b>	National Atmospheric Emissions Inventory (NAEI)	<ul style="list-style-type: none"> <li>Locations of large emission sources</li> </ul>	National Atmospheric Emissions Inventory	© Crown 2021 copyright Defra & BEIS via <a href="https://naei.beis.gov.uk">naei.beis.gov.uk</a> , licenced under the Open Government Licence (OGL). <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>



# Summary of Data Sources

## Land Classification and Electric Vehicles

129

Category	Data Source	Usage	Owner	Reference and Copyright (if applicable)
Land	Flood Risk Maps	<ul style="list-style-type: none"> <li>Identification of areas unsuitable for ground mounted solar PV</li> </ul>	UK Government	© Crown copyright, 2021. Data obtained from <a href="https://www.gov.uk/government/publications/flood-risk-maps-2019">https://www.gov.uk/government/publications/flood-risk-maps-2019</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
Land	Natural England: Sites of Special Scientific Interest, Special Areas of Conservation, National Nature Reserves, Areas of Natural Beauty, Ramsar – Wetlands Sites	<ul style="list-style-type: none"> <li>Identification of areas unsuitable for ground mounted solar PV</li> </ul>	Natural England	© Natural England copyright, 2021. © Crown copyright and database right. Data obtained from <a href="https://naturalengland-defra.opendata.arcgis.com/search?collection=Dataset">https://naturalengland-defra.opendata.arcgis.com/search?collection=Dataset</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
Land	Heritage Data: National Parks and Woodland	<ul style="list-style-type: none"> <li>Identification of Land use</li> </ul>	Historic England	© Historic England 2021. Contains Ordnance Survey data © Crown copyright and database right 2021. The Historic England GIS Data contained in this material was obtained on 22/09/2021. The most publicly available up to date Historic England GIS Data can be obtained from <a href="http://www.HistoricEngland.org.uk">http://www.HistoricEngland.org.uk</a>
Land	Agricultural Land Classification	<ul style="list-style-type: none"> <li>Identification of areas unsuitable for ground mounted solar PV</li> </ul>	UK Government	© Crown copyright, 2021. Data obtained from <a href="https://data.gov.uk/dataset/952421ec-da63-4569-817d-4d6399df40a1/provisional-agricultural-land-classification-alc">https://data.gov.uk/dataset/952421ec-da63-4569-817d-4d6399df40a1/provisional-agricultural-land-classification-alc</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
Land	CORINE	<ul style="list-style-type: none"> <li>Identification of areas unsuitable for ground mounted solar PV</li> </ul>	Environmental Information Data Centre	Cole, B.; De la Barreda, B.; Hamer, A.; Codd, T.; Payne, M.; Chan, L.; Smith, G.; Balzter, H. (2021). Corine land cover 2018 for the UK, Isle of Man, Jersey and Guernsey. NERC EDS Environmental Information Data Centre. <a href="https://doi.org/10.5285/084e0bc6-e67f-4dad-9de6-0c698f60e34d">https://doi.org/10.5285/084e0bc6-e67f-4dad-9de6-0c698f60e34d</a> Data obtained from <a href="https://catalogue.ceh.ac.uk/documents/084e0bc6-e67f-4dad-9de6-0c698f60e34d">https://catalogue.ceh.ac.uk/documents/084e0bc6-e67f-4dad-9de6-0c698f60e34d</a> Under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
Electric Vehicles	Zap-Map®	<ul style="list-style-type: none"> <li>Location and speed of public chargepoints. •National Chargepoint Registry (NCR) has not been used since its data is included within Zap-Map's national database.</li> </ul>	Zap-Map®	<a href="https://www.zap-map.com/">https://www.zap-map.com/</a>
Electric Vehicles	DVLA Vehicle Licensing Statistics	<ul style="list-style-type: none"> <li>Baseline data for ESC analysis on the expected uptake of EVs on the network.</li> </ul>	UK Government	© Crown copyright, 2021. Data obtained from <a href="https://www.gov.uk/government/collections/vehicles-statistics">https://www.gov.uk/government/collections/vehicles-statistics</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>
Electric Vehicles	National Travel Survey	<ul style="list-style-type: none"> <li>Input for EV charging profiles</li> </ul>	UK Government	© Crown copyright, 2021. Data obtained from <a href="https://www.gov.uk/government/collections/national-travel-survey-statistics">https://www.gov.uk/government/collections/national-travel-survey-statistics</a> under the Open Government License v3.0 <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/">https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/</a>

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# System Baseline

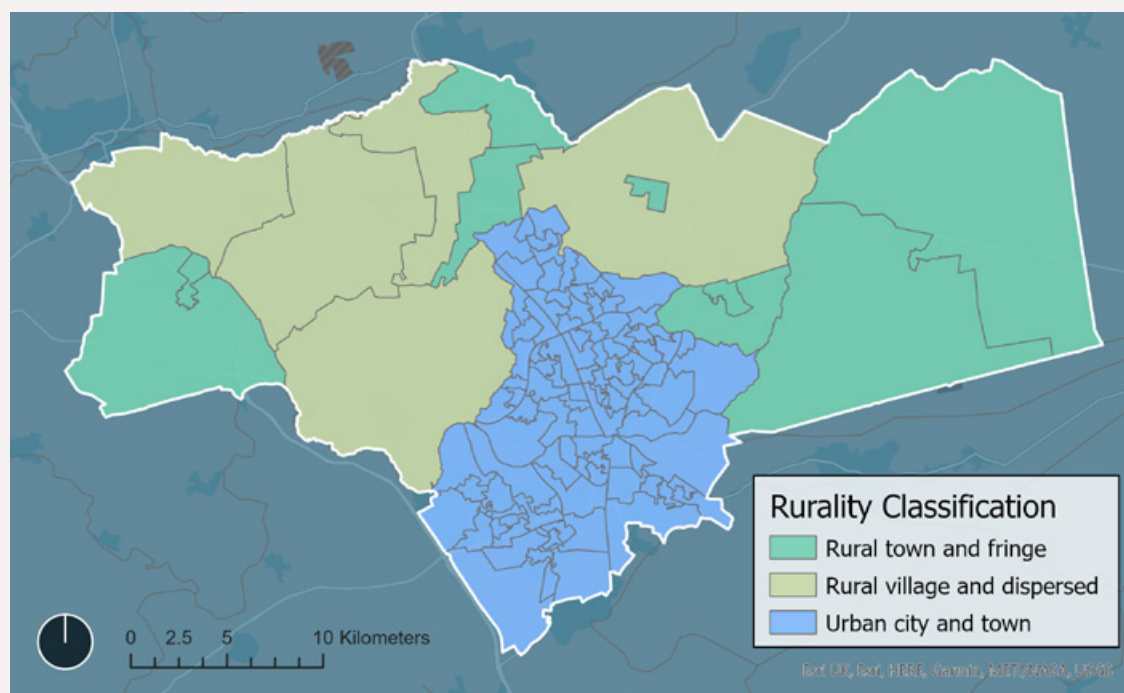
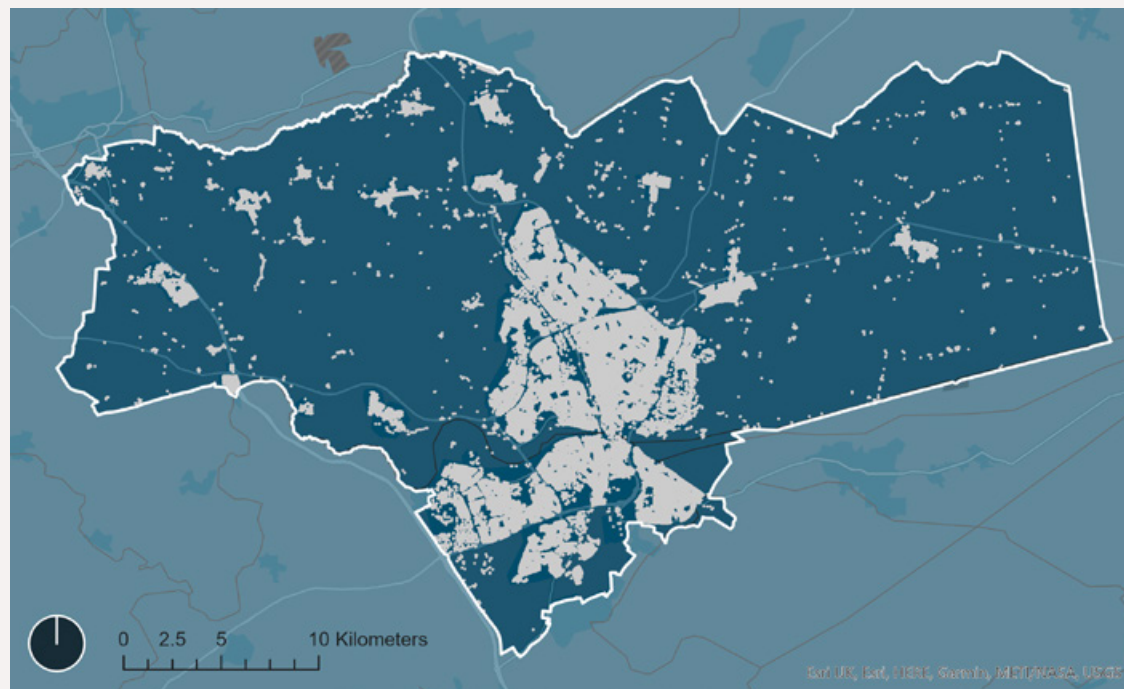


# Current View: Local Buildings

Peterborough currently has around 87,000 dwellings which are mainly located in the south and central parts of the local authority area. The top map shows the location of these existing dwellings and non-domestic, commercial, industrial buildings to give an illustration of the overall built environment.

131 The bottom map shows the rurality classification of each lower-level super output area (LSOA)\*. Together these maps show the high density of buildings in and around Peterborough centre.

Between 2022 and 2036, an additional 15,000 dwellings are expected to be built across Peterborough. When built, these dwellings will represent almost 17.5% of the housing stock.



\* LSOAs are small geographical areas with an average population of around 1,500 people.

# Current View: Dwelling Type & Age

To understand the current housing stock in more detail, it was segmented by: type, age, floor area, heating system, loft insulation level, wall type, and window type. The maps below show the modal (i.e. the most common) dwelling type and age within each LSOA.

From the maps it can be seen that in the high-density centre of Peterborough there is a predominance of smaller dwelling such as flats and terraces, whereas in the more rural zones larger detached dwellings are more common.

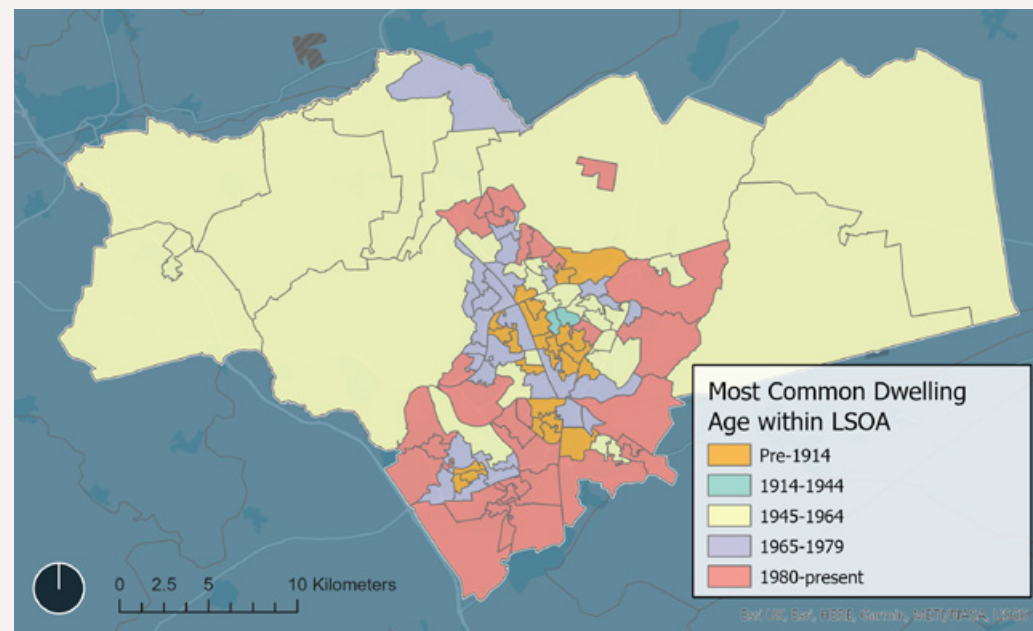
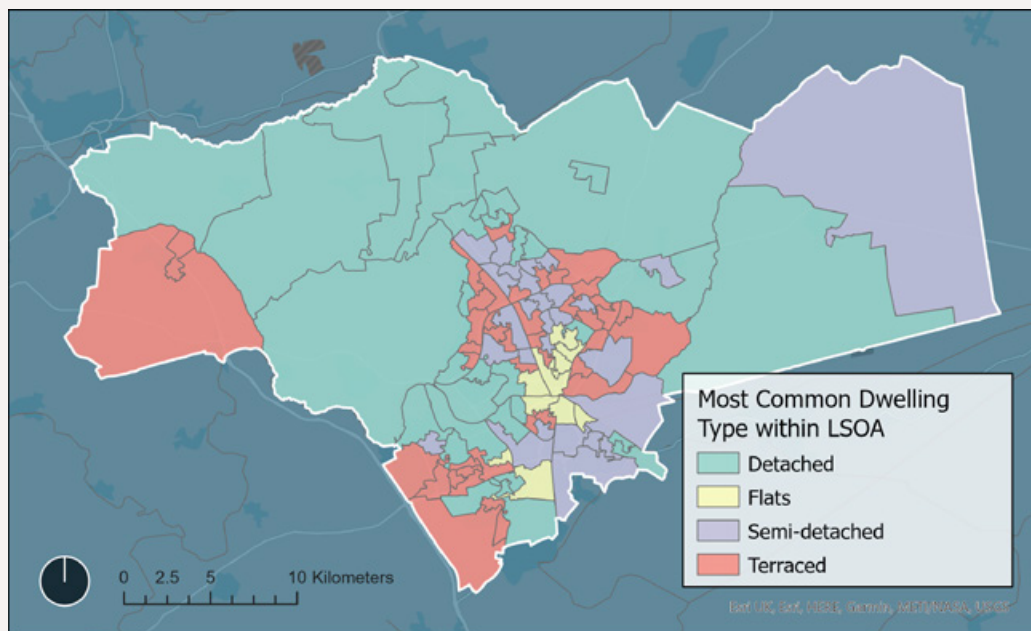
The age of the dwellings also varies spatially. In the majority of the rural zones, the dwellings were most commonly built in the post-war period.

A slight divergence from the pattern is shown in the image to the right where terraced dwellings are common in a rural area in the west of Peterborough.



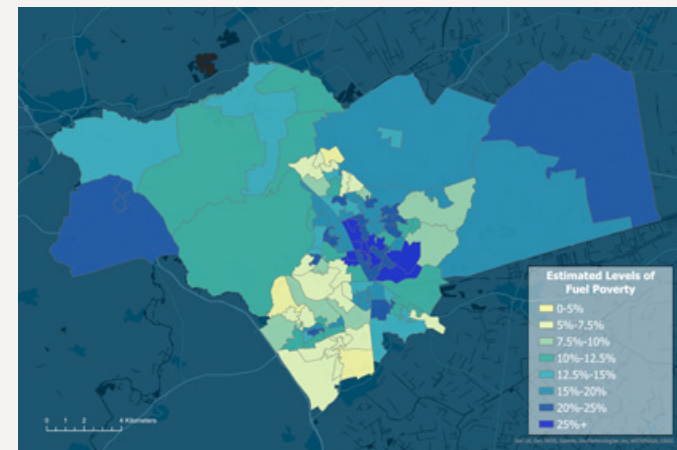
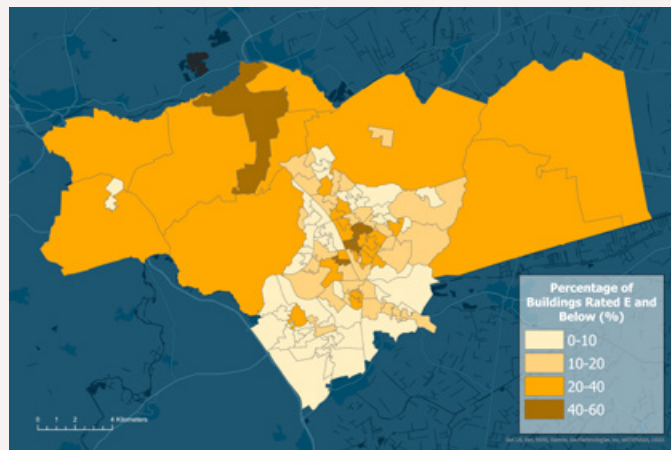
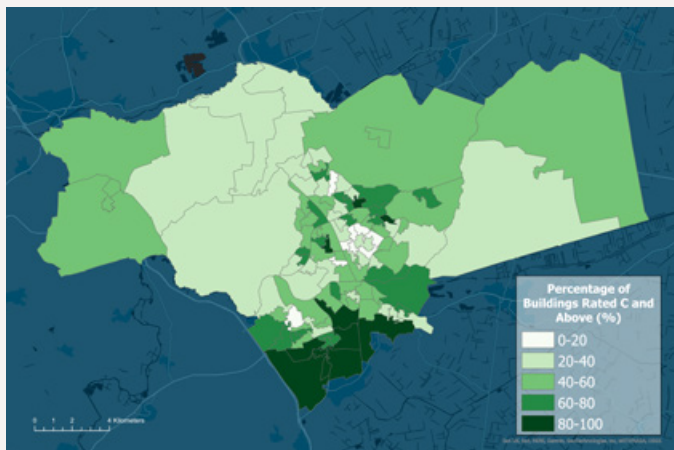
Image from GoogleMaps of Main Street in the west of the region near Wittering.

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# Current View: Domestic Energy Performance

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The maps above show the current energy efficiency performance of dwellings across Peterborough in different ways: on the left, those with a good level of insulation; and in the centre those with a poor level of insulation. Combined, these two maps show that dwellings in the rural areas typically have worse EPC\* ratings than those in urban areas. This is unsurprising as smaller dwellings such as flats and terraces have a lower heat loss due to their lower external exposure.

At a more practical level, the map in the centre can also indicate where to focus government funding (e.g. Home Upgrade Grant) which is only applicable to dwellings with EPC ratings of E or below.

The map on the right shows the estimated level of fuel poverty in each LSOA. Note, the data used is from 2019 and therefore does not reflect any expected increase in fuel poverty due to 2022 fuel prices. However, a broad trend can be identified by comparing the EPC maps and the fuel poverty map. LSOAs where dwellings have a higher average energy performance rating, have a lower incidence of fuel poverty showing the societal link between energy, retrofit and personal finances.

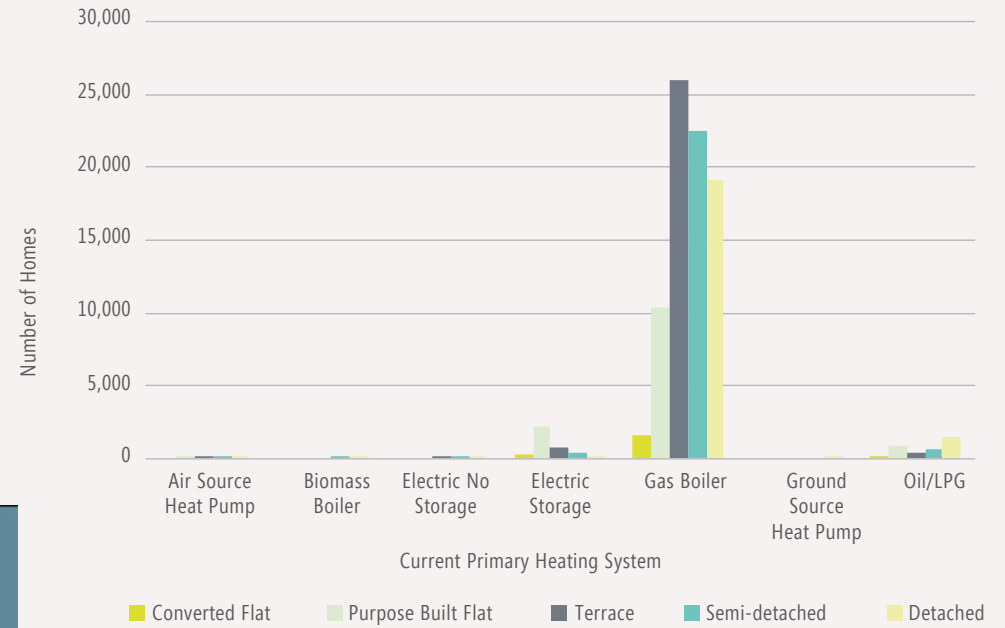


\* Energy Performance Certificates

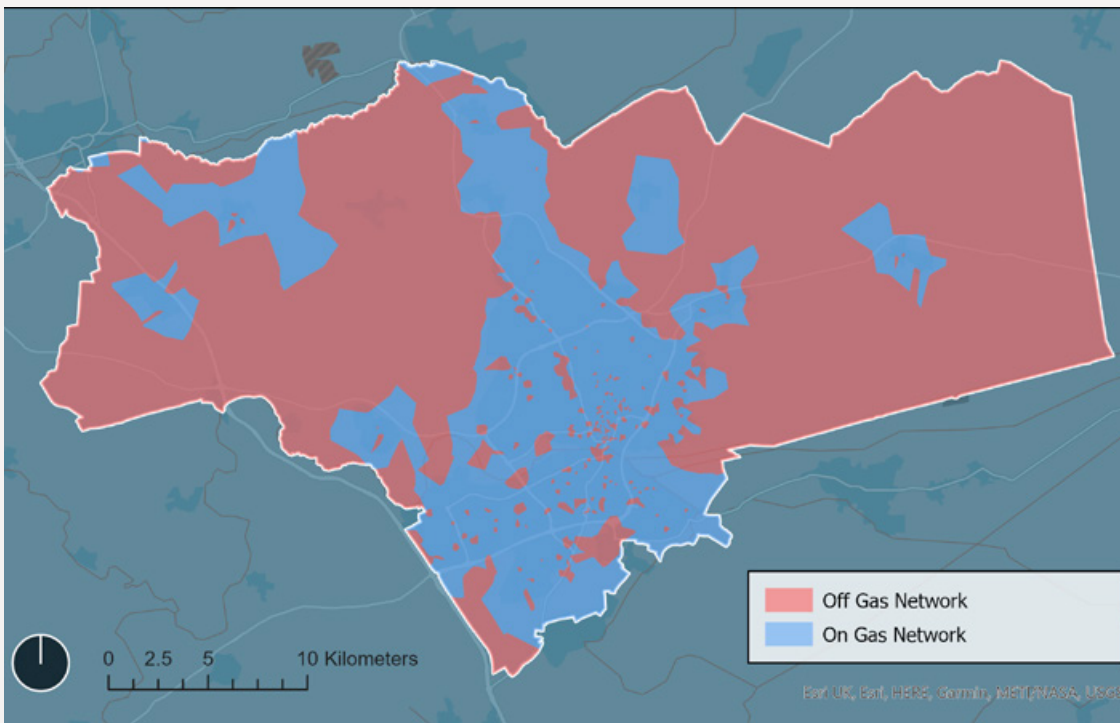
# Current View: Domestic Heating Systems

95% of buildings currently use gas, oil or LPG for heating and therefore will need to be decarbonised. The majority of these are gas boilers. Oil and LPG boilers are assumed to be used in more rural off-gas homes.

Using Xoserve data, it has been identified that about 5% of dwellings are not connected to the gas grid. These buildings would therefore be unlikely to have access to hydrogen in the future.



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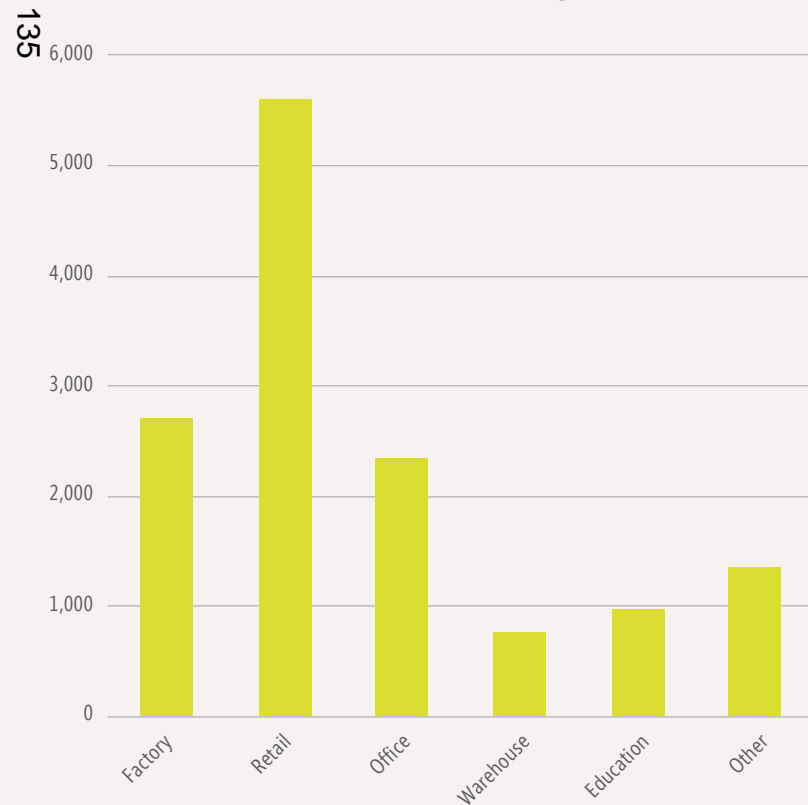


# Current View: Non-Domestic Buildings

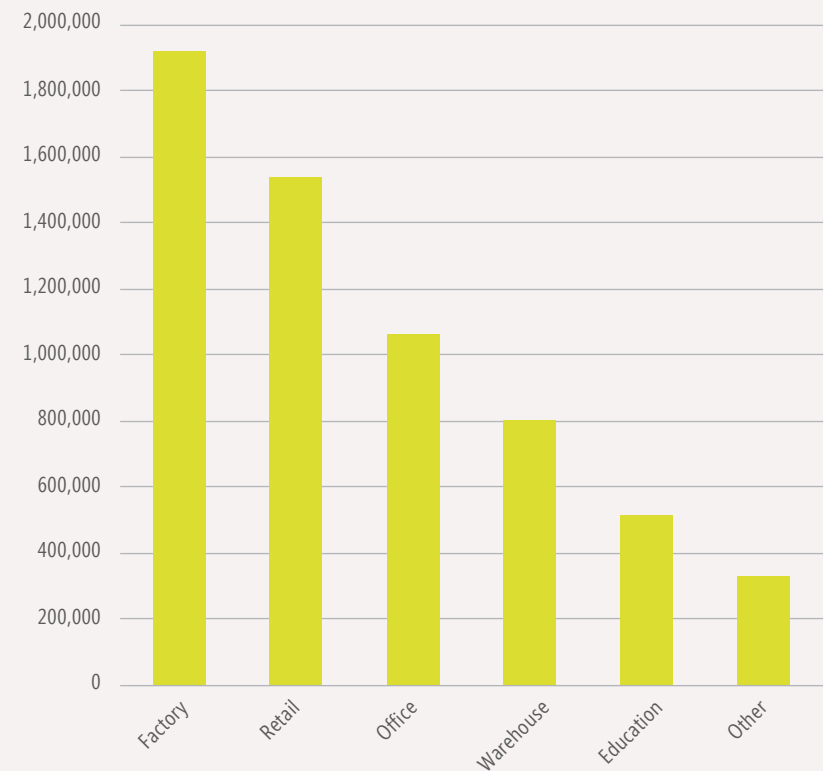
The graphs below show the breakdown of different used for non-domestic buildings by number and floor area. Note that the total floor area of a building represents the aggregate floor area over all storeys.

Energy benchmarks for non-domestic buildings in the model are kWh/m<sup>2</sup>.

Number of non-domestic buildings

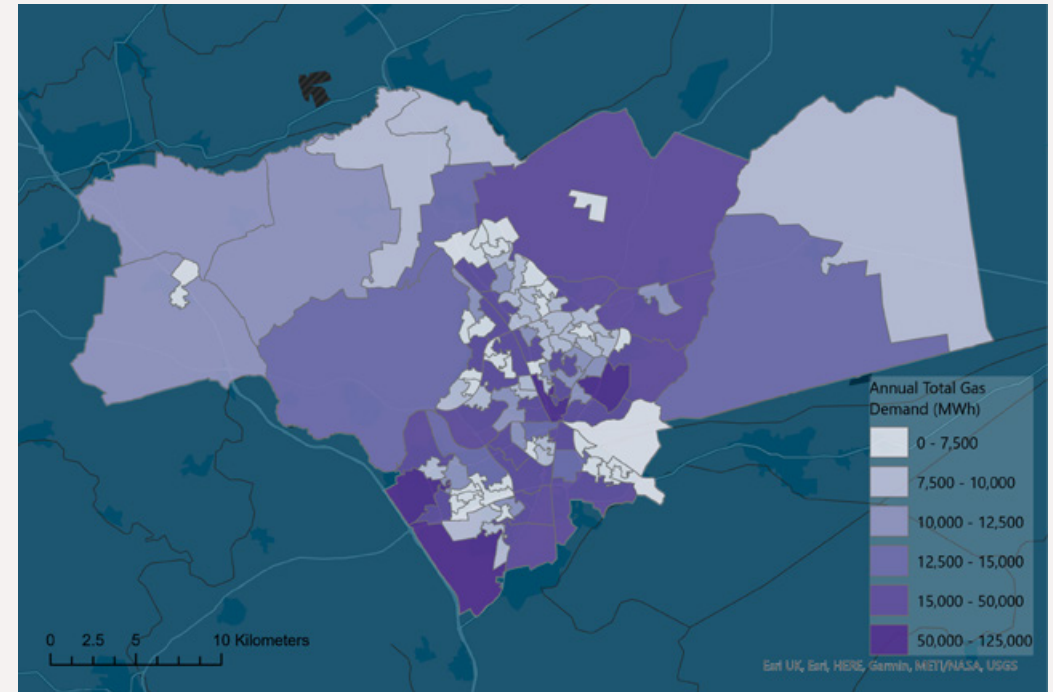
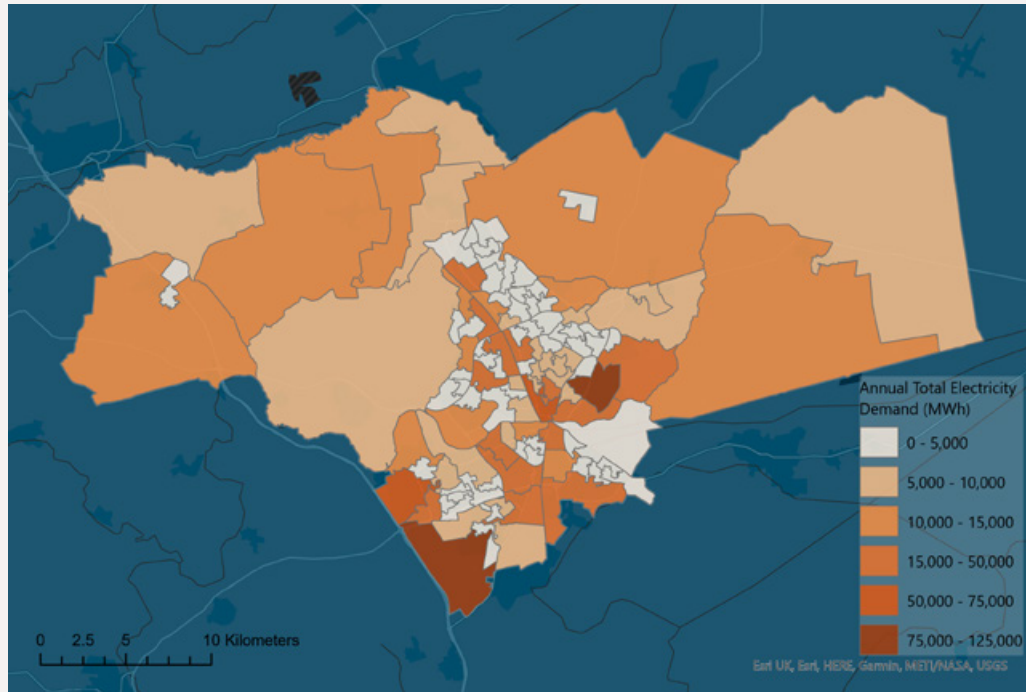


Floor Area (m<sup>2</sup>)



# Current View: Annual Total Demand

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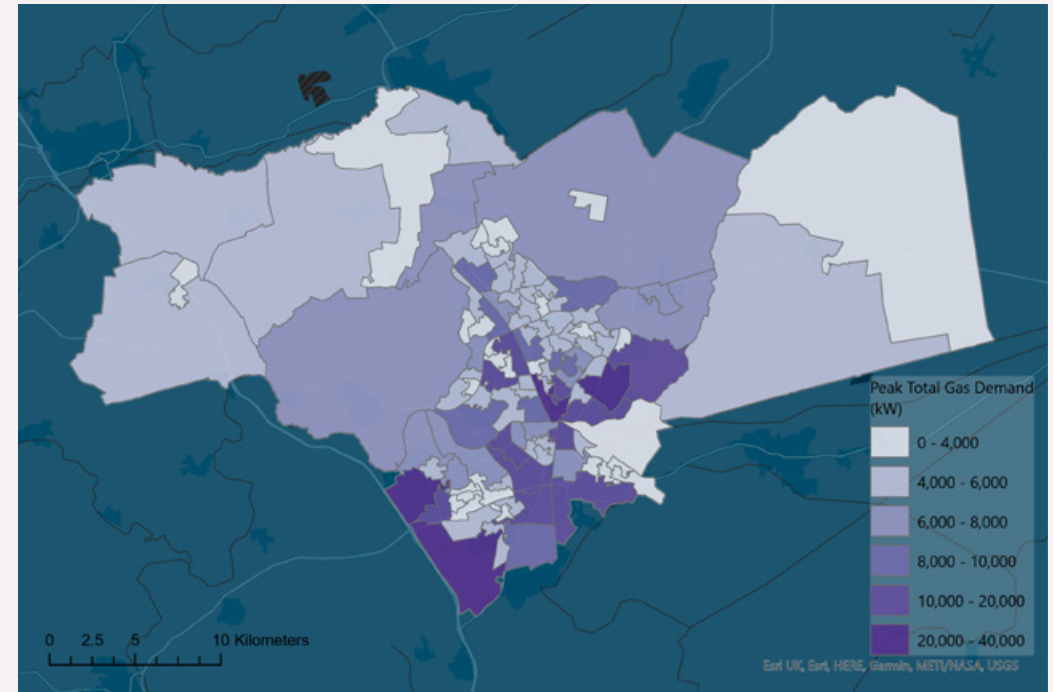
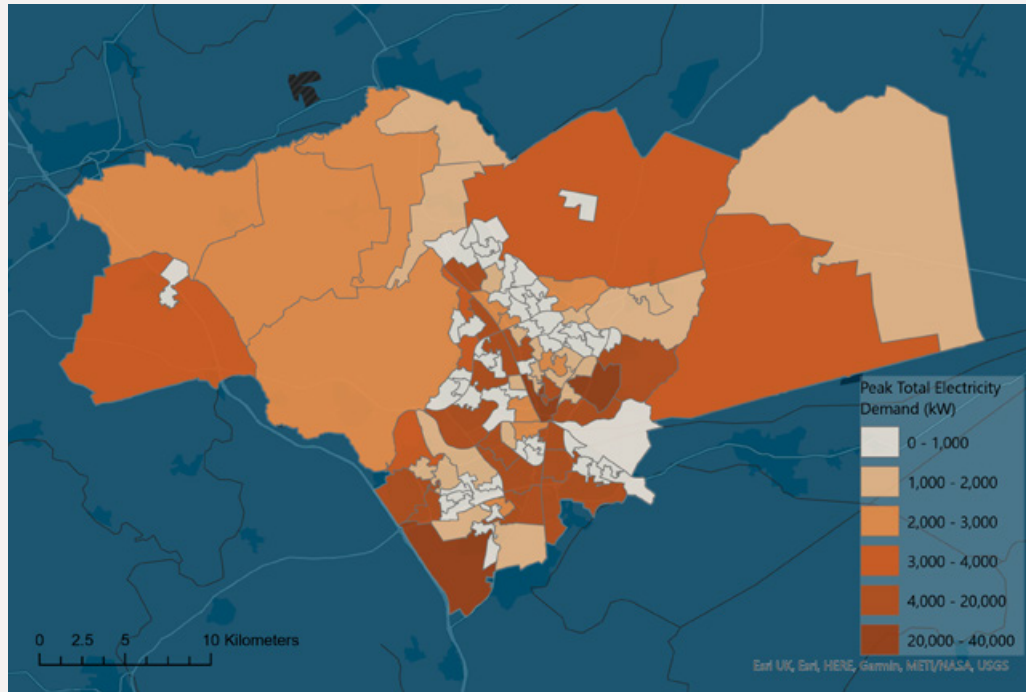


The images above show the modelled annual electricity and gas demands (for domestic and non-domestic combined) in each lower-tier super output area (LSOA) across Peterborough.



# Current View: Peak Total Demand

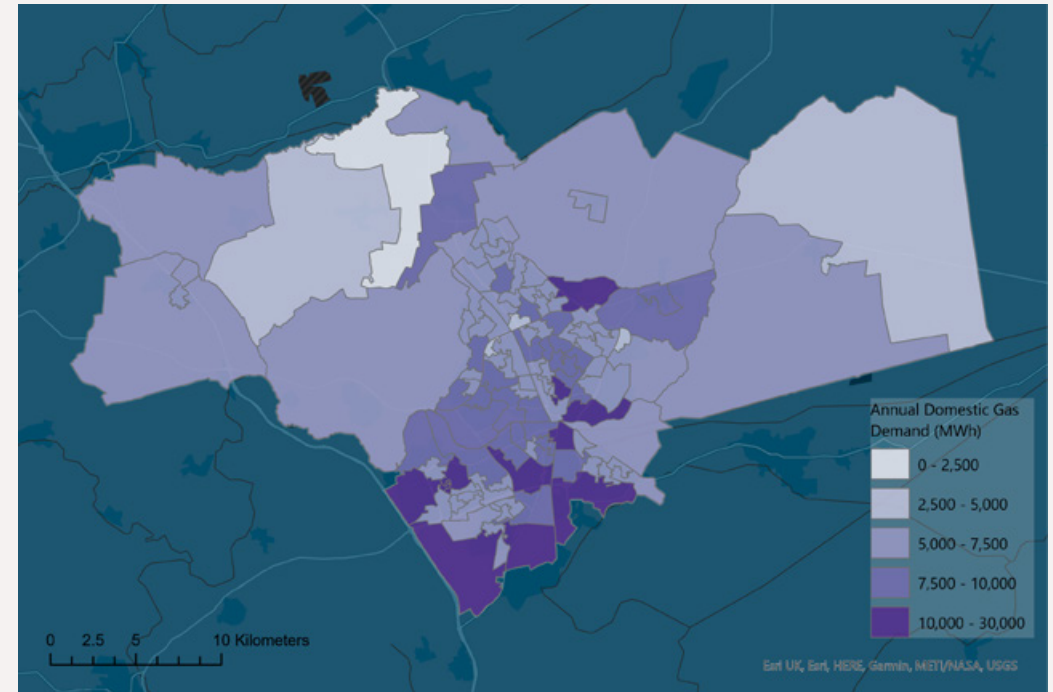
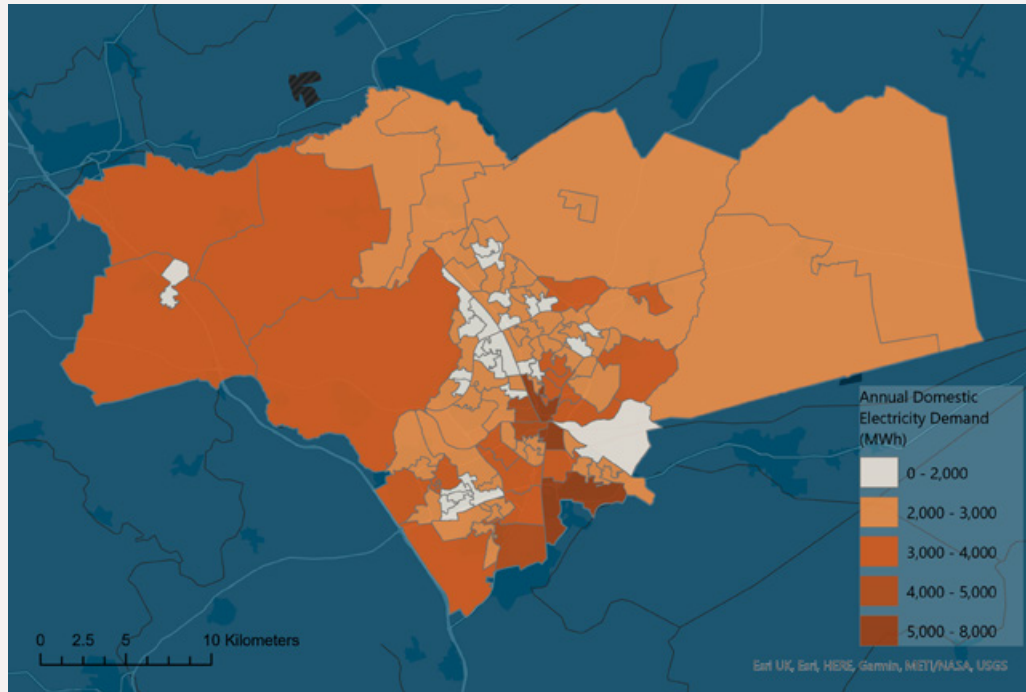
137



The images above show the modelled peak electricity and gas demands (for domestic and non-domestic combined) in each lower-tier super output area (LSOA) across Peterborough.

# Current View: Domestic Annual Demand

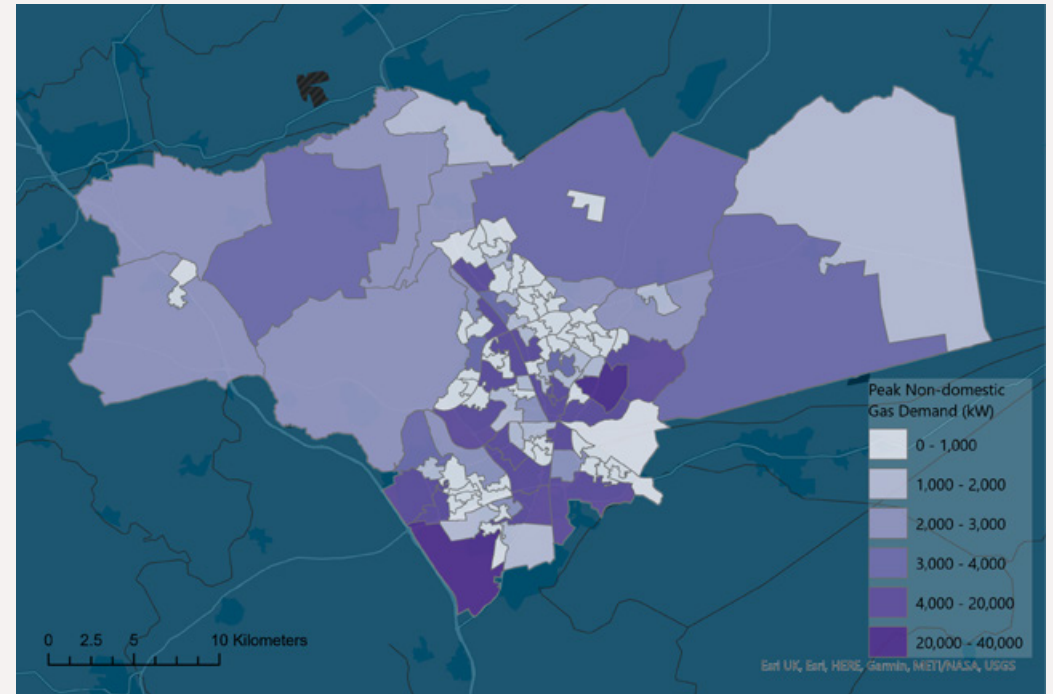
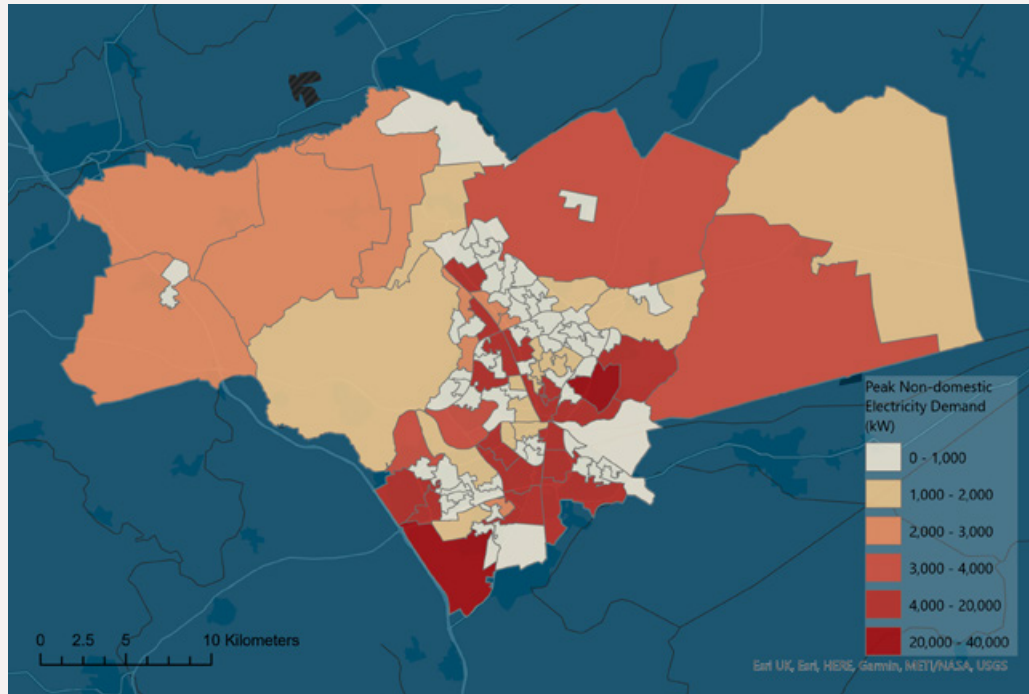
138



The images above show the modelled annual electricity and gas demands (domestic only) in each lower-tier super output area (LSOA) across Peterborough.

# Current View: Non-Domestic Peak Demand

139



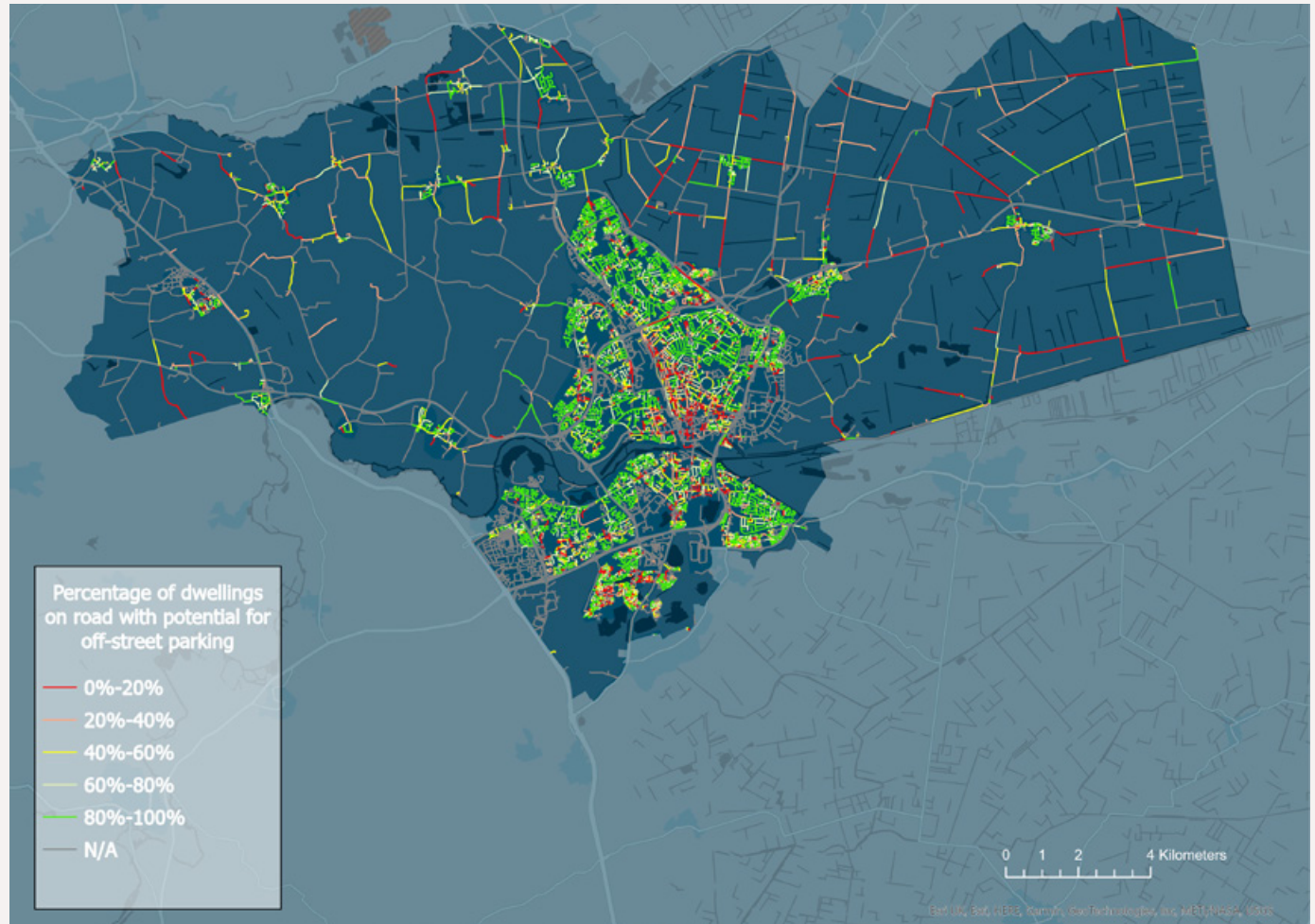
The images above show the modelled peak electricity and gas demands (non-domestic only) in each lower-tier super output area (LSOA) across Peterborough.

# Current View: Off Street Charging Assessment

This is a spatial analysis carried out by attempting to fit a standard UK parking space of 4.8m x 2.4m in the owned area between the house and its nearest road. Doing so helps identify homes that may be able to charge an EV on a driveway, and areas that will require alternative charging solutions for on-street parking.



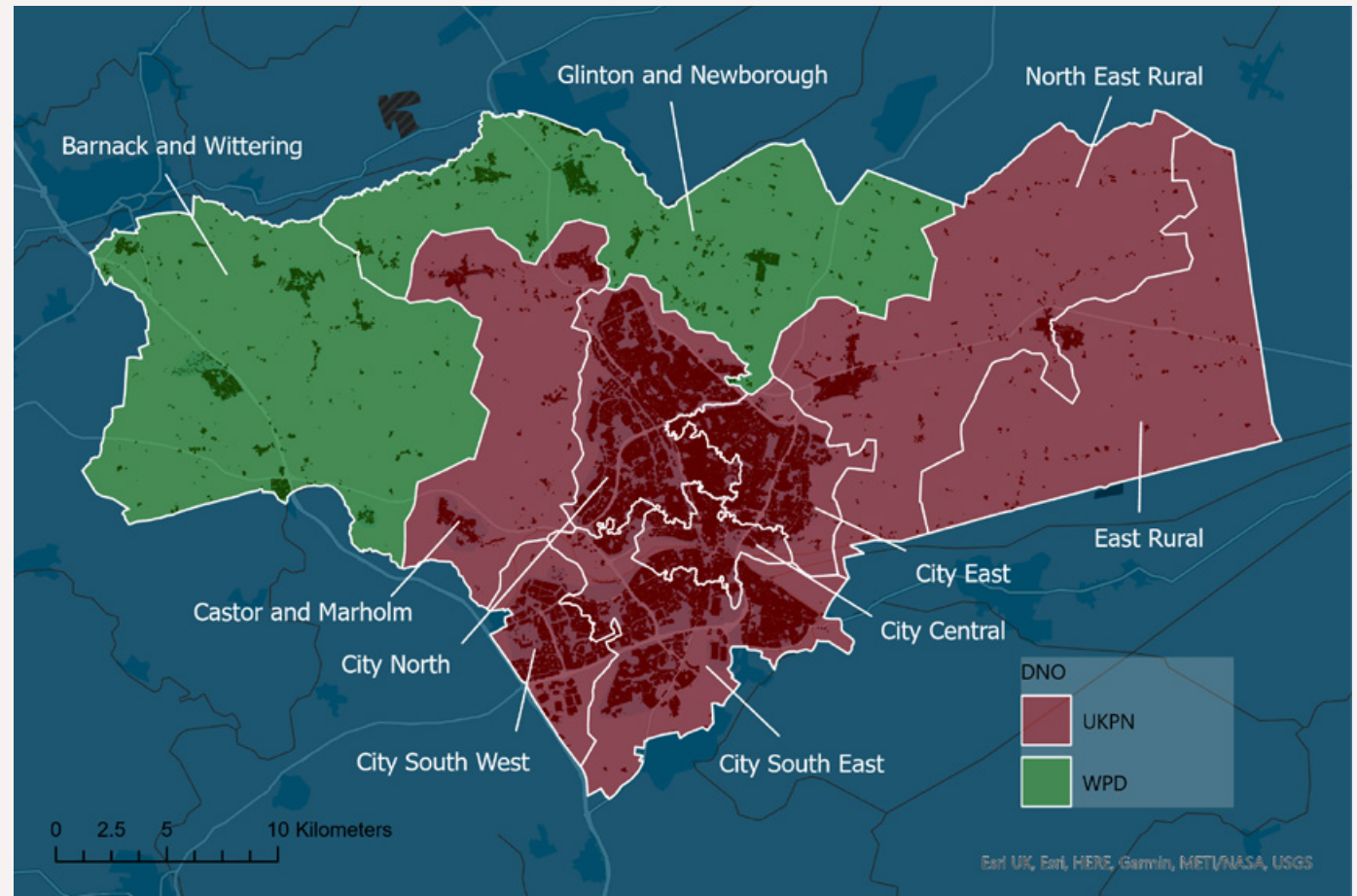
It can be seen that most of the suburban areas have good potential for off-street parking, whereas the most urban areas do not. This is expected given the housing types in these locations. Whether residents are encouraged to remove front gardens for EV charging is a policy decision but should be considered alongside the need for flood management.



# Current View: Electricity Network Operators

Electrification of heating and transport places significant additional demand on the electricity network. In some zones this is likely to require upgrades of electrical substations and feeders to meet the increased demand, although there will be opportunities to explore the role that innovative flexibility and storage technologies can play in reducing or deferring the need to invest in upgrades. The rural zones have less network capacity overall as they serve fewer premises, so they see a large increase in required capacity as a proportion of their present capacity to accommodate electrification. In contrast, the city centre zones start with higher present day capacity and see only small proportional increases.

The local authority area of Peterborough is split, with both Western Power Distribution (WPD) and UK Power Networks (UKPN) supplying electricity to different parts. The majority of zones are supplied by UKPN, with the 'Barnack and Wittering' and 'Glington and Newborough' zones being supplied by WPD.



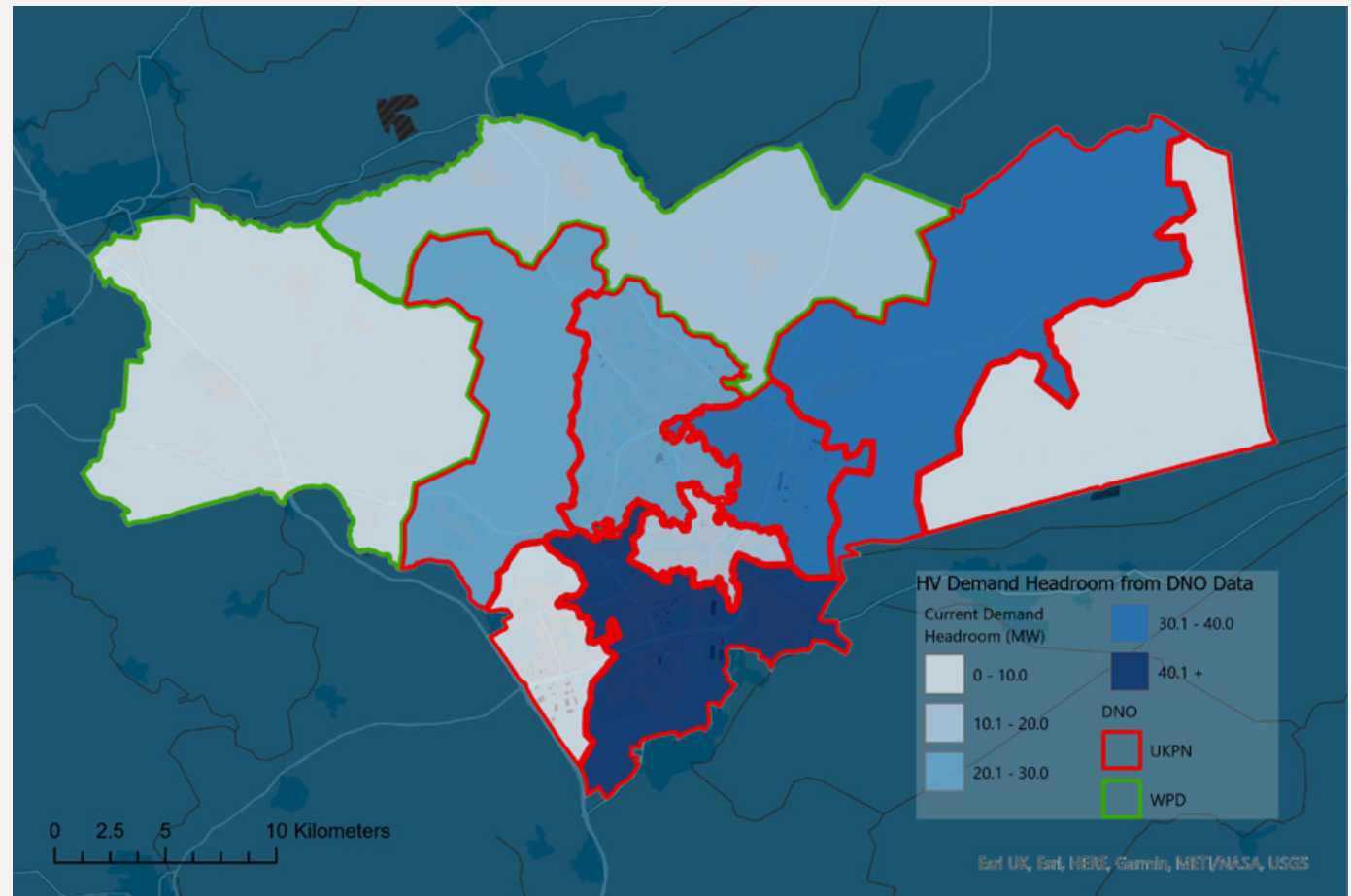
# Current View: Electricity Network Capacity

The colours from the previous map have been shown here as outlines, with the blue graded shading representing the current demand headroom on primary substations.

This information was provided by the DNOs and therefore may differ slightly from the modelled data presented elsewhere in this Evidence Base report, or the main LAEP document.

Areas with substantial spare capacity on the network today will be able to make early progress with the installation of heat pumps and EV chargers before encountering a need for network upgrades. For example, City South East has a very large amount of spare capacity which could enable large scale electrification.

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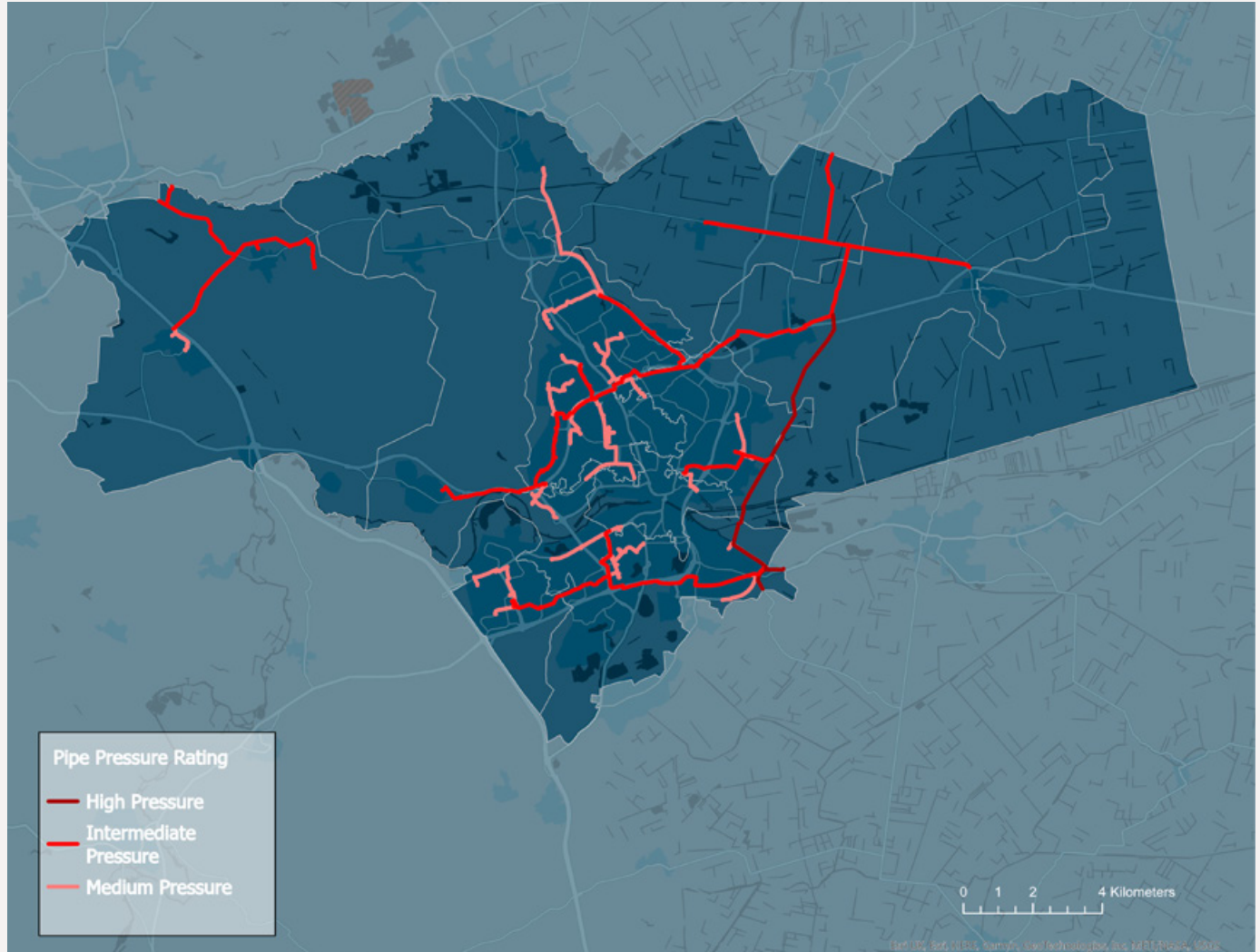


# Current View: Fossil Gas Network

The map shows the locations of high, intermediate, and medium pressure gas pipes across Peterborough.

In the LAEP modelling, this information from Cadent – the gas network operator – was used alongside other data and costs to identify areas that could be most suitable and cost-effective for transitioning to hydrogen as a heat source when it likely becomes available in the 2030s.

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# Scenarios

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# Scenarios

Three key scenarios have been explored to understand the impact of Peterborough’s ambition to support the city to reach net zero carbon by 2030 in contrast to later targets and the costs and benefits of doing so.

The scenarios allow various visions of the future to be explored in what they would mean for Peterborough’s energy system, building an understanding of where uncertainties are greater and smaller

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	 <b>2030 Net Zero Target</b>	 <b>2040 Net Zero Target</b>	 <b>2050 National NZ Target</b>	 <b>Do Nothing</b>
Description	Getting as close as possible to Peterborough’s ambitious target, focussing on actions within local control.	Decarbonising ahead of the UK as a whole.	Decarbonising in line with the rest of the country, according to the legislated target. This provides a counterfactual for the impacts of doing more locally.	Required for compliance with HM Treasury Green Book guidelines, this scenario reflects no further decarbonisation between now and 2050. Only measures deemed to be cost-effective were installed.
Hydrogen	Not available in time to contribute to the 2030 target, but available from the mid 2030s	Available from the mid 2030s to be used where it can cut emissions cost-effectively	Available from the mid 2030s to be used where it can cut emissions cost-effectively	Available from the mid 2030s to be used where it is the most cost-effective option
Building Efficiency Heating Transport Local Generation Networks	These technologies are available for unconstrained deployment in each scenario to find the least-cost energy system arrangement which reaches the carbon target.			

# Scenarios

Scenarios	Description
2030 Carbon Target	A cost optimal approach to get as close to existing carbon target as possible, focusing on options within Peterborough's local control.
2040 Carbon Target	Hydrogen is unlikely to be available in time for a 2030 carbon target, so an approach with a softer target to see if H <sub>2</sub> then plays a greater role – and what the cost impacts are.
National Net Zero by 2050	No local target, just following national ambitions. This helps provide context of doing more locally.
2030 Carbon Target (with demand shift)	Not presented as a full scenario. Time shifted demand profiles for EV and heat pumps reflecting greater levels of smart control and flexibility – to what extent does this change network reinforcement requirements and the optimal plan
Business As Usual	Not presented as a full scenario. Shows current spend on energy to give a baseline to compare costs against.



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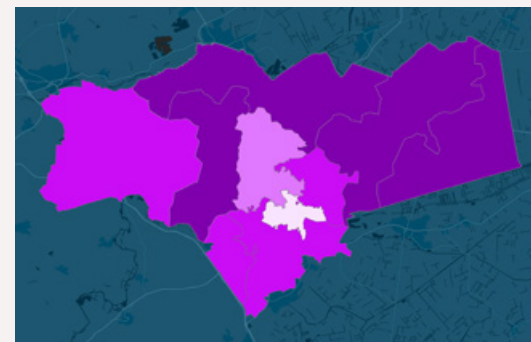
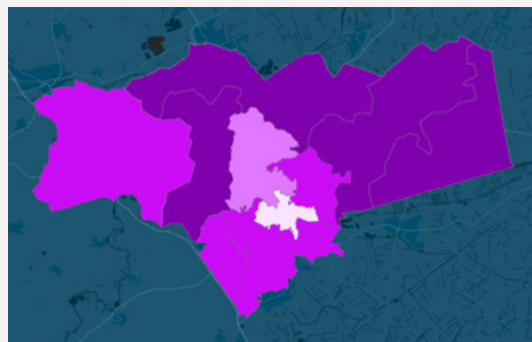
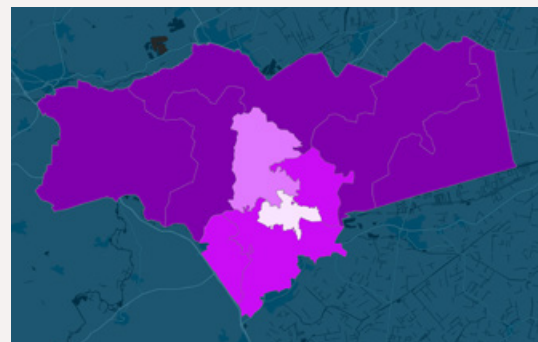
- A variety of energy system scenarios are possible to deliver Peterborough's future energy vision. It is not practical to consider every possible configuration of Peterborough's local energy system in a limited number of scenarios, therefore three main scenarios have been considered with additional analysis on two further scenarios; these represent the prominent cost-effective options that could materialise.
- The scenarios are not predictions or forecasts of the most probable outcomes. They are based on available information and have been used to inform a plan for Peterborough. The decarbonisation of any local energy system will require considerable co-ordination, planning and investment as well as consumer and social engagement.
- The scenarios have been developed through frequent engagement with Peterborough City Council, as well as consulting with a wider group of stakeholders including Cadent, UK Power Networks and Western Power Distribution.
- A brief description of the different scenarios developed and used to inform the plan is given here, with modelling outputs from the scenarios provided in the following pages. These scenarios provide an understanding of pace and scale of activity needed, costs and investment needed for local implementation in support of decarbonisation goals and the commonality and variation of measures across the different future local energy scenarios. The scenarios help to explore choices around how to reach carbon neutrality using different technologies and known solutions where they exist.

# Comparison of Scenarios - Domestic

2030 NZ Target

2040 NZ Target

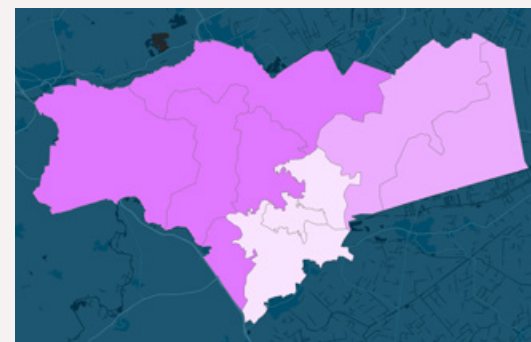
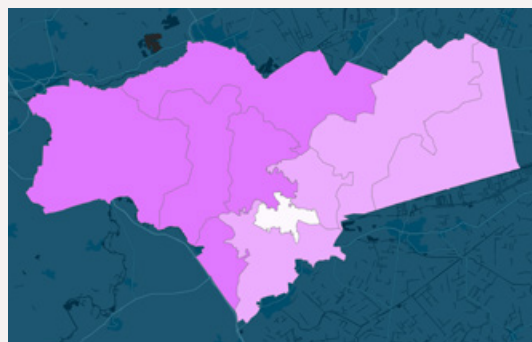
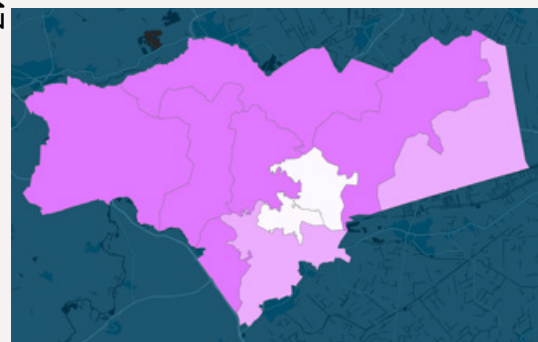
2050 NZ Target



Percentage of dwellings - basic retrofit

- 0-10
- 10-20
- 20-30
- 30-40
- 40-50
- 50-60

147

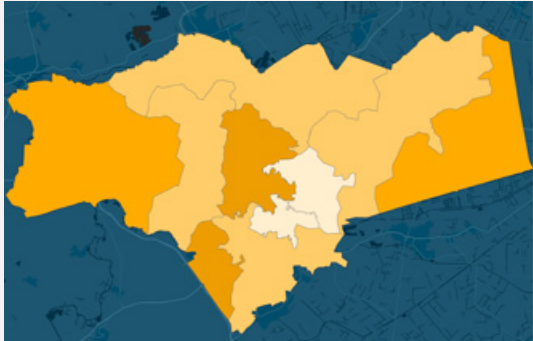


Percentage of dwellings - deep retrofit

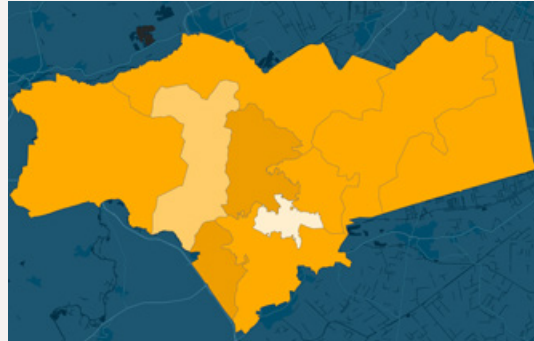
- 0-10
- 10-20
- 20-30
- 30-40
- 40-50
- 50-60

# Comparison of Scenarios - Domestic

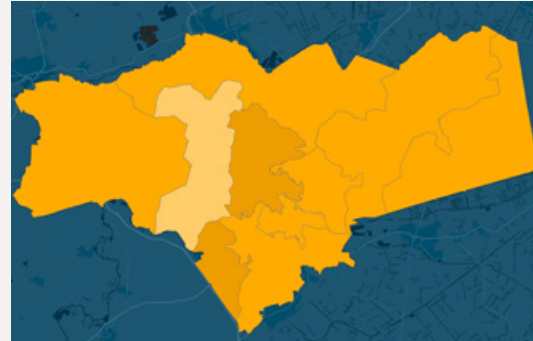
2030 NZ Target



2040 NZ Target



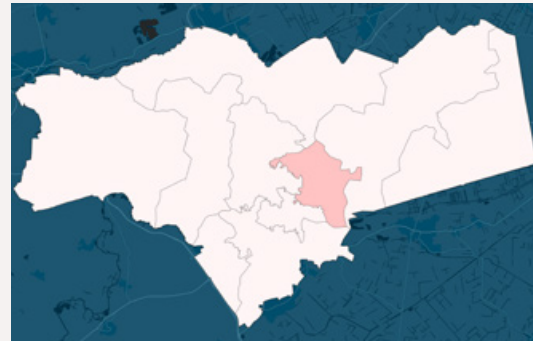
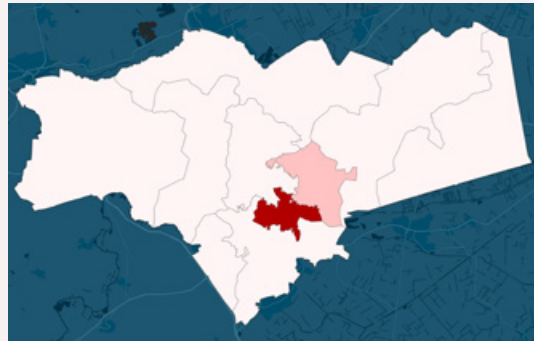
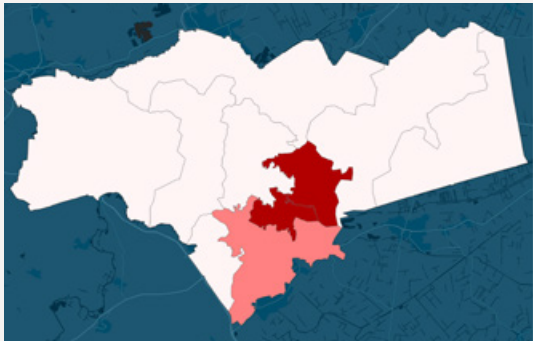
2050 NZ Target



Air Source Heat Pump - Percentage of Buildings

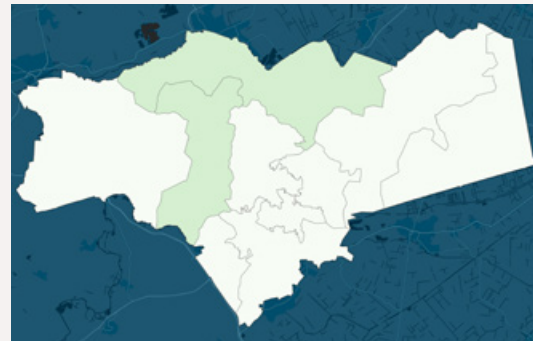
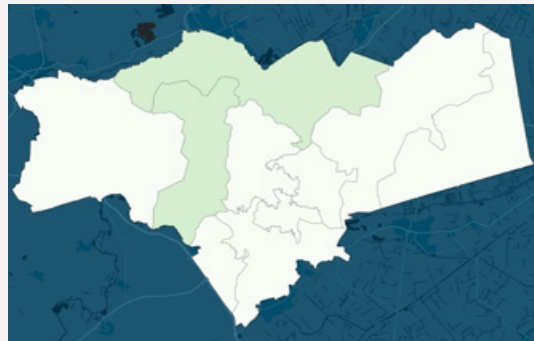
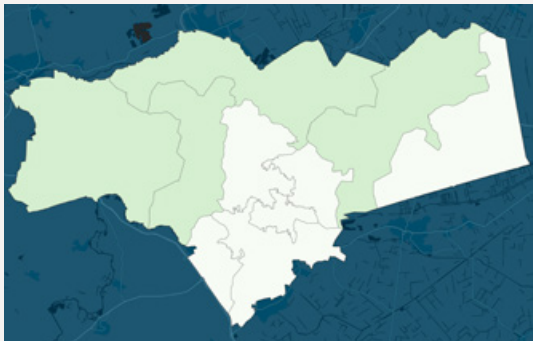
- <20
- 20-40
- 40-60
- 60-80
- 80-100

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District Heat - Percentage of Buildings

- <20
- 20-40
- 40-60
- 60-80
- 80-100

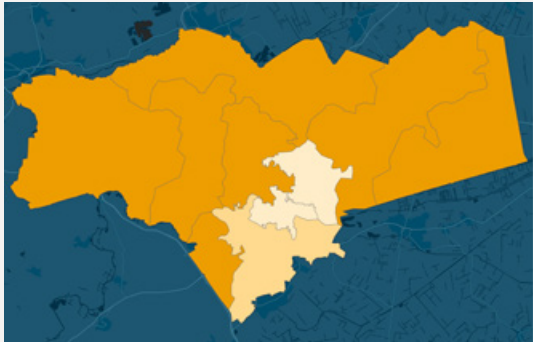


Ground Source Heat Pump - Percentage of Buildings

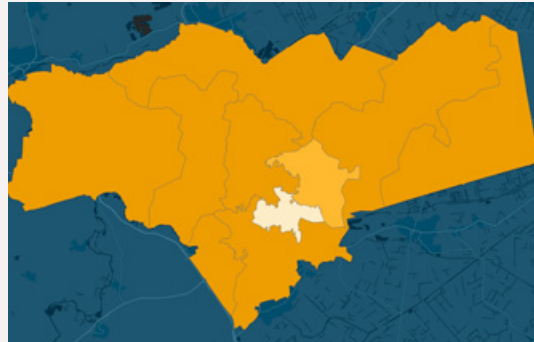
- <20
- 20-40
- 40-60
- 60-80
- 80-100

# Comparison of Scenarios - Non-Domestic

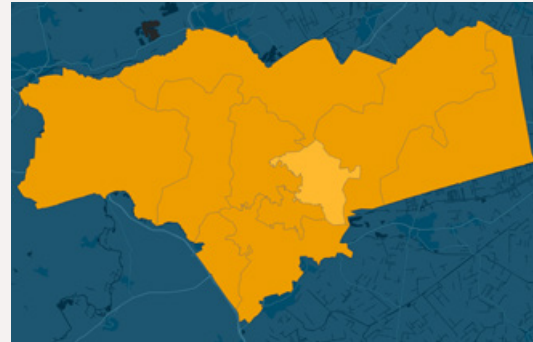
2030 NZ Target



2040 NZ Target



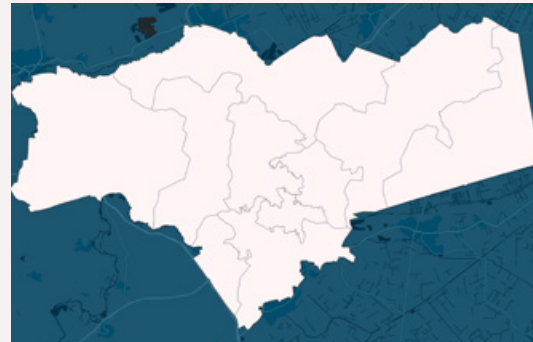
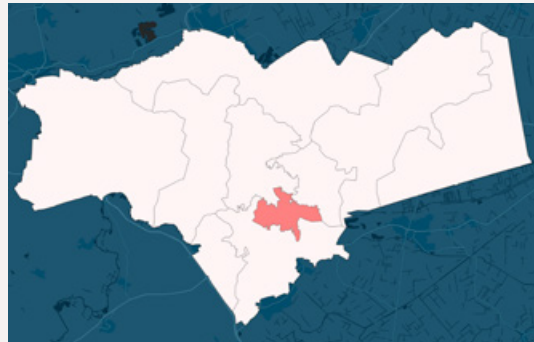
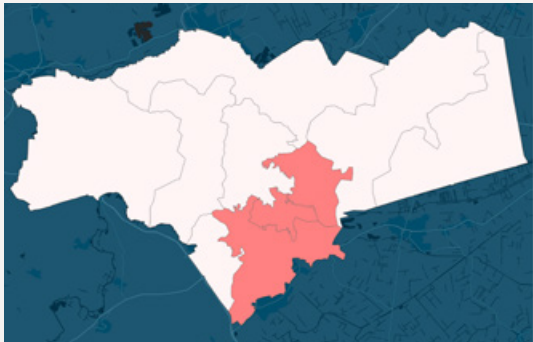
2050 NZ Target



Electricity – Percentage of Non-Domestic Buildings

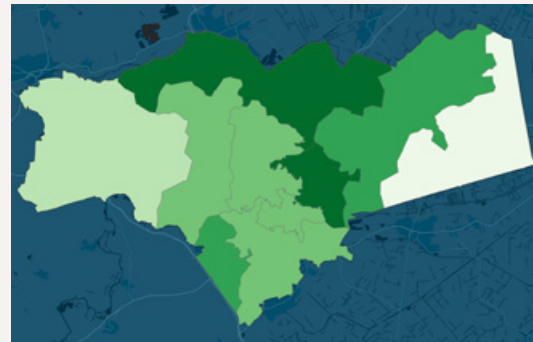
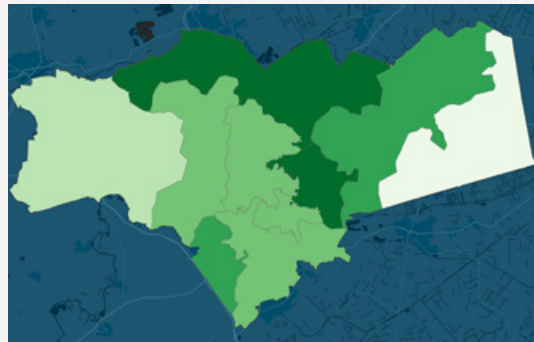
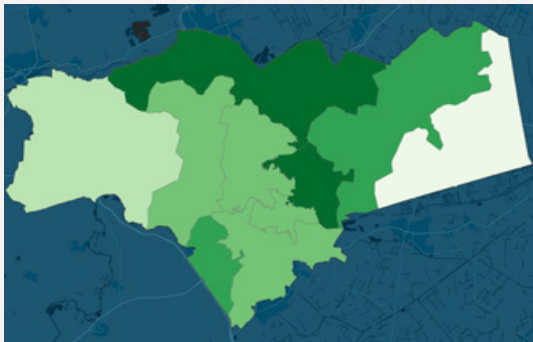
- <20
- 20-40
- 40-60
- 60-80
- 80-100

149



Heat – Percentage of Non-Domestic Buildings

- <20
- 20-40
- 40-60
- 60-80
- 80-100



Hydrogen – Percentage of Non-Domestic Buildings

- <1
- 1-5
- 5-10
- 10-15
- 15-20

# ZeroCarbon.Vote



# ZeroCarbon.Vote: Summary

ZeroCarbon.Vote is ESC's prototype online "ZeroCarbon.Vote" platform to engage with residents of a given location. In parallel with the development of the LAEP, ESC used the ZeroCarbon.Vote platform to engage with a small but representative sample of Peterborough's population (approximately matching demographic, household tenure, etc).

On the platform, participants are presented with heating technology options relevant to their specific house type, and a little information about each option (such as relative capital and running costs, disruption, etc). They then express preferences and reasons for those preferences. The results give an indication of the extent to which (based on the simple initial information provided to them) residents' preferences align with the potential recommendations for each zone within the plan.

For Peterborough, the survey was live between 31<sup>st</sup> January and 13<sup>th</sup> March 2022. A total of 796 residents engaged with the website by inputting their postcode. Of these, 535 voted with 415 completing the full survey. This represents around 0.5% of households in Peterborough.



# ZeroCarbon.Vote: Summary

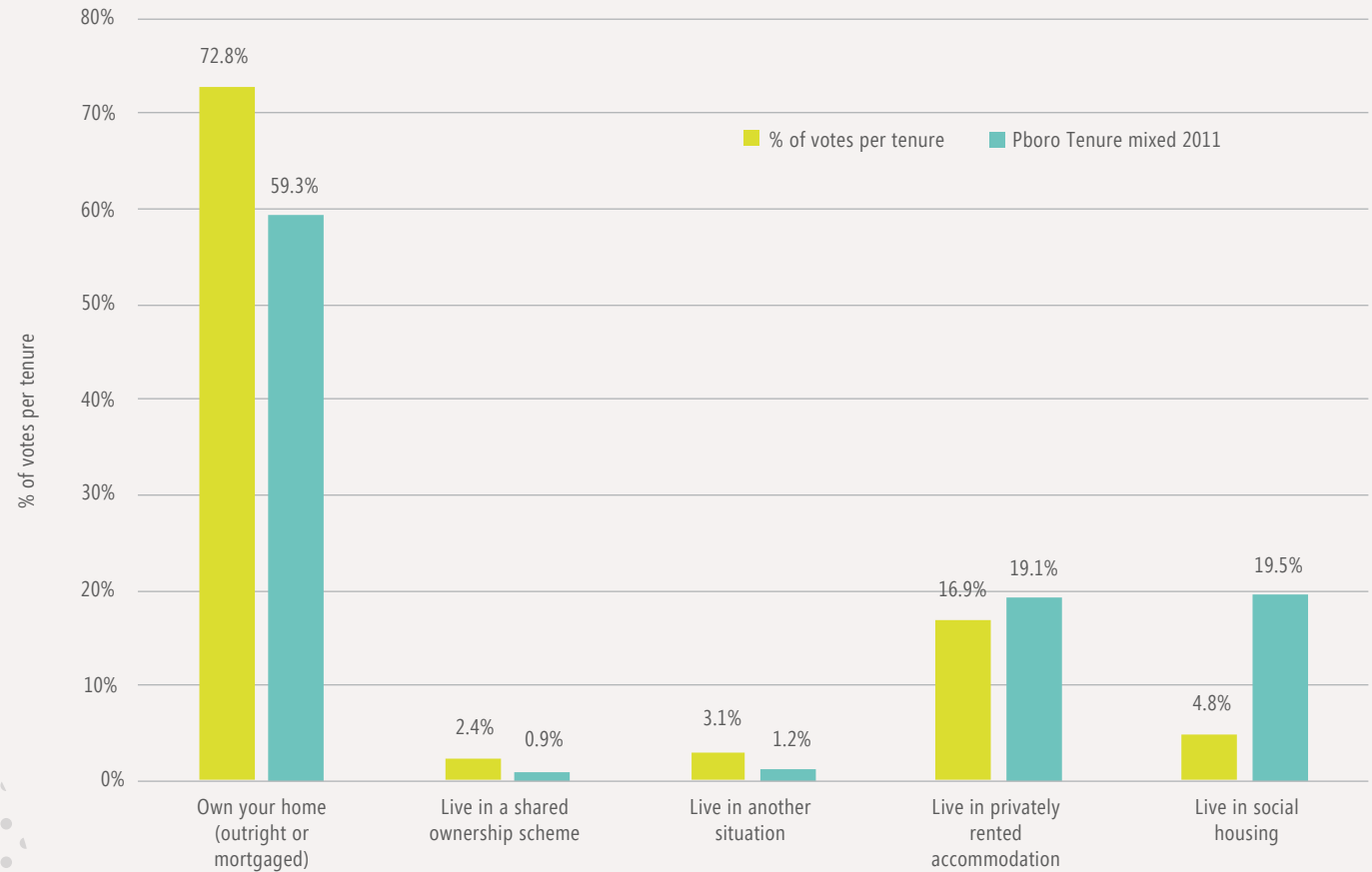
The survey reached a good representation of Peterborough's population in terms of tenure, age and house type when compared to the 2011 Census data.

As expected,

- Homeowners are the largest group (*significantly higher than that expected from the Census data*)
- Social housing seems to be underrepresented

Note: The 'Live in your friend's / relative's or partner's home' category has been grouped together with 'Live in another situation' to match the Census categories.

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Source Census 2011: UV63 Tenure (Households)





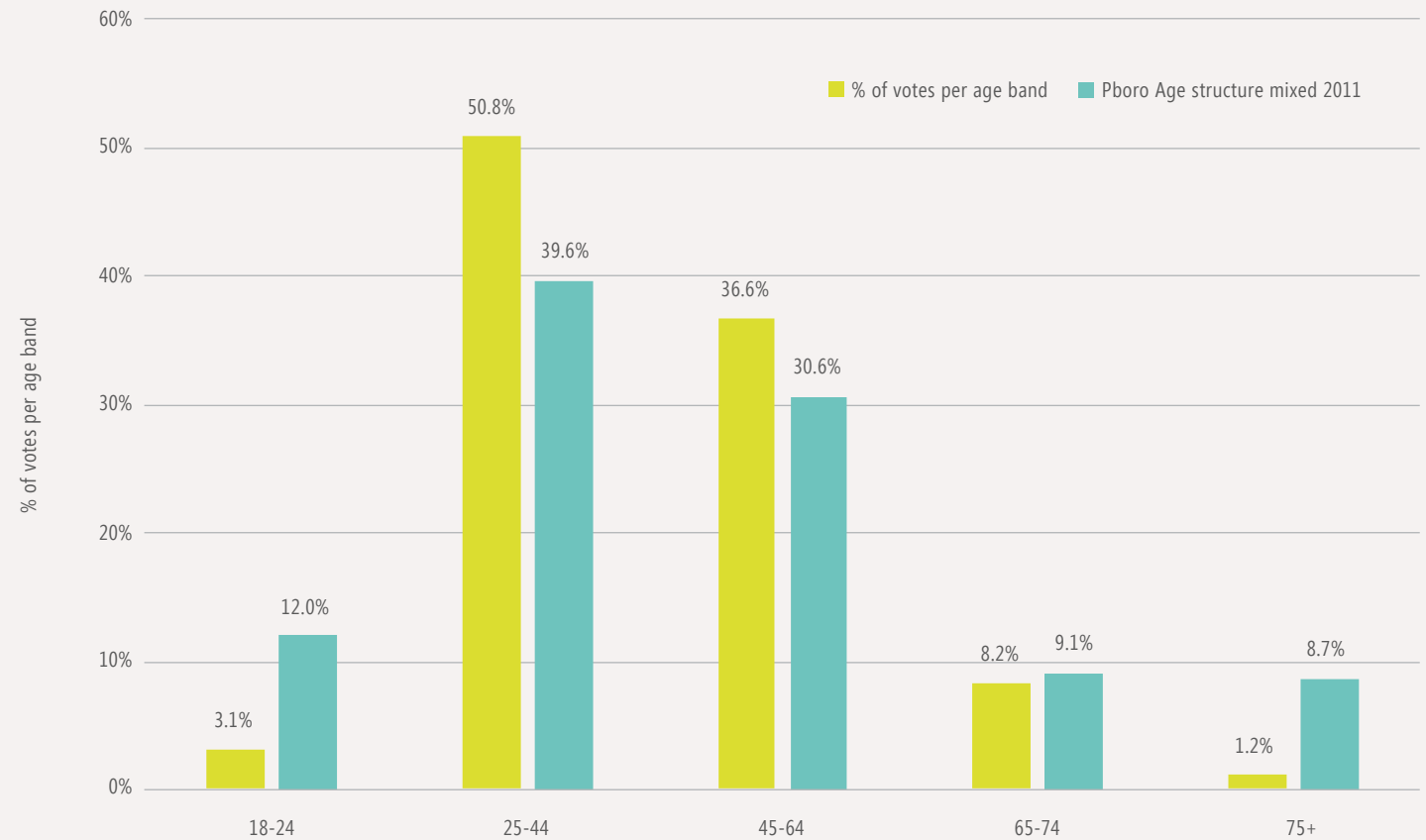
# ZeroCarbon.Vote: Summary

Half of the votes come from participants within the 25-44 age band. This percentage is significantly larger than that of Peterborough's population according to the 2011 Census data.

The 18-24 and 75+ age bands are instead underrepresented.

Note: Age bands have been grouped to match those available in the 2011 Census data.

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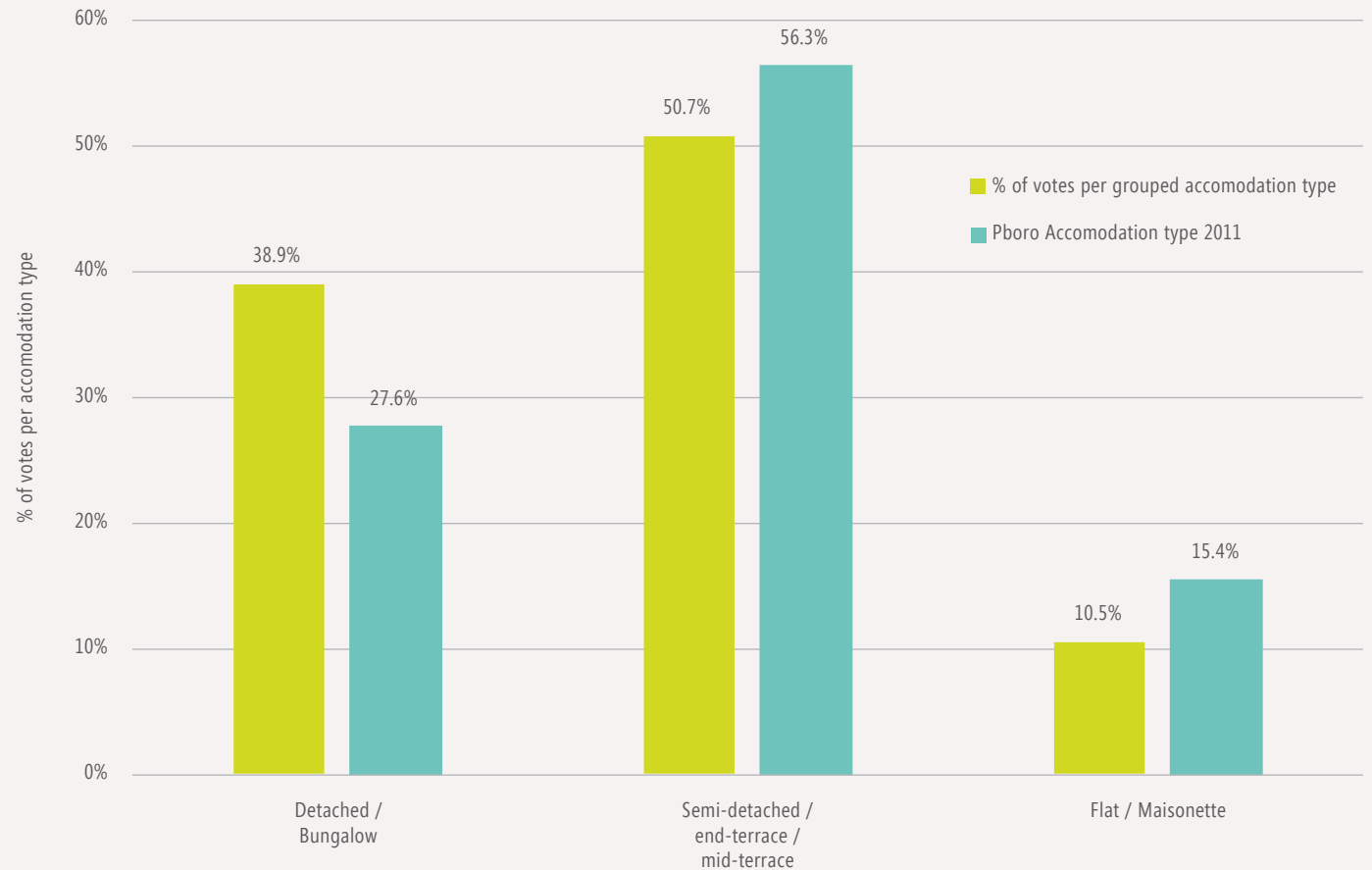
Source Census 2011: KS102EW - Age structure



# ZeroCarbon.Vote: Summary

The percentage of voters living in detached and/or bungalow houses is larger than that expected from the 2011 Census data however the survey respondents were broadly representative.

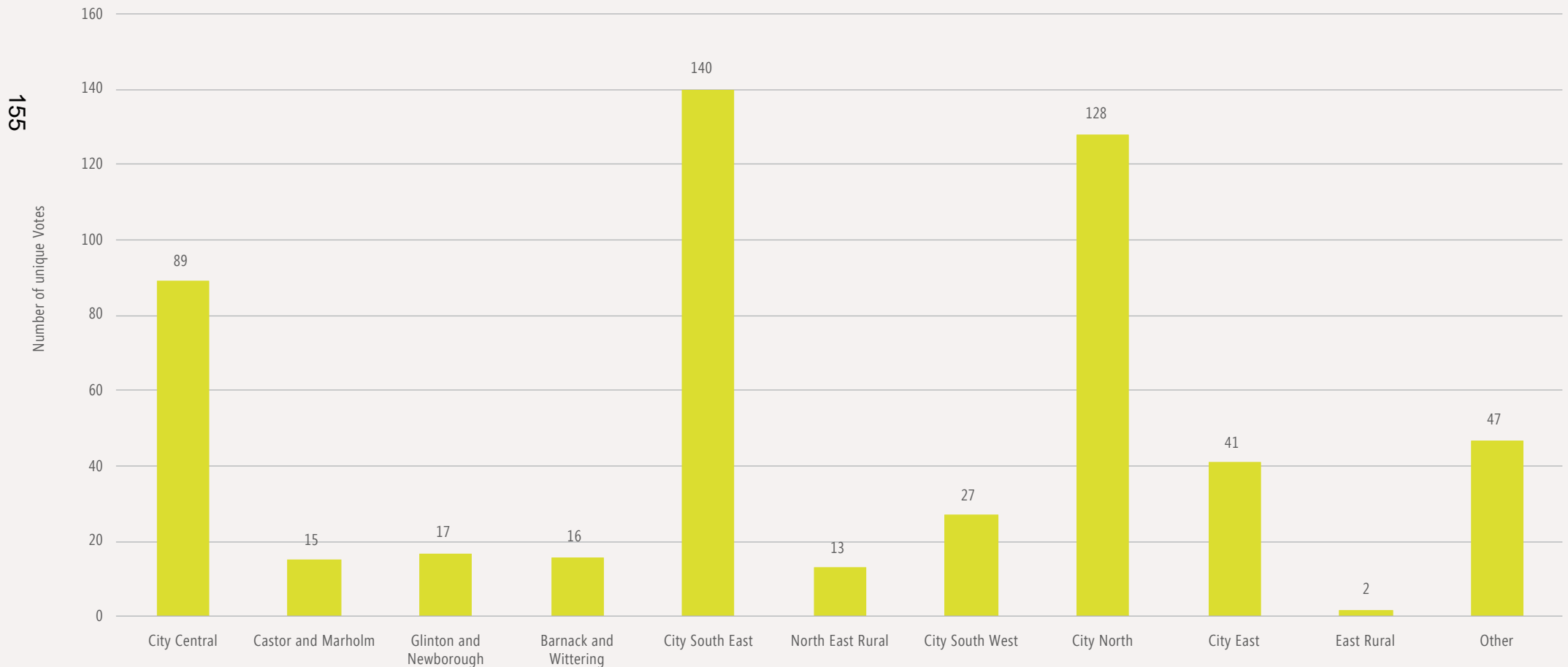
Note: House types have been grouped to match the categories available in the Census data.



Source Census 2011: UV56 Accommodation Type (Households)

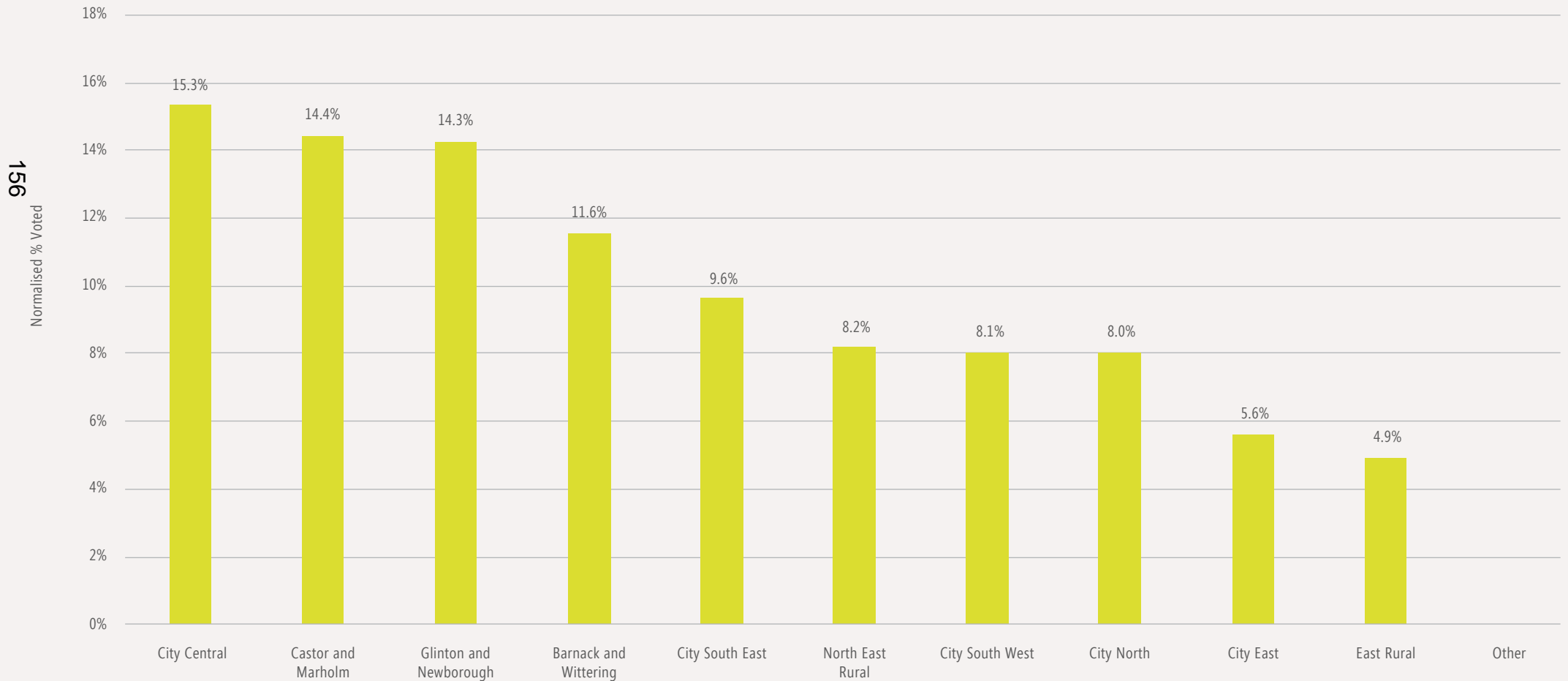
# ZeroCarbon.Vote: Summary

The graph below shows the number of unique votes registered on the ZeroCarbon.Vote platform, however, the population and size of each zone varies significantly. (NB: 'Other' refers to votes from outside of Peterborough)



# ZeroCarbon.Vote: Summary

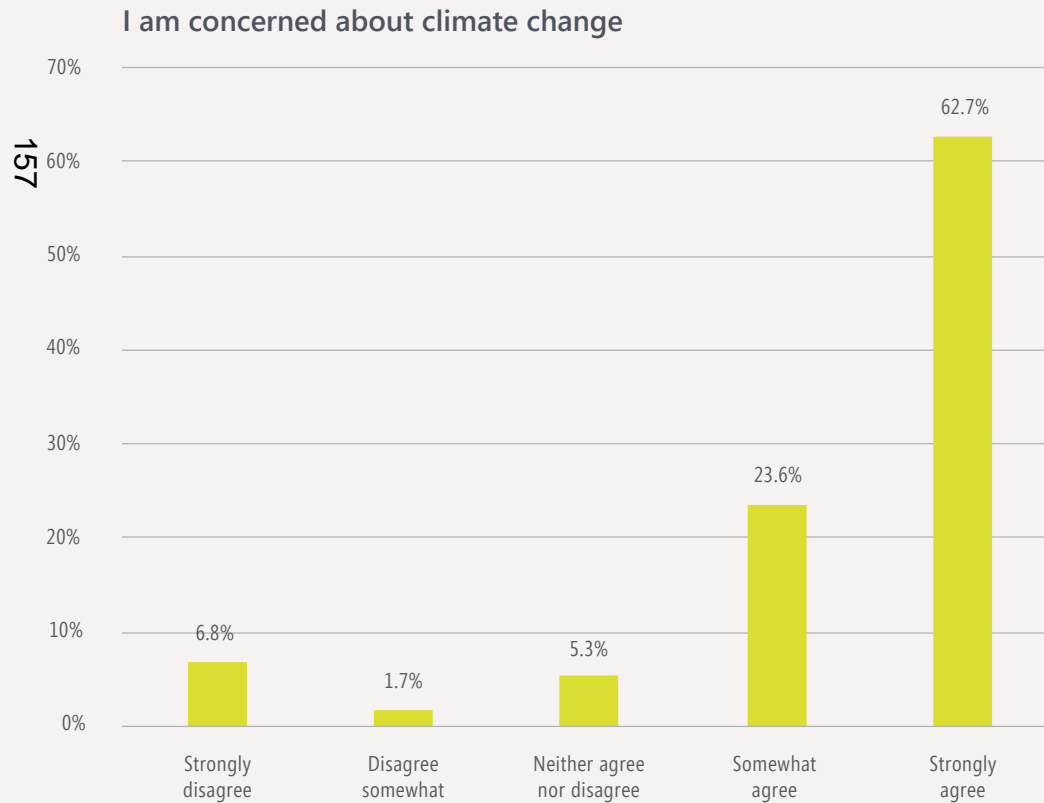
When normalised against the population of each zone, it can be seen that the City Central zone is the most “engaged”.



# ZeroCarbon.Vote: Results

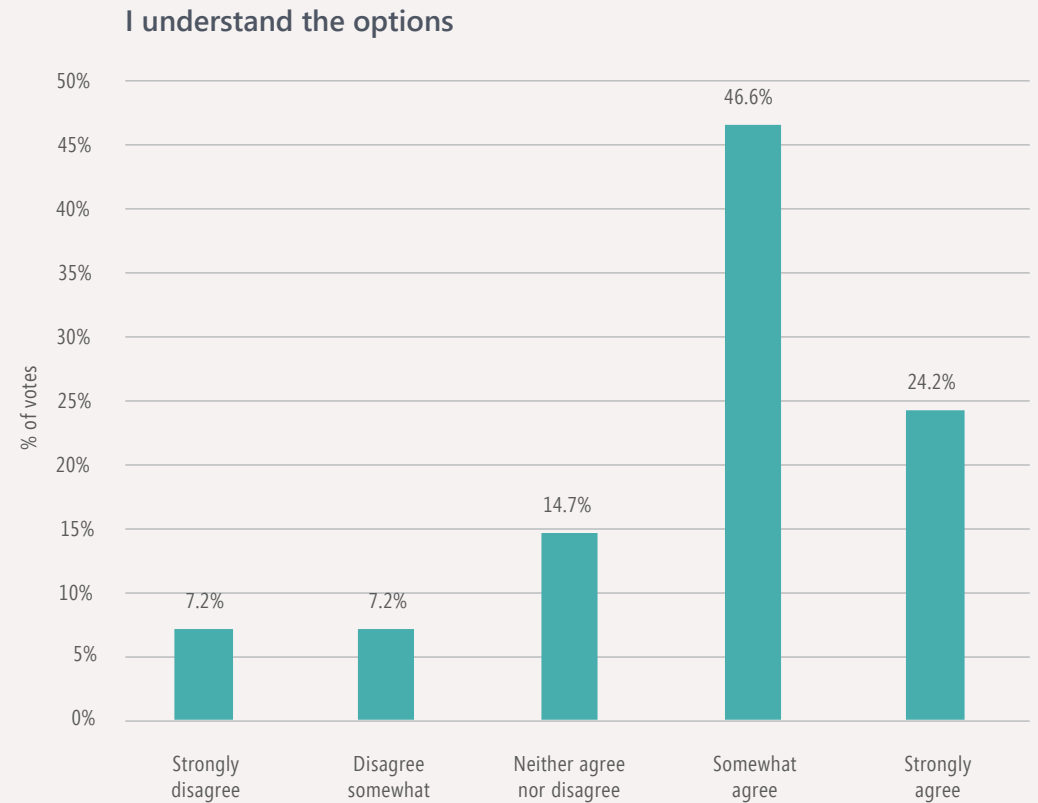
## Question: How much do you agree with the statement "I am concerned about climate change"

- More than **86%** of the respondents are agree with the statement



## Question: How much do you agree with the following statement "I understood the options to help me vote"?

- Around **70%** of the respondents claim to have understood the options shown.

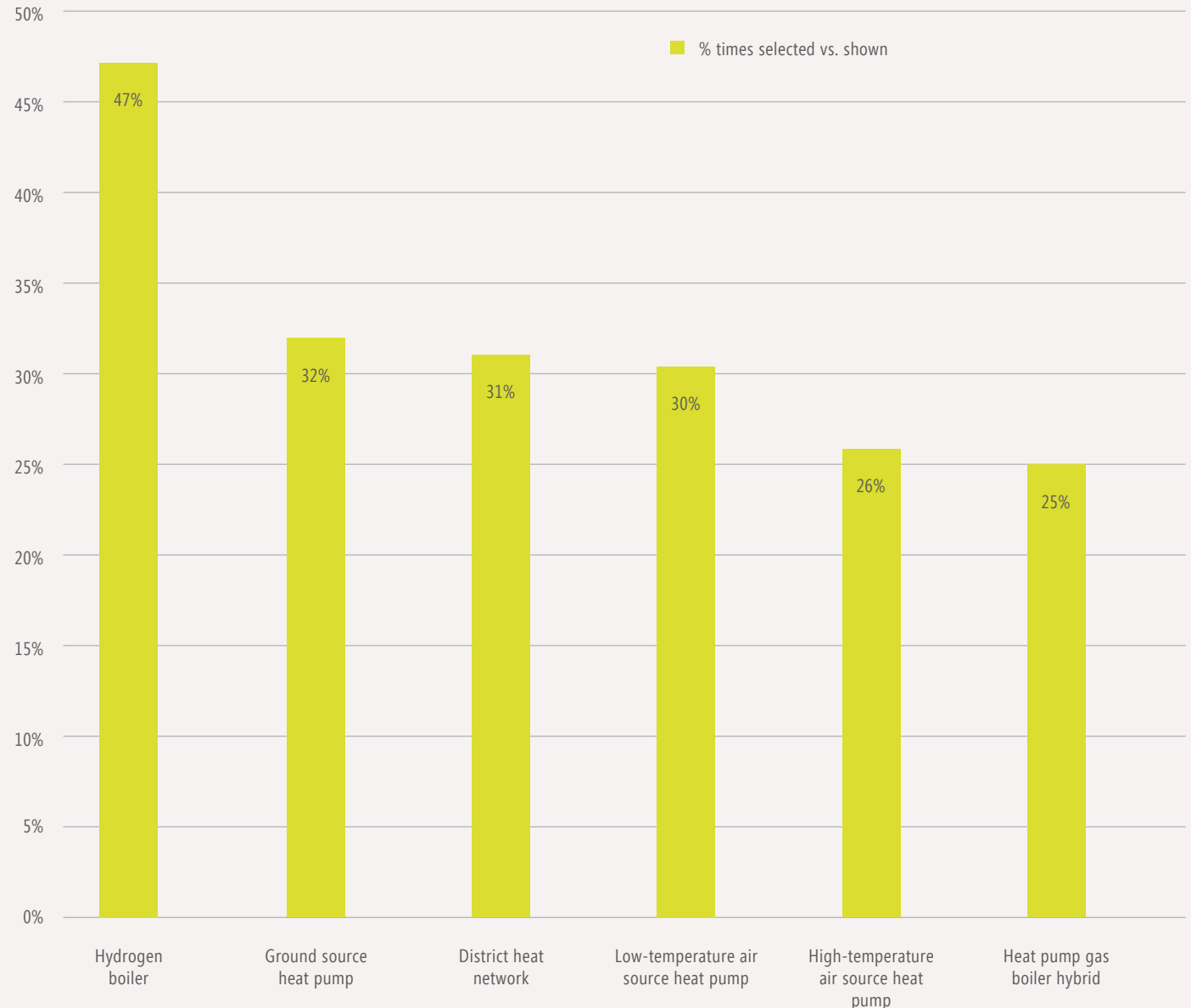


# ZeroCarbon.Vote: Results

## Which heating system was selected the most when available?

- Hydrogen boiler was the most “preferred” option across all voters, selected almost half of the times it was offered. (Note: Not all options were shown to every respondent meaning their preference may not have been available to them.)
- Hydrogen was also the most voted individual technology (154 out of the 535 votes).
- When combined, ‘heat pumps’ were the most voted for with 292 votes.

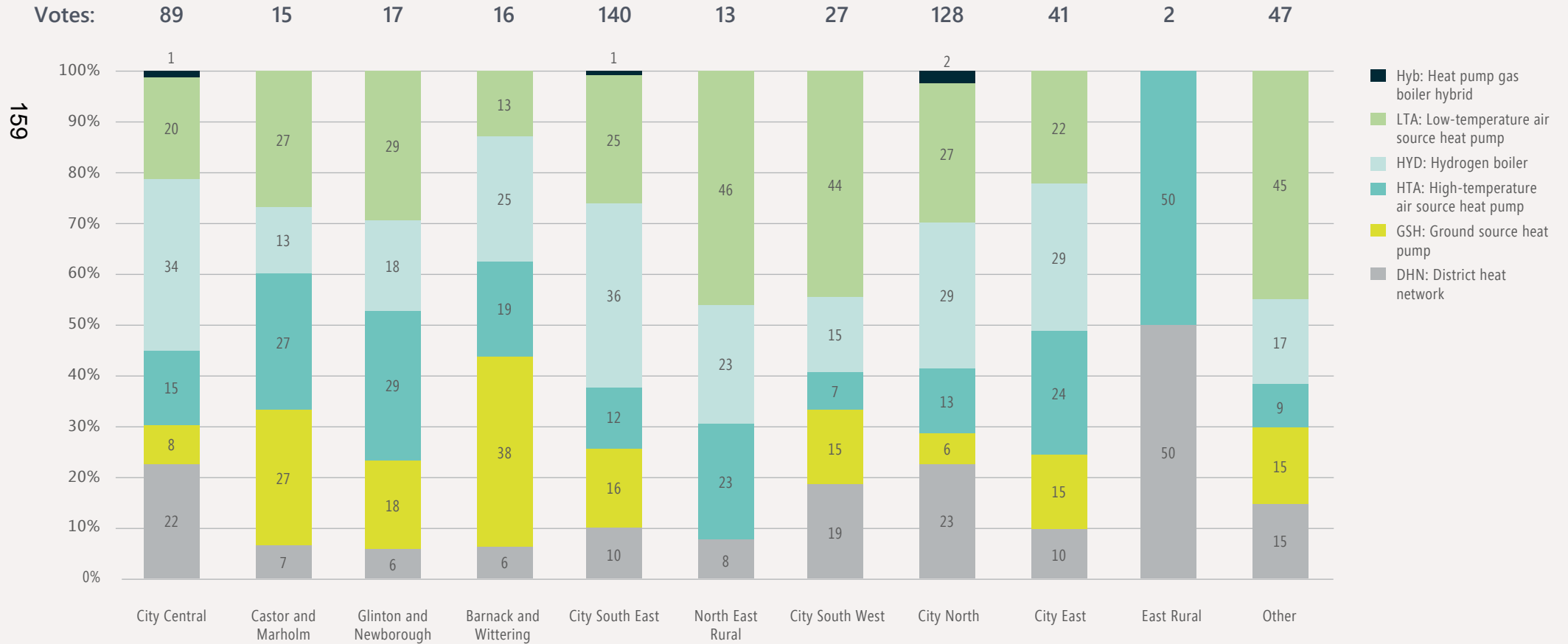
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# ZeroCarbon.Vote: Results

The graph shows the number of votes that each technology type received in each zone.

(Note: Not all options were shown to every respondent meaning their preference may not have been available to them.)

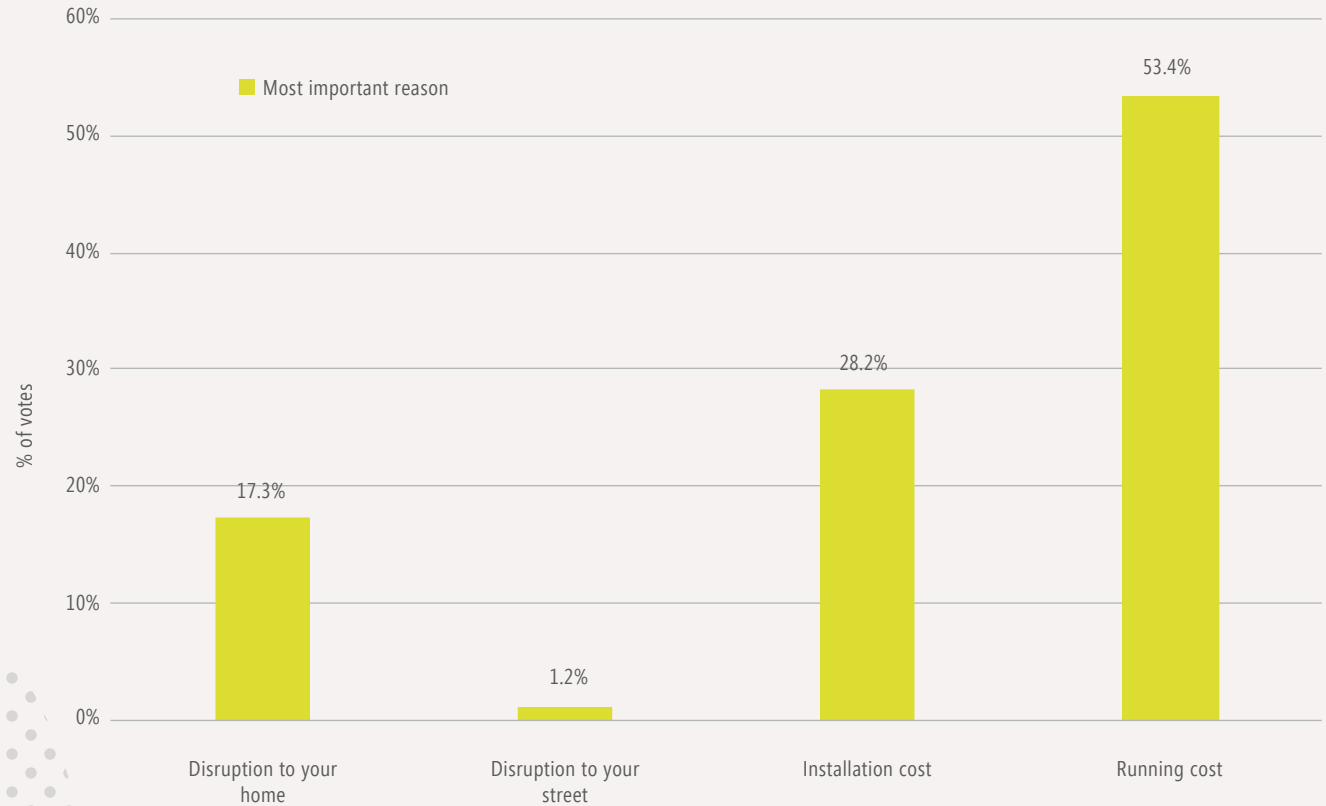


# ZeroCarbon.Vote: Results

## Question: What was most important when deciding to vote for that heating technology?

The most selected reason by respondents for making the heating technology selection was 'running costs'. Least selected was 'disruption to your street', being selected by only five respondents out of 535.

Note: This survey was done in the run up to the first major energy price rise in 2022 which may have altered the considerations of respondents.



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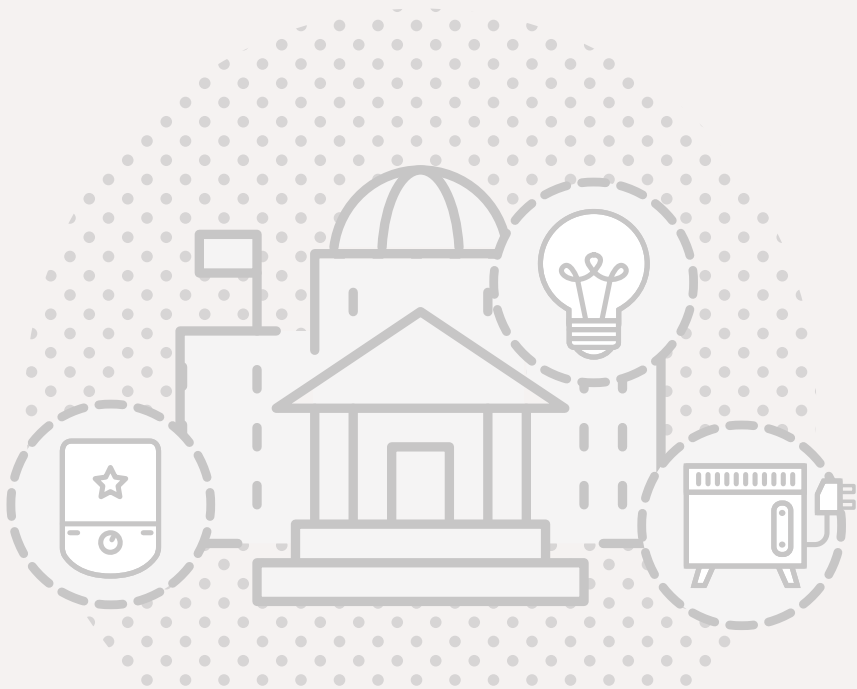
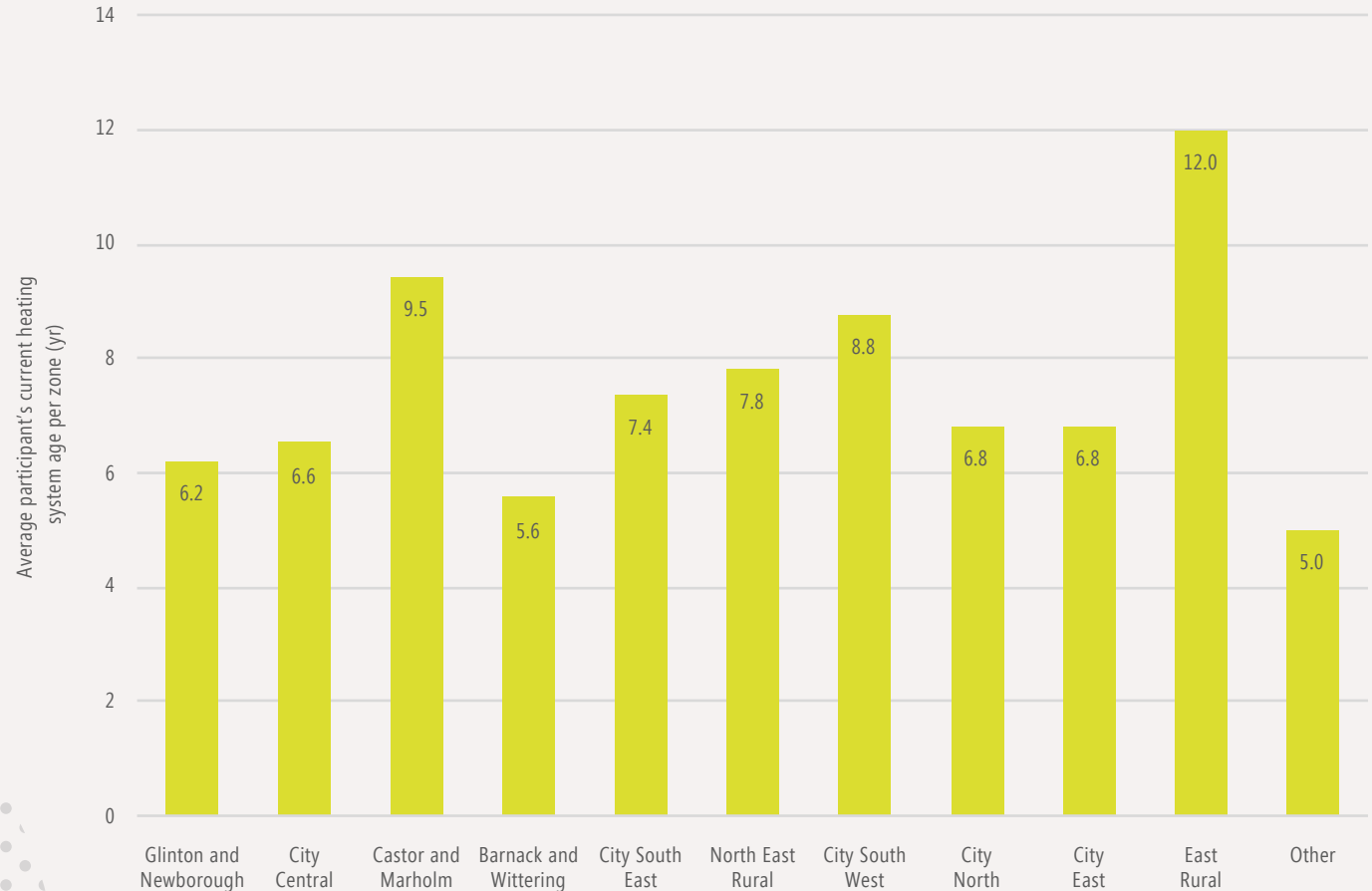
# ZeroCarbon.Vote: Results

From the survey responses, it was found that more than 74% of the respondent's current heating systems are over four years old, with over 25% reporting their heating system was over ten years old.

The respondents in 'Castor and Marholm' had the highest average age of heating system at over nine years old.

Note: Heating system ages were given in the following categories: Less than a year, 1-3 years, 4-7 years, 8-10 years, 10+ years. Midpoints were taken to calculate the average with 10+ being assumed to be 12.

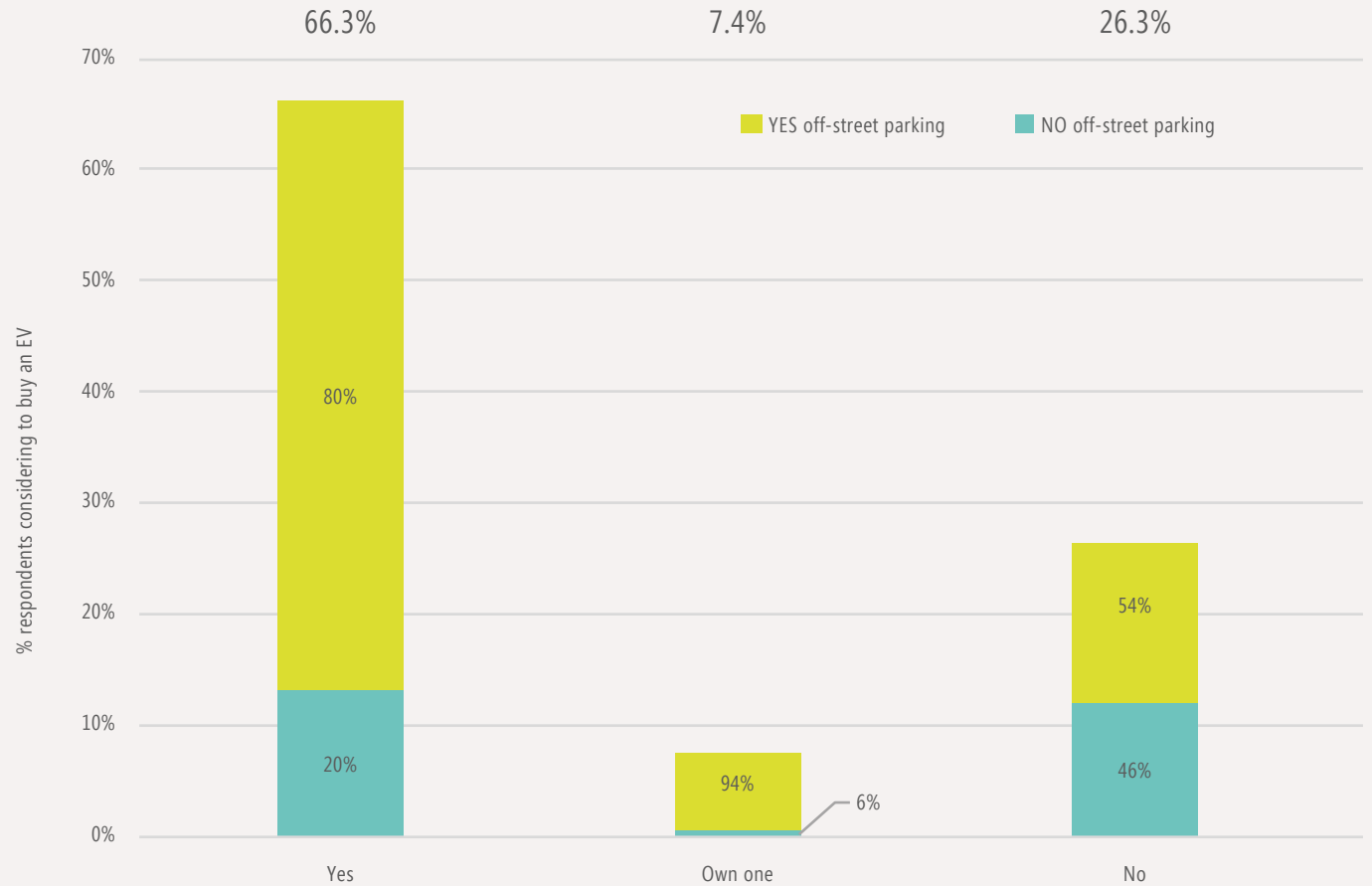
Note: Low number of votes in some zones.



# ZeroCarbon.Vote: Results

The majority of the respondents (73.7%) are either considering an EV as their next car or already own one. Of those, 80% have off-street parking.

However, only 54% for those who are not considering an EV as their next car have off-street parking.



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# ZeroCarbon.Vote: Results

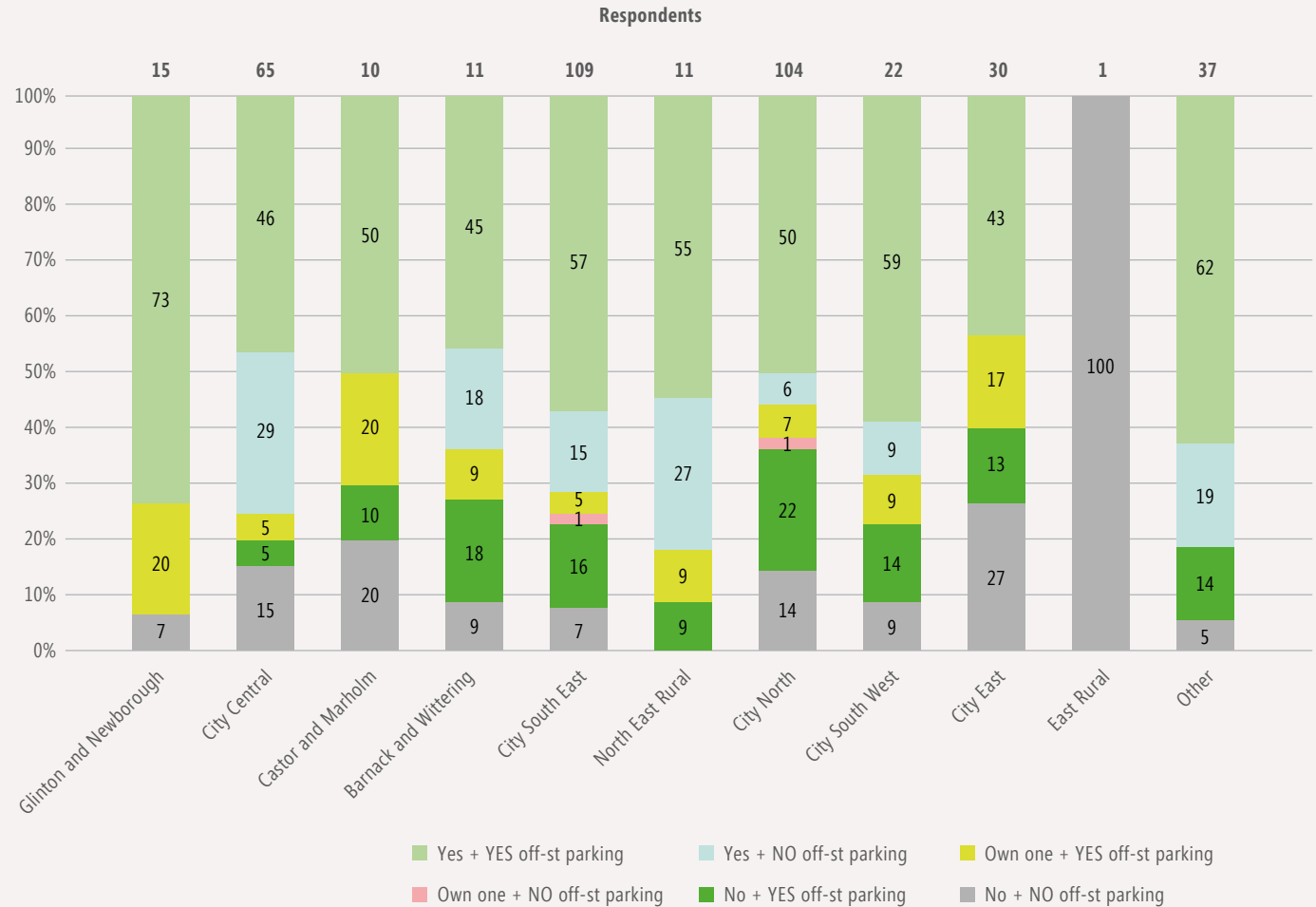
City Central reported the largest percentage of respondents with NO off-street parking: 44.6%

City East and City North have the largest percentage of respondents that are not considering an EV as their next car.

Note: Low number of votes in some zones



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or [laep@es.catapult.org.uk](mailto:laep@es.catapult.org.uk)

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<b>CLIMATE CHANGE AND ENVIRONMENT SCRUTINY COMMITTEE</b>	<b>AGENDA ITEM No. 7</b>
<b>9 NOVEMBER 2022</b>	<b>PUBLIC REPORT</b>

Report of:	Fiona McMillan, Director of Law and Governance	
Cabinet Member(s) responsible:	Councillor Coles, Cabinet Member for Finance and Corporate Governance	
Contact Officer(s):	Charlotte Cameron, Democratic Services Officer	Tel. 01733 384628

**MONITORING SCRUTINY RECOMMENDATIONS**

<b>RECOMMENDATIONS</b>	
<b>FROM:</b> Director of Law and Governance	<b>Deadline date:</b> N/A
<p>It is recommended that the Climate Change and Environment Scrutiny Committee:</p> <p>1. Considers the responses from Cabinet Members and Officers to recommendations made at previous meetings as attached in Appendix 1 to the report and provides feedback including whether further monitoring of each recommendation is required.</p>	

**1. ORIGIN OF REPORT**

1.1 In accordance with the constitution Scrutiny Committees may make reports and recommendations to the Cabinet and/or full Council and/or any Committee in connection with the discharge of any of the Council's functions. This report is therefore provided as part of this process to ensure the monitoring of any recommendations which have been made by this committee.

**2. PURPOSE AND REASON FOR REPORT**

2.1 The report enables the Scrutiny Committee to monitor and track progress of recommendations made to the Executive or Officers at previous meetings.

2.2 This report is for the Climate Change and Environment Scrutiny Committee to consider under its Terms of Reference No. *Part 3, Section 4 - Overview and Scrutiny Functions, paragraph 3.3:*

*The Scrutiny Committees will:*

- (a) *Review and scrutinise the Executive, Committee and officer decisions and performance in connection with the discharge of any of the Council's functions.*
- (b) *Review and scrutinise the Council's performance in meeting the aims of its policies and performance targets and/or particular service areas;*
- (c) *Question Members of the Executive, Committees and senior officers about their decisions and performance of the Council, both generally and in relation to particular decisions or projects;*
- (d) *Make recommendations to the Executive and the Council as a result of the scrutiny process.*

### 3. **TIMESCALES**

Is this a Major Policy Item/Statutory Plan?	<b>NO</b>	If yes, date for Cabinet meeting	N/A
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### 4. **BACKGROUND AND KEY ISSUES**

4.1 Appendix 1 of the report sets out the recommendations made to Cabinet Members or Officers at previous meetings of the Scrutiny Committee. It also contains summaries of any action taken by Cabinet Members or Officers in response to the recommendations.

4.2 The progress status for each recommendation is indicated and if the Scrutiny Committee confirms acceptance of the items marked as completed, they will be removed from the list. In cases where action on the recommendation is outstanding or the Committee does not accept the matter has been adequately completed it will be kept on the list and reported back to the next meeting of the Committee. It will remain on the list until such time as the Committee accepts the recommendation as completed.

### 5. **ANTICIPATED OUTCOMES OR IMPACT**

5.1 Timelier monitoring of recommendations made will assist the Scrutiny Committee in assessing the impact and consequence of the recommendations.

### 6. **REASON FOR THE RECOMMENDATION**

6.1 To assist the Committee in assessing the impact and consequence of recommendations made at previous meetings.

### 7. **BACKGROUND DOCUMENTS**

Used to prepare this report, in accordance with the Local Government (Access to Information) Act 1985

7.1 Minutes of the Climate Change and Environment Scrutiny Committee meeting held on 5 September 2022.

### 8. **APPENDICES**

8.1 Appendix 1 – Recommendations Monitoring Report



**APPENDIX 1**

**RECOMMENDATION MONITORING REPORT 2022/23**

**CLIMATE CHANGE AND ENVIRONMENT SCRUTINY COMMITTEE**

Updated: 31 OCTOBER 2022

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Meeting date Recommendations Made	Portfolio Holder / Directorate Responsible	Agenda Item Title	Recommendation Made	Action Taken	Progress Status
6 July 2022	Cllr Marco Cereste, Cabinet Member for Climate Change, Planning, Housing and Transport	<b>CLOSURE OF CLIMATE CHANGE WORKING GROUP</b>	The Climate Change and Environment Scrutiny Committee considered the report and <b>RESOLVED</b> to recommend to Cabinet the closure of the existing Climate Change Working Group.	<b>The recommendation was agreed at Cabinet on 20 September 2022.</b>	<b>Completed</b>
6 July 2022	Cllr Marco Cereste, Cabinet Member for Climate Change, Planning, Housing and Transport	<b>CLOSURE OF CYCLING AND WALKING WORKING GROUP AND FORMATION OF CYCLING AND WALKING TASK AND FINISH GROUP</b>	The Climate Change and Environment Scrutiny Committee considered the report and <b>RESOLVED</b> to recommend to Cabinet the closure of the existing cross-party cycling and walking working group.	<b>The recommendation was agreed at Cabinet on 20 September 2022.</b>	<b>Completed</b>

5 September 2022	Cllr Marco Cereste, Cabinet Member for Climate Change, Planning, Housing and Transport	<b>TREE MANAGEMENT: REVIEW OF EXISTING POLICY FOR MANAGING TREE RELATED SUBSIDENCE CLAIMS AGAINST THE COUNCIL</b>	The Climate Change and Environment Scrutiny Committee considered the report and <b>RESOLVED to endorse</b> the draft revised policy subject to the <b>RECOMMENDATION</b> to amend the proposal so that Peterborough City Council do not automatically refer claims against Council owned TPO trees to the Planning Committee and instead rely on the existing procedures in place.	<p><b>Cabinet considered the recommendation at the meeting on 17 October 2022 and did not take it forward.</b></p> <p><b>Decision notice below:</b></p> <p><a href="https://democracy.peterborough.gov.uk/ieDecisionDetails.aspx?ID=1998">https://democracy.peterborough.gov.uk/ieDecisionDetails.aspx?ID=1998</a></p>	<b>Completed</b>
5 September 2022	Cllr Marco Cereste, Cabinet Member for Climate Change, Planning, Housing and Transport	<b>TREE MANAGEMENT: REVIEW OF EXISTING POLICY FOR MANAGING TREE RELATED SUBSIDENCE CLAIMS AGAINST THE COUNCIL</b>	The Climate Change and Environment Scrutiny Committee considered the report and <b>RESOLVED</b> to recommend to Cabinet the draft revised Tree Related Subsidence Policy.	<p><b>Cabinet considered the recommendation at the meeting on 17 October 2022 and recommended to Full Council that the Trees and Woodland Strategy be further amended to include the Tree Related Subsidence Policy.</b></p> <p><b>Decision notice below:</b></p> <p><a href="https://democracy.peterborough.gov.uk/ieDecisionDetails.aspx?ID=1998">https://democracy.peterborough.gov.uk/ieDecisionDetails.aspx?ID=1998</a></p>	<b>Completed</b>

**JOINT MEETING OF GROWTH, RESOURCES AND COMMUNITIES SCRUTINY COMMITTEE AND CLIMATE CHANGE AND ENVIRONMENT SCRUTINY**

Meeting date Recommendations Made	Portfolio Holder / Directorate Responsible	Agenda Item Title	Recommendation Made	Action Taken	Progress Status
12 July 2022		<p><b>PETERBOROUGH CITY COUNCIL'S CONSULTATION RESPONSE TO THE CAMBRIDGESHIRE AND PETERBOROUGH LOCAL TRANSPORT AND CONNECTIVITY PLAN</b></p>	<p><b>RECOMMENDATION</b></p> <p>The Committee considered the report and <b>RESOLVED</b> to <b>RECOMMEND</b> that Peterborough City Council's consultation response to the Cambridgeshire and Peterborough Local Transport and Connectivity Plan be rewritten to include relevant comments made by the Committee and that the plan includes a more detailed section for Peterborough to take into account the following areas:</p> <ul style="list-style-type: none"> <li>• Information on the connectivity between rural areas and the city</li> <li>• Information on rail connectivity</li> <li>• Additional information on bus routes and public transport connectivity</li> <li>• Quantifiable GDP to represent the growth of the city</li> <li>• The proportion of major schemes that will be Active Travel and;</li> <li>• The long-term view for Peterborough.</li> </ul>	<p><b>The Committee received an updated response and provided additional feedback to inform the Council's consultation response.</b></p>	<p><b>Completed</b></p>

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<b>CLIMATE CHANGE AND ENVIRONMENT SCRUTINY COMMITTEE</b>	<b>AGENDA ITEM No. 8</b>
<b>9 NOVEMBER 2022</b>	<b>PUBLIC REPORT</b>

Report of:	Fiona McMillan, Director of Law and Governance	
Cabinet Member(s) responsible:	Councillor Coles, Cabinet Member for Finance and Corporate Governance	
Contact Officer(s):	Charlotte Cameron, Democratic Services Officer	Tel. 07870 153052

**FORWARD PLAN OF EXECUTIVE DECISIONS**

<b>RECOMMENDATIONS</b>	
<b>FROM:</b> Democratic Services Officer	<b>Deadline date:</b> N/A
<p>It is recommended that the Climate Change and Environment Scrutiny Committee:</p> <ol style="list-style-type: none"> <li>1. Considers the current Forward Plan of Executive Decisions and identifies any relevant items for inclusion within their work programme or request further information.</li> </ol>	

**1. ORIGIN OF REPORT**

1.1 The report is presented to the Committee in accordance with the Terms of Reference as set out in section 2.2 of the report.

**2. PURPOSE AND REASON FOR REPORT**

2.1 This is a regular report to the Climate Change and Environment Scrutiny Committee outlining the content of the Forward Plan of Executive Decisions.

2.2 This report is for the Climate change and Environment Scrutiny Committee to consider under its Terms of Reference No. Part 3, Section 4 - Overview and Scrutiny Functions, paragraph 3.3:

The Scrutiny Committees will:

(f) *Hold the Executive to account for the discharge of functions in the following ways:*

ii) *By scrutinising Key Decisions which the Executive is planning to take, as set out in the Forward Plan of Executive Decisions.*

**3. TIMESCALES**

Is this a Major Policy Item/Statutory Plan?	<b>NO</b>	If yes, date for Cabinet meeting	N/A
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**4. BACKGROUND AND KEY ISSUES**

4.1 The latest version of the Forward Plan of Executive Decisions is attached at Appendix 1. The Forward Plan contains those Executive Decisions which the Leader of the Council believes that

the Cabinet or individual Cabinet Member(s) can take and any new key decisions to be taken after 21 November.

4.2 The information in the Forward Plan of Executive Decisions provides the Committee with the opportunity of considering whether it wishes to seek to influence any of these executive decisions, or to request further information.

4.3 If the Committee wished to examine any of the executive decisions, consideration would need to be given as to how this could be accommodated within the work programme.

4.4 As the Forward Plan is published fortnightly any version of the Forward Plan published after dispatch of this agenda will be tabled at the meeting.

## **5. CONSULTATION**

5.1 Details of any consultation on individual decisions are contained within the Forward Plan of Executive Decisions.

## **6. ANTICIPATED OUTCOMES OR IMPACT**

6.1 After consideration of the Forward Plan of Executive Decisions the Committee may request further information on any Executive Decision that falls within the remit of the Committee.

## **7. REASON FOR THE RECOMMENDATION**

7.1 The report presented allows the Committee to fulfil the requirement to scrutinise Key Decisions which the Executive is planning to take, as set out in the Forward Plan of Executive Decisions in accordance with their terms of reference as set out in Part 3, Section 4 - Overview and Scrutiny Functions, paragraph 3.3.

## **8. ALTERNATIVE OPTIONS CONSIDERED**

8.1 N/A

## **9. IMPLICATIONS**

### **9.1 Financial Implications**

N/A

### **9.2 Legal Implications**

N/A

## **10. BACKGROUND DOCUMENTS**

Used to prepare this report, in accordance with the Local Government (Access to Information) Act 1985

None

## **11. APPENDICES**

11.1 Appendix 1 – Forward Plan of Executive Decisions

# **PETERBOROUGH CITY COUNCIL'S FORWARD PLAN OF EXECUTIVE DECISIONS**

PUBLISHED: 21 OCTOBER 2022

**PART 1 – FORWARD PLAN OF KEY DECISIONS**

**KEY DECISIONS FROM 21 NOVEMBER 2022**

<b>KEY DECISION REQUIRED</b>	<b>DECISION MAKER</b>	<b>DATE DECISION EXPECTED</b>	<b>RELEVANT SCRUTINY COMMITTEE</b>	<b>WARD</b>	<b>CONSULTATION</b>	<b>CONTACT DETAILS REPORT AUTHORS</b>	<b>DIRECTORATE</b>	<b>DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES</b>
<p><b>Charging residents and developers for replacement bins – KEY/21NOV22/01</b>                      Currently all replacement household bins are replaced for free, if implemented, if you loose your bin or damage it you will be required to pay for a replacement.</p>	<p><b>Councillor Nigel Simons, Cabinet Member For Waste Street Scene And The Environment</b></p>	<p><b>November 2022</b></p>	<p>Climate Change and Environment Scrutiny Committee</p>	<p>All Wards</p>	<p>Via the budget setting last financial year and FSWG</p>	<p>James Collingridge, Assistant Director of Operations, 01733 864736, james.collingridge@peterborough.gov.uk</p>	<p>Place and Economy</p>	<p>A CMDN.</p>
<p><b>Refugee Resettlement Befriender Contract Award – KEY/21NOV22/02</b>                      To award a contract to provide services and support to resettled refugee families under the United Kingdom Resettlement Scheme and the Afghan Relocation and Assistance Programme.</p>	<p><b>Councillor Steve Allen, Deputy Leader and Cabinet Member for Communication, Culture and Communities</b></p>	<p><b>31 January 2023</b></p>	<p>Growth, Resources and Communities Scrutiny Committee</p>	<p>All Wards</p>	<p>Soft market testing with potential suppliers has taken place</p>	<p>Ian Phillips Head of Communities and Partnerships Integration Email: ian.phillips@peterborough.gov.uk</p>	<p>People Services</p>	<p>It is not anticipated that there will be any documents other than the report and relevant appendices to be published.</p>



**PREVIOUSLY ADVERTISED KEY DECISIONS**

<i>KEY DECISION REQUIRED</i>	<i>DECISION MAKER</i>	<i>DATE DECISION EXPECTED</i>	<i>RELEVANT SCRUTINY COMMITTEE</i>	<i>WARD</i>	<i>CONSULTATION</i>	<i>CONTACT DETAILS / REPORT AUTHORS</i>	<i>DIRECTORATE</i>	<i>DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES</i>
<b>1. Peterborough City Council Housing Related Support Procurement / Commissioning - KEY/24MAY21/02 –</b> To Procure / Commission Peterborough City Council Housing Related Support Services. Service redesign and change form annual Grant Agreements to longer term contracts.	<b>Cabinet</b>	<b>14 November 2022</b>	Growth, Resources and Communities Scrutiny Committee	All Wards	Soft market testing is underway. A Housing Related Support Commissioning Strategy has been agreed and has received all the relevant approvals	Sean Evans, Head of Service Housing Needs, Email: sean.evans@peterborough.gov.uk	People Services	To be submitted, Housing Related Support Commissioning Strategy for Cambridgeshire & Peterborough 2020 - 2022. Procurement / Commissioning information.
<b>2. Article 4 Direction - KEY/28MAR2022/01 –</b> To agree to formulate an Article 4 Direction for public consultation that requires property owners in Bretton, Fletton & Woodston, Hargate & Hempstead, Hampton Vale, Park and Central wards, to obtain planning permission when converting single homes or residential properties into HMOs, alongside relevant planning policies to support this.	<b>Cabinet</b>	<b>October 2022</b>	Growth, Resources, And Communities Scrutiny Committee	Bretton, Fletton & Woodston, Hargate & Hempstead, Hampton Vale, Park, North and Central.	Formal public consultation within relevant wards	Jim Newton, Assistant Director Planning & Building Control (Interim) Email: jim.newton@peterborough.gov.uk	Place and Economy	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.
<b>3. Clare Lodge and agency resource - KEY/28MAR2022/02 -</b> Relating to the supply of temporary agency requirements at Clare Lodge	<b>Cabinet</b>	<b>October 2022</b>	Children and Education Scrutiny Committee	All Wards	Legal, Procurement, Service area, Clare Lodge, agency providers	Steve McFaden, Business, Strategy & Infrastructure Manager Clare Lodge, 01733 253246	People Services	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.

KEY DECISION REQUIRED	DECISION MAKER	DATE DECISION EXPECTED	RELEVANT SCRUTINY COMMITTEE	WARD	CONSULTATION	CONTACT DETAILS REPORT AUTHORS	DIRECTORATE	DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES
<p><b>4. Investment in NHS Health Checks to address the backlog created by the impact of COVID-19 pandemic – KEY/23MAY22/02</b> - The NHS Health Checks Programme is a mandatory Local Authority function. Peterborough has very rates of cardiovascular disease and the Programme is a key prevention intervention for identifying and addressing cardiovascular disease risks. The COVID-19 pandemic had a huge impact on the number of NHS Checks completed and there is an urgent need to address the backlog of NHS Health Checks and ensure that risks in the population are reduced. The additional investment is to provide support to GP Practices to deliver the NHS Health Checks. GPs are an integral part of the Programme as their patient data is used to identify those eligible and they play a key role in addressing any identified clinical issues. The proposal is to commission the GP Federation in Peterborough to support the GPs to deliver the Programme. A GP Federation is a group of practices that come together to deliver services. The commission will be in line with the recommendations from procurement and legal services.</p>	<p><b>Councillor John Howard, Cabinet Member for Adult Social Care, Health and Public Health</b></p>	<p><b>October 2022</b></p>	<p>Adults and Health Scrutiny Committee</p>	<p>All Wards</p>	<p>GP Federations, Clinical Commissioning Group, Local Medical Committee</p>	<p>Val Thomas Deputy Director of Public Health, Email: val.thomas@cambridgeshire.gov.uk</p>	<p>Public Health</p>	<p>Cover paper</p>
<p><b>5. Investment to fund the NHS pay award for staff who work in NHS services commissioned by Public Health – KEY/23MAY22/03</b> - Public Health commission services from NHS organisations. Their staff have had a 3% pay award. The Public Health Grant funding uplift for 2022/23 reflects this pay award. Local Authorities are expected to ensure that these NHS pay awards are fully met and included in any contractual arrangements or Section 75 agreements.</p>	<p><b>Councillor John Howard, Cabinet Member for Adult Social Care, Health and Public Health</b></p>	<p><b>October 2022</b></p>	<p>Adults and Health Scrutiny Committee</p>	<p>All Wards</p>	<p>NHS commissioned providers.</p>	<p>Val Thomas Deputy Director of Public Health, Email: val.thomas@cambridgeshire.gov.uk</p>	<p>Public Health</p>	<p>Cover paper</p>
<p><b>6. Tenancy Sustainment and Employment Support Grant – KEY/18JUL22/02</b> - The Council is going through procurement for a Tenancy Sustainment and Employment Support service until 31 March 2025. This is Rough Sleeper Initiative Funding that we have been successful for.</p>	<p><b>Councillor Marco Cereste, Cabinet Member for Climate Change, Planning, Housing and Transport</b></p>	<p><b>December 2022</b></p>	<p>Adults and Health Scrutiny Committee</p>	<p>All wards</p>	<p>There will be a full procurement exercise</p>	<p>Sarah Scase, Housing Needs Operations Manager, 07920 160502, sarah.scase@petborough.gov.uk</p>	<p>Place and Economy</p>	<p>It is not anticipated that there will be any documents other than the report and relevant appendices to be published.</p>

<b>KEY DECISION REQUIRED</b>	<b>DECISION MAKER</b>	<b>DATE DECISION EXPECTED</b>	<b>RELEVANT SCRUTINY COMMITTEE</b>	<b>WARD</b>	<b>CONSULTATION</b>	<b>CONTACT DETAILS REPORT AUTHORS</b>	<b>DIRECTORATE</b>	<b>DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES</b>
<b>7. Award of Insurance Contract - KEY/1AUG22/02</b> - The existing contract for the Councils insurance arrangements runs from 1 April 2018 - 31 March 2023. (MAR18/CMDN/113). Discussions are now being held with insurance specialists and the Procurement Team to set out the specification requirements so that this contract can go out to tender with award expected in late January 2023 / early February 2023.	<b>Councillor Andy Coles, Cabinet Member for Finance and Corporate Governance</b>	<b>1 April 2023</b>	Growth, Resources, And Communities Scrutiny Committee	All Wards	Consultation internal (Procurement), external (insurance broker advisors).	Steve Crabtree. Chief Internal Auditor. Tel: 01733 384557. Email: steve.crabtree@petborough.gov.uk	Corporate Services	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.  The decision will include an exempt annexe. By virtue of paragraph 3, information relating to the financial or business affairs of any particular person (including the authority holding that information).
<b>8. Debt write-offs in excess of £10,000 - KEY/1AUG22/03</b> - Approval of debt write-offs in excess of £10,000 if applicable for Non-Domestic Rates, Council Tax, Housing Benefit overpayments and Sundry Debtor accounts.	<b>Councillor Andy Coles, Cabinet Member for Finance and Corporate Governance</b>	<b>October 2022</b>	Growth, Resources, And Communities Scrutiny Committee	N/A	None	Chris Yates, Finance Manager - Business Operations, Tel:01733 384552, Email chris.yates@petborough.gov.uk	Corporate Services	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.

<b>KEY DECISION REQUIRED</b>	<b>DECISION MAKER</b>	<b>DATE DECISION EXPECTED</b>	<b>RELEVANT SCRUTINY COMMITTEE</b>	<b>WARD</b>	<b>CONSULTATION</b>	<b>CONTACT DETAILS REPORT AUTHORS</b>	<b>DIRECTORATE</b>	<b>DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES</b>
<b>9. Towns Fund Business Case for The Vine Project – KEY/29AUG22/01</b> Assurance for Towns Fund Business Case Summaries for submission to DLUHC to apply for government funding for the Vine project. The total grant application for the project is over £12m from government.	<b>Cabinet</b>	<b>9 January 2023</b>	Growth, Resources and Communities Scrutiny Committee	Central	Towns fund board consulted and approved the programme of submissions.	Karen Lockwood, programme manager, 07825 902794. Karen.Lockwood@peterborough.gov.Uk	Corporate Services	Cabinet report to be submitted for consideration September 2022
<b>10. Cambridgeshire County Council's Pseudo Dynamic Purchasing System (Dps) For Individual Service Fund (Isf) Services - KEY/12SEP22/03</b> Authorise Peterborough City Council to utilise Cambridgeshire County Council's Pseudo Dynamic Purchasing Services (DPS) Agreement for the Provision of Individual Service Funds (ISF) Services to purchase ISF Services up to the value of £6,000,000 (six million pounds). Authorise the Executive Director, People & Communities to enter into the required call off contracts following the competitive process, as required under the DPS, with the successful provider who has been selected to deliver the Services.	<b>Councillor John Howard, Cabinet Member for Adult Social Care, Health and Public Health</b>	<b>October 2022</b>	Adults and Health Scrutiny Committee	All Wards	N/A	Shairbano Shaukat, Commissioning Officer, TEL 07739 320000, shairbano.shaukat@peterborough.gov.uk	Public Health	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.
<b>11. Renewal of ongoing Microsoft Software agreements – KEY/12SEP22/04</b> Award of contract for the ongoing supply of Microsoft software due by 15/10/2022 to allow for all relevant standstill periods and checking to be done before a PO is required for the renewal	<b>Councillor Wayne Fitzgerald, Leader of the Council</b>	<b>October 2022</b>	Growth, Resources and Communities Scrutiny Committee	All Wards	N/A	Kevin Halls, IT Finance and Contracts Manager – <a href="mailto:kevin.halls@cambridgeshire.gov.uk">kevin.halls@cambridgeshire.gov.uk</a>	Customer and Digital	Previous CMDN's
<b>12. Re-tendering of the Care &amp; Repair Framework Agreement (4 LOTS) Jan 2023 to Dec 2025 with optional 2 yearly extensions to Dec 2027. Procurement of Dynamic Purchasing System for Large Scale Adaptations and Repairs Assistance for the same period – KEY/26SEPT22/01</b> - A re-tender of the existing Care & Repair Framework Agreement currently in Year 4 of a 3 year plus 1 plus 1 Agreement. The framework of Contractors deliver mandatory Disabled Facility Grants and Repairs Grants. Procurement of a separate DPS for large scale adaptations funded through mandatory Disable Facility Grants.	<b>Councillor Marco Cereste, Cabinet Member for Climate Change, Planning, Housing and Transport</b>	<b>1 January 2023</b>	Adults and Health Scrutiny Committee	All Wards	Soft Market Testing, Engagement Events and contract published via Pro Contract	Sharon Malia - Housing Programmes Manager 07920 160632 sharon.malia@peterborough.gov.uk	People Services	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.

<b>KEY DECISION REQUIRED</b>	<b>DECISION MAKER</b>	<b>DATE DECISION EXPECTED</b>	<b>RELEVANT SCRUTINY COMMITTEE</b>	<b>WARD</b>	<b>CONSULTATION</b>	<b>CONTACT DETAILS REPORT AUTHORS</b>	<b>DIRECTORATE</b>	<b>DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES</b>
13. <b>Approval of the award of contract for Milestone Infrastructure for the Detailed Design of the River Nene Pedestrian Bridge – KEY/24OCT22/01</b> - Approval of the award of contract for Milestone Infrastructure for the Detailed Design of the River Nene Pedestrian Bridge. This is a Towns Fund project and the Bridge will provide a walking and cycling route between the Embankment and Fletton Quays and also support the ambition of opening up the waterfront for regeneration.	<b>Councillor Marco Cereste, Climate Change, Planning, Housing and Transport</b>	<b>24 October 2022</b>	Growth, Resources, And Communities Scrutiny Committee	Central, Fletton & Standground	Engagement with ward councillors and a public consultation will take place	Karen Lockwood, Tel: 07825 902794, Email: karen.lockwood@peterborough.gov.uk	Corporate Services	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.
14. <b>Fees and Charges – KEY/24OCT22/02</b> - Comprehensive review of fees and charges and proposes inflationary increases wherever possible for the 2022/23 and 2023/24 financial years.	<b>Cabinet</b>	<b>14 November 2022</b>	Growth, Resources, And Communities Scrutiny Committee	All Wards	Finance and from respective service - report will go to CLT, CPF, Joint Scrutiny and then Cabinet	Cecilie Booth, Director of Resources and S151 Officer, Tel: 07970325557, Email: Cecilie.Booth@peterborough.gov.uk	Corporate Services	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.
15. <b>Uplift in payments for delivery of public health services in primary care – KEY/25OCT22/01</b> - Stop smoking, NHS Health Checks and Long-Acting reversible contraception services are delivered in primary care. This CMDN seeks approval for an uplift in the price paid for each unit delivered.	<b>Councillor John Howard, Cabinet Member for Adult Social Care, Health and Public Health</b>	<b>October 2022</b>	Adults and Health Scrutiny Committee	All Wards	Consultation has been undertaken with the local medical committee which represents gps.	Val Thomas Deputy Director of Public Health, 07884 183373 val.Thomas@cambridgeshire.gov.uk	Public Health	It is not anticipated that there will be any documents other than the report and relevant appendices to be published
16. <b>Extension of contract for care and support services in Extra Care schemes – KEY/7NOV22/01</b> To authorize an extension for one year 10 months to the existing contract at a total cost of £3,480,253	<b>Councillor John Howard, Cabinet Member for Adult Social Care, Health and Public Health</b>	<b>November 2022</b>	Adults and Health Scrutiny Committee	Eye, Thorney & Newborough, Paston and Walton and East	Preparations to tender the services had commenced and consultation questions had been completed by people living in the schemes and family members.	Lynne O'Brien Commissioning Manager 0777 667 9591 lynne.o'brien@cambridgeshire.gov.uk	People Services	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.

KEY DECISION REQUIRED	DECISION MAKER	DATE DECISION EXPECTED	RELEVANT SCRUTINY COMMITTEE	WARD	CONSULTATION	CONTACT DETAILS REPORT AUTHORS	DIRECTORATE	DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES
<p><b>17. Approval for contract to be awarded to Milestone to deliver construction of two active travel schemes which will form part of A1260 Junction 3 improvement project. - KEY/7NOV22/02</b></p> <p>The Council is currently in the process of completing the business case and design of the A1260 Junction 3 improvement scheme, however it is recognised that to further enhance the main highway works and improve active travel options in the scheme area additional improvements are required for walking and cycling. Therefore, it is being proposed to deliver improvements along Malborne Way and Shrewsbury Avenue prior to the main highway construction works beginning later in 2023. The work is estimated to cost £519k and will be funded by the Cambridgeshire and Peterborough Combined Authority.</p>	Cabinet	14 November 2022	Climate Change and Environment Scrutiny Committee	Orton Longueville and Hargate & Hempsted	Consultation was undertaken with members of the public and relevant stakeholders to inform the detailed design and business case.	Lewis Banks, Transport & Environment Manager, Tel: 01733 317465, Email: <a href="mailto:lewis.banks@peterborough.gov.uk">lewis.banks@peterborough.gov.uk</a>	Place and Economy	Currently the relevant documents for this decision are not available. The minutes of the CPCA Board meeting scheduled for 19 October 2022 will serve as confirmation of the additional grant funding award. The minutes and any supporting documents will be provided once they are made available.
<p><b>18. Approval for contract to be awarded to Milestone to deliver construction of active travel schemes and for payment of C4 utility costs for Fengate Eastern Industries Access improvement scheme. - KEY/7NOV22/03</b></p> <p>The Council is currently in the process of completing the business case for Fengate Eastern Industries Access improvement scheme, however it is recognised that to accelerate progress funding has been requested to deliver active travel improvements on Newark Road and Oxney Road for an estimated cost of £550,424 and also for making advance payment for C4 utility costs up to value of £315k (which is a requirement) to enable construction works to commence without delay for the main highway works later this and next financial year. All of the costs stated will be funded by the Cambridgeshire and Peterborough Combined Authority.</p>	Cabinet	14 November 2022	Climate Change and Environment Scrutiny Committee	East	Consultation was undertaken with members of the public and relevant stakeholders to inform the detailed design and business case.	Lewis Banks, Transport & Environment Manager, Tel: 01733 317465, Email: <a href="mailto:lewis.banks@peterborough.gov.uk">lewis.banks@peterborough.gov.uk</a>	Place and Economy	Currently the relevant documents for this decision are not available. The minutes of the CPCA Board meeting scheduled for 19 October 2022 will serve as confirmation of the additional grant funding award. The minutes and any supporting documents will be provided once they are made available.
<p><b>19. Approval for contract to be awarded to Milestone to deliver full business case and detailed design for A16 Norwood improvement scheme. - KEY/7NOV22/04</b></p> <p>The Council has previously received funding of £630k from the Cambridgeshire and Peterborough Combined Authority (CPCA) to deliver the outline business case and preliminary design for A16 Norwood improvement scheme. As that stage is now complete, a request is to be made to the CPCA to fund a further £1,567,190 so that the next stage (full business case and detailed design) can be undertaken. Approval is required for the contract to be awarded to Milestone to undertake the next phase of the scheme business case and design. The decision will only be progressed once funding is granted from the CPCA.</p>	Cabinet	19 December 2022	Climate Change and Environment Scrutiny Committee	Gunthorpe and Eye, Thorney & Newborough	Consultation was undertaken with members of the public and relevant stakeholders to inform the detailed design and business case.	Lewis Banks, Transport & Environment Manager, Tel: 01733 317465, Email: <a href="mailto:lewis.banks@peterborough.gov.uk">lewis.banks@peterborough.gov.uk</a>	Place and Economy	Currently the relevant documents for this decision are not available. The minutes of the CPCA Board meeting scheduled for 19 October 2022 will serve as confirmation of the additional grant funding award. The minutes and any supporting documents will be provided once they are made available.

<b>KEY DECISION REQUIRED</b>	<b>DECISION MAKER</b>	<b>DATE DECISION EXPECTED</b>	<b>RELEVANT SCRUTINY COMMITTEE</b>	<b>WARD</b>	<b>CONSULTATION</b>	<b>CONTACT DETAILS REPORT AUTHORS</b>	<b>DIRECTORATE</b>	<b>DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES</b>
<b>20. Modification to the PSSP Contract – KEY/7NOV22/05</b> Procurement Function	<b>Councillor Andy Coles,</b> <b>Cabinet Member for Finance and Corporate Governance</b>	<b>November 2022</b>	Growth, Resources and Communities	N/A	Consulted with internal and external stakeholders. No other consultation.	Chris Yates, Finance, <a href="mailto:chris.yates@pete.rborough.gov.uk">chris.yates@pete.rborough.gov.uk</a>	Corporate Services	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.
<b>21. Direct Payment Support Services – KEY/7NOV22/06 -</b> This 5-year contract is due to end in February 2023. Approval is sought to extend this contract for an additional two 12-month periods (1+1) at a total value of £250,984. This will increase the aggregated contract to £878,444. It is further requested that delegated authority to award be granted to the Executive Director, People & Communities, Cambridgeshire and Peterborough.	<b>Councillor John Howard,</b> <b>Cabinet Member for Adult Social Care, Health and Public Health</b>	<b>November 2022</b>	Adults and Health Scrutiny Committee	All Wards	Direct payment service users engaged through satisfaction survey, soft market test to evaluation interest in the provider market, marker engagement event to inform service providers about the service and Council's vision, operational head of service, Direct Payment Monitoring Officers, Finance Managers, adult and childrens' commissioners reviewed service specification and social care practitioners shared their views on the professional support from the service.	Leneva Nwachukwu, Commissioner, 01954 286002, <a href="mailto:leneva.nwachukwu@cambridgeshire.gov.uk">leneva.nwachukwu@cambridgeshire.gov.uk</a>	Public Health	Cabinet Member's Decision Notice, Joint Commissioning Board report v7 dated 26th July 2022 (meeting held 27th July). Appendix 4 should be exempt from public circulation as it includes specific characteristics of real-life service users which may make them identifiable to members of the public, if known, this may cause these individuals embarrassment and cause people in need of the support service to be reluctant to seek help, if they believe data about their circumstances are being publicised.

**PART 2 – NOTICE OF INTENTION TO TAKE DECISIONS IN PRIVATE**

DECISIONS TO BE TAKEN IN PRIVATE								
KEY DECISION REQUIRED	DECISION MAKER	DATE DECISION EXPECTED	RELEVANT SCRUTINY COMMITTEE	WARD	CONSULTATION	CONTACT DETAILS / REPORT AUTHORS	DIRECTORATE	DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES
<b>Disposal of Part of Peterborough Rural Estate – KEY/21NOV22/03</b> - Disposal of part of PCC rural estate in accordance with the disposal strategy approved in September Cabinet.	Cabinet	19 December 2023	Growth, Resources, And Communities Scrutiny Committee	Eye, Thorney & Newborough	Part of the disposal programme already approved at Cabinet	Felicity Paddick - felicity.paddick@nps.co.uk, 07801 910971	Corporate Services	Cabinet report & exempt annexes which include financial and personal details.

PREVIOUSLY ADVERTISED DECISIONS TO BE TAKEN IN PRIVATE								
KEY DECISION REQUIRED	DECISION MAKER	DATE DECISION EXPECTED	RELEVANT SCRUTINY COMMITTEE	WARD	CONSULTATION	CONTACT DETAILS / REPORT AUTHORS	DIRECTORATE	DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES
1. <b>Disposal of land at A1/A605 – KEY/1AUG22/01</b> - Newlands development have proposed a development within HDC. However, to enable a larger development, the developer requires an area of CRA land, within PCC ownership, to be enhanced and enable planning permission. The land is therefore a ransom strip and a figure has been negotiated with the developer.	Cabinet	14 November 2022	Growth, Resources, And Communities Scrutiny Committee	Orton Waterville	Consultation has been carried out with the Interim Head of Property, external valuers	Christine Addison Interim Head of Property	Corporate Services	It is not anticipated that there will be any documents other than the report and relevant appendices to be published.  The decision will include an exempt annexe. By virtue of paragraph 3, information relating to the financial or business affairs of any particular person (including the authority holding that information).



**PART 3 – NOTIFICATION OF NON-KEY DECISIONS**

<b>DECISIONS FROM 21 NOVEMBER 2022</b>								
<b>DECISION REQUIRED</b>	<b>DECISION MAKER</b>	<b>DATE DECISION EXPECTED</b>	<b>RELEVANT SCRUTINY COMMITTEE</b>	<b>WARD</b>	<b>CONSULTATION</b>	<b>CONTACT DETAILS / REPORT AUTHORS</b>	<b>DIRECTORATE</b>	<b>DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES</b>
<p><b>Extend Grant funded lunch clubs and award grant for AgeUK Day Centre</b> - To retrospectively approve the funding of various lunch clubs and an AgeUK Day Centre to include:</p> <p>Bharat Hindu Samaj Lunch Club                      Italian Community Centre Lunch Club                      South Grove Community Centre (formally known as FILEF Lunch Club)                      AgeUK Orton Day Service</p> <p>The provision commenced in April 2022 and will run until March 2024. The grant funding comes to a total of £73,508</p>	<p><b>Councillor John Howard, Cabinet Member for Adult Social Care, Health and Public Health</b></p>	<p><b>October 2022</b></p>	<p>Adults and Health Scrutiny Committee</p>	<p>North, Fletton and Woodston</p>	<p>No formal consultation other than engagement with relevant internal and external stakeholders</p>	<p>Claire Cluer - Commissioning Manager (Day Opportunities Review) 01480 372314, <a href="mailto:claire.cluer@cambridgeshire.gov.uk">claire.cluer@cambridgeshire.gov.uk</a></p>	<p>People Services</p>	<p>It is not anticipated that there will be any documents other than the report and relevant appendices to be published.</p>

## PREVIOUSLY ADVERTISED DECISIONS

DECISION REQUIRED	DECISION MAKER	DATE DECISION EXPECTED	RELEVANT SCRUTINY COMMITTEE	WARD	CONSULTATION	CONTACT DETAILS / REPORT AUTHORS	DIRECTORATE	DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES
<p><b>1. Approval of the leasehold disposal of a brownfield site to a care provider –</b> A site has been found for a care home and the Council are currently looking into a leasehold disposal to a care provider who will build a care facility and then contract to provide services to the Council.</p>	<p><b>Councillor Cereste, Cabinet Member for Climate Change, Planning, Housing and Transport</b></p>	<p><b>October 2022</b></p>	<p>Growth, Resources, And Communities Scrutiny Committee</p>	<p>Park</p>	<p>Relevant internal and external stakeholders.  A forum has been set up by the Combined Authority involving representatives from finance, legal, property and social care.</p>	<p>Felicity Paddick, Manager - Estates and Valuation, Tel: 07801 910971 Email: felicity.paddick@nps.co.uk</p>	<p>Corporate Services</p>	<p>The decision will include an exempt annexe. By virtue of paragraph 3, information relating to the financial or business affairs of any particular person (including the authority holding that information).</p>
<p><b>2. Variation to the delegation agreement between Peterborough City Council (PCC) and Cambridgeshire County Council (CCC) regarding the delivery of the Healthy Child Programme (HCP) across Peterborough and Cambridgeshire</b> This decision seeks authorisation to vary the Delegation and Partnering agreement to account for the increase in the value of PCC financial contributions to CCC in respect of the Agenda for Change pay increase. Agenda for Change is a nationally agreed UK-wide package of pay, terms and conditions for NHS staff. Under this deal, which came into effect in 2018, was the agreement for all NHS staff employed at the top pay points at bands 2-8c were to receive a 6.5% cumulative pay increase over a 3 year period.</p>	<p><b>Councillor Howard, Cabinet Member for Adult Social Care, Health &amp; Public Health</b></p>	<p><b>October 2022</b></p>	<p>Children and Education Scrutiny Committee</p>	<p>All Wards</p>	<p>Relevant internal and external stakeholders</p>	<p>Amy Hall, Children's Public Health Commissioning Manager, Tel:07583040529</p>	<p>Public Health</p>	<p>CMDN to authorise delegation of HCP commissioning functions from PCC to CCC - <a href="https://democracy.peterborough.gov.uk/mglssueHistoryHome.aspx?Id=22331&amp;PlanId=395&amp;RPID=0">https://democracy.peterborough.gov.uk/mglssueHistoryHome.aspx?Id=22331&amp;PlanId=395&amp;RPID=0</a></p>
<p><b>3. Approval of the Peterborough Sufficiency Strategy</b> Every top tier local authority is required to publish a sufficiency strategy. This must set out how we seek to avoid children coming into care through the provision of family support services, and identify steps that we are taking to ensure that we have sufficient placements for children in care in our area, so that as many children and young people in care can live locally, provided that this is in their best interests.</p>	<p><b>Councillor Lynne Ayres, Cabinet Member for Children's Services and Education, Skills and the University</b></p>	<p><b>October 2022</b></p>	<p>Children and Education Scrutiny Committee</p>	<p>All Wards</p>	<p>There has been widespread consultation including with children and young people in care.</p>	<p>Nicola Curley: Director of Children's Service, Email: nicola.curley@peterborough.gov.uk</p>	<p>People and Communities</p>	<p>Scrutiny Report</p>
<p><b>4. Werrington Fields and Ken Stimpson Secondary School -</b> Following a public meeting held on 20 September 2021 at Ken Stimpson School, a decision needs to be taken on whether or not to proceed with plans to erect a fence to enclose part of the school's playing fields. The area is currently open access to the public. The school has not been using the area for over two years due to concerns over the safeguarding risk to the young people attending the school.</p>	<p><b>Councillor Lynne Ayres, Cabinet Member for Children's Services and Education, Skills and the University</b></p>	<p><b>October 2022</b></p>	<p>Children and Education Scrutiny Committee</p>	<p>Werrington</p>	<p>Public meeting held on 20 September 2021 at Ken Stimpson School. Prior to this, a detailed background information document was circulated to interested parties.</p>	<p>Jonathan Lewis, Service Director, Education <a href="mailto:jonathan.lewis@peterborough.gov.uk">Email:jonathan.lewis@peterborough.gov.uk</a></p>	<p>Education</p>	<p>Cabinet Member Decision Notice, Background Information Document  It is not anticipated that there will be any documents other than the report and relevant appendices to be published.</p>

<b>DECISION REQUIRED</b>	<b>DECISION MAKER</b>	<b>DATE DECISION EXPECTED</b>	<b>RELEVANT SCRUTINY COMMITTEE</b>	<b>WARD</b>	<b>CONSULTATION</b>	<b>CONTACT DETAILS / REPORT AUTHORS</b>	<b>DIRECTORATE</b>	<b>DOCUMENTS RELEVANT TO THE DECISION SUBMITTED TO THE DECISION MAKER INCLUDING EXEMPT ANNEXES</b>
<p><b>5. Approval to enter into a Section 75 Partnership Agreement with Cambridgeshire and Peterborough NHS Foundation Trust</b> This agreement will ensure the provision of CPFT mental health specialist working with mental health practitioners who are part of multiagency Family Safeguarding teams working as part of children's social care safeguarding teams.</p>	<p><b>Councillor Lynne Ayres, Cabinet Member for Children's Services and Education, Skills and the University</b></p>	<p><b>October 2022</b></p>	<p>Children and Education Scrutiny Committee</p>	<p>All Wards</p>	<p>Relevant internal and external stakeholders</p>	<p>Helen Andrews, Children's Commissioning Manager helen.andrews@cambridgeshire.gov.uk</p>	<p>People Services</p>	<p>It is not anticipated that there will be any documents other than the report and relevant appendices to be published.</p>
<p><b>6. Approve the Joint Cambridgeshire and Peterborough Suicide Prevention Strategy 2022-2025</b> – to discuss and agree the Joint Cambridgeshire and Peterborough Suicide Prevention Strategy 2022-2025, for final approval by the Health and Wellbeing Board.</p>	<p><b>Councillor John Howard, Cabinet Member for Adult Social Care, Health and Public Health</b></p>	<p><b>October 2022</b></p>	<p>Adults and Health Scrutiny Committee</p>	<p>Dogsthorpe</p>	<p>Chair and vice chair of adults and health committee, Director of Public Health, Mental health boards</p>	<p>Joe Davies Email:joseph.davies@cambridgeshire.gov.uk</p>	<p>Public Health</p>	<p>It is not anticipated that there will be any documents other than the report and relevant appendices to be published.</p>
<p><b>7. PCC/CCC Delegation Agreement for jointly procured Floating Support service</b> - Approval of Delegation Arrangements to allow CCC to implement and manage this contract on behalf of PCC</p>	<p><b>Councillor Howard, Cabinet Member for Adult Social Care, Health &amp; Public Health</b></p>	<p><b>October 2022</b></p>	<p>Adults and Health Scrutiny Committee</p>	<p>All Wards</p>	<p>Feedback sought from existing customers, staff and external partners/stakeholders prior to commencing re-procurement</p>	<p>Lisa Sparks, Senior Commissioner (ASC Commissioning), 07900163590, lisa.sparks@cambridgeshire.gov.uk</p>	<p>Public Health</p>	<p>It is not anticipated that there will be any documents other than the report and relevant appendices to be published.</p>
<p><b>8. Approval and Endorsement of a new countywide Infant Feeding Strategy</b> - Decision sought to approve and endorse a countywide Infant Feeding Strategy developed collaboratively between Public Health and the Cambridgeshire &amp; Peterborough Clinical Commissioning Group (CCG). This decision includes approval of overall strategy and underpinned action plans required to implement this.</p>	<p><b>Councillor Lynne Ayres, Cabinet Member for Children's Services and Education, Skills and the the University</b></p>	<p><b>October 2022</b></p>	<p>Children and Education Scrutiny Committee</p>	<p>All Wards</p>	<p>Maternity Voices Partnerships, who are made up of service user representatives and key stakeholders spanning maternity, health visiting and the third sector have coproduced the strategy alongside Local Authority and CCG colleagues.</p>	<p>Amy Hall, Children's Public Health Commissioning Manager, amy.hall@peterborough.gov.uk, 07583040529</p>	<p>Public Health</p>	<p>Paper and Strategy to be submitted closer to the Cabinet meeting</p>



## FORWARD PLAN

### **PART 1 – KEY DECISIONS**

In the period commencing 28 clear days after the date of publication of this Plan, Peterborough City Council's Executive intends to take 'key decisions' on the issues set out below in **Part 1**. Key decisions relate to those executive decisions which are likely to result in the Council spending or saving money in excess of £500,000 and/or have a significant impact on two or more wards in Peterborough.

If the decision is to be taken by an individual Cabinet Member, the name of the Cabinet Member is shown against the decision, in addition to details of the Councillor's portfolio. If the decision is to be taken by the Cabinet, this too is shown against the decision and its members are as listed below:

Cllr Fitzgerald (Leader of the Council), Cllr Steve Allen (Deputy Leader); Cllr Ayres; Cllr Cereste; Cllr Howard; Cllr Coles and Cllr Simons.

This Plan should be seen as an outline of the proposed decisions for the forthcoming month and it will be updated on a fortnightly basis to reflect new key-decisions. Each new Plan supersedes the previous Plan and items may be carried over into forthcoming Plans. Any questions on specific issues included on the Plan should be included on the form which appears at the back of the Plan and submitted to [philippa.turvey@peterborough.gov.uk](mailto:philippa.turvey@peterborough.gov.uk), Democratic and Constitutional Services Manager, Legal and Governance Department, Town Hall, Bridge Street, PE1 1HG (fax 08702 388039). Alternatively, you can submit your views via e-mail to or by telephone on 01733 452460. For each decision a public report will be available from the Democratic Services Team one week before the decision is taken.

### **PART 2 – NOTICE OF INTENTION TO TAKE DECISION IN PRIVATE**

Whilst the majority of the Executive's business at the Cabinet meetings listed in this Plan will be open to the public and media organisations to attend, there will be some business to be considered that contains, for example, confidential, commercially sensitive or personal information. In these circumstances the meeting may be held in private, and on the rare occasion this applies, notice will be given within **Part 2** of this document, 'notice of intention to hold meeting in private'. A further formal notice of the intention to hold the meeting, or part of it, in private, will also be given 28 clear days in advance of any private meeting in accordance with The Local Authorities (Executive Arrangements) (Meetings and Access to Information) (England) Regulations 2012.

The Council invites members of the public to attend any of the meetings at which these decisions will be discussed (unless a notice of intention to hold the meeting in private has been given).

### **PART 3 – NOTIFICATION OF NON-KEY DECISIONS**

For complete transparency relating to the work of the Executive, this Plan also includes an overview of non-key decisions to be taken by the Cabinet or individual Cabinet Members, these decisions are listed at **Part 3** and will be updated on a weekly basis.

You are entitled to view any documents listed on the Plan, or obtain extracts from any documents listed or subsequently submitted to the decision maker prior to the decision being made, subject to any restrictions on disclosure. There is no charge for viewing the documents, although charges may be made for photocopying or postage. Documents listed on the notice and relevant documents subsequently being submitted can be requested from Philippa Turvey, Democratic and Constitutional Services Manager, Legal and Governance Department, Town Hall, Bridge Street, PE1 1HG (fax 08702 388038), e-mail to [philippa.turvey@peterborough.gov.uk](mailto:philippa.turvey@peterborough.gov.uk) or by telephone on 01733 452460.

All decisions will be posted on the Council's website: [www.peterborough.gov.uk/executivedecisions](http://www.peterborough.gov.uk/executivedecisions). If you wish to make comments or representations regarding the 'key decisions' outlined in this Plan, please submit them to the Democratic and Constitutional Services Manager using the form attached. For your information, the contact details for the Council's various service departments are incorporated within this Plan.

## **DIRECTORATE RESPONSIBILITIES**

### **CORPORATE SERVICES DEPARTMENT Sand Martin House, Bittern Way, Fletton Quays, Peterborough, PE2 8TY**

Financial and Resources

Internal Audit, Insurance and Investigations

Peterborough Serco Strategic Partnership (Business Support, Corporate Procurement, Business Transformation and Strategic Improvement, Customer Services, Shared Transactional Services)

Communications

Commercial & Property

Registration and Bereavement Services

Commercial & Property

Delivery and Transformation

Health & Safety

Human Resources & Workforce Development - (Business Relations, HR Policy and Rewards, Training and Development, Occupational Health and Workforce Development)

Digital, Data Analytics, Risk & IT Services

### **BUSINESS IMPROVEMENT AND DEVELOPMENT Sand Martin House, Bittern Way, Fletton Quays, Peterborough, PE2 8TY**

Transformation and Programme Management Office, Business Intelligence, Commercial, Strategy and Policy, Shared Services

### **PEOPLE SERVICES DEPARTMENT Sand Martin House, Bittern Way, Fletton Quays, Peterborough, PE2 8TY**

Adult Services and Communities (Adult Social Care Operations, Adult Social Care and Quality Assurance, Adult Social Care Commissioning, Early Help – Adults, Children and Families, Housing and Health Improvement, Community and Safety Services, Offender Services)

Children's Services (Children's Social Care Operations, Children's Social Care Quality Assurance, Safeguarding Boards – Adults and Children's, Child Health, Clare Lodge (Operations), Access to Resources)

Education, (Special Educational Needs and Inclusion, School Improvement, City College Peterborough, Pupil Referral Units, Schools Infrastructure)

Commissioning

Business Management and Commercial Operations (Commissioning, Recruitment and Retention, Clare Lodge (Commercial), Early Years and Quality Improvement)

Performance and Information (Performance Management, Systems Support Team)

### **LEGAL AND GOVERNANCE DEPARTMENT Sand Martin House, Bittern Way, Fletton Quays, Peterborough, PE2 8TY**

Corporate Lawyers

Constitutional Services, (Democratic Services, Electoral Services, Executive and Members Services) - (Town Hall, Bridge Street, Peterborough, PE1 1HG)

Information Governance, (Freedom of Information and Data Protection)

### **PLACE AND ECONOMY DEPARTMENT Sand Martin House, Bittern Way, Fletton Quays, Peterborough, PE2 8TY**

Development and Construction (Development Management, Planning Compliance, Building Control)

Planning Growth and Environment (Strategic Planning, Housing Strategy and Affordable Housing, Climate Change and Environment Capital, Natural and Built Environment)

Housing and Homelessness

Highways and Transport(Network Management, Highways Maintenance, Street Naming and Numbering, Street Lighting, Design and Adoption of Roads, Drainage and Flood Risk Management, Transport Policy and Sustainable Transport, Public Transport)

Employment and Skills

Community Safety

Regulatory Services

Emergency Resilience & Planning

(Markets and Street Trading, City Centre Management including Events, Regulatory Services, Parking Services, Vivacity Contract, CCTV and Out of Hours Calls)

### **PUBLIC HEALTH DEPARTMENT Sand Martin House, Bittern Way, Fletton Quays, Peterborough, PE2 8TY**

Health Protection, Health Improvements, Healthcare Public Health.

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## Climate Change and Environment Scrutiny Committee Work Programme 2022/23

Updated: 27 October 2022

Meeting Date	Item	Indicative Timings	Comments
Meeting date: 5 July 2022 Joint Scrutiny Meeting	Medium Term Financial Strategy Contact Officer: Cecilie Booth		
Meeting date: 6 July 2022  Draft report deadline: 17 June Final report deadline: 24 June	Appointment of Co-opted Members 2022/23		
	Review of 2021/2022 and Draft Work Programme for 2022/23		
	Local Flood Risk Management Strategy Contact Officer: Nick Greaves and Richard Whelan		
	Local Area Energy Plan Contact Officer: Hannah Swinburne		
	Closure of Climate Working Group Contact Officer: Hannah Swinburne		
	Closure of Cycling Working Group and creation of a Walking and Cycling Task and Finish Group Contact Officer: Lewis Banks		
	Forward Plan of Executive Decisions		

<b>Meeting date: 5 September 2022</b>  Draft report deadline: 18 August Final report deadline: 23 August	<b>Tree Management: Review of Existing Policy for Managing Tree Related Subsidence Claims Against The Council</b>  <b>Contact Officer: Darren Sharpe/ Jim Newton/ Sue Addison</b>		
	<b>Portfolio Progress Report of Cabinet Member for Climate Change, Planning, Housing and Transport Cllr Marco Cereste</b>  <b>Contact Officer: Charlotte Palmer/ Adrian Chapman</b>		
	<b>Climate Change Public Engagement Approach</b>  <b>Contact Officer: Hannah Swinburne</b>		
	<b>Monitoring Recommendation Report</b>		
	<b>Forward Plan</b>		
	<b>Work Programme 2022/2023</b>		
<b>Meeting date: 13 September 2022</b>  <b>POSTPONED</b>  <b>Joint Scrutiny Meeting</b>	<b>Medium Term Financial Strategy</b>  <b>Contact Officer: Cecilie Booth</b>		

<p><b>Meeting date: 11 October 2022</b></p> <p><b>CANCELLED</b></p> <p><b>Joint Scrutiny Meeting</b></p>	<p><b>Medium Term Financial Strategy</b></p> <p><b>Contact Officer: Cecilie Booth</b></p>		
<p><b>Meeting date: 9 November 2022</b></p> <p>Draft report deadline: 21 October</p> <p>Final report deadline: 28 October</p>	<p><b>Cabinet Member Report Waste, Street Scene and Environment (inc. Recycling Rates, Open Space Management)</b></p> <p><b>Contact Officer: James Collingridge</b></p>		
	<p><b>Local Area Energy Plan, final draft for endorsement</b></p> <p><b>Contact Officer: Hannah Swinburne</b></p>		
	<p><b>Monitoring Recommendation Report</b></p> <p><b>Contact Officer – Charlotte Cameron</b></p>		
	<p><b>Forward Plan of Executive Decisions</b></p> <p><b>Contact Officer – Charlotte Cameron</b></p>		
	<p><b>Work Programme 2022/2023</b></p> <p><b>Contact Officer – Charlotte Cameron</b></p>		

<p><b>Meeting date: 29 November</b></p> <p>Draft report deadline: 10 November 2022</p> <p>Final report deadline: 17 November</p>	<p><b>Sustainable Future City Council Strategy and Priorities 2022 – 2025</b></p> <p><b>Contact Officer: Jens Gemmel von Döllinger, Sustainable Future City Council Director</b></p>		
<p><b>Meeting date: 4 January 2023</b></p> <p>Draft report deadline: 14 December</p> <p>Final report deadline: 21 December</p>	<p><b>Schools Climate Change Programme</b></p> <p><b>Contact Officer: Hannah Swinburne</b></p>		
	<p><b>Progress monitoring report on 2018 PCC Biodiversity Strategy. The report to include updates of other ongoing GI projects undertaken within Peterborough where PCC are partners e.g John Clare Countryside</b></p> <p><b>Contact officer: Darren Sharpe</b></p>		
	<p><b>City Climate Change Action Plan – (update after consultation) (could be moved to Feb)</b></p> <p><b>Contact Officer: Hannah Swinburne</b></p>		
	<p><b>Monitoring Recommendation Report</b></p> <p><b>Contact Officer – Charlotte Cameron</b></p>		
	<p><b>Forward Plan of Executive Decisions</b></p> <p><b>Contact Officer – Charlotte Cameron</b></p>		
	<p><b>Work Programme 2022/2023</b></p>		

	<b>Contact Officer – Charlotte Cameron</b>		
<b>Meeting date: 23 January 2023</b> <b>Joint Scrutiny Meeting</b>	<b>Medium Term Financial Strategy</b> <b>Contact Officer: Cecilie Booth</b>		
<b>Meeting date: 28 February 2023</b> Draft report deadline: 9 February Final report deadline: 16 February	<b>Climate Change Adaptation Plan</b> <b>Contact Officer: Hannah Swinburne</b>		
	<b>Monitoring Recommendation Report</b> <b>Contact Officer – Charlotte Cameron</b>		
	<b>Forward Plan of Executive Decisions</b> <b>Contact Officer – Charlotte Cameron</b>		
	<b>Work Programme 2022/2023</b> <b>Contact Officer – Charlotte Cameron</b>		

Items Pending:

**Council Climate Change Action Plan - Contact Officer: Hannah Swinburne, proposed for January meeting**

**Active Travel, LCWIP – Contact Officer: Lewis Banks, proposed for February meeting**

**Trees and Woodland – Ash Dieback Action Plan - Contact Officer –Darren Sharpe, proposed for January meeting**

**Active Travel England Funding Bid, focusing on broader delivery targets - Contact Officer: Lewis Banks, not currently proposed for a meeting**

**Cycling and Walking Task and Finish Group Final Report – Contact Officer: Lewis Banks**

**Flood Risk Management Strategy – Richard Whelan, JAN**

**Green Accelerator Programme** - This item would comprise of an update on the Parks Accelerator Fund, this provides a bit of background [Cambridgeshire – Future Parks Accelerator](#). The Green Investment part came out of conversations about funding for trees, and the update would be around funding bids we are submitting for investment in our green infrastructure and how they link to the climate emergency. Would also talk about our future plans for securing investment to implement climate change measures. NB- Add to agenda for Nov Group Reps meeting.