



# **SCRUTINY COMMITTEE - CLIMATE AND PLACE**

**Wednesday, 20 March 2024**

**10.00 am**

**Sedgemoor Room, Bridgwater House, King Square, Bridgwater, TA6 3AR**

## **SUPPLEMENT TO THE AGENDA**

To: The members of the Scrutiny Committee - Climate and Place

We are now able to enclose the following information which was unavailable when the agenda was published:

Agenda Item 3      Minutes from the Previous Meeting (Pages 5 - 12)

To approve the minutes from the previous meeting

Agenda Item 4 Public Question Time (Pages 13 - 18)

The Chair to advise the Committee of any items on which members of the public have requested to speak and advise those members of the public present of the details of the Council's public participation scheme.

For those members of the public who have submitted any questions or statements, please note, a three minute time limit applies to each speaker and you will be asked to speak before Councillors debate the issue.

We are now live webcasting most of our committee meetings and you are welcome to view and listen to the discussion. The link to each webcast will be available on the meeting webpage, please see details under 'click here to join online meeting'.

Agenda Item 7 Section 19 Reports from 2020-2022 Flood Events (Pages 19 - 22)

To consider the reports

Agenda Item 8 Preliminary Report Section 19s 2023 Flood Events (Pages 23 - 26)

To consider the report

Agenda Item 9 Somerset Energy Investment Plan - Report of the Task and Finish Group (Pages 27 - 132)

To consider the report

Agenda Item 11

Items for Information (Pages 133 - 134)

This is a standing agenda item and refers to information that has been requested and/or shared with the committee, that cover the Committee's policy areas.

Since the last meeting the following information has been supplied

- a) Background information on regeneration and UK Shared Prosperity Fund.*
- b) SRA Funding - Briefing note*

If Committee members have any questions or comments on this information, please contact the Committee Administrator on [democraticservicesteam@somerset.gov.uk](mailto:democraticservicesteam@somerset.gov.uk) in the first instance.

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# Agenda Item 3

Draft minutes of a meeting of the Scrutiny Climate and Place committee held on Wednesday 17<sup>th</sup> January 2024, held in the John Meikle Room, The Deane House, Belvedere Road, Taunton TA1 1HE.

## **Committee members in attendance:**

Cllr Martin Dimery (Chair), Cllr Dave Mansell, Cllr Alan Bradford, Cllr Henry Hobhouse, Cllr Harry Munt, Cllr Bente Height, Cllr Mike Stanton (as sub), Cllr Edric Hobbs, Cllr Steve Ashton, Cllr Rosemary Woods (as sub).

## **Committee members in attendance online:**

Cllr Adam Boyden and Cllr Matthew Martin

## **Non-committee members in attendance:**

Cllr Dixie Darch, Executive Lead Member for Climate Change

Cllr Richard Wilkins, Executive Lead Member for Transport and

## **Non-committee members in attendance online:**

Cllr Oliver Patrick, Cllr Dawn Johnson, Cllr Peter Clayton, Cllr Ros Wyke, Cllr Sarah Wakefield, Cllr Norman Cavill.

## **Officers in attendance:**

|                   |   |
|-------------------|---|
| Jamie Jackson     | Governance Manager, Scrutiny                      |
| Cara Naden        | Specialist, Environment                           |
| Jacob Hall        | Climate Change and Resilience Officer             |
| Nichola Bown      | Project and Change Manager                        |
| Mike Cowdell      | Head of Waste                                     |
| Paul Hickson      | Service Director, Economy Employment and Planning |
| Mike O'Dowd Jones | Service Director, Infrastructure & Transport      |
| John Helps        | Performance and Insight Officer                   |
| Stephanie Gold    | Democratic Services Officer                       |

## **Members of the public in attendance:**

Nick Hall – Representing Pilton Parish Council

### **1. Apologies for Absence - Agenda item 1**

Apologies for absence were received from Cllrs Tom Power (Cllr Woods as sub), Cllr Marcus Kravis (Cllr Stanton as sub) and Cllr Adam Boyden.

### **2. Declarations of Interest - Agenda item 2**

Cllr Stanton declared an interest in item 7 due to his position as Chair of the Somerset Rivers Authority Board.

Cllr Harry Munt also declared an interest in item 7, due to his role as a member of the Somerset Rivers Authority Board.

### **3. Minutes from the previous meeting – Agenda item 3**

The minutes of the previous meeting held on 22nd November 2023 were approved as a correct record subject to the following amendments;

- The committee had previously voted for an additional scrutiny meeting to consider Water Quality in Somerset, but this has not yet happened. Cllr Hobhouse proposed a revote to progress this as an urgent matter, seconded by Cllr Ashton, and the committee voted unanimously in favour to progress this as soon as possible.
- Regarding item 39 the Action Tracker – Proposed revision to wording regarding the outcomes of Scrutiny recommendations.
- Regarding item 40 the Committee Forward plan – Revision to wording to reflect that the committee did not note a forward plan, but that they noted an update report on the approach to the development of the forward plan.

### **4. Public Question Time - Agenda item 4**

The Chair welcomed Nick Hall to the Scrutiny Committee Climate and Place who introduced himself and thanked members and officers for the written responses to his questions that had been submitted and published in advance of the meeting.

He asked members to consider the following as follow-up to the questions and responses obtained prior to the meeting: -

- You have confirmed that Glastonbury festival traffic management does fall within the remit of this committee, does this mean that there will now be coordination with the Scrutiny Committee - Communities who's remit is the licensing and planning aspects of the event?
- You have stated that there is no publicly available debrief report for Glastonbury festival traffic management, is there an intention to create such a report?
- Members of the local community are reassured that they can now contact the council directly with any issues relating Glastonbury Festival.
- Thank you for the update on the Strategic Traffic Management Plan which is a condition of the recent planning approval. Given that the applicant has not yet submitted this plan, does this mean that the festival should continue to operate under the conditions of the previous planning approval?
- I look forward to more responses on the specific issues raised as part of my PQT submission, as advised in the written response from Somerset Council.
- There needs to be further distinction between Somerset Councils role and regulator and service provider at Glastonbury Festival.

The Service Director for Infrastructure and Transport thanked Mr Hall for his questions and advised that the team are always happy to have conversations about issues such as these. He also advised that, in terms of the question around planning conditions and the Traffic Management Plan, he would seek advice and come back to the member of the public directly.

## **5. Scrutiny Climate and Place Work Programme – Agenda item 5**

Due to a publishing error, the link to the supplementary agenda item 'Scrutiny Committee Climate and Place Forward Plan Report 2024' was unavailable.

Democratic Services advised that the report would be available for consideration and comment at the next meeting.

The committee reviewed the Action Tracker and there was a brief discussion about the importance of outcomes (i.e a report to the Executive) being reported back to the committee for completeness.

A member asked when the overdue S19 reports for 2020-2022 would be coming to this committee, and the Service Director for Economy, Employment and Planning advised that officers would seek advice and an update would be provided as soon as possible.

Jamie Jackson, the Governance Manager, Scrutiny referred to the meeting of 19<sup>th</sup> July 2023 during which a request was made for a Task and Finish group to influence Somerset Council's strategic approach to climate change. He advised that the policy development on the new strategy/vision is underway, and that an email would be sent to members seeking volunteers for the Task and Finish group after the meeting.

## **6. Economy, Employment and Planning: Level 2 Devolution Deal Position Statement - Agenda item 6**

The Chair invited Paul Hickson, Service Director for Economy, Employment and Planning to present the position statement following the 2023 Autumn Statement Secretary of State for Levelling Up, Housing and Communities announcement on a change in the pace of devolution to accelerate to a level 2 deal, which presents an opportunity for Somerset to start a progressive national devolution journey. The Service Director highlighted that this report does not refer to the recent asset and service devolution conversations with parish and town councils which are ongoing.

He invited comments and questions from members and the following were received and discussed: -

- One member felt positive and supportive of the report and in particular bus franchising in Somerset which could allow more local authority control and competition in this area.
- With reference to climate change and adults' skills markets, retrofitting is a huge opportunity that this devolution deal may create that aligns with this council's climate objectives.
- There was a question on whether Somerset should or could apply with neighbouring authorities, and the Service Director advised that in the specific short term, no, but will certainly be considered as the journey continues into the longer term.



The Chair thanked the officer and members for their comments and questions and concluded that the Scrutiny Committee – Climate and Place considered and noted the Position Statement report.

## **7. Somerset Rivers Authority: Draft Strategy and Flood Action Plan 2024-2034 - Agenda item 7**

The Chair welcomed David Mitchell, Senior Manager, Somerset Rivers Authority (SRA) to the meeting.

The Senior Manager, SRA explained that the purpose of bringing the item to members of the Scrutiny Committee - Climate and Place is twofold:

- 1) to review and comment on the early draft of Executive Decision SRA funding decision report that will be considered on 6 March.
- 2) to consider the draft SRA Strategy and provide feedback on its content.

He then took members through a presentation which explained what the Somerset Rivers Authority is and how it came into being. The slides took members through a summary of the SRA's governance, workstreams (and achievements so far), budgets and the headlines of the new Strategy and Flood Action Plan 2024-2034.

He invited comments and questions from members and the following were received and discussed:

- There was concern about the impacts of new development/building on the flooding of roads in Somerset and the need for a strategy to help communities that are being affected. The Senior Manager advised that the SRA is involved, with its partners, in monitoring and investigations, and can assist in terms of support with grant funding to help deliver solutions for all of these sorts of issues.
- There were many comments made around the devastating impact of flash flooding, and some members expressed concerns that these events are becoming more regular, and in some areas not improving despite flood prevention and mitigation activities.
- One member expressed his support and gratitude for the very good work of the Somerset Rivers Authority.
- Members felt that drain and gully clearing is an important aspect of flood prevention that continues to be an issue all over the county.

- Regarding council tax increases, one member felt that taxpayers do not want to pay more of their council tax to the SRA. The Senior Manager reassured the committee that there was no proposal to increase the 1.25% precept.
- Regarding the many projects that are shown on the map, would they be considered successful? Would these projects have been done without the support of the SRA, and finally if Somerset Council did not continue to fund the SRA, would all of this work have to stop? In his response the Senior Manager gave the view that the projects have been highly successful, and advised that without a significant amount of its funding coming from Somerset Council the SRA would certainly have to adapt and change the way in which it operates.
- One members asked if, when SRA officer go out to divisions, they make contact with division members to allow members to understand what is happening. The Service Manager agreed with this request, understanding the reasoning behind it.
- Regarding the flash flooding in West & Queen Camel which occurs annually despite flood defences, can the SRA support communities like this and share learning from this with other communities across Somerset facing the same issues? The Service Manager assured the councillor that SRA Community Engagement officers undertake activities such as these in their daily role.
- One member felt that more information was needed around the baselining, modelling, justification and quantifiable benefits of the Council spending this money. The Senior Manager acknowledged the point, assuring members that throughout the process, grant proposals are appropriately assessed for their benefits and impacts. He agreed that the SRA could improve its communications around this.

The Senior Manager concluded that from the discussions at the meeting it has become clear that there is a need for more information on how the SRA is funded. He advised that he would provide a briefing note after the meeting, thanking the committee for the discussion, questions and valuable feedback.

The Chair thanked the Senior Manager for the reports and concluded that the Scrutiny Committee – Climate and Place had considered and noted: -

- 1) The draft of Executive Decision SRA funding decision.

2) The SRA Strategy and Flood Action Plan 2024-2034.

**8. Waste Services: Flex Collect Update - Agenda item 8**

The Chair welcomed Mike Cowdell, Head of Waste, to the Scrutiny Committee - Climate and Place to present an update report on the flexible plastics trial, Flex Collect, that was delivered to 3600 properties around Frome during May 2023.

The trial included communications, engagement with residents and provided participants with a blue, transparent bags to present flexible plastics alongside the existing recycling service.

The trial yielded impressive results and The Council has in-principal agreement to extend the trial to 20,000 properties in the East of the County from spring/summer 2024.

Members sought clarity on the types of materials included in the trial, and there was a request for further information regarding the ways in which those materials are processed and repurposed by the end user. The Head of Waste advised that he would obtain the requested information and bring it back to the committee at their next meeting.

The Scrutiny committee – Climate and Place considered and noted the Flex Collect Update.

[The meeting ended at 12.35pm]

.....CHAIR

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## Scrutiny Climate and Place 20th March 2024 – Public Questions

| Annexe A – Public Questions  |   |
|--|---|
| Name of person submitting  | Questions   |
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Page 13</p> <p><b>Nick Hall</b></p> | <p><b>PQT 1.</b></p> <p>Good morning – my name is Nick Hall. I am a Pilton Parish Councillor. Today, I am speaking in a personal capacity about <b>Glastonbury Festival Traffic Management</b></p> <p>As you may recall from when I spoke in January, some members of our community, including myself, have raised a number of issues with the management of traffic associated with the Festival.</p> <p>Most of those issues have not been addressed by the Festival operating company Glastonbury Festival Events Ltd (GFEL). Hence we are relying on Somerset Council to encourage GFEL to engage.</p> <p>In recent years there hasn't been direct contact between our community and the Somerset Council's traffic management team. Mr O'Dowd-Jones' commitment to have that team come and speak to our community is much appreciated. We need to progress this meeting to ensure we can have an impact on this year's Festival.</p> <p>I still haven't heard back from the traffic management events team on the issues of:</p> <ul style="list-style-type: none"> <li>○ Temporary Traffic Restrictions Orders and the insufficient consultation on public roads and footpaths.</li> <li>○ Potholes and large-scale road degradation</li> <li>○ Impact of offsite events/campsites</li> <li>○ Reducing the traffic through Pilton village.</li> </ul> <p>I very much hope that responses can be provided in the near future.</p> <p>Two other questions that I raised in my speech in January were not answered:</p> <ol style="list-style-type: none"> <li>1. Is there an intention to create a publicly available de-brief report on Glastonbury Festival highways and traffic issues?</li> </ol> |

## Scrutiny Climate and Place 20th March 2024 – Public Questions

|                               |   |
|-------------------------------|---|
|                               | <p>2. Regarding the <b>Strategic Traffic Management Plan (STMP)</b> - condition of Planning Approval 2022/2458/FUL. The applicant has now submitted this <b>STMP</b> for approval. I have some reservations – it doesn't address air quality along the routes and doesn't assess the risks to non-car users. However my biggest concern is that a very large area around the Festival site is 'controlled' by GFEL (in conjunction with Somerset Council and the Police) by a <b>Traffic Management Plan (TMP)</b> that is not publicly available. Would it be possible to make available a public version of this <b>TMP</b>?</p> <p>NJH<br/>14 Mar 2024</p>   |
| <p><b>Response</b></p>        | <p><b>Lead officer verbal response to be given at the meeting.</b></p> <p><b>Full written response to be distributed within 5 working days of the meeting</b></p>   |
| <p><b>Eya Bryczkowski</b></p> | <p><b>PQT 2.</b></p> <p>TURN WORDS INTO ACTION NOW</p> <p>Holding full council meetings at Canalside Conference Centre is totally non environmentally friendly. For example, from Glastonbury, where there are no trains, the 75 bus to Bridgwater is every hour. I can catch the bus to Bridgwater for free with my bus pass. But Canalside Conference Centre is not held in the centre of town, and is awkward to get to. So I drive, spend money on petrol, (councillors/officers get petrol expenses), this adds to extra cars on the road, carbon emissions, and polluting the environment. Surely a more environmentally friendly place can be found by the council? I generally prefer to turn up in person because it's nice to get to know councillors, and I learn a lot from this. I don't mind paying for petrol for that reason alone. But what about people who are poorer than me?</p> |

## Scrutiny Climate and Place 20th March 2024 – Public Questions

Also, as is my democratic right, I believe in turning up to support lobbies when appropriate:

### **QUESTION ONE**

Councillors and officers, can you immediately, as soon as possible, research more suitable and environmentally friendly places, where people can catch buses to them, avoiding carbon emissions?

### **QUESTION TWO**

Somerset is a predominantly rural area. The council is, I understand, subsidising some bus services.

For me to get to Musgrove Park for an early appointment, the 29 bus leaves every two hours from my bus stop on the outskirts of Glastonbury.

Then I need to change at Glastonbury town hall.

In the centre of Taunton I need to change again, and get on the number 22 bus to Musgrove Park hospital.

For an early appointment at 9am it is impossible to go by bus.

Bus drivers told me that since the other bus repair sites have gone, if a light bulb goes or gearbox needs repairing, the bus needs to go to Wells anyway to get it sorted. Thus passengers miss whatever appointments they have in Taunton.

The 29 bus used to go all the way from Wells to Musgrove Park, and the college.

Councillors,

If you are still going to subsidise certain bus routes, and be less Taunton centric, please consider influencing First Bus, or other companies, get them to use common sense and have the 29 bus go back to starting from Wells and going all the way to Taunton, particularly Musgrove Park hospital.

Please will you subsidise this as soon as you are able to?

### **QUESTION THREE**

Regarding the cost of living crisis, I presume councillors wish to avoid incurring extra expenses being loaded onto less well off Somerset residents?

## Scrutiny Climate and Place 20th March 2024 – Public Questions

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|--|---|
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Page 16</p> | <p>When I, or anybody else in a similar position, needed to get to Musgrove for an early appointment, which could not be changed, I had to use Community Transport.</p> <p>This cost me £28 cash before petrol prices went up, when I had downbeat nystagmus, so couldn't drive.</p> <p>If outpatients are kept in longer than two hours, the price doubles, thus costing £56.</p> <p>a) If you really care about especially poorer Somerset residents, will you please consider subsidising the 29 bus to arrive in time for early appointments?</p> <p>This is not a divide and rule situation, other small places and towns matter too. But catching three! buses from Wells to Musgrove Park is ridiculous, and needs to be rectified if you really care about the environment.</p> <p>b) Some local authorities are taking private bus companies back into public ownership.</p> <p>Will you start researching how to do this, bring your findings back to the Climate and Place Scrutiny Committee, and propose this option to full council as soon as possible please?</p> <p>Otherwise, all the sentiments expressed towards poorer people, and about environmental issues are only just words. And your promises will be merely aspirations, unless they are fulfilled, in order to avoid the environmental catastrophe that is already happening.</p> <p>Eva Bryczkowski<br/>(Council tax payer<br/>and Unite the Union member)</p> |
| <p><b>Response</b></p>   | <p><b>Lead officer verbal response to be given at the meeting.</b></p> <p><b>Full written response to be distributed within 5 working days of the meeting</b></p>   |





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Somerset Council  
Scrutiny Committee  
– 20.03.2024



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Section 19 Reports from 2020-2022 Flood Events

Lead Officer: Neil Ogilvie, Flood & Coastal Manager

Author: Anna Meares, Flood Risk Adviser

Contact Details: [neil.ogilvie@somerset.gov.uk](mailto:neil.ogilvie@somerset.gov.uk) / [anna.meares@somerset.gov.uk](mailto:anna.meares@somerset.gov.uk)

Executive Lead Member: Mickey Green, Executive Director (Climate & Place)

Division / Local Member: Cllr Dixie Darch

## 1. Summary

- 1.1.** The attached documents detail investigations into flooding events that occurred in Somerset during 2020 to 2022. The reports are required under Section 19 of the Flood and Water Management Act, which states that Lead Local Flood Authorities (LLFAs) have a responsibility to investigate flood incidents. These reports gather information on the happenings during three flood events during 2020-2022, and detail ongoing work and recommendations.
- 1.2.** These reports are for events in Croscombe, Bowlish & Shepton Mallet (3-4<sup>th</sup> October 2020), Chard & Forton (October 2021) and Ilminster (October 2021).
- 1.3.** This item links to the council's ambitions to create a greener, more sustainable Somerset, as well as a flourishing and resilient Somerset. Through investigating flood events, Risk Management Authorities and local communities can improve on procedures, implement mitigation strategies, and reduce the impact of future events, contributing to a more resilient Somerset. Furthermore, as the LLFA (Lead Local Flood Authority), Somerset Council has a statutory duty to manage flooding, and these reports assist in improving the council's ability to mitigate, respond to and prepare for such flooding events.

## 2. Issues for consideration / Recommendations

- 2.1.** Scrutiny Panel is asked to approve these three Section 19 reports for publishing on the Somerset Council public website, for residents and relevant Risk Management Authority partners to access.
- 2.2.** While flooding is an emotive topic, with Somerset as a region having experienced high numbers of incidents repeatedly over the last decade, these

reports provide an objective analysis of the circumstances which led to properties flooding. The intention of a Section 19 report is to give residents the opportunity to provide testimony of what occurred, in combination with Environment Agency and MET Office rainfall data, topographical information, and expert insight into how the flooding occurred and how agencies responded. The reports do not contain sensitive information and details of individual houses such as addresses have been omitted.

- 2.3.** To date, there has been a backlog of Section 19 Reports for historical flooding events, with investigations typically being published around 12-18 months after the incident. In particular, the Croscombe report has been largely delayed due to ongoing and extensive consultation with the local community. With a temporary dedicated resource now devoted to investigating flooding events, this process will become more streamlined for future reports. Investigations are also under way for events in May and September 2023, a preliminary report for which is also being brought to this Scrutiny Panel contemporaneously.

### **3. Background**

- 3.1.** Flood investigations and reporting are known as ‘Section 19 reports’ as under Section 19 of the Flood and Water Management Act, Lead Local Flood Authorities have a responsibility, to the extent it deems necessary, to investigate flood incidents. The function of a Section 19 report is to gather information on the happenings during a particular flood event.

- 3.2.** The legislation states:

(1) On becoming aware of a flooding in its area, a Lead Local Flood Authority must, to the extent that it considers necessary or appropriate, investigate:

- (a) Which risk management authorities have relevant flood risk management functions, and
- (b) Whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.

(2) Where an authority carries out an investigation under subsection (1) it must:

- (a) Publish the results of its investigation, and
- (b) Notify any relevant risk management authorities.

- 3.3.** There is no prescribed time frame within legislation in which a Section 19 report must be published following a major flood event.
- 3.4.** A Section 19 report will often additionally detail any ongoing work with regards to flooding in the area, and will signpost additional work that should be considered, usually in the form of recommendations.
- 3.5.** The report for Croscombe, Bowlish & Shepton Mallet was commissioned by the Strategic Manager for Community Infrastructure in 2022 through the Professional Services Contract with the work being delivered by WSP.

- 3.6. The reports for Chard & Forton and Ilminster were initially drafted during 2022 but due to limited resourcing, have remained unpublished until this time, when a dedicated Section 19 officer has been allocated to manage the publication process and correct the most significant errors within the document.
- 3.7. Each report has been written based on testimonials from residents and parish councils, photographs, Environment Agency and Met Office rainfall data and topographical information. In addition, limited hydrological analysis was undertaken to provide an insight into the channelling and flow paths of the surface water.

#### **4. Consultations undertaken**

- 4.1. Data was gathered from stakeholders in the aftermath of each flooding event, including from residents, parish councils, the Environment Agency, MET office and Risk Management Authorities. There has been ample opportunity for communities to provide their testimonies and images which helped create a picture of what happened during each event. It should be noted that the consultation process for these reports was extensive, leading to multiple iterations of the reports being passed between numerous stakeholders.
- 4.2. Testimonials have been received in the form of FORT reports (Flood Online Reporting Tool) – a system which allows property owners, flood risk authorities and volunteers to share details of flood reports and observations. These have fed into each of the Section 19 reports to give a full picture of what happened during each event. Additionally, there exists a significant body of reporting via the flooding inbox ([flooding@somerset.gov.uk](mailto:flooding@somerset.gov.uk)), through our partners (such as the Environment Agency and Wessex Water) and in first-hand reporting from internal sources.

#### **5. Implications**

- 5.1. There are significant implications for the council if these reports are left unpublished. As the LLFA, Somerset Council has a statutory duty to investigate significant flooding incidents (see 1.1). Although no timescale is given to indicate how long after an event the report should be published, the reports are required by residents, insurance companies, Risk Management Authorities, to avoid a repeat event and learn lessons from the response.
- 5.2. Many residents suffered significant damage to their properties during these floods and require answers as to how the flooding became so extensive and what can be done to prevent it from happening again. A Section 19 report gives recommendations which feed into projects led by the council and other risk management organisations that will reduce the risk of future flooding events.

- 5.3.** The reports provide an overview of how relevant Risk Management Authorities (RMAs) responded during the flooding event. It is essential that these reports are published so that lessons can be learned about how RMAs can improve on their communication and response during a flood event to reduce risk to life and property.
- 5.4.** These reports will be used by residents to inform their Property Level Flood Resilience decisions, by Insurers to understand their risk implications, by the Local Planning Authority to inform their Planning advice and by Developers to ensure they are appropriately managing flood risk within their areas of interest.
- 5.5.** Equalities implications: no equalities implications associated with this report.
- 5.6.** Legal Implications: no legal implications associated with this report.
- 5.7.** Human Resources: no HR implications associated with this report.
- 5.8.** Community Safety: no implications associated with this report.
- 5.9.** Health & Wellbeing Implications: no implications associated with this report.
- 5.10.** Social Value Implications: no implications associated with this report

## **6. Background papers**

- 6.1.** Appendix 2 - S19 Croscombe, Bowlish & Shepton Mallet Oct 2020
- 6.2.** Appendix 3 - S19 Chard October 2021
- 6.3.** Appendix 4 - S19 Ilminster Oct 2021

**Note** For sight of individual background papers please contact the report author

Somerset Council  
Scrutiny Committee  
– 20.03.24



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Preliminary Report Section 19s 2023 Flood Events

Lead Officer: Neil Ogilvie

Author: Anna Meares

Contact Details: [neil.ogilvie@somerset.gov.uk](mailto:neil.ogilvie@somerset.gov.uk) / [anna.meares@somerset.gov.uk](mailto:anna.meares@somerset.gov.uk)

Executive Lead Member: Mickey Green, Executive Director (Climate & Place)

Division / Local Member:

## 1. Summary

- 1.1. This Scrutiny Committee item details a preliminary report to the Section 19 reports for ten flooding events in 2023. These are currently being drafted, and are due to be published later this year.
- 1.2. The reports are required under Section 19 of the Flood and Water Management Act, which states that Lead Local Flood Authorities (LLFAs) have a responsibility to investigate flood major incidents. These specific reports gather information on the happenings during multiple flood events during 2023-24, and detail ongoing work and recommendations.
- 1.3. The investigations cover one flood event in May affecting six localities, one event in September affecting three localities, one event in December, and one in January. Each area has been assigned its own Section 19 report, totalling eleven reports. This preliminary report outlines for process for how the 2023-24 investigations will be written, as well as detailing a policy for how reports will be written moving forward.
- 1.4. This item links to the council plan's ambition to create a greener, more sustainable Somerset, as part of its duty to manage flooding – a major impact of climate change.

## 2. Issues for consideration / Recommendations

- 2.1. Details of individual houses such as addresses have been omitted. Flooding is a sensitive topic due to loss of property and livelihood. Recurring flooding leaves residents anxious of repeat events. Reports need to be published so lessons can be learned, mitigations put in place, repeat events avoided and flood responses improved.

- 2.2.** Ordinarily, investigations would be started and completed within twelve months of a flood event. In this instance the Flood & Coastal Team were unable to resource this function and temporary staffing has had to be sought, leading to delays. This paper recommends that this preliminary report is published on the Somerset Council website for public viewing immediately, so that the affected communities may be assured that a process for the pending Section 19 investigations is in place.

### **3. Background**

- 3.1.** Flood investigations and reporting are often known as ‘Section 19 reports’ as under Section 19 of the Flood and Water Management Act, Lead Local Flood Authorities have a responsibility, to the extent it deems necessary, to investigate flood incidents. The function of a Section 19 report is to gather information on the happenings during a particular flood event.
- 3.2.** The legislation says:
- (1) On becoming aware of a flooding in its area, a Lead Local Flood Authority must, to the extent that it considers necessary or appropriate, investigate:
- (a) Which risk management authorities have relevant flood risk management functions, and
  - (b) Whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.
- (2) Where an authority carries out an investigation under subsection (1) it must:
- (a) Publish the results of its investigation, and
  - (b) Notify any relevant risk management authorities.
- 3.3.** There no prescribed time frame within legislation in which a Section 19 report must be published following a major flood event.
- 3.4.** Somerset Council has set a threshold of ten internally flooded properties within a locality, this threshold having been exceeded in several instances throughout the throughout the county in 2023.
- 3.5.** Data has been gathered from many relevant stakeholders both during and in the aftermath of each flooding event, including from residents, parish councils, the Environment Agency, MET office and Risk Management Authorities. This data has been, or is being, collected and filed, ready for accessing and review at the appropriate time.
- 3.6.** A Section 19 report will often detail any ongoing work with regards to flooding in the area, and will signpost additional work that should be considered, usually in the form of recommendations. This preliminary report provides a high-level investigation that can provide a prompt overview of the flood events to the impacted communities & stakeholders. This phase provides an insight into areas for further investigation in the



following Section 19 reports while demonstrating that Council is responding to the urgency of the matter and engaging with the communities.

- 3.7.** This Preliminary Report does not contain the finalised Section 19 reports for each of the nine incidents but lays out the intended course of action for writing these reports. This includes the identification of relevant stakeholders, data collection methodologies, an explanation of the chosen groupings based on number of properties flooded and topography of the area.
- 3.8.** Following the release of this report, full Section 19 investigations be undertaken for the areas defined in phase one with additional investigation and data gathering undertaken to provide best insight into the mechanism of flooding, impact, lessons learned, involvement of Response Management Authorities during the events and recommendations stemming from this.
- 3.9.** According to this preliminary report, the eleven Section 19 Reports for 2023 will be finalised and published by December 2024.

#### **4. Consultations undertaken**

- 4.1.** Data has been gathered from many relevant stakeholders in the aftermath of each flooding event, including from residents, parish councils, the Environment Agency, MET office and Risk Management Authorities. There has been ample opportunity for communities to provide their testimonies and images which help create a picture of what happened during each event.
- 4.2.** Many testimonials have been received in the form of FORT reports (Flood Online Reporting Tool) – a system which allows property owners, flood risk authorities and volunteers to share details of flood reports and observations. These have fed into each of the Section 19 reports to give a full picture of what happened during each event. Additionally, there exists a significant body of reporting via the flooding inbox ([flooding@somerset.gov.uk](mailto:flooding@somerset.gov.uk)), through our partners (such as the Environment Agency and Wessex Water) and in first-hand reporting from internal sources.

#### **5. Implications**

- 5.1.** The report as provided commits the Council to delivery of the full suite of Section 19 reports stemming from flood events in 2023 and early 2024. This will ensure that the Council meet the statutory requirements of the Flood & Water Management Act 2010, and also those expectations of those parties directly impacted by the flooding.
- 5.2.** The full implications of the Section 19 reports will be far broader, providing advice and insight into risks that may or may not inform future planning, such

as the Countywide Strategic Flood Risk Assessment, the Local Plan and other Planning matters.

- 5.3.** Equalities implications: no equalities implications associated with this report.
- 5.4.** Legal Implications: no legal implications associated with this report.
- 5.5.** Human Resources: no HR implications associated with this report.
- 5.6.** Community Safety: no implications associated with this report.
- 5.7.** Health & Wellbeing Implications: no implications associated with this report.

## **6. Background papers**

- 6.1.** Appendix 1 - Preliminary Report - S19s (2023-24)

**Note** For sight of individual background papers please contact the report author



## **2. Issues for consideration / Recommendations**

- 2.1.** The Scrutiny Committee Climate and Place is asked to consider and comment on the Task and Finish Group report (Appendix B) and the proposed recommendations within it, to the Executive/Executive member and all internal and external stakeholders involved in the delivery of the plan.

## **3. Background**

- 3.1.** Somerset's Climate Emergency Strategy was developed jointly by the five former Somerset local authorities, sector experts and external partners following public consultations that took place in January and February 2020. It was formally adopted by all five Councils in November 2020. The aim of the strategy is to reduce carbon emissions to net zero in the county and make Somerset a county adapted resilient to the inevitable effects of climate change.
- 3.2.** The strategy provides details explaining what climate change is and what causes it, where carbon emissions arise from globally, nationally, and locally and what the impacts will be here in Somerset. The strategy sets ambitious goals to work towards making Somerset a carbon-neutral county by 2030.
- 3.3.** One of the agreed deliverables/actions of the climate emergency strategy is to 'coordinate electrification activities across the county by developing a county-wide Energy Strategy'.
- 3.4.** To deliver the strategy the previous Somerset Councils commissioned Regen, and UK100 support was awarded to Somerset Council to help with the adoption and support for the recommendations and outcome of the plan.
- 3.5.** Regen is an independent centre of energy and are strategists on the pathway to a zero-carbon energy system, focused on analysing the systemic challenges of decarbonising power, heat and transport.
- 3.6.** UK100 is a network of councils aiming to decarbonise their councils and communities before the national 2050 target with a primary purpose to support a local-led rapid transition to Net Zero and Clean Air. To accelerate action, UK100 believe in bringing together the most influential leaders across the country to learn together and agree on priorities for legislative and regulatory change while empowering them to engage with national decision-makers.
- 3.7.** During the meeting of Scrutiny committee Climate and Place held on Wednesday 20<sup>th</sup> September 2023 members agreed to the commissioning of a Task and Finish group to influence and shape the County-wide Energy Strategy.

- 3.8.** The Task and Finish group report (Appendix B) analyses the key themes, milestones, opportunities and recommendations of the Somerset Energy Investment Plan and evaluates the targets for home energy performance and local renewable energy generation, resulting in a set of key findings, next steps and recommendations.
- 3.9.** The next step will be for the Council to consider this Plan, along with the Task and Finish Report, internally and with external stakeholders and partners. It should further prioritise the actions recommended, drawing up internal action plans with allocated resources and funding for each area.
- 3.10.** It should be noted that one of the Task and Finish Group members wished it to be stated that the council should decarbonise council operations by 2030. Others noted current policies appeared to already preclude this and that council climate targets would be considered by a Climate Strategy Refresh Task and Finish Group.

#### **4. Consultations undertaken**

- 4.1.** The Task and Finish group members met with Somerset Council Climate Change officers and External sector experts Regen and UK100 six times between October 2023 and February 2024. All of those meetings were held online by Teams.
- 4.2.** At each meeting members were shown slides to update on the progress of the Somerset Energy Investment Plan (Appendix C) so far, and given the opportunity to ask questions, make comment and give suggestions on specific sections of the county-wide energy Somerset Energy Investment Plan as it was in development.
- 4.3.** The draft Somerset Energy Investment Plan went out for consultation to stakeholders between Jan-Feb 2024 and the Task and Finish group held an additional meeting during the consultation period to agree on group feedback to the draft. (Appendix A)

#### **4.4. Overview of meetings**

| Date                           | Meeting summary   |
|--------------------------------|---|
| 23 <sup>rd</sup> October 2023  | Overview of baselining and mapping work completed so far.             |
| 20 <sup>th</sup> November 2023 | Planning policy and how the project fits into local plan development. |
| 13 <sup>th</sup> December 2023 | Future roadmap.   |
| 23 <sup>rd</sup> January 2024  | Economic Impact Assessment, plan findings, key actions and ownership. |

|                                |  |
|--------------------------------|--|
| 29 <sup>th</sup> January 2024  | Additional meeting to agree group feedback for the consultation on the draft Somerset Energy Investment Plan. (Appendix A) |
| 28 <sup>th</sup> February 2024 | Final meeting to agree on any recommendations and draft Task and Finish report. (Appendix B)                               |

**5. Implications**

**5.1.** None

**6. Background papers**

**6.1.** a) Somerset Climate Emergency Strategy 2020

**Note** For sight of individual background papers please contact the report author

## Appendix A

### Task and Finish group feedback on draft Somerset Energy Investment Plan consultation

#### Section 2 - Baseline energy trends in Somerset

- Statement on Hinkley updated for new target dates – slipped back slightly.

#### Section 3 - Somerset energy generation resources

##### Solar

- Currently 8% roofs (if allocated domestic) and proposing to 60-65% to do this. Don't see the mechanism to get us there. Need some realism to this. Remodel
- Majority of the 8% came in when we had the feeding tariff, will it be as incentivised to this ever again.
- Strong driver for solar and falling costs but driven by the market and so looking at cheapest deployment which more towards solar farms. People will want it (solar on roofs) but payback on high capital cost will continue to be a strong influence. The situation will continue to develop and may improve, including as falling costs of battery storage help to improve viability.
- Doesn't say how much land is currently taken by up by existing solar farms, would like this added in. Also land taken with projected growth in solar farms (interesting to compare to land taken by golf courses\*). It is now noted that additional land for large-scale solar is shown as 0.4% of Somerset (App 1 – page 67). It may help to explain if this guides the projection and whether more could be considered.
- Solar car parks are these in rooftop or farms? Think it should be mentioned as an option as well. Mention around the carbon intensity of steel, concrete etc T&F Group would like to see a study to look at business case for solar on car parks, including on net energy/carbon benefits.
- Does CCC and future energy scenario have a split estimate on solar farms v rooftop uptake that influenced the pathway?
- Council opportunities on car parks, done in SSDC (Cara any knowledge?)
- Recommendation 2.2 add in solar as well as retrofit measures on Listed buildings & conservation as well as retrofit. Unless article 4 in place (unsure if correct name) for conservation area, don't need planning so long as stick to guidelines. Good to highlight this. Also see: <https://www.gov.uk/government/news/energy-efficiency-drive-for-historic-homes>

\* <https://www.carbonbrief.org/factcheck-is-solar-power-a-threat-to-uk-farmland/>

##### Hydro

- Serious revision of rules for run of the river hydro power. EA issue so would need to look to influence.

##### Wind

- 2016 NPPF planning rules not lifted, complicated needed through neighbourhood plans and local plan. Has NPPF been changed yet? T&F group understand and support comments in report on page 19 to address this through Somerset's new Local Plan, which may address this sufficiently. For Neighbourhood Plans it may be helpful to

provide a link to CSE guidance: <https://www.cse.org.uk/my-community/engagement-planning/neighbourhood-plans/>

- Cheapest form of energy production, needs to be noted.
- Could we be more ambitious on wind in targets? Could it be sensibly raised in light of rooftop figures? New thought: Maybe interesting to note how much is generated and planned in Cornwall (and maybe Wales).

#### **Section 4 - Somerset's Net Zero Pathway**

- More context on 45% target + nice if a bit higher, more about national contributions coming in for the other 55% around not being an energy island. I.e offshore wind & nuclear.
- Scope for more wind & solar to increase slightly – linked to points above 45% sounds a low contribution for rural area like Somerset (with space for wind and solar). Could it be higher?
- Pump storage mentioned in energy storage, potential and efficient way to store energy. Large solution rather than response demand.
- Mention limitation of EPCs (based on energy costs) . Use energy demand/intensity as the metric. (LETI used in social housing sector)
- Chart on page 26. Gas has significant contribution at 2050, doesn't match the CCC pathway (6<sup>th</sup> budget says limited to combustion with CCS for power or industry and phase out for buildings). What is the gas there for? Will gas demand still be needed in Somerset by 2050?

#### **Section 5 - Investment opportunities & next steps**

- Can anything be done to influence (on energy planning policies) earlier than the local plan being in place? Wave the flag that the plan can influence pre-adoption I.e heading in that direction. Do work early that will start to have weight in planning process. Mention page 41 on income opportunities for the council from generation investment on council land etc. Doesn't look like it currently is.



**Somerset Energy Investment Plan by Regen for Somerset Council  
Report from Task & Finish Group for Climate and Place Scrutiny Committee**

**1) Introduction**

- 1.1 The energy plan task and finish group, established by the Climate and Place Scrutiny Committee, has reviewed information and proposals from Regen as they developed the Somerset Energy Investment Plan. The cross-party working group has challenged and contributed constructively as the plan has emerged. The working group thanks Regen for their presentations and all their work on the energy plan.
- 1.2 The Regen plan sets out an important framework for the development of the energy system in Somerset and focuses on how Somerset Council can assist the network to develop to meet both energy needs and address the climate emergency by moving towards a net zero future for greenhouse gas emissions.
- 1.3 It is important to be aware of the many partners and contributors to energy supply and use in Somerset, including energy generators, distribution networks, regulators, the government, the council, land and property owners, community groups and energy users.
- 1.4 Key elements of the future energy framework set-out by Regen to allow a net zero pathway are:
  - a. Reduced demand through energy efficiency, building insulation and technology shifts, such as electric vehicles and heat pumps.
  - b. Electrification of energy supply through renewable and low carbon energy sources, both local and national.
  - c. Support for the right infrastructure, flexibility and storage assets.
- 1.5 In the report's foreword, Cllr Darch says, due to its current financial situation, the council will need to take on the role of enabler and co-ordinator rather than lead investor.

**2) Key themes, milestones, opportunities and recommendations**

- 2.1 The task and finish group endorses the key themes, milestones, opportunities and recommendations for new actions in the Regen report, especially the following:
  - a. Installing solar or wind power at ten council sites with considerable potential for local generation, as well as looking for opportunities that benefit all parties for Virtual Power Purchase Agreements and for private wires to high-energy users (p. 53).
  - b. Develop a land use framework to underpin the development of robust Local Plan policies on renewables (p. 58).
  - c. Encourage local hubs to develop local skills for low carbon heating and retrofit installations (p. 66).
  - d. A Net Zero Heat Village trial to demonstrate how to deliver zero carbon heat in an off-gas rural village (p. 70).
  - e. Engage with the new Regional Energy Strategic Planner to influence investment in the electricity network (pp. 75-77).

- 2.2 The ten sites with potential for local renewable energy generation could provide local jobs and a good return on investment, funded by borrowing, for the council. There should be a thorough appraisal of this opportunity, probably working with business and/or community developers. Further council sites and buildings could also be found to be well suited to renewable generation.
- 2.3 As suggested by Regen, opportunities for a local community or a community group to lead a Net Zero Heat Village trial project could be considered, taking account of funding and support needed as well as the importance of good monitoring of what is learnt and achieved.
- 2.4 It is also important that Somerset Council continues to develop existing and emerging plans and programmes, including:
- a. To decarbonise council buildings, such as offices and leisure centres (p. 54-55).
  - b. To decarbonise the council's housing stock, working with other social housing providers (p. 62-3).
  - c. To include robust planning policy in the new Local Plan to support the development of high-quality large-scale solar, wind and energy storage projects (p 59) and to support and deliver zero carbon homes, including energy improvements for historic and listed buildings (p. 64).
  - d. To develop public charging infrastructure for electric vehicles (p. 72-3).
  - e. To improve and electrify bus services (p. 74).
  - f. To prepare a transport plan that promotes public transport and active travel (p. 74).
- 2.5 Electricity grid constraints on the transmission network are a big brake and delay on the development of local renewable generation (pp. 33-34). These constraints could also restrict the roll-out of electric vehicle charging infrastructure and prevent the early adoption of heat pumps in some new housing estates.
- 2.6 The Local Plan (2.4c above) is a big opportunity for Somerset Council to advance progress towards net zero, but one that is significantly delayed by the time taken for the plan's production, consultation and adoption. It's also a missed opportunity for development approved before new net zero policies are adopted and for new energy infrastructure that cannot proceed before new policies are in place.
- 2.7 Large-scale solar, wind and energy storage projects may gain more support and give greater local benefits where there is early involvement of local communities and with profits to be shared through on-going funding to local communities.
- 2.8 It should further assist if local generators could sell their electricity to local users, as promoted by [Power for People](#). And further local benefits could arise from planning policies to require large-scale solar, wind and storage schemes, when in suitable locations such as near major roads, to provide rapid public EV charging facilities, which could also allow free or discounted charging by registered local users.
- 2.9 Regen report (page 22) that there is some small-scale electricity generation from fossil fuels in Somerset and an energy from waste (EFW) plant with another in the pipeline. Consideration should be given to the possibility of new planning policies that require current and future small-scale electricity generation (using fossil fuels) to be powered from the grid instead, from battery storage or from a clean fuel source, such as green hydrogen. Consideration should also be given to requiring the capture of greenhouse gases from EFW plants.

2.10 More attention is needed on grid and planning policy constraints, including to identify and promote actions that could start to overcome these constraints in shorter time periods than are currently planned.

### **3) Targets for home energy performance and local renewable energy generation**

3.1 The task and finish group supports targets in the Regen report, which cover all homes achieving an EPC (Energy Performance Certificate) of C or above, the take-up of heat pumps, switching to electric vehicles, installing solar photovoltaic (PV) panels on roofs, and renewable generation from solar farms and wind turbines.

3.2 All these targets are challenging and some need greater support from government, especially on home energy performance.

3.3 However, as indicated by Regen, EPC C by 2035 (pp. 17 & 43) does not currently provide a clear guide for householders wishing to make a full contribution to net zero. Also, local renewable energy generation may be able to contribute more than the 45% target suggested (p. 46). These targets should be subject to future review. For now, they should be sufficient to encourage and allow good progress towards net zero, although it is important to be aware that higher home insulation standards may be needed to achieve net zero and so should be promoted too.

3.4 Guides for achieving net zero in the energy performance of buildings with new builds or by retrofit are provided by LETI (see: [www.leti.uk/cedg](http://www.leti.uk/cedg) and [www.leti.uk/retrofit](http://www.leti.uk/retrofit)) and by the Net Zero Carbon Toolkit that was adopted by Somerset West and Taunton Council (see: [www.somerset.gov.uk/planning-buildings-and-land/other-design-and-technical-guidance/net-zero-carbon-toolkit-in-somerset-west-and-taunton](http://www.somerset.gov.uk/planning-buildings-and-land/other-design-and-technical-guidance/net-zero-carbon-toolkit-in-somerset-west-and-taunton)). These net zero guides adopt a whole house approach to insulation which is important to ensuring high performance and for avoiding problems, such as damp and mould, that can arise from piecemeal insulation measures, especially in older properties.

3.5 Effective insulation to a high standard should be considered when installing a heat pump and ideally before (called fabric first design). As well as avoiding the risk of damp and mould problems, a whole house (fabric first) approach reduces energy demand (saving on bills) and allows heat pumps to be installed at the correct size, which are then able to operate effectively and efficiently.

3.6 Households need good and reliable advice and information on insulation and on switching to a heat pump. They may need to decide how far they can go in retrofitting insulation to their homes and should consider this when switching to a heat pump (ideally before). Wall insulation can be the most disruptive and costly energy efficiency measure for older houses with solid walls.

3.7 Insulation should be viewed as a long-term investment with an initial cost that is paid back over time in savings on energy bills. It would assist if this investment could be reflected in house values, which might be achieved by Green Building Passports, as recommended by the Committee on Climate Change and the House of Commons Environmental Audit Committee.

3.8 Somerset Council needs to consider how it can best assist and work with others to improve the energy performance of Somerset homes. This can build on several initiatives and programmes already underway, some with government or energy supplier funding.

- 3.9 The high targets for more solar generation in the Regen report are likely to be challenging, due to grid constraints on solar farms and the higher costs involved in rooftop installation.
- 3.10 The annual rate of rooftop solar PV installations was much higher in the past when a feed-in tariff was available. The payback from solar PV should continue to slowly improve again, as the cost of panels continues to fall, while generation performance increases, and with improved prices paid for solar power exported to the grid.
- 3.11 Special community offers for the bulk installation of solar PV panels to households in an area could assist in increasing take up. There have been successful schemes already for this in parts of Somerset, which could be extended to new areas, possibly supported by local community organisations and involving local businesses.
- 3.12 As reported by Regen, there are few wind turbines at present in Somerset but areas with high wind speeds that could be suited to their siting, including by farmers, looking for diversification opportunities, and other landowners. First, planning policy obstacles need to be addressed and, in some areas, grid constraints. Once there is more experience of installing wind turbines in Somerset, the future contribution of this low-cost electricity source could be reviewed and, possibly, increased.

#### **4) Next steps for the Climate and Place Scrutiny Committee and Executive**

- 4.1 Climate and Place Scrutiny Committee is asked to recommend both the Regen report and this report from the Task and Finish Group to Executive.
- 4.2 As suggested by Regen (p. 85), the Council needs to consider the Energy Plan internally and with external stakeholders and partners. It should further prioritise the actions recommended, drawing up internal action plans with allocated resources and funding for each area.
- 4.3 In particular, it is recommended that the Executive and relevant Lead Members progress the following:
- a. Appraisal for solar or wind power installations at ten council sites with considerable potential for local generation, as well as opportunities, that benefit all parties, for Virtual Power Purchase Agreements and for private wires to high-energy users.
  - b. A land use framework to underpin the development of robust Local Plan policies on renewable energy generation.
  - c. Support for local hubs to develop local skills for low carbon heating and retrofit installations in Somerset homes and commercial buildings.
  - d. Implement a Net Zero Heat Village trial to demonstrate how to deliver zero carbon heat in an off-gas rural village, possibly by working with a willing local community or community group.
  - e. Council engagement with the new Regional Energy Strategic Planner to influence investment in the electricity network to overcome current grid constraints.
- 4.4 The Executive and relevant Lead Members are recommended to continue current work to progress the following:
- a. To decarbonise council buildings, such as offices and leisure centres.
  - b. To decarbonise the council's housing stock, working with other social housing providers.
  - c. To include robust planning policy in the new Local Plan to support the development of high-quality large-scale solar, wind and energy storage projects and to support

and deliver zero carbon homes, including energy improvements for historic and listed buildings. Early steps should be taken to develop and give weight to these policies.

- d. New Local Plan policies should encourage the early involvement of local communities in large-scale projects and for profits to be shared through on-going funding to local communities.
- e. Consideration should be given to the possibility of new planning policies that require current and future small-scale electricity generation (using fossil fuels) to be powered from the grid instead, from battery storage or from a clean fuel source, such as green hydrogen. Consideration should also be given to requiring the capture of greenhouse gases from EFW plants.
- f. Consider how to improve the energy performance of Somerset homes, as suggested in section 3.
- g. To develop public charging infrastructure for electric vehicles.
- h. To improve and electrify bus services.
- i. To prepare a transport plan that promotes public transport and active travel.

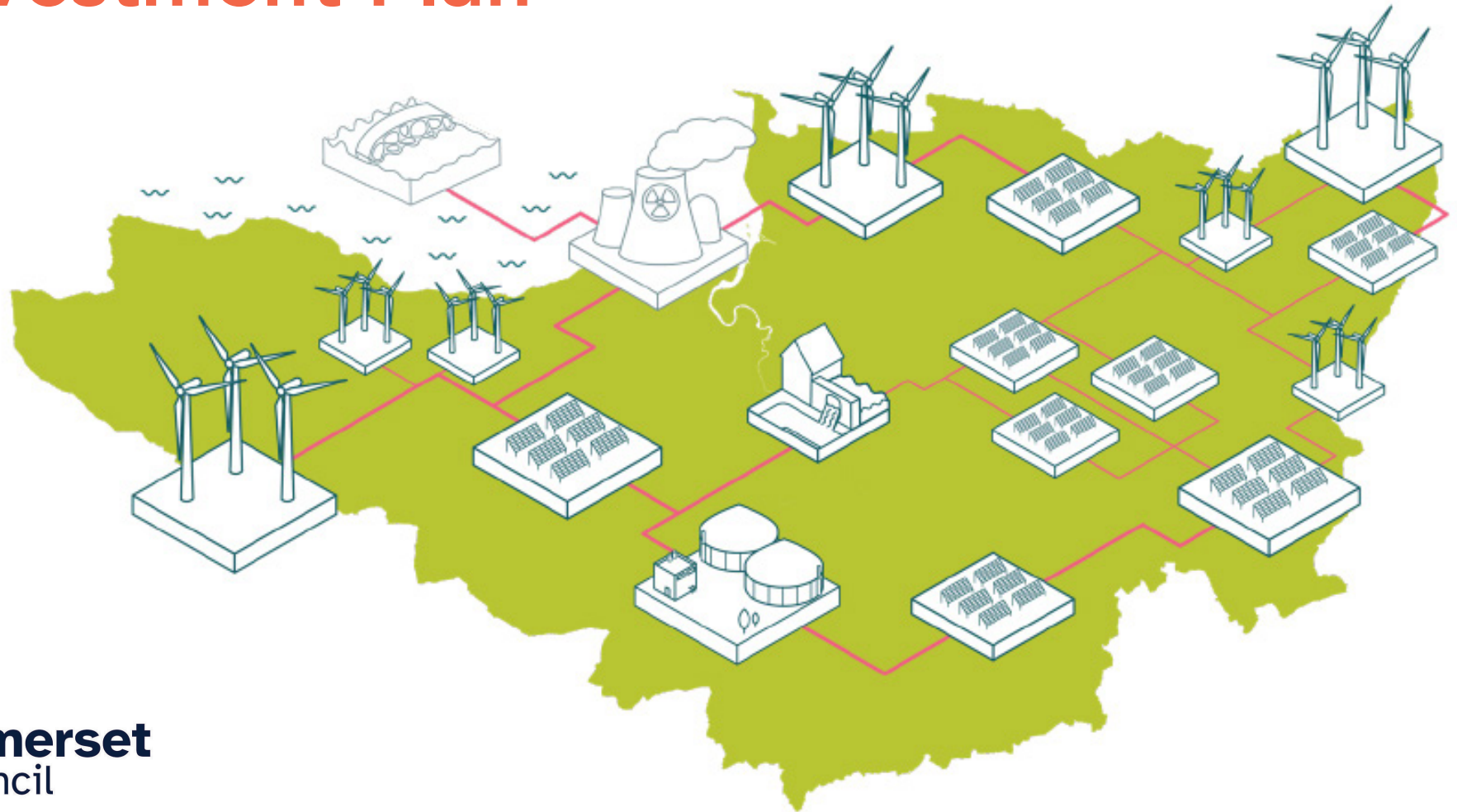
4.5 Climate and Place Scrutiny Committee requests future reports from officers and external partners so that further consideration can be given to the following:

- a. Progress on the Local Plan and, in particular, opportunities for early weight to be given for policies to support large-scale solar, wind and energy storage projects, the delivery of zero carbon homes, and energy improvements for historic and listed buildings.
- b. Constraints on the electricity distribution grid and work, including time scales to overcome these, both by network providers and by the new Regional Energy Strategic Planner. Also the potential for local generators to sell to local users.
- c. The work of community energy groups in Somerset and their interest in expanding this further.
- d. Economic development opportunities from local renewable energy generation and local hubs to develop local skills for low carbon heating and retrofit installations in Somerset homes and commercial buildings.

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# Somerset Energy Investment Plan

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Produced for:



**Somerset**  
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# 01

Page 41

## Overview



# Foreword

I am delighted to celebrate the completion of this project: we now have a detailed, evidence-based map of opportunities and constraints for renewable energy generation in Somerset.

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As we progress on our journey to net zero, understanding where we are now and the possibilities for future renewable energy generation is crucial. The Somerset Energy Investment Plan is a key objective in the Somerset Climate Emergency Strategy originally developed, funded and agreed by all five previous councils. A great deal of the initial work was done in partnership before the unitary council was founded and we have continued the project despite the challenges of the Local Government Reorganisation.

This project was conceived before the current financial emergency facing Somerset Council and others. Our current limited resources mean that careful consideration will need to be paid to governance, with the council taking on the role of enabler and co-ordinator rather than lead investor. However some of this work will help to inform the new Local Plan for Somerset. Partnership working will continue to be key, particularly around community involvement and attracting private sector finance.

Despite these current challenges, the negative impacts of climate change are accelerating and the imperative to address the cause, alongside building community resilience, has never been greater. This project brings us one step closer on this challenging journey. My thanks to Regen, the Somerset Council Climate & Environment Team, Planning, Assets, Economic Development, Elected Members and all of the stakeholders for their collective work to deliver this plan.

**Cllr Dixie Darch**

Lead Member for Environment and Climate Change

# Net Zero Pathway key milestones

## GENERATION AND STORAGE

**In 2022**, the equivalent of 29% of Somerset's electricity demand was generated from local renewable sources, which is equal to 5% of total energy demand.

**By 2023**, large-scale solar made up c.350 MW, 73% of all local installed renewable electricity capacity.

**By 2030**, installed renewable capacity reaches c.920 MW. Approximately six additional onshore wind turbines are installed, totalling 16 MW.

**Priority opportunities:**  
Develop a land use framework to underpin the development of robust Local Plan policies on renewables

Develop a portfolio approach to decarbonise the Council's own estate by 2030

**By 2040**, at least 150 MW of battery capacity is installed, with just over a third being domestic.

**By 2040**, installed renewable capacity reaches c.1.7 GW. Around 40 large wind turbines are developed.

**Future opportunity:**  
Explore how hydrogen electrolysis plants could use excess power from Hinkley Point C and renewables projects to displace fossil fuel demand in difficult-to-electrify sectors.

**By 2050**, Installed renewable capacity reaches c.2.2 GW.

**By 2050**, all power is from zero carbon national and local sources.

**By 2050**, as many as 3,700 FTE jobs could be created installing new rooftop solar.

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2022 >

New local plan expected before 2030

2030 >

RIO-ED3 DNO price control post 2028

2040 >

2050

**By 2022**, approximately 7,300 domestic heat pumps were installed in Somerset.

**In 2022**, 42% of homes were rated EPC C or above.

**In 2022**, <1% of road vehicles were electric. 20% of new vehicle registrations were battery electric.

**By 2030**, the heat pump uptake rate accelerates to 13,500 new installations per year to meet near-term targets.

**Priority opportunities:**  
Engage with the new Regional Energy Strategic Planner to influence investment in the electricity network.

The proposed gigafactory at the Gravity site could bring 4,000 to 7,500 direct jobs.

Work with partners to trial innovative approaches to rural public transport and provide support for low-income households to access EVs.

Lead a Net Zero Heat Village trial to demonstrate how to deliver zero carbon heat in an off-gas rural village.

**By 2035**, all homes have achieved EPC C or above.

**By 2040**, pure electric vehicles make up 93% of total vehicles registered in Somerset.

**By 2045**, heat pump uptake slows substantially to c.5,000 new installations per year.

**Future opportunity:**  
Explore how geothermal resources near Yeovil could be used in heat networks.

**By 2050**, domestic heat pumps total 277,000 installations – 82% of homes.

**By 2050**, nearly 100% of all vehicles are electric.

**By 2050**, around 1,970 FTE jobs could be created for heat pump installers.

**By 2050**, only zero carbon heating and transport remain.

## ENERGY DEMAND

# Executive summary

Inspired by the Somerset Climate Emergency Strategy, this Somerset Energy Investment Plan sets out the current evidence on the energy system in Somerset and analyses the local resources to inform a potential Net Zero Pathway for Somerset.

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The Pathway created has been used, alongside extensive stakeholder engagement, to identify opportunities for energy investments in Somerset, their potential economic and local benefits, policy development for Somerset Council and options for delivering action.

To date, progress on decarbonisation of Somerset's energy system has been slow:

- Around 1.2% of homes have a heat pump installed
- 42% of Somerset's homes and 44% of non-domestic buildings are rated Energy Performance Certificate (EPC) A to C
- Less than 1% of road vehicles registered in Somerset are electric
- The equivalent of just 5% of local energy demand is supplied by local renewable energy, with only one large-scale wind turbine in operation.

When considering available wind resources, higher windspeeds tend to be in the upland areas that are designated as National Park and National Landscapes and there are also significant numbers of protected habitats and radar constraints. Solar resources are prevalent across Somerset. However, grid connection availability is the major blocker to the development of new generation and storage projects, with transmission works planned out to 2038 taking a toll on distribution network availability.

## The Somerset Net Zero Pathway has been developed to explore the potential for the area to decarbonise energy use, generation and flexibility by 2050 at the latest.

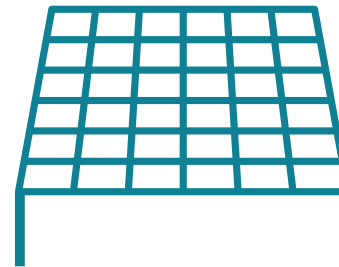
It will be challenging to achieve from the demand side with:

- Retrofit as a crucial element, requiring upgrades to two thirds of homes and non-domestic buildings to achieve at least EPC C by 2035
- Domestic heat pumps needing to reach c.277,000 installations by 2050, averaging c.10,000 installations per year
- EV uptake increasing to 351,300 vehicles, averaging 9,300 vehicle new EV registrations per year.

Under the Net Zero Pathway, the equivalent of approximately 45% of Somerset's future expected electricity demand is met by local renewable generation by 2050, with a total of:

- 1,410 MW large-scale solar
- 528 MW rooftop solar
- 154 MW wind
- 247 MW battery storage

The Energy Plan also models a 100% sensitivity. In addition to the current pipeline of projects and the Net Zero Pathway capacity, a further c.2.8 GW of solar and c.400 MW of onshore would be required to deliver the equivalent of 100% of future energy demand from local renewables. This level of deployment is unlikely to be achieved, given Somerset's wind resources are fairly limited outside of the National Park and National Landscapes and given other constraints such as grid capacity, skills availability and market forces. However, Somerset is part of the UK's energy system and achieving net zero is not dependent on generating 100% of energy demand from local sources – national scale projects, including offshore wind and Hinkley Point C, will have a role to play alongside local renewables. In the future, there is a possibility of additional local contributions from geothermal and tidal power.



By 2050

45%

of Somerset's future expected electricity demand is met by local renewable generation

# The Energy Investment Plan sets out six key opportunity areas for Somerset to invest in energy decarbonisation, with recommendations for Council actions and estimates of potential jobs, investment and Gross Value Added (GVA) creation.

## 1. Decarbonisation of the Council's own estate and operations: priming the market

The Council has substantial land holdings, which have been assessed for solar and wind opportunities. Ten sites have been identified as having considerable potential for solar or wind development. There is the potential for projects to generate income for the Council through investment returns or simply through leasing sites. Working in partnership with community energy organisations and high energy users could help to develop new projects with business models that bring local economic benefits.

The Council also owns a wide range of other energy using assets, from leisure centres, to car parks and vehicle depots. These sites could incorporate energy efficiency measures and small-scale renewables that cut energy bills and/or generate income. Some sites could also act as anchor loads for district heat networks.

By investing in renewables and energy efficiency measures on its own estate, the Council can help to prime the local market. To do so, it must ensure that the procurement approach it uses enables local businesses to deliver the opportunities, growing the local supply chain.

A portfolio approach to decarbonising the Council's estate could be taken, bundling together the high and low-value projects to create one investable package and working with a private-sector partner to deliver them – as Bristol is with its City Leap project. This approach is leveraging in private finance and development skills, while also offering community benefits and support to the local supply chain.

## 2. Large-scale solar, wind and battery storage development: seizing the opportunities for the rural economy

With excellent solar and some wind resources across Somerset, opportunities for new generation projects are widespread, with opportunities to bring income and other co-benefits to the area's rural communities. Storage projects are also needed to bring flexibility and grid services to the energy system.

The Council is considering developing a land use framework for Somerset. The development of this framework presents an opportunity to reconsider the planning balance between landscape, farming, renewable generation, energy storage and nature, by drawing together relevant spatial datasets to enable informed discussion.

The Council is due to develop a new Local Plan, presenting the opportunity to include positively worded policies for solar and wind and to embed these through guidance and training for officers and councillors.

There are opportunities for the Council to support community energy organisations across Somerset to develop local generation and storage projects, working in partnership on sites, developing supportive planning policy or offering funding or access to expertise.

### **3. Unlocking energy efficiency and retrofit: the #1 opportunity for energy jobs and GVA creation**

Retrofit of existing buildings presents the greatest opportunity for energy jobs and GVA creation in the area. Retrofit support programmes are essential to unlock these benefits across every segment of the market from social housing to 'self-funding' homeowners.

### **4. Electrifying heat demand: high levels of off-gas properties present an opportunity to accelerate heat pump uptake**

High levels of off-gas properties present an opportunity to accelerate heat pump uptake in Somerset, underpinned by heat zoning analysis. Innovative approaches, such as a Net Zero Heat Village trial, that work with local communities to electrify heating are needed. Coastal areas or rivers could offer the opportunity for trial water source heat pumps in partnership with local organisations.

### **5. Electrification and demand reduction for transport: building on existing work to plan the necessary infrastructure**

Somerset is a predominantly rural county, with largely rural transport networks and a few major transport corridors. Decarbonising transport will rely on ensuring the charging infrastructure is in place across this rural setting to support the transition to electric vehicles, as well as supporting novel approaches to rural public transport. The M5 and A303 corridors presents an opportunity to develop charging hub models that combine generation with chargepoints and other services and support the summer surge demand.

### **6. The Energy System: Extending the local authority role in influencing local energy systems and infrastructure**

Grid constraints are severely affecting the potential for new generation projects to connect in Somerset. Transmission works with timescales out to 2038 are a critical issue. Engagement between the Council and the Distribution Network Operators is essential to ensure that network investment is in line with local ambitions and needs. The new Regional Energy Strategic Planner provides an opportunity for the Council to be involved in the strategic development of the area's network infrastructure.

Hydrogen could provide a low carbon energy source for difficult-to-decarbonise sectors in the area, such as heavy transport, shipping, aviation, and some high temperature industrial processes. The Council could work with industry stakeholders to develop strategic activity on hydrogen development. There may be opportunities in the future to produce hydrogen from nuclear power at Hinkley Point C, as well as alongside renewable generation.

**A number of additional opportunities were identified through the stakeholder engagement process and analysis.**

These represent opportunities that may be at an earlier stage in their development or have less of a role for the Council to deliver. These are:

#### **7. Rooftop solar deployment on existing properties**

#### **8. Large-scale tidal lagoons**

#### **9. Rural generation schemes, such as anaerobic digestion and hydropower**

#### **10. Geothermal**

This Somerset Energy Investment Plan sets out the key opportunities for decarbonising Somerset's local energy system.



## Take action

**The council will need to:**

- prime the market
- plan for decarbonisation
- pursue partnerships

### Next steps

Recommendations are made throughout for actions that the Council should or could take to prime the market, plan for decarbonisation, or work in partnership with external organisations. Pursuing partnership opportunities is essential, as these present the potential to leverage external finance and skills.

However, delivering the actions will inevitably require Council time, resources, skills and funding. The Council will need to consider how to deliver these opportunities within the current financially constrained environment. The next step will be for the Council to consider this Plan internally and with external stakeholders and partners. It should further prioritise the actions recommended, drawing up internal action plans with allocated resources and funding for each area.

Local skills hubs are needed to develop the necessary skills in the workforce. While Hinkley Point nuclear power station represents a national-scale project out of scope of this study, there will be opportunities to work with the developers and workforce on legacy skills and jobs programmes that could tie in with local decarbonisation needs. The development of the [Gigafactory factory](#) at the Gravity site near Bridgwater offers further potential for economic benefits, with a significant increase in job opportunities.



# Introduction

## Somerset's climate emergency declarations

The five former councils of Somerset (Somerset County Council, Mendip District Council, Sedgemoor District Council, Somerset West and Taunton Council and South Somerset District Council) each recognised or declared a climate emergency in 2019. While each declaration is slightly different, all aspired to achieving carbon neutrality in their own operations and to work towards achieving this across the geography of their administrative area. The Councils worked together to produce Somerset's Climate Emergency Strategy, which was published in November 2020. The Strategy included the goals:

- To decarbonise the Local Authority and public sector estates and reduce our carbon footprint
- To work towards making Somerset a carbon-neutral county by 2030.

In April 2023, the councils became a single unitary authority for the area – Somerset Council. Somerset Council remains committed to delivering against the Climate Emergency Strategy, which included the need to deliver an Energy Plan for Somerset – this report.

## Somerset's Energy Investment Plan

The decarbonisation of the energy system – including how energy is used, generated and stored – is central to delivering the Council's climate pledge. The energy transition offers opportunities for Somerset to benefit from new jobs and investment, and to create a fairer energy system that benefits those living in Somerset.

Somerset currently meets the equivalent of approximately 5% of its total energy demand from local renewable energy generation. Achieving net zero will mean that 100% of Somerset's energy demand needs to be met from zero carbon sources. To achieve this, Somerset's energy demand needs to be significantly reduced through measures to boost energy efficiency, reduce demand and electrify heat and transport. The remaining demand needs to be met from renewable sources – whether local or national – with supporting infrastructure, flexibility and storage in place.

This plan sets out the current evidence on the energy system in Somerset and analyses the local resources to inform a potential Net Zero Pathway for Somerset. This Pathway has been used, alongside stakeholder engagement, to identify opportunities for investment in Somerset, their potential economic and local benefits, potential policy development for Somerset Council and options for delivering action.

### A NOTE ON NET ZERO DATES

The Net Zero Pathway analyses the demand, generation and storage projects that would be needed to achieve a net zero energy system in Somerset. The Pathway achieves net zero by 2050 – 20 years later than 2030, which the Somerset Climate Emergency Strategy aims to work towards. This is because the Pathway is based on Committee on Climate Change projections and Distribution Network Operator scenarios that achieve net zero by 2050. For Somerset to achieve net zero earlier requires going ahead of the national projections – which are already challenging to achieve. Significant local focus, investment and effort will be needed to bring net zero in Somerset forwards ahead of 2050 – however, there would be significant climate and economic benefits if this can be achieved.

# Key facts

The majority of Somerset is made up of relatively flat lowlands, including the Somerset Levels and coastal areas around the Bridgwater estuary. These are key areas for wildlife and nature preservation, while also making Somerset prone to flooding events. A large proportion of Somerset's remaining land sits within protected upland landscapes, including Exmoor National Park and four National Landscapes, including the Mendip Hills which was declared as a 'super' National Nature Reserve in 2023.

Somerset's main settlements are Taunton, Yeovil and Bridgwater, which are mid-sized towns. The county's largest sources of employment are the aerospace, agriculture and food and drink sectors. Roughly half of residents live in rural areas.

Population (ONS, 2021):

573,000

Broad Rural-Urban  
Classification 2011:

Predominantly  
Rural

Households (2021 census):

264,935

Households connected  
to the gas network:

71%

Area in hectares:

345,000

of which 73% is agricultural  
and 16% forest, open land  
and water (DLUHC 2022)

Major settlements:

Taunton  
Yeovil  
Bridgwater

Economic GDP (ONS, 2021):

£14.3  
billion

Average GDP per head:

£24,700

above the national  
£22,400 average (ONS, 2021)

A photograph showing a person's hand plugging a charging cable into the charging port of an electric vehicle. The image is overlaid with a teal tint. The background shows the car's body and the charging station's structure.

# 02

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## Baseline energy trends

# Trends summary

## Energy demand decarbonisation trends:

- Somerset is quite typical for progress on decarbonisation.
- Decarbonising national electricity supply has led to a 36% reduction in emissions since 2005.
- However, energy consumption has only fallen slightly over the same period.
- Somerset is slightly ahead of the national average for heat pump installations as a result of its higher number of off-gas grid properties.
- Building energy efficiency has seen only slow improvement, in line with national trends.
- Two-thirds of homes and non-domestic buildings need retrofitting with energy efficiency measures.
- There has been slow progress in electric vehicles as they make up less than 1% of all road vehicles, but recent trends suggest this is accelerating.

Reduction of  
**36%**  
in emissions since 2005

**2/3**  
of homes and non-domestic  
buildings need retrofitting

## Somerset renewable generation – baseline and pipeline:

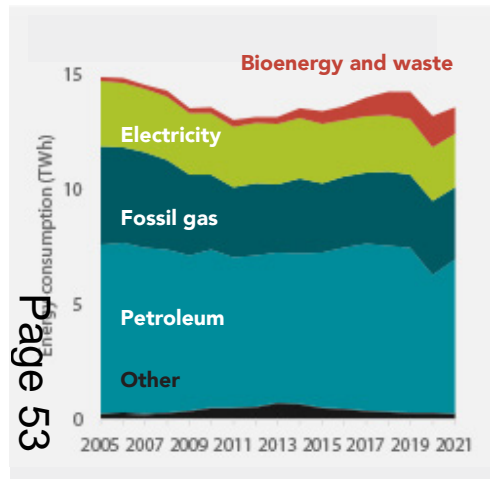
- Somerset generates the equivalent of approximately 29% of its annual electricity consumption from local renewable electricity generation. Because electricity is currently a small part of energy use, this is c.5% of Somerset’s total annual energy consumption.
- Solar PV dominates existing and proposed renewable energy capacity. The pipeline of sites wanting to connect is over 650 MW.
- There is only one large-scale wind turbine operating in Somerset and 43 small-scale turbines.
- Battery storage has one 30 MW site, but over 400 MW in the pipeline.
- The Hinkley Point C reactors under construction are expected to contribute 3.2 GW when commissioned (now expected 2029 to 2031) but this is accounted for nationally rather than in this study.
- High-carbon and fossil generators remain, with new sites in planning.

Less than  
**1%**  
of vehicles are electric,  
but this is accelerating

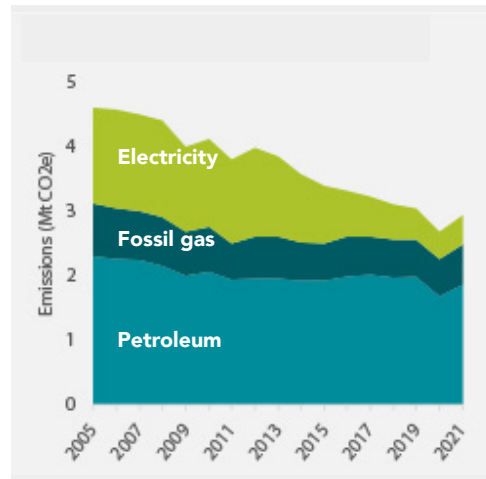
The equivalent of  
**29%**  
of annual electricity demand  
is generated from local  
renewable sources

# Decarbonising national electricity supply has led to a 36% reduction in emissions since 2005

Somerset energy consumption by fuel



Somerset emissions by fuel\*



Data sources: UK local authority and regional greenhouse gas emissions national statistics: 2005-2021, DESNZ; Sub-national total final energy consumption data, 2005-2021, DESNZ  
\*Excludes non-energy emissions from agriculture, LULUCF and waste management

Somerset’s energy consumption trends have remained broadly similar since 2005. At present, demand is split roughly equally between the domestic, commercial and industrial and transport sectors, with transport taking the largest share at 36%. In 2021, energy use was dominated by fossil fuels, with 49% of all energy consumption coming from petroleum and a further 23% from fossil gas. Electricity made up just 17%.

Total energy consumption in 2021 was 13.52 TWh. This is 8.9% lower than 2005 levels. 2020 saw a significant drop in consumption as a result of the COVID-19 pandemic, with demand 7.4% lower than 2019 levels.

Following an increase in 2021, [national trends](#) show a renewed drop in demand in 2022, attributed to high energy prices and record warm temperatures.

Despite limited reductions in energy demand since 2005, Somerset’s emissions from energy consumption have reduced significantly. Transport and heat demand remain largely dependent on high carbon energy sources. But over this period, the carbon factor for GB electricity has reduced significantly due to the uptake of renewables and replacement of coal with increased use of fossil gas, resulting in a 36% emissions reduction from energy use in Somerset since 2005.

## Somerset has more homes off gas than the South West and national average

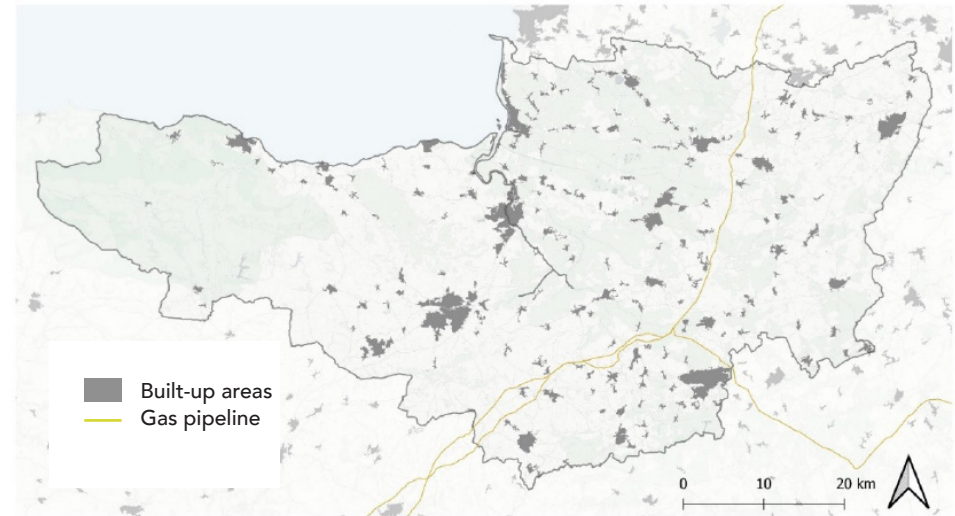
Heating in Somerset is largely met by mains gas, which makes up 71% of all household heating. This is a lower proportion compared to the South West, which is 75% on gas, and the national average of 84%. On-gas properties are clustered in the towns and along the gas lines that connect these population centres.

Other forms of fossil-fuelled heating, including oil, liquefied petroleum gas (LPG) and coal, provide 12% of Somerset's heat demand. Electric heating, including direct electric, electric boilers and storage heaters, makes up approximately 15% of all domestic heating. Around 1% of domestic properties with an Energy Performance Certificate (EPC) are part of a community heating scheme.

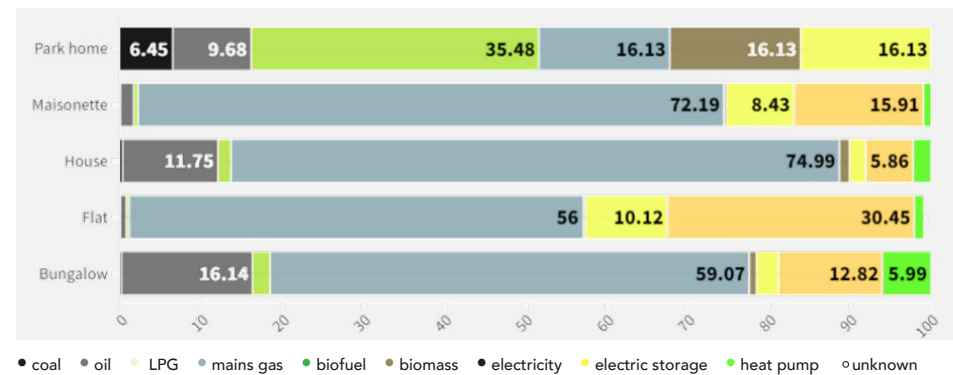
The uptake of domestic heat pumps has increased, with an estimated 470 heat pumps installed in 2022 compared to 340 installations in 2021. There are approximately 7,300 domestic heat pumps in Somerset in 2023.

Non-domestic heat: Approximately 31% of non-domestic heat demand is from fossil gas, while 57% is met from grid-supplied electricity. Non-domestic heat pump uptake in Somerset is increasing in momentum, with approximately 3,300 installations in total. A total of 348 were installed in 2023, compared to 158 in 2021.

Built-up areas in Somerset



Main heat technology by dwelling type<sup>1</sup> %



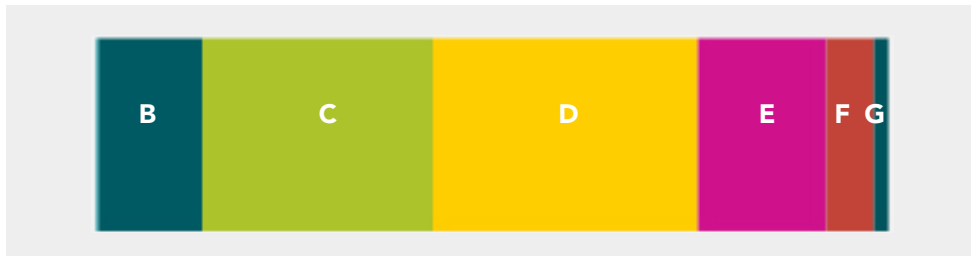
Source: Microgeneration Certification Scheme data

# At least two-thirds of homes and non-domestic buildings need retrofitting

A total of 42% of Somerset's homes are rated EPC A to C, compared to 44% nationally. Only 3% fell within the A and B ratings. If new-builds are excluded from the analysis, only around 34% of households in Somerset fell within the EPC ratings of A, B and C as of 2022, up from 31% in 2015. This points to a significant domestic retrofitting challenge. Meanwhile, 44% of non-domestic EPCs have been given a rating of A, A+, B and C.

11.3% of households in Somerset were in fuel poverty in 2021 compared to the South West average of 11.9% and the national average of 13.1%\*. Areas with the highest fuel poverty include Halcon (32%) and Lambrook (22%) in Taunton, Hamp in Bridgwater (22%) and Watchet (18%). Moreover, recent energy price rises have likely pushed more people into fuel poverty than the latest (2021) figures suggest.

## Domestic EPC rating in Somerset



\* According to the [2021 Fuel Poverty Strategy](#), in England a household is in fuel poverty if:  
— their home has a Fuel Poverty Energy Efficiency Rating (FPEER) of band D or below and  
— if, after subtracting their modelled energy costs and housing costs, their residual income is below the poverty line

Source: Energy Performance Certificates. Visualisation: Regen

Approximately 18% of homes with an EPC are insulated or have a 'good' or 'very good' wall energy efficiency rating. At least 79% of households had windows that were double or triple glazed.

To meet net zero targets, in 2017 the UK government committed to a target for all homes to achieve an EPC of C or above by 2035. This would require improvements to the majority of the 66% of homes in Somerset that currently fail to meet this standard.

The Climate Change Committee's Sixth Carbon Budget outlines that non-domestic properties need to achieve an EPC rating of C or above by 2030-2032. This means around two-thirds of non-domestic buildings in Somerset will need retrofitting.

## Non-domestic EPC rating in Somerset



# Slow progress in EVs, which make up less than 1% of all road vehicles

As with much of the UK, most of Somerset's road vehicles operate on diesel or petrol (98.6%).

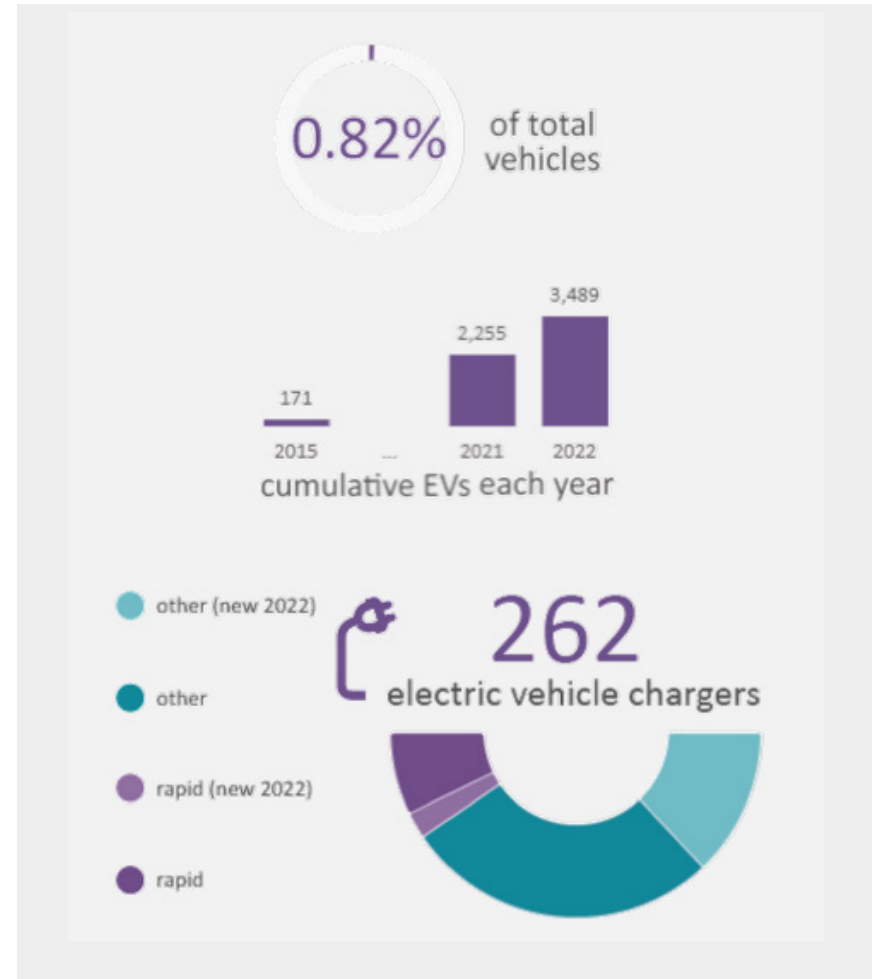
In total, road vehicles covered 4.4 billion miles across the Somerset area, the majority of which were undertaken by cars (75%). The proportion of adults [cycling as a form of transportation](#) at least once per month has decreased in recent years from 8.4% in 2016 compared to 5.5% in 2021.

The electrification of transport has made slow progress to date. As of 2022, battery electric vehicles make up only 0.82% of vehicles registered in Somerset, while hybrids made up 0.5%.

However, recent trends show an acceleration in the transition to electric vehicles (EVs). The total number of EVs registered in Somerset by the end of 2022 was c.3,490 – an increase of nearly 1,250 registrations in a single year. 20% of all new vehicle registrations in 2022 were pure battery EVs – with rapid growth expected as manufacturers ramp up EV production and consumer demand rises.

There are plans in development for a gigafactory at the Gravity business park near Bridgwater, which represents a significant opportunity for skills development, investment and infrastructure benefits.

By 2022, 262 chargers were installed across Somerset according to the Department for Energy Security and Net Zero statistics. See the [Somerset EV charging strategy](#) for further details.



Data source for baseline EV data: DfT VEH0105



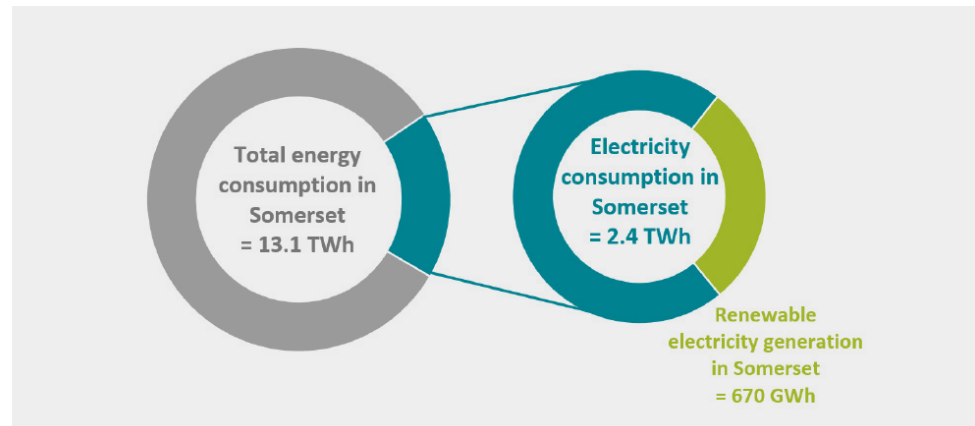
# Renewable electricity generates the equivalent of 5% of the area's total annual energy consumption

In 2022, Somerset generated approximately 670 GWh from renewable electricity sources on an annual basis. Electricity demand was approximately 2,350 GWh, with total energy demand from all sources approximately 13,145 GWh.

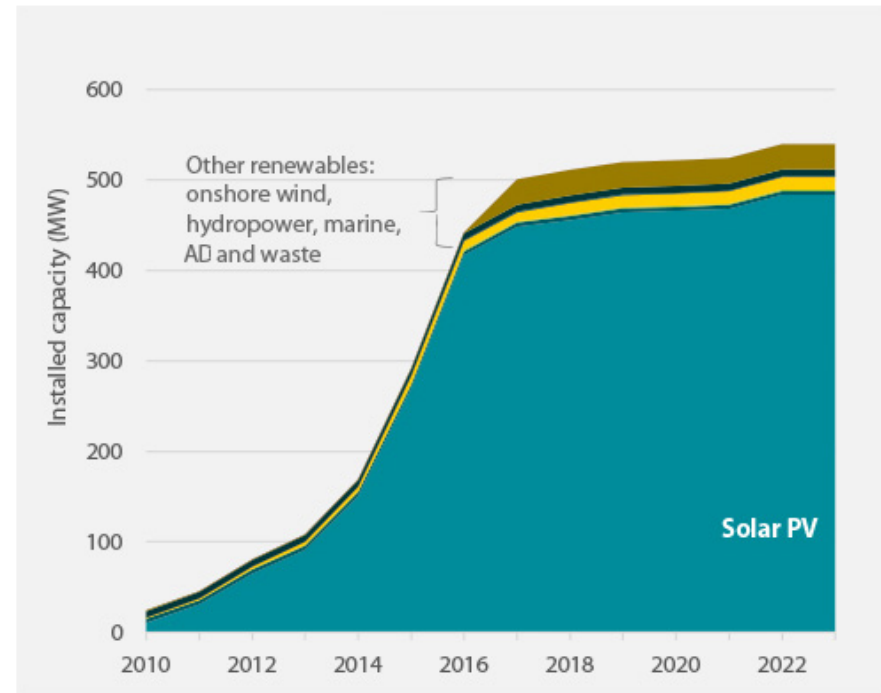
Therefore, Somerset generated the equivalent of approximately 29% of its annual electricity consumption and 5% of its total annual energy consumption from local renewable electricity generation in 2022.

In 2023, renewable electricity capacity totalled over 520 MW. There has been a significant slowdown in deployment of new renewable energy projects since 2017. This is due to a combination of subsidy reductions and network constraint issues.

**Renewable electricity generation in Somerset is equivalent to:**  
 29% of Somerset's total electricity consumption  
 5% of Somerset's total energy consumption



Somerset renewable electricity capacity over time



Data sources: BEIS, Renewable electricity by local authority 2014 – 2021. NGED & SSEN ECR.

# Solar PV dominates existing and proposed renewable energy capacity

In August 2023, renewable technologies made up 82% of Somerset’s total installed electricity generation capacity. Ground-mounted solar deployment dominated, with a total of 313 MW. The highest annual rate of solar installation was in 2015, when 146 MW of capacity was installed. In 2023, there was 653 MW of ground-mounted solar projects in development.

There was at least 46 MW of domestic and 32 MW of non-domestic rooftop solar installed in Somerset by August 2023. Rooftop PV installation rates have since fallen, but recent years have seen an uptick, with 11 MW installed in 2022 and another 12 MW installed by August of 2023.

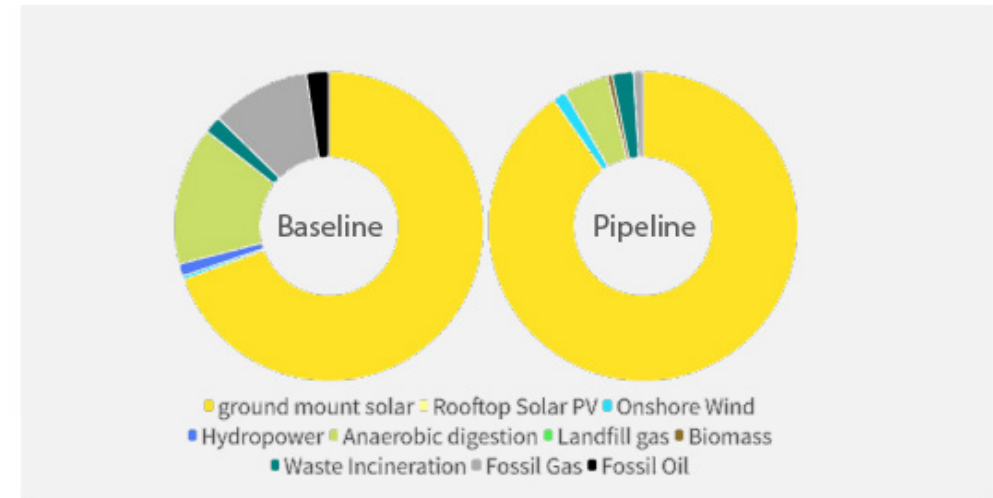
Organic waste technologies make up the second-largest renewable capacity in Somerset – with landfill gas engines totalling 71.2 MW and anaerobic digestors 8.6 MW.

Just over 2 MW of onshore wind is currently installed in Somerset – with the majority at Ecotricity’s Shooters Bottom turbine to the east of the Mendips. There are at least 43 small turbines across Somerset totalling approximately 366 kW.

Hydropower makes up less than 1 MW across a few scattered micro-sites, most of which are housed in old watermills. There is no marine or offshore generation currently operational in Somerset.

There are 140.6 MW of renewable projects currently operating in Somerset that are owned by local organisations, community organisations, farms or householders. Local businesses make up the majority of this with ownership of 74 MW. Community organisations have ownership of at least 15.3 MW.

Baseline and pipeline<sup>1</sup> installed capacity in Somerset



| Technology              | Baseline Sites | Baseline (MW) | Pipeline sites | Pipeline (MW) |
|-------------------------|----------------|---------------|----------------|---------------|
| Ground-mounted solar PV | 75             | 313           | 40             | 653           |
| Rooftop solar PV        | 21,044         | 78            | N/A            | N/A           |
| Anaerobic digestion     | 19             | 11            | 0              | 0             |
| Landfill gas            | 5              | 32            | 2              | 25            |
| Hydropower              | <10            | <1            | 2              | 0.085         |
| Onshore wind            | 44             | 2.4           | --             | --            |
| Biomass                 | --             | --            | 1              | 3.9           |

1. Pipeline capacity refers to any site found in planning and/or applied for and accepted a distribution network grid connection offer.

# Hinkley Point C offers opportunities for skills and the supply chain, while battery storage has the potential for rapid development

## Nuclear

Somerset is home to Hinkley Point nuclear power station, with two new reactors under construction – Hinkley Point C. [A recent announcement](#) from EDF delayed the expected commissioning date to 2029, with 2031 as a worst case delay. Hinkley Point C is expected to contribute 3.2 GW when commissioned and is one of only a small number of new nuclear power stations being constructed in the UK. As such, Hinkley is a national resource that will contribute to the overall decarbonising of GB’s electricity network. It falls outside of the scope of the Somerset Net Zero Pathway. However, there may be opportunities to link in local renewable development with Hinkley’s supply chain development and skilled labour force.

## Battery storage

Battery storage totals just 30 MW of capacity, made up primarily by the council-owned [Fideoak site](#) which provides grid services to the network. Rapid deployment could take place in the near term, as there are a further 487 MW of batteries in the pipeline. However, many of these applications may be speculative and may not come to fruition. There are sites in the pipeline that are due to offer standalone grid services and others that are co-located on site with renewable generation. The largest site identified in the pipeline is at Rodden Farm near Frome. It has applied for a 75 MW grid-connection offer.

Fideoak battery site near Taunton (28 MW)



| Technology                   | Baseline sites | Baseline (MW) | Pipeline sites | Pipeline (MW) |
|------------------------------|----------------|---------------|----------------|---------------|
| Battery storage <sup>1</sup> | 2              | 30            | 15             | 487           |
| Nuclear                      | --             | --            | 1              | 3,200         |

Photo credit: British Solar Renewables

1. The total number sites in planning are unlikely to be built in entirety due to the speculative nature of projects applying for grid connections.

# Fossil-fuelled and high carbon generation is still expanding

## Fossil-fuelled sites

Approximately 14% of Somerset’s installed electricity generation capacity is made up of fossil-fuelled gas, oil and waste sites, totalling 80 MW, of which 70 MW come from fossil fuels. The largest oil site is 9.8 MW located at Whatley Quarry. The largest fossil gas site is the 15 MW Yeovil Power Generation Plant. A further 7.2 MW is being developed at the same location by Conrad Energy.

## Energy from waste

There is one energy from waste incineration site located at the Bridgwater resource recycling centre. The site, located at Showground Road near the M5, is going through [final testing in early 2024](#) before becoming fully operational. The 7.8 MW site was granted planning permission in 2015 and began construction in 2019. It applied for a new planning permission under SCC/3761/2020 in 2020 since councillors determined that further consultation was needed. The second application was granted subject to conditions in July 2021.

An additional 2.5 MW Advanced Conversion Technology (ACT)<sup>1</sup> site has been granted a grid connection offer, located at the Marston Trading Estate in Frome, according to SSEN’s embedded capacity register.

| Technology         | Baseline sites | Baseline (MW) | Pipeline sites | Pipeline (MW) |
|--------------------|----------------|---------------|----------------|---------------|
| Waste incineration | 1              | 10            | 1              | 2.5           |
| Fossil gas         | 9              | 57            | 1              | 7.2           |
| Fossil oil         | 4              | 13            | --             | --            |

1. Advanced Conversion Technology (ACT) refers to innovative and sophisticated methods of converting waste materials into energy, with a focus on maximising efficiency, minimising environmental impact, and often incorporating technologies that go beyond traditional waste-to-energy methods.

# 03

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## Energy generation resources



# Key messages

Somerset has considerable renewable energy resources, many of which are relatively underdeveloped.

## Widespread solar

Somerset's solar resource is significant and geographically widespread, due to the high availability of undeveloped rural land.

## Onshore wind

Onshore wind resources are also promising, although there is only one large-scale turbine and a few small sites in operation. For onshore wind, radar and landscape concerns are the key constraints, with the highest windspeeds within protected landscape areas.

## Other opportunities

There are also some limited opportunities for green biogas generation and small hydropower.

## Major barriers

Grid constraints present a major barrier to connecting new sources of renewable generation in Somerset. In particular, upgrades needed to the high-voltage transmission network are the key blocker to accessing grid capacity.

# Resources overview

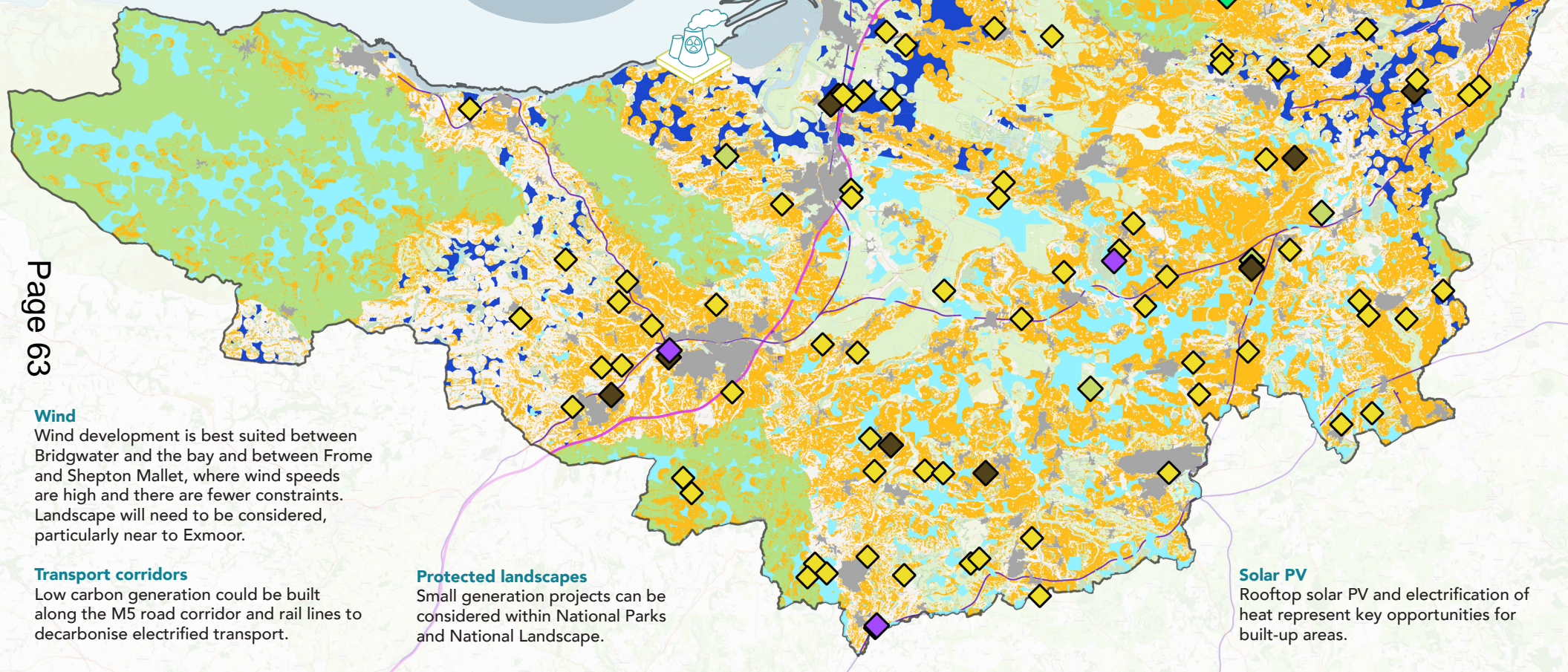
## Tidal

Tidal resource in the Bristol Channel is yet to be developed. It is subject to environmental and economic constraints.

Tidal power opportunity

## Geothermal

Geothermal heat potential in Triassic salt fields cover wide areas of Somerset.



## Wind

Wind development is best suited between Bridgwater and the bay and between Frome and Shepton Mallet, where wind speeds are high and there are fewer constraints. Landscape will need to be considered, particularly near to Exmoor.

## Transport corridors

Low carbon generation could be built along the M5 road corridor and rail lines to decarbonise electrified transport.

## Protected landscapes

Small generation projects can be considered within National Parks and National Landscape.

## Solar PV

Rooftop solar PV and electrification of heat represent key opportunities for built-up areas.

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### Operational projects

- Anaerobic digestion
- Battery storage
- Landfill gas
- Solar PV
- Wind

### Resource areas

- Best wind areas
- Promising wind areas
- Solar resource area

### Geographical features

- Railway
- M5
- Built-up areas
- National Parks and National Landscapes

## Solar baseline, pipeline and resource potential in Somerset

### KEY

#### Operational solar sites

◇ Solar PV

#### Solar sites in planning

● Approved

● Application submitted

● Application withdrawn

● Abandoned/refused

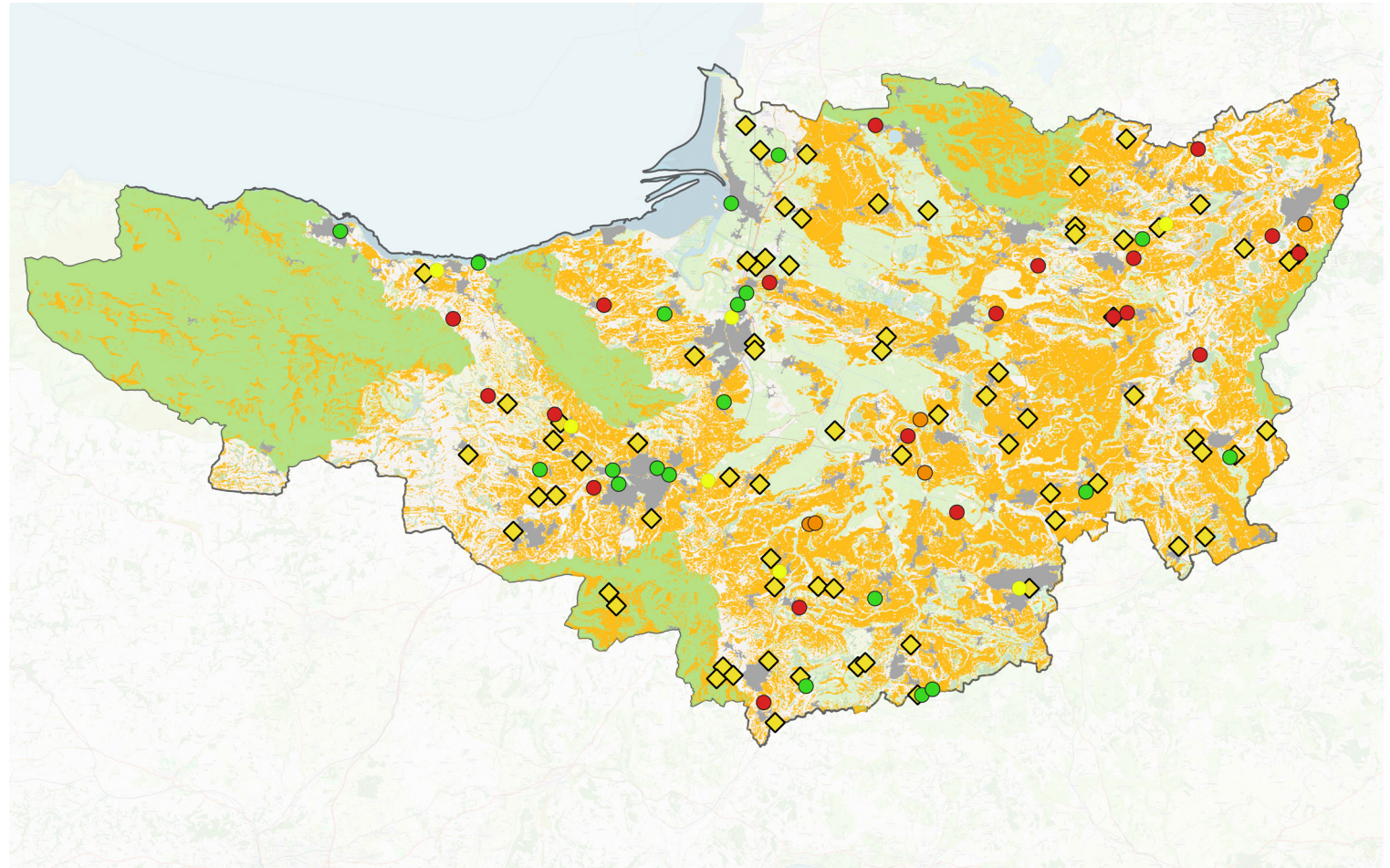
#### Geographical features

■ Solar resource area\*

■ Built-up areas

■ National Parks and National Landscapes

\*only high-level constraints removed





## Somerset's solar resource is geographically spread, with operational sites across the area

Analysis of potentially suitable land for solar power shows widespread availability across Somerset, outside of Exmoor National Park and the National Landscapes. This is reflected in the distribution of existing sites, which are situated across the county outside of these designated landscapes. Within Somerset's designated landscapes, there may still be suitable locations for solar for individual businesses or properties in proximity to existing built forms, so long as they avoid open moorland and high coastal heaths. For example, several multi-MW sites have already been developed in the Blackdown Hills.

Regen's high-level resource assessment, which accounts for key technical, network and planning considerations, identifies 160,000 ha of land area that could potentially be suitable for large-scale solar PV, with a further 20,000 ha in areas where constraints may need further consideration. The degree of solar uptake under the Net Zero Pathway is feasible alongside other land use requirements such as new developments and land required for phosphate reduction and nutrient neutrality. Considerations on biodiversity net gain will be required for each new site.

Detailed site-specific analysis considering localised constraints and planning considerations would be needed to take any potential site forward to development, but the overall finding is that there is more than enough solar resource and available land to deliver the Somerset Net Zero Pathway. Network capacity constraints currently represent the greatest barrier to deploying solar in Somerset.

### Rooftop solar PV

There were more than 13,000 rooftops with solar PV installed across domestic and non-domestic properties in 2023. Recent electricity price rises have resulted in an increase in the rate of installations. To reach an additional 364 MW of domestic rooftop installations by 2050, 120,000 rooftops will need to be fitted with an average 3.4 kW domestic installation, including new-builds. To meet non-domestic rooftop solar PV targets of 118 MW, around 12,000 businesses with an average 10 kW installation would be needed.

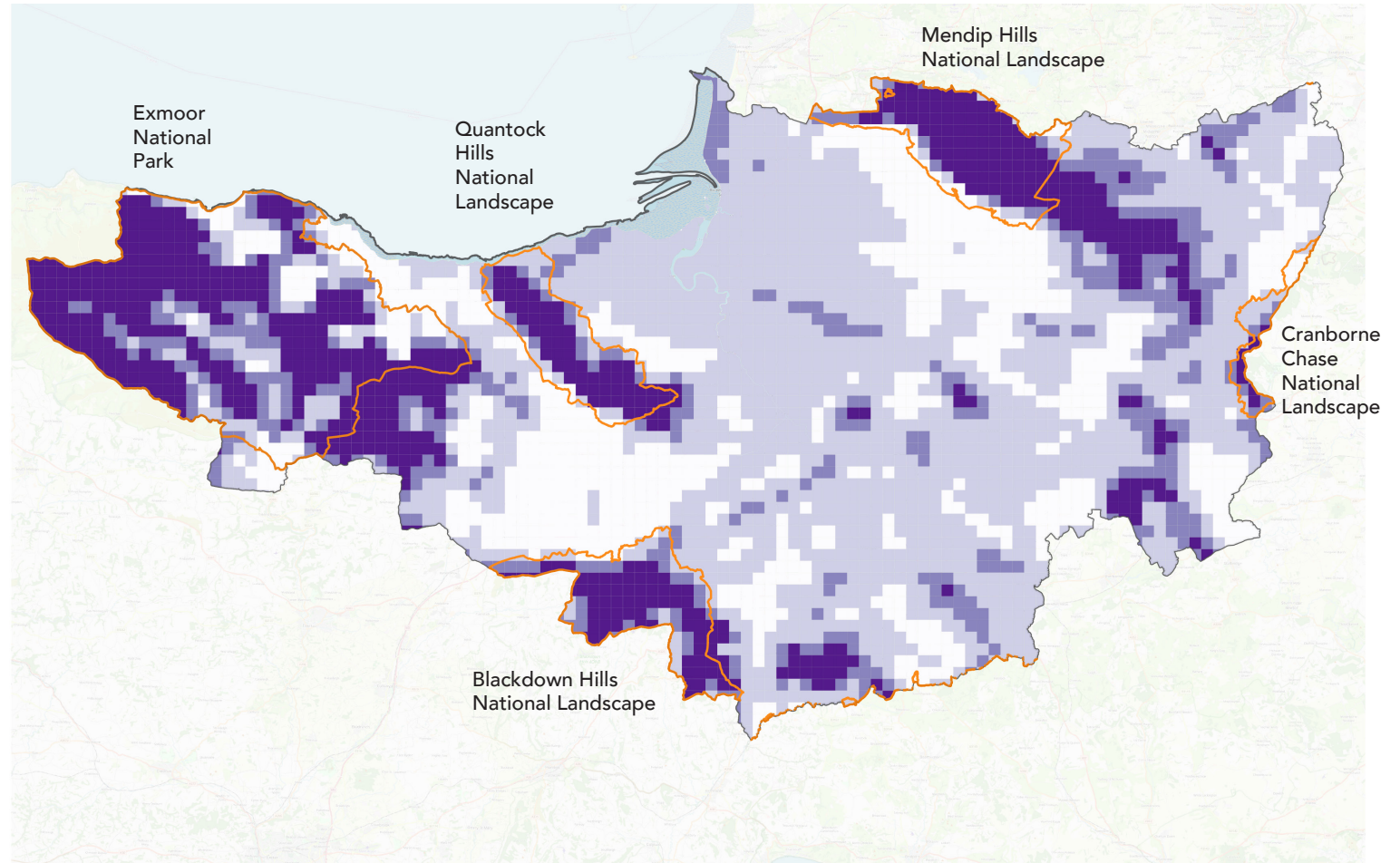
## Wind speed and designated landscapes

Somerset's topography and protected landscapes means that hilly areas with the highest wind speeds are focused in and close to the five protected landscape areas.

Page  
KEY  
66

**Wind (onshore)**  
Wind speed (m/s)

- 0-5.9
- 5.9-6.5
- 6.5-7
- 7-9.5
- National Landscapes and National Park



## Onshore wind baseline, pipeline and resource potential

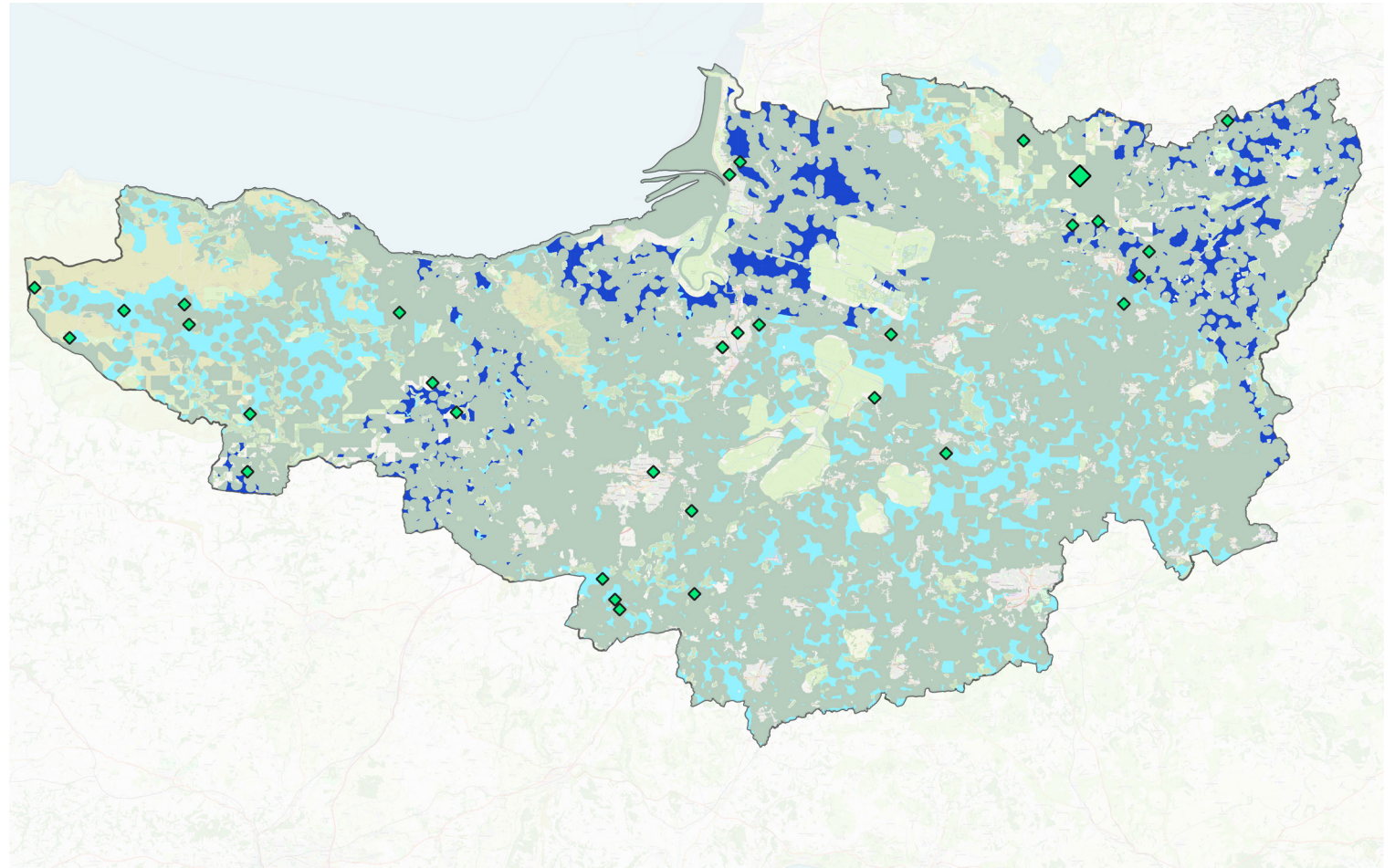
### KEY

#### Operational wind sites

- ◆ Large turbines
- ◆ Small turbines

#### Resource areas

- Best wind areas
- Promising wind areas
- Wind allocation area



## Areas with high windspeeds are focused around designated landscapes

Regen's analysis of the onshore wind resource divides the potential resource into three categories. Best wind areas fall outside of the 20-mile radius around military airbases, as well as being lower-grade agricultural land outside of designated landscapes. These areas are relatively limited – key constraints are the potential radar issues and that the highest wind speed are within designated landscapes. The best wind areas are focused in the north-east of the county in the former Mendip district, particularly between Frome and Shepton Mallet, and near the Bristol channel in the former Sedgemoor district.

Promising wind areas fall within the 20-mile airbase radius, and include areas of partial constraint, including national designated landscapes and areas of high agricultural grade. Some promising wind areas fall within Exmoor National Park, Mendip Hills and Quantock Hills – these hillier areas have higher wind speeds but are subject to landscape considerations.

The wind allocation area considers all areas that are not significantly constrained – e.g. areas outside of urban areas, country parks, nature reserves or habitat protection areas.

Current national planning policy as set out in the National Planning Policy Framework has discouraged wind development in England in recent years. The 2023 amendment to footnote 54, though ostensibly designed to ease planning for onshore wind, did not go far enough to have a significant impact. In particular, there remains a requirement for wind turbines to be within an allocation set out through the local plan, supplementary planning documents or neighbourhood plan. In Somerset, only [Exmoor National Park's local plan](#) currently allocates areas for wind, outlining that small-scale wind turbines with a maximum 20m height may be permissible on areas not characterised as open moorland or high coastal heaths.

The wind allocation area is designed to be taken into the new local plan or in a Supplementary Planning Document to meet the requirements of the National Planning Policy Framework. It is deliberately broad to enable developers to select sites on the basis of detailed site selection processes, rather than to rule out sites using coarser blanket criteria.

# There are some limited opportunities for green biogas

## Biogas baseline, pipeline and resource potential in Somerset

### KEY

#### Baseline bioenergy projects

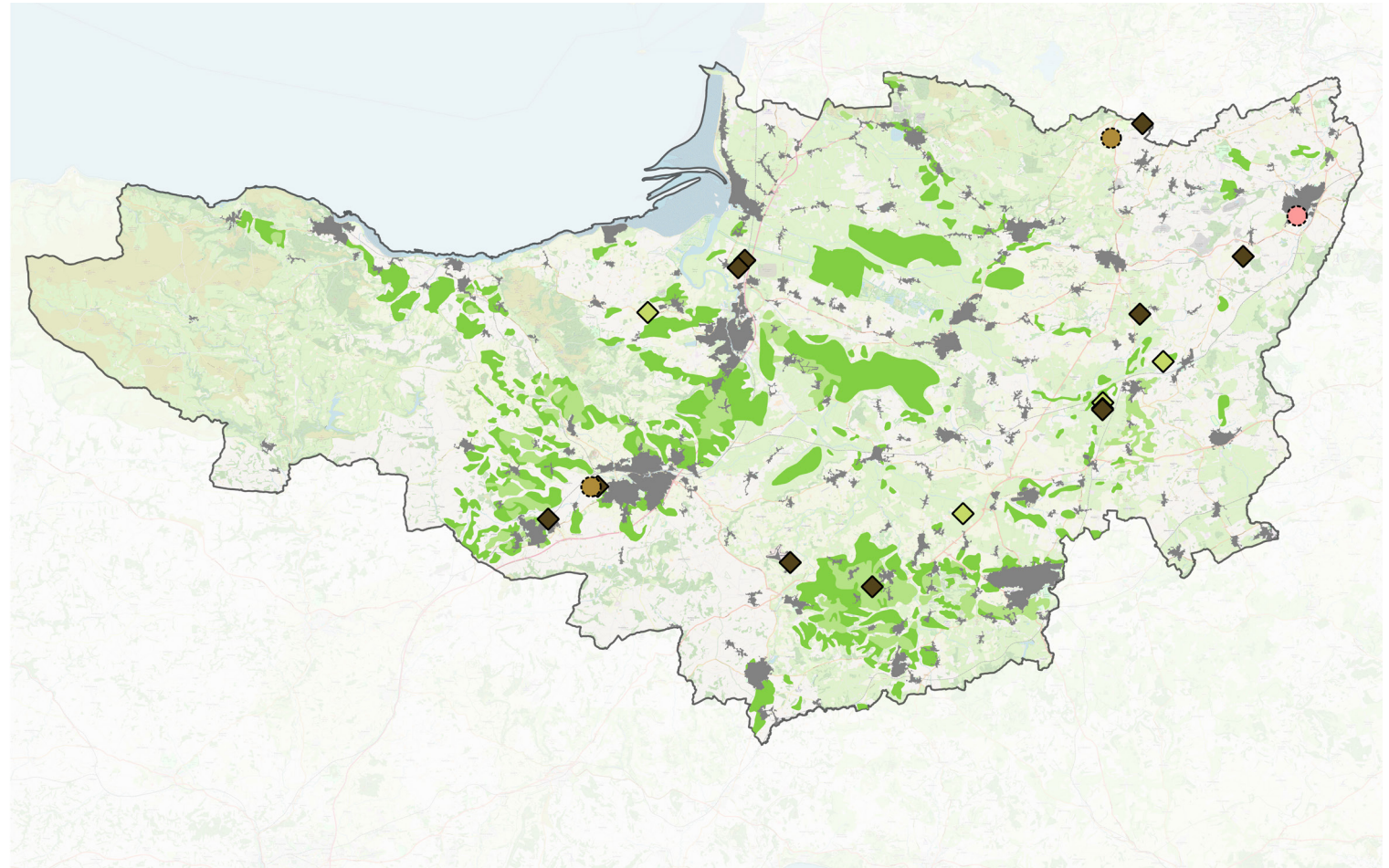
- ◆ Anaerobic digestion
- ◆ Landfill gas

#### Pipeline bioenergy projects

- ◆ Advanced Conversion Technology
- ◆ Landfill gas

#### Geographical features

- Built-up areas
- Agricultural land grade 1
- Agricultural land grade 2



## Bioenergy and green gas

The Council already collects and processes food waste, limiting the amount of unused feedstock available for additional new biogas plants in the county. Over 23,000 tonnes are sent annually for reprocessing at Somerset biogas plants, including anaerobic digestion (AD) facilities at Cannington and Walpole (Viridor) near Bridgwater.

From March 2025, as part of the Simpler Recycling policy, all businesses will be required to separate out and recycle food waste. This may offer additional opportunities for AD. Agricultural waste may also offer additional resources for use in AD.

Somerset Council is currently undertaking a resource assessment to establish the potential scale and location of the resource. As of 2023, there was approximately 11 MW of anaerobic digestion in Somerset across 19 sites.

Landfill gas is likely to be less prominent as a technology in the future as the 2025 landfill ban comes into force. Sites like Dimmer landfill gas are starting to see a reduction in supply. Sewage gas sites are likely to remain at similar installed capacities as in 2023.

## Hydropower

Hydropower resource is largely limited by the topography of Somerset. A number of very small-scale low head sites have already been developed, often on historic mill sites. According to Mendip Power Group, a further 7 MW of resource could be developed across Somerset, although abstraction licence costs and high capital costs poses a significant barrier to development of these small and micro-scale sites.

# Grid constraints are a major barrier to decarbonising energy

## Generation and demand constraints

Grid constraints, caused largely by the [transmission Statement of Works](#) process, coupled with large volumes of projects wishing to connect to the network, are a key barrier to meeting net zero decarbonisation goals in Somerset, and across the UK. The capacity maps on the next page show downstream generation and demand constraints across the east of the county in particular. Although generation projects have historically been most affected by constraints, some of the largest demand connections may also encounter issues.

To alleviate distribution-level constraints, there is a need for more investment and collaboration to bring forward the necessary levels of investment and release capacity in the queues. The Distribution Network Operators (DNOs) have business plans in place that will create some of the required investment, but not necessarily at the level and pace required to deliver the area's net zero ambitions.

DNOs will also identify investment required on the distribution network by performing an optioneering assessment. The cost benefit-style assessment decides whether to signpost a substation for review, delay reinforcement with flexible asset procurement, or directly reinforce grid hardware to release capacity. The map on the following page shows several substations that have been flagged by the assessment.

Every area of grid in Somerset is subject to transmission works. This means that connections above a certain size may be dependent on upstream upgrades to the transmission network, which are not scheduled to take place until 2038. When these upstream constraints from the transmission network are

considered, much of the unused distribution capacity on both demand and generation sides of the equation becomes constrained.

Until upstream transmission constraints are released, most larger projects and some smaller projects that attempt to connect to the network will be met with significant delays.

## Ongoing grid reform and future network plans

To address grid-related delays, the Government, Ofgem and Electricity System Operator have produced a [Connections Action Plan](#) which sets out actions to significantly reduce connection timescales, including:

- Raising entry requirements for new projects
- Removing stalled projects from the queue (some networks have already actioned the release of capacity on their networks, including [National Grid Electricity Distribution](#))
- Better using existing network capacity, through engineering assessments and flexible connection offers
- Better allocating existing network capacity, moving away from the current first-come, first-served process
- Strengthening data, processes, obligations and incentives to give customers visibility of available capacity and to deliver timely connections
- Developing longer-term connections process models aligned with strategic planning and market reform.

In addition to distribution connections reform, transmission capacity additions will need to address long lead times. There have been several key developments to accelerate the delivery of critical transmission projects, including £19.8bn of onshore transmission investment, as sanctioned by Ofgem via its [Accelerated Strategic Transmission Investment](#) decision in 2022.

# Transmission works are the key blocker to accessing grid capacity

## KEY

### Distribution Network optioneering assessment decisions



#### Signposting

**Bridgwater** – Bath Road:  
no flexibility needed until 2025  
**Yeovil** – Coker Tee:  
no flexibility needed until 2027



#### Reinforcement

**Woodcote – Chard:**  
Reinforcement of 33kV circuits.  
Completion in 2025.  
**Yeovil BSP:**  
Flexibility for two years then reinforce  
to release 11MVA in 2026  
**Brunton:**  
Reinforcement of 17km of EHV  
overhead line, 8MVA released by 2028



#### Flexibility

**Chewton Mendip:**  
flexibility until 2027

### Primary substation constraints

- Partially constrained
- Unconstrained
- Constrained
- Left = demand
- Right = generation

### Gridlines

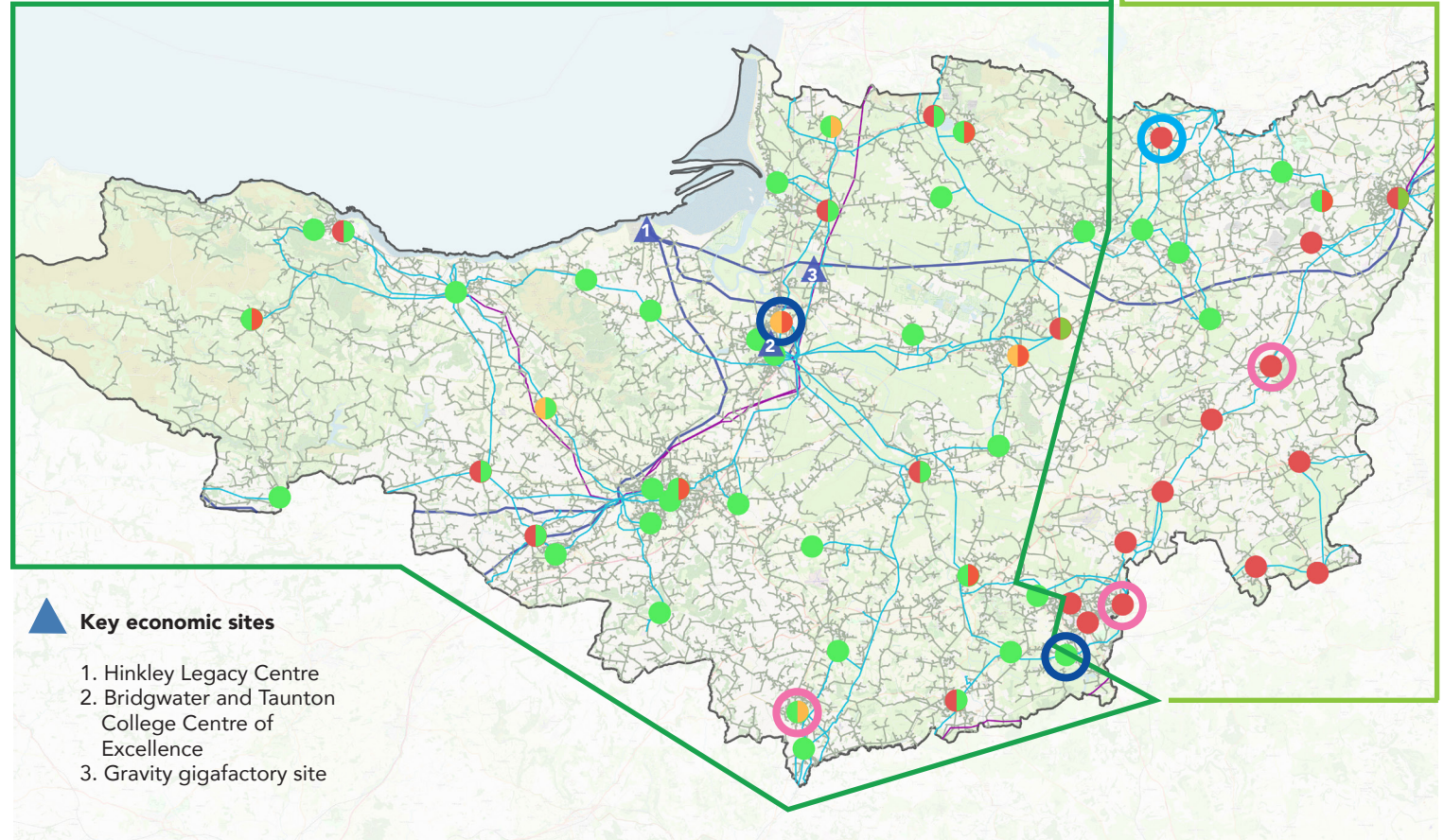
- 132KV
- 33KV
- 11KV

### Key economic sites

1. Hinkley Legacy Centre
2. Bridgwater and Taunton College Centre of Excellence
3. Gravity gigafactory site

National Grid Electricity Distribution (NGED)

Scottish and Southern Electricity Networks (SSEN)



- Some areas of Exmoor have no access to the electricity network.
- Substations around Taunton, to the south and to the west of Somerset, have good availability on both demand and generation – but are likely to be subject to transmission works.
- Both areas have transmission works out to 2038.

- Former Mendip has some demand and generation grid availability, with some constraints depending on the substation.
- SSEN's side of the network is heavily constrained for both generation and demand projects.



# Geothermal presents an untested opportunity, while hydrogen production could be linked to Hinkley Point C and other generation sources

## Geothermal

Somerset is situated in an area with geothermal potential for heating thanks to the sedimentary basin located under the Quantock hills and surrounding areas. According to a study by the [British Geological Survey geologists](#), carboniferous limestone such as in the area around Wookey Hole and Mendip Hills, could provide deep geothermal potential for use in heat networks in the region. The research shows that the estimated temperature range is 10-100°C with heat potential values exceeding 250 PJ/km<sup>2</sup>. This resource is at an early stage with further studies needed into its viability.

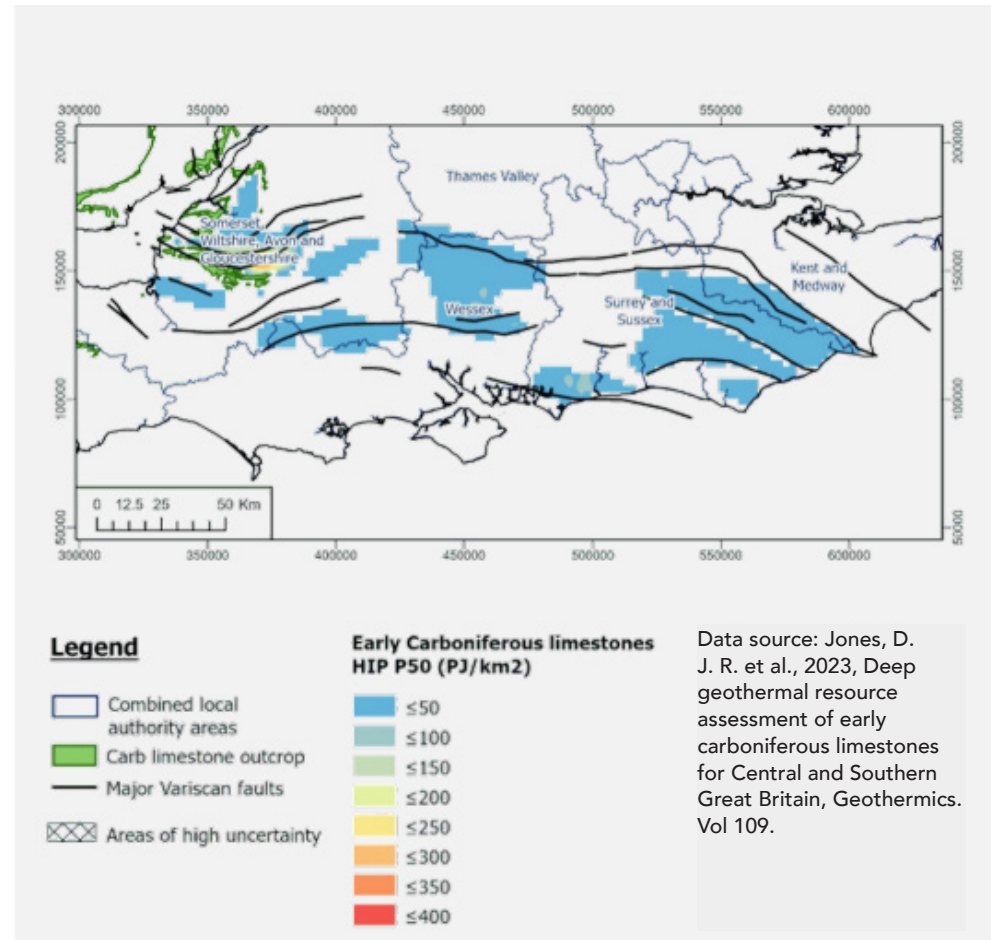
## Hydrogen

In the future, hydrogen could provide a low carbon energy source for difficult-to-decarbonise sectors such as heavy transport, shipping, aviation and some high-temperature industrial processes. It may also play an important role in long duration system balancing as a multi-vector fuel, using very low-cost electricity during times of over-supply to convert, store and transport renewable energy for many applications. It is unlikely to be used in domestic heating and the majority of transport applications as electrification provides a lower-cost, more efficient and further developed alternative.

In Somerset, there may be opportunities to co-locate hydrogen electrolyzers with renewable generation or alongside potential sources of hydrogen demand. Somerset's rail and motorway infrastructure could offer potential sites to co-locate hydrogen production with demand for hydrogen for heavy transport and alongside renewable resources.

There may be potential for hydrogen production at Hinkley Point. EDF Energy, working with partners and government investment, is developing a trial to install a [solid oxide electrolyser at its Heysham site](#) in Lancashire to produce nuclear-powered hydrogen. The trial is in design stage, with the potential to begin construction in 2024. If successful, the technology could be rolled out to other nuclear sites, such as Hinkley.

## Geothermal resources in central and southern Great Britain



# Offshore wind and wave opportunities are low, while tidal resources show significant, as-yet undeveloped potential

To date, no offshore wind and marine projects have been developed in Somerset waters. Offshore wind resource in the Bristol channel is low compared to average wind speeds in the Celtic Sea. Wind speeds in the channel closest to Somerset do not exceed 9.5 m/s. Wave potential is also low, with 1.5m wave heights making wave development in the channel unviable.

The channel is subject to several constraints, including major shipping routes and marine wildlife habitats. The Atlantic Array offshore wind site would have been the closest to Somerset, but was cancelled in 2013 due to commercial and technical challenges. Floating offshore sites currently in development in the Celtic Sea are likely to make landfall either in north Devon or Wales.

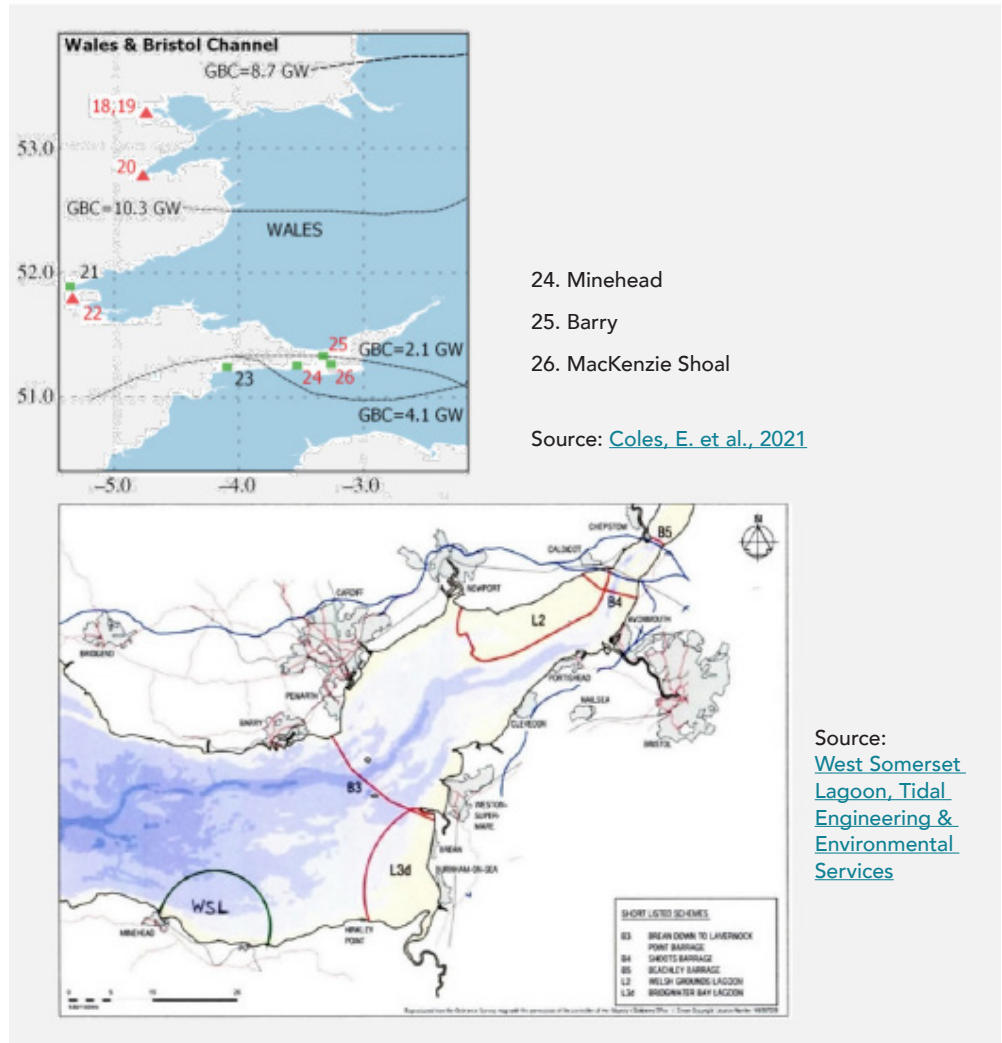
## Tidal opportunity in Bristol Channel

The most promising offshore opportunity is tidal, with spring peak flow ranging from 0.5-2.5 m/s in most areas of the Bristol Channel. A study by Carbon Trust investigated the energy potential of two tidal sites at the West Somerset Lagoon (close to Minehead) and Mackenzie Shoal. The study explores shipping, fishing and national designation constraints.

The West Somerset Lagoon project (2.5 GW) could generate up to 6.5 TWh/year with flexible head and pumping function, according to analysis by Cardiff University. WSL could provide coastal protection against waves, storm surge and sea level rise, thereby reducing coastal erosion and flood risk in the region. An environmental mitigation strategy has been prepared and

discussions have taken place between the potential developer, funders and Somerset Council. However, there is currently no route to market for this project and it has remained in early-stage development over an extended period.

## Tidal resources in the Bristol Channel



A person's hands are shown holding a glowing lightbulb. The person is wearing a white, textured sweater. The background is a blurred indoor setting with a circular light fixture on the ceiling. The entire image is overlaid with a semi-transparent teal color.

04

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# Net Zero Pathway

# Net Zero Pathway summary

## Key elements

## Net zero targets areas

### Demand

#### Energy demand

Somerset's energy demand needs to be significantly reduced through technology shifts, energy efficiency and demand reduction measures.

Both electric vehicles and heat pumps are significantly more efficient than the technologies they are replacing.

#### Heat decarbonisation

Retrofit is a crucial element of the Pathway, with all homes needing to achieve at least EPC C by 2035.

The high proportion of off-gas properties provides an opportunity for Somerset to lead the way on heat pump installation.

Somerset will need to increase domestic heat pump installations from a total of c.7,300 in 2022 to c.9,700 every year out to 2050.

#### Electric vehicles:

Somerset needs over 90% of road vehicles to be electric by 2040. Alongside an increase in public transport use and active travel, the higher efficiency of electric vehicles means Somerset's 4.3 TWh of road transport petroleum energy consumption could be replaced by 1.2 TWh of electricity.

An average of 9,300 new electric vehicle registrations are needed per year – compared to just 1,250 registrations in 2022.

### Generation

#### Energy generation

The remaining demand needs to be met from renewable and low carbon electricity sources – whether local or national.

#### Renewable generation

The equivalent of 45% of Somerset's 2050 electricity demand could be met by local renewables.

Generating the equivalent of 100% of 2050 electricity demand from local resources would be very challenging. It would require considering wind turbines in protected landscapes or additional very large-scale generation such as tidal power.

### System

#### Energy System

Demand and supply for energy need to be balanced on the system. Somerset needs the right supporting infrastructure, flexibility and storage assets.

#### Energy storage

Balancing demand and supply needs storage technologies. Storage deployment – for example, batteries or hydrogen electrolysis – is a critical cornerstone of achieving the Net Zero Pathway.

The Net Zero Pathway includes 247 MW of battery storage, around half of this from domestic batteries.

## Somerset's Net Zero Pathway is focused on electrification of energy demand, in line with national trends

Achieving net zero will mean that 100% of Somerset's energy demand needs to be met from zero carbon sources. To achieve this, Somerset's energy demand needs to be significantly reduced through energy efficiency and demand-reduction measures. The remaining demand then needs to be met from renewable sources – whether local or national – with supporting infrastructure, flexibility and storage in place.

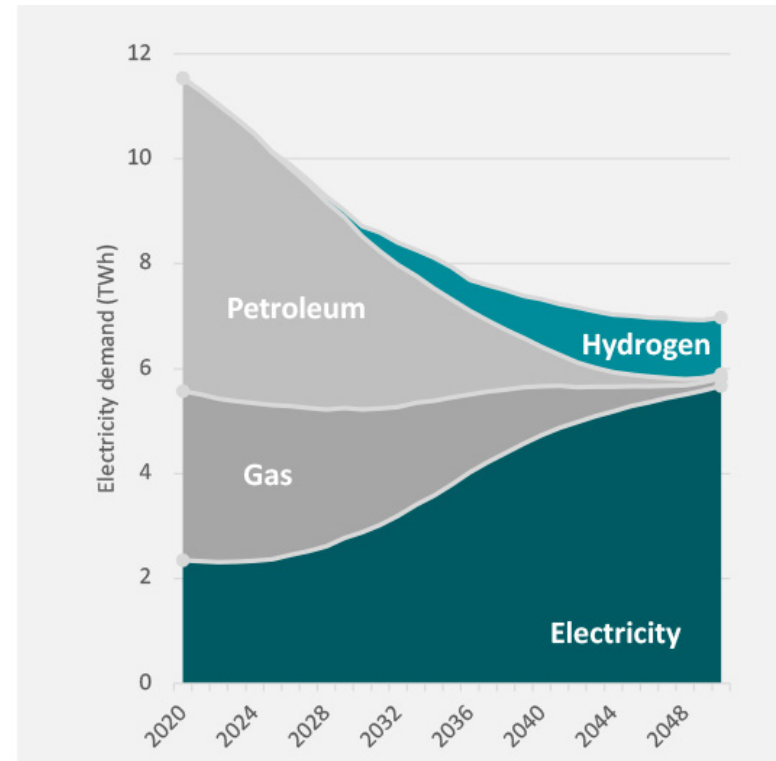
Somerset does not need to rely solely on local renewable generation of energy as the area is not an energy island – it is part of the GB energy system. National-scale projects outside the area, including offshore wind, nuclear and pumped storage, and inside the area – Hinkley Point C – will contribute to the overall decarbonisation of Somerset's electricity supply. However, for the area to play its part in decarbonising the GB energy system – as well as reaping the benefits of the transition – local renewable generation needs to increase significantly.

Somerset's Net Zero Pathway explores the changes to demand and generation that are needed to support the local delivery of net zero. It has been developed drawing on the national local net zero scenarios that most closely reflect local ambition and decarbonisation opportunities, in particular from the Climate Change Committee's (CCC) pathways and local analysis from the network operators' Distribution Future Energy Scenarios (DFES).

The CCC's Balanced Pathway, forming the basis for the UK's recommended Sixth Carbon Budget, illustrates the CCC's recommended net zero pathway that primarily relies on existing technologies, with moderate assumptions about behavioural change and innovation. The local DFES Leading the Way and

Consumer Transformation scenarios are ambitious and credible decarbonisation scenarios that focus on existing technologies and assume significant lifestyle and infrastructure changes.

Somerset's energy demand transition for net zero (by fuel, informed by trends in CCC's Balanced Pathway excluding gas fuel supply)



### A NOTE ON NET ZERO DATES

This Net Zero Pathway analyses the demand, generation and storage projects that would be needed to achieve a net zero energy system in Somerset. The Pathway achieves net zero by 2050 – 20 years later than 2030, which the Somerset Climate Emergency Strategy aims to work towards. This is because the Pathway is based on Committee on Climate Change projections and Distribution Network Operator scenarios that achieve net zero by 2050. For Somerset to achieve net zero earlier, requires going ahead of the national projections – which are already challenging to achieve. Significant local focus, investment and effort will be needed to bring net zero in Somerset forwards ahead of 2050 – however, there would be significant climate and economic benefits if this can be achieved.

## Electrification means electricity consumption is predicted to at least double under Somerset's Net Zero Pathway

Somerset's Net Zero Pathway is dominated by electrification of demand. There is only a minor role for hydrogen and this is focused in hard-to-decarbonise sectors, such as heavy industry and long-term energy storage.

In Somerset, and across the UK, the transition of fossil-fuel energy consumption to electricity and hydrogen is projected to at least double electricity consumption by 2050. Current electricity demand in Somerset is 2.3 TWh and this is projected to rise to 5.9 TWh when applying CCC Balanced Pathway trends to Somerset.

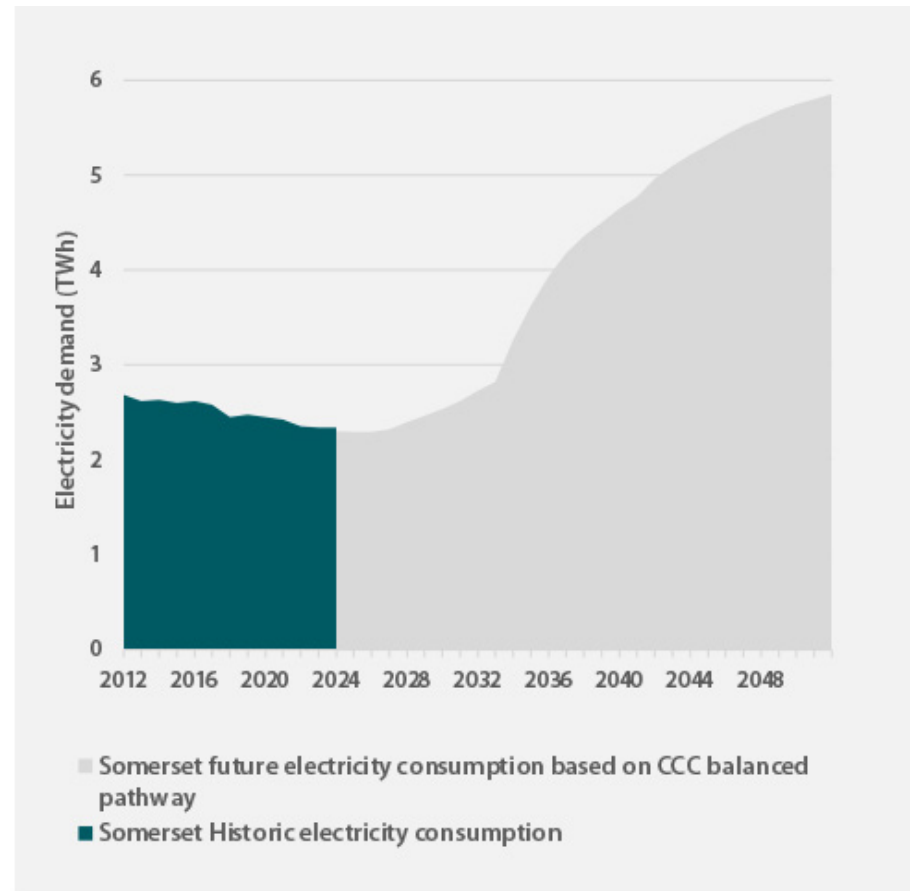
However, overall energy demand is expected to decrease under the Net Zero Pathway, with unabated fossil fuel use reducing to zero. Electric vehicles and heat pumps are at least four times as efficient compared to their fossil-fuelled counterparts. As a result of switching to electrified heat and transport together with moderate assumptions on demand reduction and energy efficiency, the Net Zero Pathway results in much lower total energy consumption. By 2050, following the CCC's Balanced Pathway trends, overall energy demand is nearly 45% lower than the existing baseline.

### Some of the key energy assumptions of the Somerset Net Zero Pathway include:

- Fuel switch away from fossil fuel consumption to electricity with a minor supporting role for hydrogen.

- An overall decrease in total energy consumption facilitated by an increase in electricity consumption using more efficient technologies, such as heat pumps and electric vehicles.
- Moderate energy efficiency and behaviour change assumptions, including the uptake of building efficiency measures and increases in public and active transport.
- Expansion of renewable and low carbon energy supply, principally onshore wind and solar PV.

### Future electricity demand in Somerset



## The high level of off-gas properties provides the opportunity for Somerset to lead the way on heat pumps

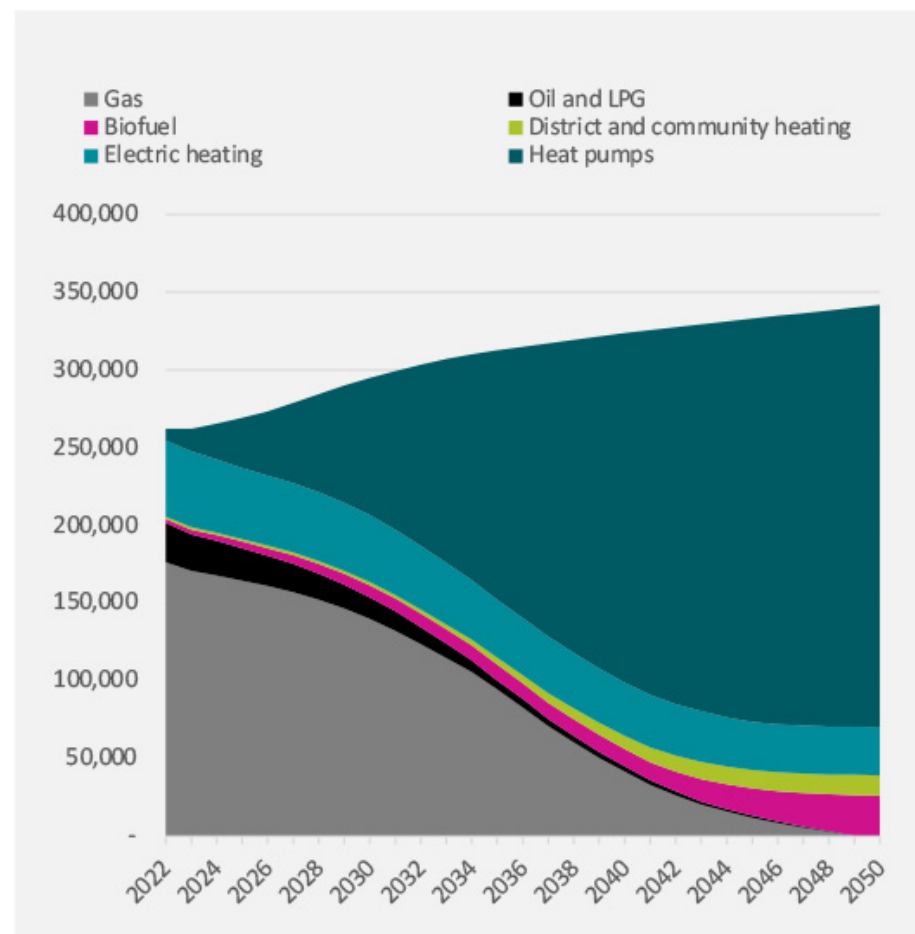
Under the Net Zero Pathway, heat in Somerset is expected to transition from predominantly fossil fuelled systems to heat pumps. The high number of off gas homes provides the opportunity to accelerate the transition in Somerset. The cost differential between high-cost off-gas fossil systems and heat pumps makes a more compelling investment case than the shift from relatively low-cost gas boilers to heat pumps. Heat pumps are expected to supply 82% of homes by 2050.

Under the pathway, electrical heating, such as direct electric and storage heaters, is likely to continue to play a similar role to at present, supplying heat with low upfront capital costs to smaller properties such as flats and park homes.

Hydrogen's role in heating is expected to be limited in Somerset, with a focus on industrial applications, and thus is not reflected in domestic heat projections. At the national level, the government is due to give a decision on the role of hydrogen for domestic heating in 2026. [Current evidence from independent researchers](#) points towards hydrogen being focused on applications other than domestic heat, such as hard-to-decarbonise industries and heavy transport. Biofuels will also play only a limited role out to 2050, contingent on the availability of sustainable feedstocks.

District heating could be the solution for denser areas of a limited number of settlements, such as Taunton and Yeovil. For example, Somerset West & Taunton Council received Heat Network Delivery Unit funding to explore the potential for heat networks in the Taunton area in 2021 and commissioned a study. There may be some potential for lower-density community-based schemes in more rural settings.

Somerset domestic heating technology projections



Data source: NGED and SSEN DFES 2022. FES 2022. Regen analysis.

## Somerset will need to increase annual domestic heat pump installations from 470 in 2022 to c.9,700 each year

| Net Zero Pathway key statistics – Heat |                                    |                            |
|--|------------------------------------|----------------------------|
| Domestic heating technology            | % of installations baseline (2022) | % of installations by 2050 |
| Direct electric heating                | 14.7%                              | 7.8%                       |
| Heat pump                              | 2.5%                               | 81.6%                      |
| Bioenergy                              | 1.0%                               | 6.4%                       |
| Gas                                    | 71.0%                              | 0.0%                       |
| Oil                                    | 10.2%                              | 0.0%                       |
| Community and district heating         | 0.6%                               | 3.9%                       |

### Under the Net Zero Pathway:

- Domestic heat pumps will need to increase substantially from c.7,300 installations in 2022 to c.277,000 by 2050, averaging just over 9,700 installations per year out to 2050.
- Hydrogen will play a small role, focused in industrial/non-domestic settings in later years, and thus is not included in domestic heat projections.

The government has increased the Boiler Upgrade Scheme by 50% to £7,500 for people installing low carbon heating such as heat pumps– with potential positive impacts on the heat pump market.

However, there has been a delay to the ban on installing oil and LPG boilers and new coal heating for off-gas grid homes to 2035, instead of phasing them out from 2026. This is likely to impact the delivery of Somerset’s Net Zero Pathway, particularly in off-gas areas.

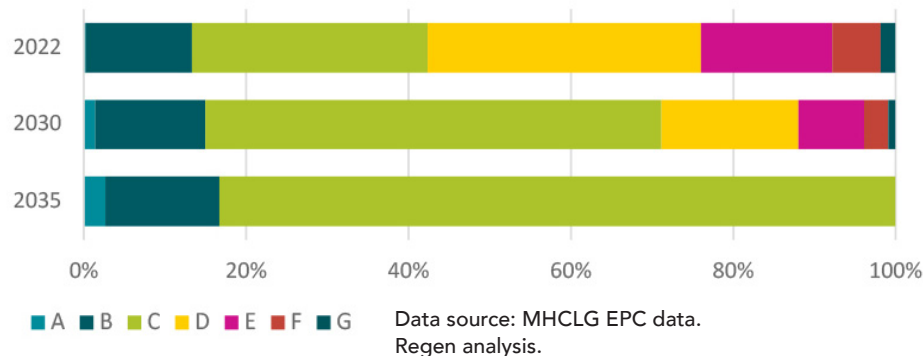


# Retrofit is a crucial element of the Net Zero Pathway, with all homes needing to achieve at least EPC C by 2035

At present, 42% of Somerset’s homes have an EPC score of A to C. The UK’s Clean Growth Strategy set a target to upgrade as many UK houses to at least EPC Band C by 2035 “where practical, cost-effective and affordable”, and for all fuel-poor households, and as many rented homes as possible, to reach the same standard by 2030. However, recent government policy changes have rowed back on the UK’s energy efficiency target commitments. For example, there will no longer be the requirement for rented homes to achieve EPC C by 2025 for new tenancy agreements. This policy shift makes the route to achieving the required energy efficiency measures to meet net zero less certain.

The Net Zero Pathway assumes all homes in Somerset achieve at least EPC C by 2035. EPC C is used as a proxy measure for achieving energy efficiency levels in line with net zero. In practice, each home will need retrofitting to a net zero compliant standard with energy efficiency measures, smarter heating controls and a zero carbon heat source. Given flaws in the EPC methodology (see note), this net zero compliant standard could be above or even in some circumstances below EPC C.

Somerset’s Net Zero Pathway EPC score projections



Despite these flaws, achieving EPC C across all homes is a useful target to set until a better measure is established nationally or until the methodology underpinning EPCs is reformed. EPC C across all homes represents a challenging target to meet by 2035, requiring immediate and continued action on retrofit. There may need to be further measures installed in some homes in Somerset beyond 2035, bringing them above EPC C. A review of progress and the latest evidence should be undertaken by 2030, potentially requiring new local targets to be set.

[LETI’s Climate Emergency Retrofit Guide](#) and [Somerset West & Taunton’s Net Zero Toolkit](#) offer current guidance to reduce heat demand in homes through a complete set of measures to fully contribute to net zero.

### A NOTE ON THE EPC

EPCs have been used as the measure of energy efficiency in the Pathway due to them being the current national approach to understanding energy efficiency. However, it is noted that EPCs are flawed as a way of measuring efficiency as they are based on the Standard Assessment Methodology (SAP) that include metrics on the cost of energy, which can deprioritise low carbon heat technologies due to the low price of gas. A consultation took place in early 2024 on reforming the SAP methodology to make it fit for a net zero future. Reforms are expected to be implemented in 2025.

### CCC 6th Carbon Budget energy efficiency implications

| Measure  | Balanced Pathway date |
|--|-----------------------|
| All new buildings are zero carbon                                  | 2025 at the latest    |
| Rented homes achieve EPC C   | 2028                  |
| Standards for lenders targeting EPC C across the housing portfolio | 2025-2033             |
| All homes for sale EPC C   | 2028                  |
| All commercial efficiency renovations completed                    | 2030                  |

## To replace fossil fuels with electricity and reduce transport emissions, more than 90% of road vehicles need to be electric by 2040

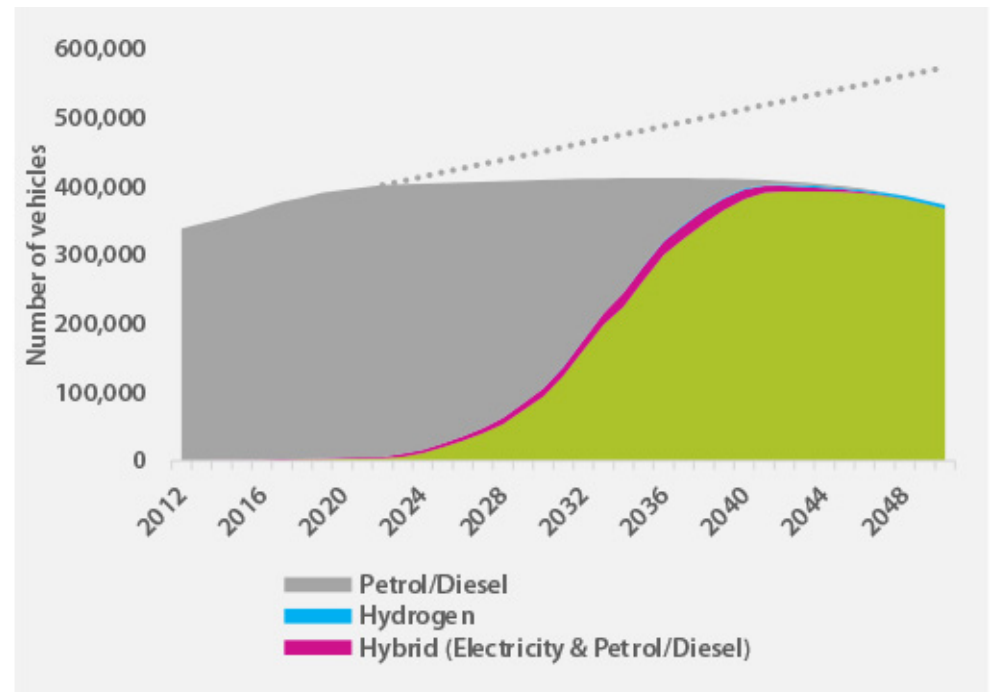
The Net Zero Pathway for transport focuses on uptake of electric vehicles, with over 90% of road vehicles being electric by 2040. To support this, the installation of 0.7 GW of EV charging capacity is required by 2030, and 1.6 GW by 2050. Alongside an increase in public transport use and active travel, the higher efficiency of electric vehicles means Somerset's 4.3 TWh of road transport petroleum consumption could be replaced by 1.2 TWh of electricity.

Over 80% of EV uptake is projected to be in households with off-street parking – leaving 20% of households needing on-street, hub or destination-based charging solutions. Ensuring there is sufficient charging capacity along the M5 corridor will be another challenge, particularly considering the summer surge in journeys to and through Somerset.

Less than 1% of road vehicles are projected to be hydrogen-fuelled under the Pathway. Hydrogen refuelling stations could be served by on-site electrolysis, or have hydrogen delivered by tankers. Hydrogen vehicles are likely to be focused in the HGV and agricultural sectors. The M5 corridor could, therefore, be a key hydrogen refuelling route, acting as a hub for dispersing hydrogen to agricultural areas in Somerset, as well as through the South West peninsula.

The Net Zero Pathway estimates that the mileage of personal vehicles reduces due to increasing consumer demand for public transport and innovations such as autonomous vehicles. Some households will reduce their number of vehicles, facilitated by the wider array of transportation options, such as car clubs, autonomous vehicles and improved public transport. However, as a predominantly rural area, it is assumed these transport mode shifts will be less than the national average.

Vehicle uptake projections in Somerset



Data source: NGED and SSEN DFES 2022, Regen analysis.

## An average of 9,300 new EV registrations are needed per year, compared to just 1,250 registrations in 2022

### Under the Net Zero Pathway:

- EVs must increase by c.345,500 to reach the required number by 2050, averaging 9,300 new EV registrations per year.
- This could be achieved if there is a large market-driven shift, and if EV charging infrastructure is in place.
- Hydrogen is expected to play only a small role as a transport fuel and be limited to HGVs and agricultural vehicles.

The [Somerset EV Charging Strategy](#) estimates that between 1,160 and 1,440 public charge points would be required by 2030. Assuming the same ratio of public EV charge points is required by 2050, approximately 4,250 public EV chargers could be needed by 2050. Of these, approximately 5% are expected to be rapid chargers and 95% fast chargers (7-22kw), according to the Somerset EV Charging Strategy.

### Net Zero Pathway key statistics – EVs

| Technology                  | Number of road vehicles in 2022 | Number of road vehicles by 2050 |
|-----------------------------|---------------------------------|---------------------------------|
| Electric cars               | 5,400                           | 265,700                         |
| Electric LGVs               | 300                             | 62,500                          |
| Electric HGVs               | --                              | 2,900                           |
| Electric motorbikes         | 100                             | 20,200                          |
| <b>TOTAL EVs</b>            | <b>5,800</b>                    | <b>351,300</b>                  |
| <b>Fossil fuel vehicles</b> | <b>396,000</b>                  | <b>0</b>                        |

The 2030 ban on the sale of new fossil-fuelled vehicles has been a critical tool in the UK's transition to EVs, inducing investment from car manufacturers. The current government's decision to push back the ban from 2030 to 2035 is likely to have negative effects on buyer and investor confidence, delaying the transition across the UK and impacting the delivery of Somerset's Net Zero Pathway.

# The equivalent of 45% of Somerset's 2050 electricity demand could be met by local renewables

The Net Zero Pathway is ambitious in relation to renewable generation, particularly compared to the current baseline. It represents more than a fourfold increase in local renewable generation.

The Somerset Net Zero Pathway assumes that Somerset is part of the UK's net zero energy system, in which each area of the UK is doing its part to further net zero goals. National-scale projects, including offshore wind and Hinkley Point C, will have a role to play. As a result, Somerset does not need to balance local energy demand with local renewable generation.

**Under the Net Zero Pathway**, Somerset's local renewable electricity generation meets the equivalent of 45% of Somerset's annual projected electricity demand by 2050. The Pathway includes significant and challenging growth in renewables:

- Solar PV capacity would need to increase by near five times, resulting in 0.8% of Somerset's land area occupied by ground-mounted solar PV and around 34% of domestic rooftops with solar panels.
- Onshore wind would need to grow to 154 MW from just over 2 MW of installed wind capacity.
- A total of 90 MW of other technologies, such as anaerobic digestion and small-scale hydro, are also needed.

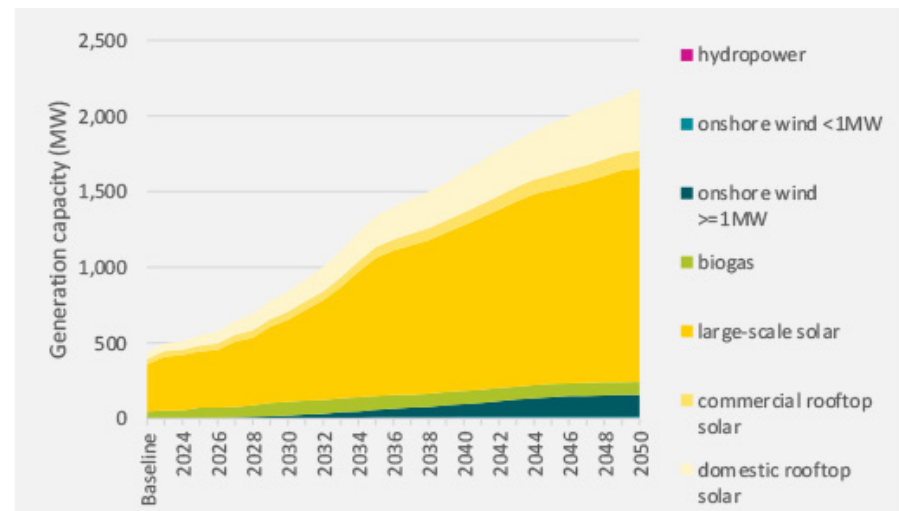
Onshore wind development in England has stalled since 2015 due to requirements in the National Planning Policy Framework (NPPF). The current government has proposed amendments to the NPPF which may have a limited positive impact on wind development. Further national planning reforms and local positive policy development will be critical to the future development of onshore wind.

### Net Zero Pathway key statistics

| Technology   | Total capacity by 2050 (MW) | Generation (TWh) |
|--------------|-----------------------------|------------------|
| Solar PV     | 1,939                       | 1.9              |
| Onshore wind | 154                         | 0.4              |
| Other        | 90                          | 0.5              |
| <b>Total</b> | <b>2,183</b>                | <b>2.8</b>       |

Reference: Somerset's projected 2050 electricity demand = 5.9 TWh. Therefore, this pathway's renewable electricity generation is equivalent to 45% of 2050 annual electricity demand.

### Renewable generation uptake in Somerset



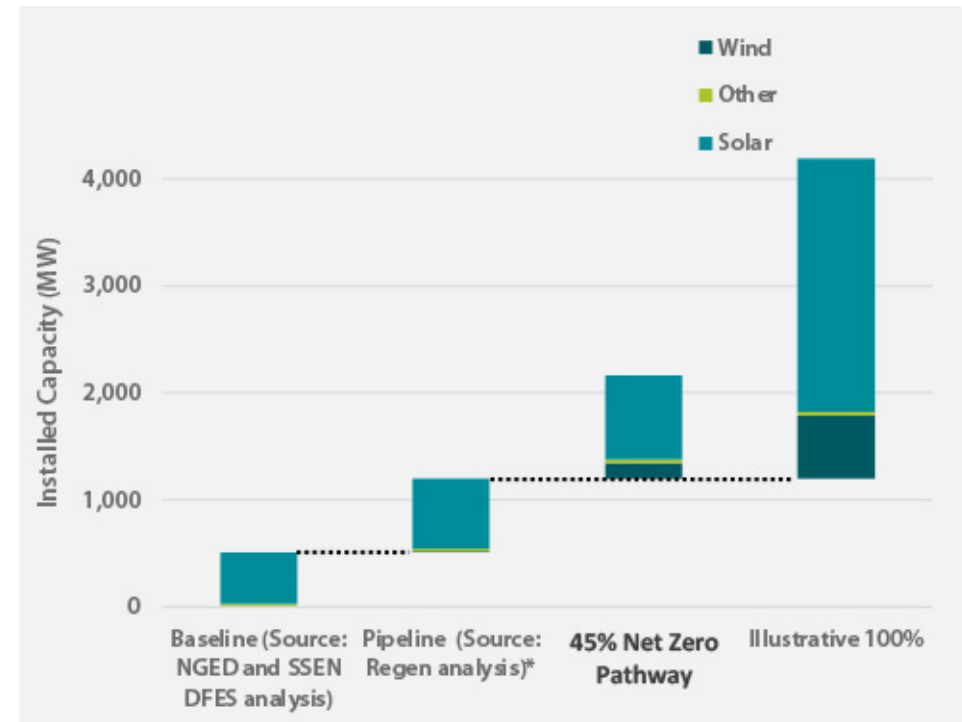
# Generating the equivalent of 100% of 2050 electricity demand from local resources would be very challenging

To further explore the potential for renewable generation in Somerset, a 100% sensitivity was developed. This illustrates the scale of onshore renewable electricity deployment necessary to meet the equivalent of 100% of Somerset’s annual electricity consumption by 2050.

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| Additional capacity required by technology | Baseline (MW) | Pipeline (MW) | Net Zero Pathway (MW additional capacity beyond baseline & pipeline) | Illustrative 100% sensitivity (MW additional capacity beyond baseline & pipeline) |
|--|---------------|---------------|--|---|
| Large-scale solar                          | 313           | 653           | 444  | 2,400   |
| Domestic rooftop solar                     | 46            | n/a           | 364  | 200   |
| Commercial rooftop solar                   | 32            | n/a           | 86   | 250   |
| Onshore wind                               | 2             | 0             | 152  | 400   |
| Hydropower                                 | <1            | 0             | 3  | 5   |
| Other                                      | 27            | 47            | 3  | 60  |
| Marine                                     | 0             | 0             | 0  | 50  |
| % of 2050* consumption                     | 45%           |               |  | 100%  |
| Total Generation (TWh)                     | 2.7 TWh       |               |  | 5.9 TWh   |

Installed capacity required to meet Net Zero Pathway and 100% sensitivity



\*Pipeline buildout subject to planning and/or grid agreement success.

This 100% sensitivity is illustrative only and, given market conditions, installation rates, grid constraints and Somerset’s resources, is unlikely to be achievable. Going beyond 45% requires some significant changes, for example considering large-scale wind as a viable option within the area’s protected landscapes or delivering a very large-scale project, such as tidal generation.

Regen recommends that the Council aims to achieve the Net Zero Pathway’s outcome of the equivalent of 45% of energy demand from local renewables. See [Annex 1](#) for a more detailed breakdown of the 100% sensitivity and associated average annual instalment targets.

# Storage deployment is a critical cornerstone of achieving the Net Zero Pathway

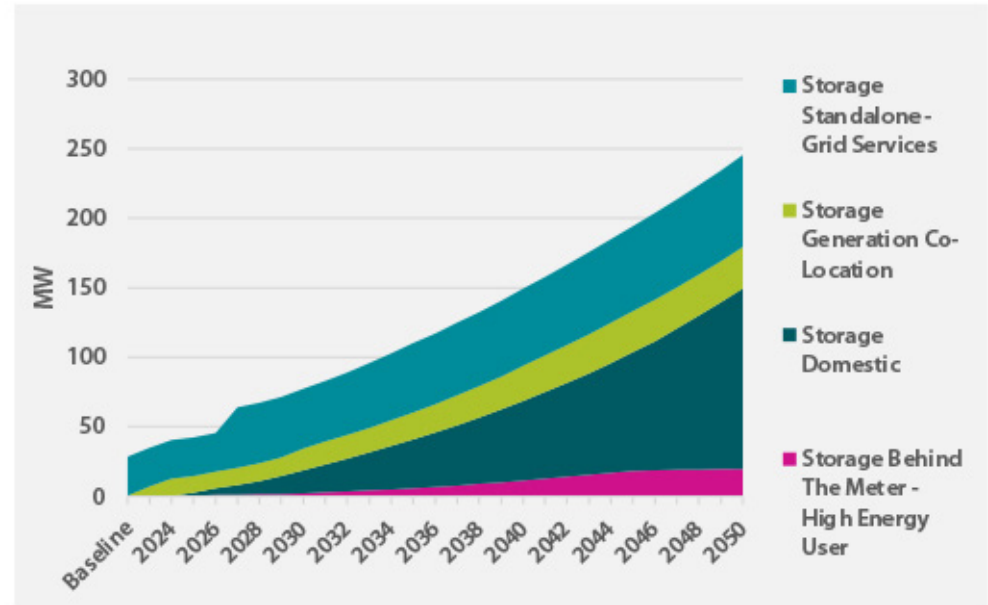
Storage has a critical role to play in the UK's future energy system, with a range of potential functions including short-term balancing and operating reserves, ancillary services for grid stability, long-term energy storage and restoring grid operations following a blackout.

To date, only one large-scale storage site has been commissioned in Somerset – a battery project on a site owned by the Council. However, a further 487 MW of batteries are in the connection pipeline.

The Net Zero Pathway calls for a total of 247 MW of storage capacity in Somerset by 2050, 53% of which could be made up of domestic batteries. This is around half the current pipeline total – however, the pipeline (which is taken from the DNOs' connection agreement registers) is likely to include a large number of speculative applications that may not proceed to development.

While storage can play a role in overcoming grid constraints, these can also impact on the deployment of storage. Somerset's constrained networks may be a barrier to delivering the projects needed for the Net Zero Pathway. The development of positive local planning policy will be a critical enabler to the deployment of storage in the future.

Battery storage uptake in Somerset



Pumped storage plays a significant role in the UK's energy system at present – focused on four very large sites in Scotland and Wales. Other options such as compressed air, gravity storage and hydrogen for long duration or inter-seasonal storage are relatively undeveloped in the UK market to date. These are too early stage to include in the Pathway, but could be reviewed as opportunities in the future. There may be potential for hydrogen generation to be developed at Hinkley Point C to provide electricity storage and grid services.



05

Page 87 **Priority investment opportunities**

# Six key themes

These themes are identified as priority areas for investment in Somerset. They bring together the key actions that the Council could unlock that will help to deliver Somerset's Net Zero Pathway.

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1

**Decarbonisation of the Council's own estate and operations:** priming the market.

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2

**Large-scale solar, wind and battery storage development:** seizing the opportunities for the rural economy.

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3

**Unlocking energy efficiency and retrofit:** the number one opportunity for energy jobs and Gross Value Added creation.

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4

**Electrifying heat demand:** high levels of off-gas properties present an opportunity to accelerate heat pump uptake.

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5

**Electrification and demand reduction for transport:** building on existing work to plan the necessary infrastructure.

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6

**The energy system:** extending the local authority role influencing local energy systems and infrastructure.

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## These investment areas have been identified using the following criteria:

- Presenting a significant opportunity to deliver the Net Zero Pathway.
- Presenting the most immediate opportunities for Somerset in terms of investment or jobs.
- Having important whole-system and infrastructure implications in Somerset for the net zero transition.
- Subject to challenges where the private sector acting alone cannot unlock a solution.

### Within each priority area, there are opportunities for the Council to act in relation to:

**Priming the market:** Supporting the local supply chain – using the Council’s purchasing power and making use of its land ownership.

**Planning:** Supporting the deployment of zero carbon initiatives through local plans, strategies and data mapping – using the Council’s planning powers.

**Partnerships:** Working together with the public, private and communities sector to develop innovative approaches to installing zero carbon technologies – using the Council’s convening skills and access to funding to unlock opportunities that would be difficult for others to deliver in isolation.

By leveraging these three approaches, the Council can make the most of its skills, assets, funding and resources to deliver the Somerset Energy Investment Plan.

### Economic assessment

The priority investment areas are explored in detail, with potential job creation, Gross Value Added (GVA) and investment potential identified and recommendations on council activity.

A key element of the Energy Investment Plan is identifying where Somerset can benefit economically. Where possible, Regen has used existing research and data to estimate how much investment is likely to be required and the associated local jobs and GVA to indicate the total economic benefits of such investment.

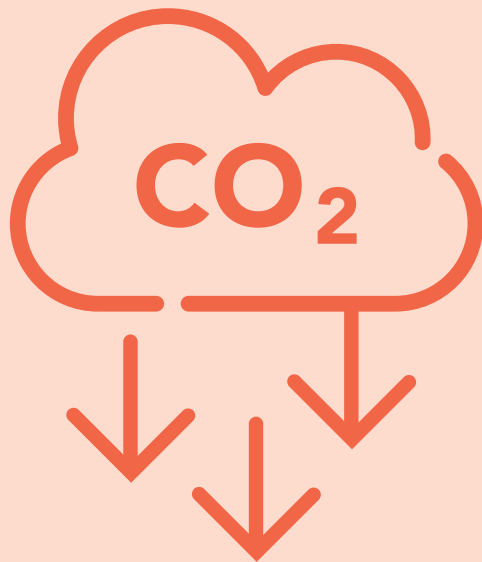
Numbers of full-time equivalent (FTE) jobs referenced in the report are estimates of total jobs related to activities that could be within Somerset. Job numbers are estimated over the lifetime of the project: in the near term, job numbers may be higher.

To note, there are a wide variety of estimates related to the economic impact of these sectors, the numbers quoted in this report should be seen as approximate, based on recent studies where available. See [Appendix 2](#) for details of the methodology.

# 1

## Decarbonisation of the Council's own estate and operations: priming the market

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### Council role

The Council is a major land and asset owner in the county. The Council committed in its Climate Emergency Strategy to 100% of local authority energy demand being met through locally generated and locally owned renewable energy by 2030.

### The opportunity

The Council has substantial land holdings which have been assessed for solar and wind opportunities. Ten sites have been identified as having considerable potential for solar or wind development. There is the potential for projects to generate income for the Council through investment returns or simply through leasing sites.

The Council also owns a wide range of other energy-using assets, from leisure centres, to car parks and vehicle depots. These sites could incorporate energy efficiency measures and small-scale renewables that cut energy bills and/or generate income. Some sites could also act as anchor loads for district heat networks.

By investing in renewables and energy efficiency measures on its own estate, the Council can help to prime the local market. To do so, it must ensure that the procurement approach it uses enables local businesses to deliver the opportunities, growing the local supply chain.

### Challenges

Availability of finance is a significant barrier to developing projects. The Council has [recently withdrawn £3 million in capital funding from the development of a solar farm](#) on an old landfill site near Bridgwater, due to financial pressure on its budget and delays with the ability to get a suitable grid connection with the DNO. Originally, Somerset County Council was due to be the main source of capital funding for the project, which was granted planning permission in 2022. However, the new unitary Council has removed the capital budget due to the Council's financial position and is now investigating other external methods of operating and funding the project.

Staff resources to work on project development is also a critical issue.

Selling of assets also represents a barrier to investment as the Council needs to decide which assets to retain following its move to becoming a unitary authority.

## RECOMMENDATION THEMES

1.1 Developing generation and storage sites on council land in partnership with local organisations and community groups

1.2 Retrofitting Council assets and buildings

1.3 Developing a portfolio approach to decarbonising the estate

### 1.1 — Developing generation and storage sites on council land in partnership with local organisations and community groups

Page 10.1.1

The Council could play a proactive role in developing new solar, wind and storage projects in Somerset, using a range of approaches:

- a. **Virtual Power Purchase Agreements (VPPA):** The Council could procure local renewable energy from local developers to meet some of its corporate electricity demand. By agreeing Virtual Power Purchase Agreements with companies and communities developing new sites, the Council could use its purchasing power to prime the local renewables market, supporting the development of new generation sites.
- b. **Building renewables on the Council's land:** Regen identified 10 Council sites with considerable potential to host solar or wind projects. Investing in renewables on these sites has the potential to create returns for the Council, with the size of the return dependent on the amount of risk the Council is able to take and the resulting business model used.

There may be the potential to work in partnership with local community energy organisations to co-develop sites. The Council is well situated to collaborate with the several existing community energy organisations in Somerset that already actively contribute to the net zero transition.

Working with community energy organisations can bring additional benefits to unlock potential sites: from better engagement with and buy-in from the local community, to access to development expertise and access to community finance. For example, the UK Infrastructure Bank offers preferential rates for local generation alongside community finance via the local authority lending rate. This could provide an opportunity for joint ventures with community energy organisations. [£10 million](#) grant funding for community energy groups is available through the Net Zero Hub.

#### c. Opportunities for private wires to high-energy users

Some council-owned sites with renewable potential are close to high energy users and have the potential to offer the development of private wire opportunities. Private wires can increase the amount of energy being used locally, minimise transmission and distribution losses and deliver on energy users' decarbonisation aims. For example, there are council plots with renewable energy opportunities near several NHS hospital sites that may benefit from direct private wire arrangements. Hospitals identified nearby council land assets include Bridgwater Community Hospital, Shepton Mallet Community Hospital and Minehead Community Hospital.

The Council should engage with high energy users situated near council land assets that are viable for new energy generation projects to gauge interest in partnerships that develop private wire arrangements.

## 1.2 — Retrofitting Council assets and buildings

### 1.2.1

**The Council should develop a retrofit plan for all council-owned buildings, including offices, leisure facilities and heritage assets that delivers a net zero estate by 2030.**

The Council should identify either external or internal expertise to work closely with the property services department to create a retrofit plan of all council owned assets. The plan should consider opportunities to install energy efficiency measures, flexibility such as storage and small-scale energy generation and low carbon heat. Some assets, such as leisure centres, may be suitable as anchor loads for district heat network. Opportunities for solar PV on car parks could be considered.

This own-estate retrofit plan will need to be considered in deciding which assets are to be disposed of – with the potential need to sell assets that are unsuitable for retrofit or with high retrofit costs. Site visits by a retrofit coordinator and energy bill analysis will be essential to ensuring retrofit plans are comprehensive and accurate.

### 1.2.2

**The Council should work with the supply chain to ensure its procurement approach for retrofit is accessible to local companies, helping to build the skills in the local area and retain the investment benefit locally.**

There is an opportunity for the Council to use its purchasing power to prime the retrofit supply chain in Somerset. It should ensure that procurement criteria consider giving added weight to local companies offering additional social value, supporting the development of local supply chains.

### 1.2.3

**The Council should transition council fleets, buses and refuse vehicles to EVs.**

There may be opportunities to cluster fleet charging demand. Power generation and storage could be co-located with charging depots to reduce the cost and carbon emissions of charging vehicles. The Council can also require all new service contract suppliers to move to EVs.

## 1.3 — Developing a portfolio approach to decarbonising the estate

### 1.3.1

#### **The Council should meet with Bristol City Council to discuss the City Leap approach and explore the potential for replicating it in Somerset**

Decarbonising the Council and public sector estate requires many different measures with different business cases and payback periods. Some will be high value (such as commercial rooftop solar) and others, such as retrofit, are lower.

To tackle this issue, Bristol City Council has developed a first-of-a-kind project, Bristol City Leap. City Leap started from a prospectus outlining different low carbon investment opportunities needed in the city – blending the high and low value projects to create one investable package. After a procurement exercise, Bristol City Council developed a joint venture and concession agreement between the city and a private partner (Ameresco) that is set to last for 20 years. The partnership will attract finance into areas to develop renewables and other net zero interventions like heat networks and retrofit.

A number of other areas such as Greater Manchester are now looking to replicate this portfolio approach.

Somerset Council has access to the City Leap framework, which it could use to procure feasibility studies.

A City Leap-style approach would enable a comprehensive public sector decarbonisation plan to be developed and delivered in partnership with the private sector, with the potential to prime local supply chains.

### CASE STUDY

#### **Bristol City Leap**

**Overview:** Bristol City Leap is a first-of-its-kind partnership between a local authority and private investor/developer. It aims to secure over £1 billion investment into net zero infrastructure projects in the Bristol region over the next 20 years.

**Delivery model:** Bristol City Leap is both a joint venture and concession agreement between Bristol City Council and private sector partner, Ameresco. The two organisations have created a 50/50 joint venture company to develop new net zero projects, with Bristol City Council granting Ameresco first right of refusal to develop net zero infrastructure across its estates – including land, social housing and commercial property. It is both a joint venture and concession agreement because it will cover multiple project sites rather than single project site.

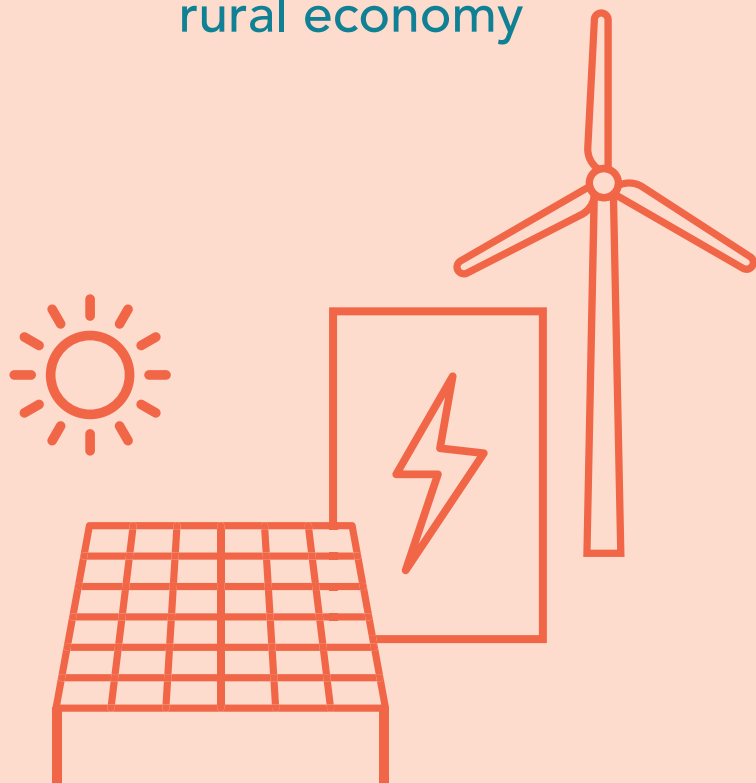
**Financed by:** The joint venture is financed entirely by Ameresco, with the private developer committing to invest £434 million in low carbon energy infrastructure like heat pumps and heat networks in the first five years of the partnership. Bristol City Council will benefit from the leasing income from Ameresco developing on its assets and from a 50% share of the income generated by the assets after loan paybacks and operational costs. Because the partnership has been agreed to cover a 20-year period, Ameresco stands to benefit financially from the guarantee of long-term investment, therefore de-risking the investment in the joint venture.

**Community benefits:** As part of the deal, Bristol City Council insisted that there would be opportunities for community benefits. These include the development of a community benefit fund and could in future include opportunities for communities to crowd-fund to contribute to certain projects.

# 2

## Large-scale solar, wind and battery storage development: seizing the opportunities for the rural economy

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### Council role

The Council can develop positive planning policy and practices for solar, wind and battery storage, as well as working with community groups, developers and the agricultural sector to ensure these technologies are developed and deliver benefits to the local area.

### The opportunity

Solar and onshore wind play a critical role in delivering the generation required for Somerset's Net Zero Pathway, while battery storage is needed to provide flexibility and grid services. According to [government statistics](#), new onshore wind is currently the cheapest of any electricity generation type. Projects commissioning in 2025 are expected to have a levelised cost of electricity (LCOE)<sup>1</sup> that is less than a third of new combined cycle gas generation. Large-scale solar PV costs are slightly higher than onshore wind at present, but are expected to fall below wind by 2035.

These technologies can deliver local benefits through, for example:

- Low cost, low carbon electricity generation and storage
- Community benefit fund creation and community investments
- Creating income for landowners, including the agricultural community
- Generating business rates which are retained by the Council
- Creating local jobs.

Locally and community-owned and developed renewables and storage tend to bring greater benefits to the local economy, through local investment returns, greater focus on community benefit funds and greater engagement with the needs of the local community. Positively worded planning policy and practice can help to unlock these benefits from projects.

The Council is due to develop a new Local Plan, presenting the opportunity to include positively worded policies for solar and wind and to embed these through guidance and training for officers and councillors.

1. LCOE is an estimation of the cost of production of electricity, calculated by adding up all the capital and operational costs of production and dividing by the total amount of energy a project is expected to generate.

## Challenges

- Somerset is a rural area, with large amounts of agricultural land and many protected landscapes and ecological sites. As a result, there are sometimes conflicting pressures between different land uses and with nature. Negative public opinion has hindered project development in some areas, especially for onshore wind, but increasingly for solar PV as site sizes have increased, and for storage as a relatively new technology. Competition with agricultural land has been raised as a concern in recent solar farm planning decisions in Somerset. Meanwhile, the agricultural community are struggling to diversify their income in an increasingly difficult economic environment.
- National planning policy for onshore wind has been and remains a key blocker to project development.
- Developers – whether private, public or community-based – need to bring forward sites in the area. To do this in the current subsidy-free environment, they will need a secure source of income to be financeable; agreeing Power Purchase Agreements offers one potential solution, but identifying off-takers willing to enter into an agreement can be difficult.
- Grid connection costs and availability of connections are impacting the ability to develop new sites in Somerset [\(See page 33\)](#)

| Technology  | Additional capacity by 2050 | Jobs (FTE) | GVA (£m) | Investment required (£m) |
|-------------|-----------------------------|------------|----------|--------------------------|
| Large solar | 1,097 MW                    | 2,400      | 1,800    | 320                      |
| Wind        | 152 MW                      | 170        | 300      | 170                      |
| Storage*    | 217 MW                      | 440        | 250      | 340                      |

\* includes domestic, commercial and utility-scale batteries

## RECOMMENDATION THEMES

- 2.1 Setting out a vision for land use and energy that delivers co-benefits for nature and the agricultural and rural community.**
- 2.2 Positive local planning policy could transform delivery in appropriate locations.**
- 2.3 Supporting local and community development of new solar, wind and storage projects.**

## 2.1 — Setting out a vision for land use and energy that delivers co-benefits for nature and the agricultural community

### 2.1.1

**The Council should facilitate the debate around appropriate land use in Somerset through the development of a land use framework.**

The Council is considering developing a land use framework for Somerset. The development of this framework presents an opportunity to reconsider the planning balance between landscape, farming, renewable generation, energy storage and nature, by drawing together relevant spatial datasets to enable informed discussion.

Public engagement should be undertaken to review how the criteria used in the land use framework should be updated to accommodate appropriate renewable and storage development, while meeting climate emergency objectives.

The public and communities will need to be provided with relevant information to allay concerns and enable an informed debate. Engagement could take a range of formats, from surveys to information events or citizens' juries. Similarly, councillors will need training and guidance to understand the detailed issues and to inform their views.

### 2.1.2

**The Council should consider how to reduce negative impacts and encourage biodiversity enhancements through its renewable energy policies by consulting with biodiversity experts.**

[National policy](#) now requires major developments to deliver 10% biodiversity net gain, with small sites having the same requirement from April 2024.

Local planning policy could be used to support developers to deliver biodiversity net gain, by minimising negative impacts and maximising opportunities for enhancements. For example, requiring ground-mounted solar to be a minimum height off the ground can help to enable habitat growth around the panels. Biodiversity experts can provide input to developing positive local policy through early engagement. [Lightsource's review of biodiversity at its Wilburton Solar Farm](#) in Cambridgeshire provides a useful case study of how local biodiversity can improve when a solar farm is commissioned.

### 2.1.3

**The Council should consider how to support the coexistence of renewables and agriculture, reviewing best practice on existing schemes, working with the rural community and developing appropriate local planning policy and guidance.**

Competition with agricultural land has been raised as a concern in several recent solar farm planning decisions in Somerset. Co-location models that mix renewable energy generation and storage with agricultural use can reduce public concerns about land usage.

[Solar UK](#) highlights how solar is beneficial to farmers, providing additional revenue streams, abating climate change and being used strategically on land that requires soil recovery. According to [BlueWeave Consulting](#), the UK Agrivoltaic industry was valued at £129 million in 2022. Examples include:

- [Eden Renewable's Forest Gate Solar Farm](#) in Wiltshire will include sheep grazing and biodiversity net gain.
- In France, farmers have developed large-scale solar farms capable of growing food crops alongside solar generation – see, for example, this [2.5 MW trial](#) where the moveable panels provide shade to crops.

The Council should work with a range of groups, including the agricultural community to develop local planning policy to set out best practice for co-locating energy projects with both arable and



pastoral agriculture. The Council could also work with farmers' groups to make farmers aware of the benefits of renewables and share funding opportunities, such as the [solar grants due to be available from Defra](#).

## 2.2 — Positive local planning policy to transform delivery in appropriate locations

### 2.2.1

**The new Local Plan could include robust planning policy to support the development of high-quality large-scale solar, wind and energy storage projects that maximise local benefits, subject to other considerations such as social, environmental and economic factors.**

The new Local Plan documents and evidence base can start to have an impact before being formally adopted. The Council could prioritise developing robust energy policies and evidence so that they might start to have weight in the pre-adoption period.

- The Council should consider setting a renewable energy target in its local plan to link the findings of this Somerset Energy Investment Plan to local planning policy. The target would serve as an indicator to developers that the Council is taking a positive approach to renewable energy development.
- Strict planning regulations for high carbon generation should be developed to prioritise cleaner alternatives. [South Gloucestershire Council](#) is developing a policy that restricts the development of new fossil-fueled energy generation.
- Areas suitable for onshore wind should be allocated through the local plan or a separate Supplementary Planning Document – as required by the National Planning Policy Framework if wind turbines are to be approved. At present, none of the

district local plans include the allocation of areas for wind, with the exception of [Exmoor National Park's Local Plan](#), which includes areas for small-scale turbines. A broad approach to these zones, excluding only the most significantly constrained areas, will enable developers and the Council to work together on a site-specific basis when projects start to be developed, rather than ruling out potentially suitable sites due to blanket criteria. [Cornwall Council](#) has taken this approach to its wind allocations.

- The majority of the windiest and therefore most effective locations for wind are in the National Landscapes. Through the local plan or SPD engagement processes, discussion should be had about whether wind generation with community support could be enabled in these areas.
- The Council should develop policies that support the development of storage in appropriate locations. Recent storage planning applications have been turned down in other areas of the UK as storage has not been viewed by planning committees as having a clear role in the energy transition and has been seen to represent industrialisation of the countryside. Guidance for planners and councillors should be developed that identifies the clear role of storage in the Net Zero Pathway and sets clear criteria for how to accommodate storage in Somerset's rural areas.
- Setting net zero requirements for new housing and commercial developments will support the delivery of local on-site and near-site renewable energy projects. Every major development should be required to demonstrate how it has maximised the incorporation of local renewable generation.
- The Council could consider including positive encouragement for locally owned renewables through its planning policy, which might include developing a local ownership target or requirement. [The Welsh Government](#) has introduced local ownership requirements and a target.
- The Council should use planning policy to encourage on-site co-location of energy producers with energy users to reduce overall demand on the networks and improve distribution losses.

## 2.2.2

**The Council should engage with the Local Government Association and other influencing groups to ask central government to alleviate planning restrictions on onshore wind in England.**

National planning policy is currently the biggest blocker to onshore wind in England. The Council should work with relevant organisations to ask all political parties for change.

## 2.3 — Supporting local and community development of new solar, wind, storage and innovation projects

### 2.3.1

**The Council can provide direct support to community energy organisations developing generation, storage and flexibility projects.**

Community energy organisations have the potential to deliver generation projects that will contribute to Somerset’s net zero ambitions and deliver local benefits – from local investment and jobs to community benefit funds. Approximately 74 MW of renewable installations in Somerset are owned by local businesses and c.17 MW by community energy groups. The Council should support community energy to deliver decarbonisation projects in Somerset. Support might include:

- Developing a peer support network, enabling organisations to share learning and develop joint projects. Devon County Council has successfully fostered an effective peer network for [Devon community energy groups](#), funding the initial cost of a secretariat and meeting costs, as well as offering grants to groups.

- Co-developing sites within the Council’s control ([see 1.1](#)).
- Offering seed financing or feasibility funding for community groups to initiate new projects and offering council staff time to support project development. Plymouth City Council seed-funded and provided staff resources to establish [Plymouth Energy Community](#).
- Developing planning policy that provides support to community-led schemes, as Cornwall Council has through its [Climate Emergency DPD](#). Offering low-cost early engagement on new planning applications for community schemes.
- Coordinating links between community energy organisations and other stakeholders. For example, through stakeholder engagement as part of developing this plan, a key opportunity has been identified for the Council to act as a coordinator linking the NHS with community energy organisations to provide on-site renewable generation.
- Working with communities to pilot innovative approaches, such as microgrid development or development of Demand Side Response trials.

### Microgrids and local energy markets

There may be a role for communities, the Council and private sector to play an intermediary role for consumers who don’t understand demand side response and flexibility, need or technicalities.

Local energy markets and microgrids, perhaps in the form of Independent Distribution Network Operators, can bypass grid constraints entirely. Local energy markets can use demand shifting, reduction and generation to reduce electricity prices and link generation with demand on a local level. Several communities have engaged with microgrid solutions in the past with varying degrees of success.

The Frome microgrid, supported by Frome Renewable Energy Co-op, has already received a £40,000 grant to investigate a low carbon microgrid and heat network for a new 300 home and 25,000 sq ft commercial space development in Saxonvale.

# 3

## Unlocking energy efficiency and retrofit: the #1 opportunity for energy jobs and GVA creation



### Council role

The Council has a role in developing housing retrofit and skills programmes that are scalable and fit for purpose.

### The opportunity

At present, 42% of Somerset's homes have an EPC of A to C. The Net Zero Pathway assumes all homes in Somerset achieve at least EPC C by 2035. There may also need to be further measures installed in some homes in Somerset beyond 2035, bringing them above EPC C. This will require a significant, widespread programme of upgrades to most homes. Similarly, around two-thirds of non-domestic buildings in Somerset need retrofitting. Retrofit will not only directly reduce energy bills but will also reduce the system cost of reaching net zero.

11.3% of households in Somerset are in fuel poverty. While this figure is below the national average, it represents a significant proportion of the population and will have increased during the recent energy price crisis. Working with social housing providers and the Council's social housing stock presents opportunities to tackle retrofit needs and fuel poverty.

Retrofit offers the greatest potential of any of the opportunities identified in this plan for job and GVA creation. To deliver energy efficiency works at scale across Somerset in a timely manner, a large workforce is needed. Somerset is uniquely placed to facilitate a skills transfer programme in partnership with Hinkley Point C, as a large workforce will be available once the construction is complete.

### Jobs, GVA and investment required to meet Net Zero Pathway

| Homes Requiring Retrofit Measures* | Jobs (FTE) | GVA (£m) | Investment required (£m) |
|------------------------------------|------------|----------|--------------------------|
| 145,378                            | 6,575      | 3,920    | 851-1,798                |

\*not including households with A-C ratings, scaled to total households in Somerset.

## Challenges

- 13.7% of Somerset’s housing stock in 2021 was owned by social housing providers or the Council, according to the national census. Access to funding is crucial to deliver measures to this tenure type.
- Low-income families, those in fuel poverty and tenants living in private rented homes lack the levers to invest in energy efficiency measures.
- The cost and disruption of household works can deter homeowners from retrofitting homes – even if they’re classed as ‘able to pay’.
- Conservation areas and listed building requirements may limit the potential for retrofit measures in some homes.
- Builders and tradespeople are not upskilled in retrofit skills, creating a gap between the need and the ability to deliver. There is a need for significant investment in supply chains and skills.
- Recent government policy changes associated with the rollout of energy efficiency have rowed back on energy efficiency commitments. For example, there will no longer be the requirement for rented homes to achieve EPC C by 2025 for

## RECOMMENDATION THEMES:

Recommendations have been organised under the following themes:

- 3.1 Comprehensive retrofit support programmes are needed for every segment of the market.**
- 3.2 Using the new local plan to support retrofit and deliver zero carbon homes.**
- 3.3 Facilitating local hubs to develop local skills.**

## 3.1 — Comprehensive retrofit support programmes are needed for every segment of the market

### 3.1.1

**The Council should produce a plan to decarbonise all council stock, sharing learning with other social housing providers.**

The district councils previously had plans to decarbonise their housing stock in place – see, for example, [the Somerset West and Taunton Low Carbon Retrofit plan](#) which set a target for all homes to achieve EPC C by 2030 and for complete replacement of fossil fuels in homes by 2050. Somerset West and Taunton were also [awarded £2.5 million](#) from the Social Housing Decarbonisation fund.

With the creation of the unitary council in April 2023, these plans are being revisited and amalgamated into a single plan. The Council should review opportunities to bid for national funding, such as the Social Housing Decarbonisation fund and any subsequent

opportunities, to create a funded programme for all Council homes. The programme should demonstrate innovation and share learning with other social housing providers. The programme should use procurement criteria that enable local companies to deliver work and invest in the necessary skills and training.

### 3.1.2

#### **The Council should review plans to support low-income households who do not live in social housing.**

The Council currently offers a range of funding to support low-income households with energy costs and retrofit. For example, the [Home Upgrade Grant scheme](#) provides grant support for energy efficiency measures for low-income households that live off the gas grid in homes rated EPC D or below. The Council also provides [Safe, Warm and Secure grants and loans](#), which include some provisions for low-income households living in the private rented sector. The Council should review the effectiveness of these funds and how to extend retrofit support across low-income households and the private rented sector, consulting with households and private landlords.

### 3.1.3

#### **The Council should build on existing work with community energy organisations and local providers to extend support for the 'self-funding' market.**

The self-funded segment is another critical element in building the market and supply chain for retrofit – those householders who have the financial means to invest in retrofit measures, but not always the motivation, understanding or access to skilled providers. Community energy organisations and other local bodies are often very effective in acting as trusted sources of advice and information for householders on energy issues. For example, Frome Town Council runs a [Healthy Homes team](#) that can provide in-home

advice on energy issues. Working with community groups can support targeted area-based delivery of retrofit programmes, e.g. on a street-by-street or village basis.

The Council already provides support for those with the potential to self-fund measures, with [Somerset Energy Saver](#) web pages setting out key facts and funding information, access to low-cost loans provided via [Lendology CIC](#) and access to a free [home energy advice line](#) from the Centre for Sustainable Energy. The web pages should be updated to include information about the Boiler Upgrade Scheme to facilitate heat pump uptake. Information could be improved with links to impartial evidence sources and case studies. For example, the Council could promote the [Net Zero Toolkit](#) that Somerset West and Taunton Council adopted and promoted, which offers guidance on both new build and retrofitting homes.

In 2023-2024, the Council worked with Somerset Climate Action Network and Frome, Glastonbury and Bruton Town Councils to access funding from MCS Charitable Foundation, to build on the 2022 Somerset Retrofit Accelerator project (see case study). The one-year Retrofit Somerset project is trialling tools to support retrofit through a one-stop shop approach and by March 2024 will have developed a business plan for how this advisory and signposting service could be funded and resourced.

Somerset Council should consider how it can further resource and access funding to work with local groups to support the self-funded market – building on the retrofit resources already in place.

## CASE STUDY

### Retrofit Accelerator project

[The Somerset Retrofit Accelerator project](#) was a partnership between Frome, Bruton and Glastonbury Town Councils, the four District Councils in Somerset, Somerset Independence Plus and the Centre for Sustainable Energy. This one-year pilot was funded by the UK Community Renewal Fund in 2022. It aimed to develop the supply chain for low carbon, whole-house retrofitting of homes in Somerset through:

- 50 discounted Home Retrofit plans for Somerset households in partnership with Futureproof
- 30 paid places on the Futureproof Essentials course for local construction professionals

Page 102 Creating new online resources through a Green Directory for Somerset

Somerset Green Open Homes events that showcased low carbon homes through virtual online tours.

The resources created are accessible online and could be further developed into an information campaign to improve consumer buy-in that communicates co-benefits such as health, comfort, wellbeing and energy bill savings. The resources could be consolidated with those on the Somerset Energy Saver web pages.

## 3.2 — Using the new local plan to support retrofit and deliver zero carbon homes

### 3.2.1

**The Council could review the potential for conservation areas and listed buildings to incorporate low carbon and energy efficiency measures – and issue appropriate guidance.**

Retrofitting historic properties or buildings within conservation areas can be held back by both the need to gain prior approval for some measures and by homeowners' uncertainty as to what might be permissible. For example, unless otherwise stated in the conservation area's Article 4 directions, solar panels are permitted development within a conservation area unless they are on a wall facing a highway – this means that planning permission is generally not required, although prior approval may be required.

Bath & North East Somerset Council has led the way in developing guidance on retrofitting for historic and listed building stock through its [Energy efficiency, retrofitting and sustainable construction supplementary planning document](#).

A 2024 report from UK government, [Adapting historic homes for energy efficiency: a review of the barriers](#), highlights that many historic homeowners find it difficult to find the guidance they need to retrofit their homes.

Somerset Council should consider developing a Supplementary Planning Document that offers support and guidance on appropriate retrofit measures and low carbon technology such as solar panels, including in conservation areas and listed buildings.

### 3.2.2

#### **The Council could use its local plan to set retrofit targets, giving political backing to investment in retrofit.**

The rollback of national energy efficiency targets, e.g. for the private rented sector, presents an opportunity for Somerset to demonstrate local ambition by setting out local retrofit targets that can be enshrined in its local plan. For example, the Council could set higher EPC targets for the private rented sector to achieve. While these would not have a planning lever for existing buildings, they would showcase the Council's ambition in a formal document. Targets could also be developed through a Somerset Retrofit Strategy, which could bring together targets, data, funding opportunities and actions.

### 3.2.3

#### **The Council could adopt zero carbon housing and non-domestic standards in its local plan to improve local ambition.**

The Future Homes Standard is currently out for consultation and is due for implementation in 2025. It aims to ensure that new homes built from 2025 onwards will produce 75-80% less carbon emissions than homes built under the current Building Regulations. While this is a significant step up from current regulations, it does not constitute a true zero carbon homes standard. Every building that is constructed that is not built to zero carbon standards increases the need for future retrofits.

Bath & North East Somerset and other partners developed an evidence base and were successful in getting [zero carbon standards approved in their new Local Plan](#). With the development of Somerset's new local plan, there is the opportunity to embed local zero carbon building standards. The Council should also build on Somerset West and Taunton's [Climate Positive Planning guidance](#), which supports the consideration of climate issues in new developments, and their [Net Zero Toolkit](#), which aims to make net zero carbon new build and retrofit more accessible.

## 3.3 — Facilitating local hubs to develop local skills

### 3.3.1

#### **The Council could facilitate or coordinate local hubs to develop local skills for low carbon heating and retrofit installations.**

With the potential for 6,500 jobs in the retrofit market and a further 2,000 delivering heat pumps in Somerset, there is a need to ensure skilled workers are available to fulfill those roles. The Council should collaborate with education sector partners, such as Bridgwater and Taunton College, Yeovil College and Weston College, to create local retrofit hubs specialising in low carbon technology and fabric installations in each major population centre. The Council is working on its new economic development strategy, which provides an opportunity to focus further on developing low carbon skills programmes.

#### **CASE STUDY**

##### **Gravity Business Park gigafactory**

Somerset is soon to host a 40 GWh gigafactory just outside of Bridgwater. It could create around 4,000 jobs. The whole site, if it was developed in line with the local development order, could accommodate c.7,500 jobs. A skills taskforce at Bridgwater & Taunton College is set to capture information on skills requirements to provide courses and training materials for the new labour force.

### 3.3.2

#### **The Council should lead a skills transfer programme in partnership with educational institutions that uses facilities and workforces brought into Somerset by projects such as Hinkley and the gigafactory.**

Hinkley Point C has brought jobs to the Somerset area, and through its centres of excellence, such as the one at Bridgwater and Taunton College, and legacy programme will continue to impact net zero supply chains in the area post-construction. Investments have already been made into skills around electrical cabling, fitting, mechanical installation and training. Programmes have been developed for major infrastructure projects that can be repurposed and expanded upon. Existing resources include:

- National College for Nuclear
- Somerset Energy Innovation Centre
- Supply chain integrator for Hinkley
- Hinkley's accommodation campus.

The peak workforce at Hinkley has been 10,000 people on site. Many of the jobs created involve electrical engineering-type skills. These jobs could be transferred to initiatives such as at Gravity, or to supply chains for floating offshore wind, heat pumps and solar.



# 4

## Electrifying heat demand: high levels of off-gas properties present an opportunity for heat pumps



### Council role

The Council can collaborate with the housing sector, installers, skills development organisations and consultants to deliver programmes to support households to switch to electrified heat.

### The opportunity

Somerset currently has higher than the national average numbers of homes off-gas and higher than the national average uptake of domestic heat pumps. This presents an opportunity to lead the way in heat electrification in rural areas.

Under the Net Zero Pathway, heat in Somerset is expected to transition from predominantly gas to heat pumps. Heat pumps are expected to supply 82% of homes by 2050, with around 277,000 heat pumps needing to be in operation across Somerset's homes. This requires an annual installation rate of around 10,000 heat pumps per year – far above the current annual rate.

### Jobs, GVA and investment required to meet Net Zero Pathway

| Technology | Additional installations by 2050 | Jobs (FTE) | GVA (£m) | Investment required (£m)* |
|------------|----------------------------------|------------|----------|---------------------------|
| ASHP       | 151,404                          | 1,083      | 1,732    | 1,352                     |
| GSHP       | 68,269                           | 887        | 1,420    | 1,227                     |

\*only includes cost of installation & connection to existing heat pump network.

## Challenges

- The government's delay to the ban on installing oil and LPG boilers and new coal heating for off-gas homes to 2035 will have a slowing effect on the market for heat pumps. Gas connections are still being made for new developments in Somerset.
- Heat pumps have high upfront costs which can discourage consumers. Costs are expected to decrease nationally, as rollout increases in response to government interventions, such as the Clean Heat Market Mechanism. The Boiler Upgrade Scheme is currently providing funding for new domestic installations.
- Public perception of heat pumps remains a key barrier, with misinformation in the national press and, in some cases, poor-quality installations affecting views.
- The electrification of heat will require significant investment in the electricity network to ensure new heat pumps can be connected.

## RECOMMENDATION THEMES

Recommendations have been organised under the following themes:

- 4.1 Targeting low carbon heat rollout using planning policy and zoning analysis.**
- 4.2 Net Zero Heat Village Trial: a local community approach to exploring net zero in rural areas.**

## 4.1 — Targeting low carbon heat rollout using planning policy and zoning analysis

### 4.1.1

#### **The Council could use its new Local Plan to stop new gas connections.**

Setting zero carbon standards in the local plan for new homes and new commercial developments will stop new gas connections from being made. This is essential for achieving the energy transition. For the avoidance of doubt, the Council could use its policy to specifically state that new connections will not be acceptable through planning. The policy could set out a heat hierarchy that prioritises the lowest carbon approach for new developments and takes a fabric-first approach.

#### 4.1.2

**The Council should commission a heat zoning analysis, aided by data from a housing stock analysis, to identify areas and neighbourhoods best suited to heat pumps and district heating.**

The UK government is due to publish a methodology on undertaking heat network zoning in 2024. This will be focused on large-scale heat network opportunities and will be a statutory requirement for local planning authorities to undertake. Somerset Council should expand the remit of the zoning work to make it more relevant to Somerset, as opportunities for urban networks are limited. Working with housing stock data, demographic data and the heat network zoning methodology, the Council should undertake heat zoning analysis for Somerset that identifies areas with potential for:

- Small-scale rural heat networks – e.g. higher-density rural locations that are off the gas grid or have opportunities to use waste heat.
- Early heat pump rollout – e.g. off-gas locations with high levels of fuel poverty that could be targeted for an area-based programme such as a Net Zero Village Heat trial (see next page).
- Gas disconnection opportunities – e.g. end-of-the-line locations where a wholesale switch to heat pumps could support disconnection trials for communities.

#### 4.1.3

**The Council should work closely with the DNOs to inform their network investment strategy, sharing details of electrification programmes and pushing the networks to invest in the needed network capacity.**

Sufficient demand connection capacity on the distribution network is essential to enable heat pump rollout at the scale needed for the Net Zero Pathway. The Council should work collaboratively with the DNOs on their investment strategy and develop the heat zoning analysis to identify areas suitable for early electrification. [See 6.1](#)

#### 4.1.4

**The Council should consider developing a water source heat pump innovation trial in partnership with local businesses or public sector organisations.**

Water source heat pumps could provide an opportunity to supply heat networks and can attract innovation trial funding. This could be developed in the form of a trial in partnership with local public institutions or businesses to showcase the benefits of water source heat. The Council can link in wider sustainability objectives such as fuel poverty alleviation, improved air quality and retrofit energy efficiency to increase the chances of eligibility for funding applications.

River-based heat pumps could be developed, e.g. on the River Parrett. Marine source heat has high potential around the coast in areas with high heat demand, such as in Minehead.

The Council should engage with Bristol City Council, which has successfully developed a water source heat pump in central Bristol, to learn from their experience. A first step could be to engage with key businesses with high heat demand along the coast in Minehead or Watchet that could provide anchor loads, such as Butlins, to test their appetite.

## 4.2 — Net Zero Heat Village Trial: a local community approach to exploring net zero in rural areas

### 4.2.1

**The Council should work in partnership with community energy organisations to develop a Net Zero Heat Village trial.**

Off-gas rural villages where current heating is supplied from high carbon, often high-cost sources are prime targets to be first movers to electric heating solutions. Working with a local community, a Net Zero Heat Village trial could take a community-based approach to planning and installing measures to deliver net zero in a specific village.

Technologies might include batteries, renewable generation on rooftops and nearby land assets, heat pumps, energy efficiency measures, heat networks, flexibility services and waste heat.

Coordinating a whole-community approach will need consumer buy-in and support and significant up-front engagement to ensure the community is on board and supportive of the trial. Active communities may already have considered how to approach heat decarbonisation, e.g. Curry Rivel has undertaken a low carbon heat feasibility study funded by Somerset County Council.

Key steps in developing a trial might include:

- A stocktake of existing schemes (see Cornwall's Heat Pump Village case study) to learn from best practice approaches.
- Engaging with the South West Net Zero Hub, central government and the DNOs to explore funding opportunities such as innovation grants.
- Carefully considering how to select a community or communities to work with. One potential approach to selecting a community could be to undertake a competitive application process.

### 4.2.2

**The Council should work in partnership with community energy organisations on other approaches to heat decarbonisation.**

The Council should actively engage with community energy organisations across Somerset on their ambitions for decarbonising heat. Community energy organisations have on-the-ground expertise and knowledge of their local communities and a supportive approach from the Council will help them to deliver on their ambitions.

### CASE STUDY

#### **Cornwall's Heat Pump Village – [Heat the Streets](#)**

In Cornwall, a successful heat network led by Kensa Utilities uses ground source heat pumps connected to shared ground loop arrays. The project, located in Stithians, encompasses 98 households, reducing the carbon footprint of each existing home by approximately 70%. New builds see a carbon savings closer to 28%. On average, the project has saved people £628 per year on their electricity bills.

Jobs and GVA: £3.8m of GVA was fed into the local economy (£39,000 per household that participated). 50 people were employed outside of the Kensa team.

# 5

## Transport electrification and demand reduction: building on existing work to plan the necessary infrastructure

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### Council role

The Council is currently producing an updated local transport plan, to replace the current plan that runs until 2026. In relation to this energy plan, two key Council roles within transport planning are most relevant:

- Overseeing the installation of the charging infrastructure needed to support electric vehicle (EV) rollout.
- Encouraging Somerset residents to adopt active travel and public transport, reducing overall vehicle miles.

### The opportunity

- The Net Zero Pathway for transport focuses on the uptake of EVs, with over 90% of road vehicles being electric by 2040. To support this electrification, the Pathway requires the installation of 0.7 GW of EV charging capacity by 2030 and 1.6 GW by 2050.
- The Net Zero Pathway estimates that the mileage of personal vehicles will reduce due to increasing consumer demand for public transport and autonomous vehicles. As a predominantly rural area, it is assumed these transport mode shifts in Somerset will be less than the national average.

### Jobs, GVA and investment required to meet Net Zero Pathway

| Public charge points needed | Additional capacity by 2050* | GVA (£m) | Investment required (£m) |
|-----------------------------|------------------------------|----------|--------------------------|
| 7-20 kw EV chargers         | 4,054                        | 25.1     | 13.2                     |
| Rapid EV chargers           | 213                          | 8.2      | 4.3                      |

\* Estimated EV charger uptake based on Somerset EV Charge Strategy projections

In addition to installation costs, network connection costs can vary from £1,000-£3,000 for small connections of single rapid chargers to up to £75,000 for 20 rapid chargers.

## Challenges

- Grid connections and charge point availability are key barriers to EV adoption.
- EV adoption rates are slower than needed at present, due in part to high upfront costs.
- Charging facilities for electric buses will need to plan for nighttime surge charging, which could pose a strain on the network.
- Electric buses are more costly than internal combustion engine buses. According to First Bus, a single electric bus could cost as much as £370,000. Running costs are also unpredictable until trialled.
- The cost of trialling new bus routes in rural areas is a barrier where routes prove not to be economically viable. The commerciality of these new routes can be a challenge. It may be difficult to predict if customers will use the new routes once in place, which presents a financial risk.

## RECOMMENDATION THEMES:

Recommendations are organised under two themes:

- 5.1 Developing public charging infrastructure and actions to support the rollout of electric vehicles.**
- 5.2 Public transportation action plan: an innovative approach is needed to support rural public transport.**

## 5.1 — Developing public charging infrastructure and actions to support the rollout of electric vehicles

### 5.1.1

**The Council should use the 2024 refresh of its EV strategy to continue its focus on destination and on-street charge point deployment, to serve tourist destinations, schools, workplaces and those without off-street parking.**

The Council has a [2020 EV charging strategy](#) in place, which sets out 24 recommendations for the Council to support the delivery of charging infrastructure from introducing new parking standards for new developments to installing chargepoints across the council estate. The Council should continue to deliver against the strategy and introduce parking standards within its new local plan that require the provision of electric charge points in new car parks. The 2024 strategy refresh is an opportunity to review its impact to date and increase the ambition of the actions where needed.

### 5.1.2

**The Council could work in partnership with the private sector and DNOs to explore innovative approaches to developing EV charging infrastructure to support local charging needs and to bring co-benefits to the area.**

In September 2023, the Council passed the first stage in a funding application to receive £3.8 million of Local Electric Vehicle Infrastructure (LEVI) funding. If successful, the Council can use the funding to continue to roll out chargers across the area.

To ensure that electricity fuelling the EV transition is green, the Council could promote the co-location of solar panels. The M5 corridor and other major routes such as the A303 present a specific opportunity to ensure the charging infrastructure and supporting energy generation is in place to support high levels of EV rollout. Other services could be provided alongside charging hubs, such as shops and cafes.

The Council could work with DNOs on innovative solutions to charging infrastructure, such as the modular approach to substation development being used at [Exeter services](#) to support the installation of large numbers of rapid chargers. Charging hubs could also be considered in locations with high incidences of on-street parking, including rural towns. The Council could work with rural communities and the DNOs to explore the challenges of the EV rollout in rural areas.

### 5.1.3

**The Council should consider undertaking a public communications campaign to communicate the economic benefits of reducing emissions to air quality to encourage consumers to switch to EVs.**

### 5.1.4

**The Council should work with partners to support the development of approaches that enable those on lower incomes to access EVs.** For example, EV car-sharing hubs offer an opportunity for a wider range of consumer archetypes to participate in the EV market without making a full EV purchase.

## CASE STUDY

### [Blandford Hill Green Eco Hub](#) in Dorset

The eco hub combines 15 MW ground-mounted solar PV, 3 MW battery storage and EV charging for 19 vehicles on the A354. It also provides a local shop and services for the area. It was granted planning permission in 2022 and is currently under construction.

## 5.2 — Public transportation action plan: an innovative approach is needed to support rural public transport

### 5.2.1

#### **The Council should continue to pursue joint funding opportunities to decarbonise bus fleets.**

Many buses in Somerset still use internal combustion engines, posing an opportunity to switch to electric fleets. The Council should pursue joint funding opportunities to decarbonise bus fleets, such as [Zebra schemes](#) and [Bus Service Improvement Plans](#). The Council should support bus companies to work with the DNOs on electric bus charging plans, including how to enable surge charging overnight.

### 5.2.2

#### **The Council should work in partnership with transport providers and communities to develop innovative approaches to rural public transport.**

Somerset has large rural areas that are not currently accessible by public transport, which opens the market for new and innovative business models to reach Somerset residents. The Council can pursue innovative business models for public transportation such as new bus route trials jointly funded by the Council and First Bus and shared taxis.

Some services like [Westlink](#), which operates in the West of England area offer on-demand bus services where demand is too low for routes to run regularly on a fixed timetable. Community-based solutions also exist, such as [Wivey Link](#), which uses five vehicles driven by volunteers and offers pre-bookable personal transport in the Wiveliscombe area, with concessions for bus pass holders.

### 5.2.3

#### **The Council could work in partnership with rail companies to open new stations on existing rail lines and consider how to better integrate rail and bus travel to enable end-to-end public transport use.**

New stations are proposed at Langport, Somerton, Chard Parkway and Wellington that would transform the potential for rural populations to access the national and local rail networks. Better linking existing and proposed stations with bus timetables and active travel routes will support passengers to complete their journeys without using cars.

In addition to local plans, Peninsula Transport, the South West regional transport body, is developing a regional transport strategy that aims to join up transport plans across the region, including plans to decarbonise rail and freight.

### 5.2.4

#### **The Council could continue to promote active travel through local planning and infrastructure delivery**

The Council should continue to invest in improved cycle and walkway infrastructure and access funding where possible to encourage residents to choose more active means of travel. [E-scooter rental](#) schemes are already being trialled in Taunton, Yeovil and other towns in Somerset.

Through the new local plan, the Council should require all new residential developments to include active travel and public transport infrastructure before properties are occupied. The new local transport plan should promote active travel.



# 6

## **Grids and flexibility:** extending the local authority role on influencing local energy systems and infrastructure



### **Council role**

Although there is currently no statutory role in energy for local government, the right energy infrastructure is crucial for both local environmental goals and local economic opportunity. Councils are responding to this issue with various approaches.

### **The opportunity**

Increasingly, energy network capacity has become a blocker to local action by Somerset Council and other local stakeholders. Transmission works with timescales out to 2038 are a critical issue constraining new connections in Somerset. Opportunities for the Council include:

- Clear lines of two-way communication are needed between the Council and both National Grid Energy Distribution (NGED) and Scottish & Southern Energy Networks (SEN) to better communicate future net zero and economic plans.
- Build capacity in the Council to understand local energy issues, areas of network constraint, alternative connections and local approaches to overcome temporary constraints and network investment plans. This knowledge needs to be reflected in local economic and transport plans.
- The new [Regional Energy Strategic Planners](#) (RESPs) are likely to establish new democratic processes in local energy infrastructure planning as well as setting regional priorities. There is an opportunity to influence how these planners develop and operate.
- Hydrogen presents a potential new strategic resource that the Council can steer the development of.

### **Challenges**

- Local authorities have no statutory role in energy or energy planning and lack adequate resources and funding to support collaboration with grid operators.
- Electricity networks may not deliver information to local authority actors in an accessible manner, especially for non-energy sector experts.

## RECOMMENDATION THEMES

Recommendations are organised under three themes:

- 6.1 Engagement and capacity, understanding energy system needs in local plans and planning process.**
- 6.2 Influencing the RESP, developing local and regional priorities.**
- 6.3 Steering the strategic development of hydrogen in Somerset.**

### 6.1 — Engagement and capacity, understanding energy system needs in local plans and planning process

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#### 6.1.1

**The Council should engage in two-way dialogue with both DNOs and the Gas Distribution Network (GDN) to join up local plans and network plans.**

Energy Networks Association, which represents all the DNOs and GDNs, recently published a guide on how to [foster collaboration between network operators and local authorities](#). It includes a role for local authorities to engage early with network operators on their plans for medium- and longer-term decarbonisation and development in their local area.

From the network operators' side, they should respond to the Council's enquires about energy planning, providing tailored support and accessible and relatable information on network processes. This should include information about potential plans to release network capacity – for example, [NGED released 10 GW of capacity](#) in October 2023 for 'shovel ready' projects.

In addition, the DNOs undertake Distribution Future Energy Scenario analysis to underpin their network investment plans. The Council should play an active role in engaging with the DNOs on the DFES, feeding in local knowledge and plans.

Development of this Somerset Energy Investment Plan has developed these relationships between Council officers and representatives from National Grid Electricity Distribution, Scottish and Southern Electricity Networks and Wales & West Utilities, with network representatives attending steering group meetings. Continued dialogue will be essential to ensuring the benefits of closer collaboration are realised.

The Council should nominate a representative to meet regularly with the DNOs and GDN for an open dialogue on the Council's plans. This regular dialogue will support the Council to plan energy projects and to develop appropriate planning policy that supports delivery in areas where there is network capacity. It will support the network operators to understand where new projects may be developed and to deliver network investment that supports local ambitions.

When planning for future generation and demand projects, it is advised that the Council engages early on with the network operators with specific parcels of land in mind and performs a 'connections surgery' to obtain up-to-date network information and anticipate network plans to release capacity. By staying ahead of these plans, local authority-led generation and demand projects may increase their chances of obtaining network capacity where it becomes available.

SSEN through its Regional Energy System Optimisation Planning (RESOP) project developed the [Local Energy Net Zero Accelerator \(LENZA\)](#). This GB first tool collaboratively shares data between utilities and local authorities in order to assist with LAEPs. The tool is now being rolled out on a phased basis to local authorities across SSEN's licence areas. The Council should engage with SSEN on how to use the tool effectively.

### 6.1.2

**The Council should look for opportunities to be involved in network innovation projects working in partnership with the network operators. The Council should use the Smarter Networks portal to search for collaboration opportunities and attend network innovation funding events.**

### 6.1.3

**The Council should commit to building capacity and internal resources to understand network issues.**

The Council should dedicate officer time and resources to developing internal knowledge and understanding of network issues and alternative connection processes such as Active Network Management and microgrids, and network investment processes – enabling the Council to have a more informed dialogue with the DNOs and GDN.

## 6.2 — Influencing the RESP, developing local and regional priorities

### 6.2.1

**The Council should support the development of the RESP – allocating resources to influence its development so that it delivers vital network infrastructure.**

The new RESPs proposed by Ofgem, as the energy regulator, are likely to establish new democratic processes into local energy infrastructure planning as well as setting regional priorities. There is an opportunity to influence how these planners develop and operate.

The creation of RESPs was announced in November 2023 and is looking to establish eight and ten regional bodies, run by the National Energy System Operator, based on the boundaries of the Regional Transport Boards. The draft boundaries include Somerset in the Peninsula Transport area with Devon and Cornwall. Adjacent counties Wiltshire and Dorset are included in the Western Gateway RESP.

Ofgem is undertaking a process of detailed design to understand key elements of functionality, governance and boundaries. They are launching this process at the end of January 2024 with the aim to consult on a policy document in the second half of the year.

The RESPs themselves are anticipated to be started by 2026 and influence the next round of electricity distribution network operator business plans for the next investment period from 2028 (ED3).

It is crucial that this next investment period delivers the infrastructure that Somerset and other areas need to make net zero a reality. It is therefore a priority that the Council plays an active role in the development of the RESP and the strategic priorities that go into the next round of investment planning.

### 6.2.2

**The Council should work with local authorities in the region to develop strategic priorities and start processes of cross-boundary collaboration on energy infrastructure.**

Cross-boundary collaboration will be essential to the success of the RESP process. The Council should strengthen its strategic approach to working with Devon and Cornwall on energy infrastructure issues.

## 6.3 — Steering the strategic development of hydrogen in Somerset

### Council role

The Council can play a role in setting the strategic direction for the role that hydrogen will play in the future energy system of Somerset.

### The opportunity

Hydrogen could provide a low carbon energy source for difficult-to-decarbonise sectors, such as heavy transport, shipping, aviation and some high-temperature industrial processes. It may also play an important role in long duration system balancing as a multi-vector fuel, using very low-cost electricity during times of over-supply to convert, store and transport renewable energy for many applications. Nascent hydrogen clusters are beginning to form in other areas of the South West, such as:

- Langage Green Hydrogen near Plymouth, which has planning permission to produce hydrogen from renewable generation for use by local mining companies. It has also been offered a Low Carbon Hydrogen Agreement by government.
- Canford Renewable Energy in Dorset produces hydrogen from a 5 MW solar farm and landfill gas power station for use in heavy transport.

In Somerset, there may be opportunities to co-locate hydrogen electrolyzers with renewable generation. Hinkley Point C could be a source of significant quantities of 'pink' hydrogen – hydrogen produced to store excess energy generated by the nuclear power station when electricity demand is low. Wales and West Utilities, the gas distribution network operator, is keen to explore these opportunities further.

### Challenges

- There is [growing evidence](#) that hydrogen is not the solution for decarbonising domestic heat or most transport. Hydrogen village heating trials in Whitby and Redcar were cancelled in 2023. However, there remain advocates of hydrogen for these uses from those with vested interests. These arguments are delaying action on electrification.
- Business models for developing hydrogen production from renewable and nuclear generation are at an early stage.

#### 6.3.1

**The Council should set out a strategic statement that it will prioritise hydrogen for hard-to-decarbonise sectors such as agricultural transport, aviation, industrial applications and long duration energy storage.**

Stakeholders to involve could include the South West Net Zero Hub, Wales and West Utilities, EDF Energy and Hydrogen South West to explore the future role of hydrogen in Somerset and appropriate net zero applications. The statement should include a commitment that the future of heating and transport in Somerset is focused on electrification.

### 6.3.2

**The Council could work in partnership with EDF Energy to explore the potential to produce 'pink' hydrogen at Hinkley Point C.**

This opportunity is at a very early stage, with EDF Energy currently exploring its viability at another location. Hinkley Point C is also still under construction. The Council should keep a watching brief on this opportunity. Wales and West Utilities is keen to be involved in discussions.

### 6.3.3

**The Council could work in partnership with aerospace experts and local airports to explore the development of air transportation hydrogen hubs.**

This could be done in collaboration with the South West Net Aero Hub and the Local Economic Partnership, Leonardo and the aerospace innovation centre.

### 6.3.4

**The Council could work with industry based in Somerset to collaborate on clean hydrogen strategies.**

Stakeholders that could be interested in a collaboration on clean hydrogen could be the Bridgwater gigafactory or Somerset's various minerals and aggregates businesses.

### 6.3.5

**The Council should encourage feasibility studies in the Triassic saltfield near Bridgwater to understand the possibility of future hydrogen storage.**

The Council could work in partnership with neighbouring authorities, such as Dorset and North Somerset, to jointly explore this opportunity.

# 7-10

## Other investment opportunities

A number of additional opportunities were identified through the stakeholder engagement process and analysis



Opportunities are:

7. Rooftop solar deployment
8. Large-scale tidal lagoons
9. Rural generation schemes, including anaerobic digestion and hydropower
10. Geothermal

**7 — Rooftop solar: Deployment will be predominantly market led, but a boost to the supply chain is needed**

### Council role

The Council could work with installers to facilitate rooftop PV development on council-owned buildings and social housing. The Council can require new domestic and commercial developments to be net zero carbon, which will facilitate the deployment of on-site solar.

### The opportunity

Rooftop solar offers a significant opportunity for individual households and businesses, as well as council buildings, to rapidly decarbonise their energy use, without significant planning, cost or technical barriers, or disruption.

Although subsidies for solar have been much reduced since the closure of the Feed-in Tariff, the [Smart Export Guarantee](#) offers some income potential and recent installation rates have increased in response to high energy prices. This can also be an opportunity to reduce on-site electricity bills and, during times of peak supply, provide revenue streams and opportunities to sell power back to the grid. For example, solar PV owners can take advantage of

schemes like [Outgoing Octopus](#) to monetise their electricity export. According to [Solar Energy UK](#), a typical home with solar panels could have an increased sale price of at least £1,800 plus annual energy bill savings of at least £300.

Co-locating solar panels with EV charge points can support lower charging costs and overcome local grid constraints. Emerging technologies, such as solar film, may enable buildings with previously unviable roofs to adopt solar panels.

### Challenges

- Grid constraints can present a challenge to connecting projects above the small domestic scale, where primary or upstream constraints are present.
- Access to finance remains a key challenge for householders and businesses considering investing in solar PV. For larger-scale projects, agreeing a Power Purchase Agreement can be complex.
- Access to impartial advice on the potential pros and cons of installing solar PV can be a barrier for some potential customers.
- Local supply chains across Somerset are fairly well-developed, with some well-established companies. Training courses are available at colleges within Somerset. However, the rapid increase in deployment required to meet the Net Zero Pathway will require over 3,700 more skilled installers in Somerset.

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| Technology | Additional capacity by 2050 | Jobs (FTE)* | GVA (£m) | Investment required (£m) |
|------------|-----------------------------|-------------|----------|--------------------------|
| Commercial | 86 MW                       | 700         | 140      | 90                       |
| Domestic   | 364 MW                      | 3,000       | 590      | 510                      |

\*Equivalent to 28 rooftop systems installed per worker per year (184,350 rooftops).

## RECOMMENDATIONS

### 7.1.

**The Council can lead by example by installing rooftop solar on all viable estate buildings, prioritising the use of local firms to support supply chain development.**

### 7.2.

**The Council can encourage high energy users to develop solar installations for on-site operations where feasible and not already installed, through informational campaigns and guidance highlighting the business case.**

### 7.3.

**The Council could support homeowners to understand the benefits of installing solar on their roofs, providing impartial information about potential bill savings and costs, e.g. through [Somerset Energy Saver](#) web pages.**

### 7.4.

**The new local plan could include a net zero carbon requirement that supports the delivery of appropriate solar PV.**

### 7.5.

**The Council could work with local solar firms and colleges to boost jobs, apprenticeships and upskilling programmes for the sector.**

## 8 — Large-scale tidal lagoons: a potential nationally significant energy opportunity – if national backing can be secured

### Council role

Private developers and financiers will play a key role in progressing large tidal projects, which would need central government backing as nationally significant projects. The Council could offer political support for a national-scale tidal project within Somerset.

The Council has a role during pre-planning for Nationally Significant Infrastructure Projects to represent the local perspective, for example ensuring that local habitat protection guidelines are met. The Council has a role to educate local communities about the potential benefits of the marine and offshore energy sectors in terms of local skills, flood and sea level rise protection, contribution towards fighting climate change and potential ecosystem benefits of designs that work to enhance local marine habitats rather than harming them.

### The opportunity

The 2.5 GW [West Somerset Lagoon](#) project is in early-stage development, requiring access to a viable investment model with government backing. If constructed, it could enable Somerset to be a net exporter of renewable energy, supplying electricity to meet local demand, as well as for use in other areas of the UK. The presence of a large tidal project could boost local jobs and supply chains and position Somerset as a leader in marine energy.

There may be skills and investment opportunities for Somerset from offshore wind opportunities in development in the Celtic Sea. Although these will be mainly supported by ports in Wales, Devon and Cornwall, there may be some opportunities for jobs and skills development in Somerset.

Jobs, GVA and investment required to meet Net Zero Pathway: Tidal lagoons are not included in the Net Zero Pathway projection

figures due to the national-scale of the projects. However, the proposed 2.5 GW West Somerset Lagoon is estimated to cost £8.5 billion with a 15% contingency to construct, plus a levelised cost of energy of £74/MWh. It could bring as many as 8,250 full-time equivalent (FTE) construction jobs and 300 FTE mechanical and electrical installation jobs to the Somerset area plus an estimated 100 permanent operational jobs.

### Challenges

- To address ecosystem and habitat-related concerns, projects like the West Somerset Lagoon have identified compensation measures, such as bird refuge islands, acoustic fish deterrents and new fish passes.
- Any large tidal project requires high levels of capital investment from private partners and some form of UK government backing.

## RECOMMENDATIONS

### 8.1

**The Council should consider whether to publicly and politically support the development of large-scale tidal lagoons in the area. It could work with developers to raise awareness of the opportunity and co-benefits. It could undertake a campaign to influence government to consider the lagoon as a nationally significant project. Without national support, the lagoon will be difficult to progress.**

### 8.2

**If national interest is secured in the lagoon, there are a range of supportive actions the Council could take, including working with developers to ensure local skills and training are in place and to communicate benefits to the public.**

### 8.3

**The Council could support jobs, supply chain and skills development of the offshore sector more broadly, such as working with neighbouring areas to support floating offshore wind.**



## 9 — Rural generation schemes: a limited role in delivering the Pathway, but with the potential to offer locally targeted benefits

### Council role

The Council can promote and reduce planning barriers for small-scale rural generation schemes such as small-scale hydropower and anaerobic digestion. There is also an opportunity to engage with dairy and food farmers to encourage the adoption of anaerobic digestors.

### The opportunity

The Net Zero Pathway includes an increase in AD deployment in Somerset and a small increase in hydropower capacity, across several small sites. Somerset has a large agricultural sector and food and drink sector, with the potential for waste to be used for new AD plants.

Although sustainability and air quality concerns have reduced the focus on biomass as a low carbon heating option in the UK, there may be opportunities in rural areas, such as Exmoor, to access waste biomass, including hedgerow clippings, for use in small-scale biomass boilers.

A limited amount of further hydropower potential could be developed for local self-consumption in areas with sufficient head and flow. Feasibility could be coordinated through existing groups such as South Somerset Hydropower Group and Mendip Power Group.

### Jobs, GVA and investment required to meet Net Zero Pathway

| Technology | Additional capacity by 2050 | Jobs (FTE) | GVA (£m) | Investment required (£m) |
|------------|-----------------------------|------------|----------|--------------------------|
| Hydropower | 2.8 MW                      | 6          | 0.8      | 0.2                      |

### Challenges

- Feedstock availability for AD will be limited and variable over time. High capital costs and low revenues have limited the deployment of AD since the closure of the Feed-in Tariff and the Renewable Heat Incentive. AD is most successful when using high-energy inputs, such as food waste, which are often subject to longer-term disposal contracts and so can be difficult to access.
- Hydropower opportunities are limited in Somerset due to lack of high-flow and high-head rivers. Potential opportunities tend to be micro-scale and capital costs are high compared to income potential, particularly without available subsidies. As a well-developed technology, capital costs are unlikely to reduce significantly. Fish screening legislation and abstraction licence requirements add to these costs.

## RECOMMENDATIONS

### 9.1

**The Council could encourage permitting and develop local planning policy and guidance that supports small renewable generation sites such as AD and hydropower. In developing AD policy, the Council should consider:**

- a. Any future AD strategies should target cattle farmers to maximise value and methane absorption to reduce scope 1 emissions.
- b. Waste feedstocks should be prioritised, with the use of agricultural land to provide energy crops limited.

## 9.2

**The Council can choose to work alongside organisations like British Hydropower Association to influence the Environment Agency on revising permitting requirements and to ask central government to introduce support mechanisms for small hydropower.**

# 10 — Geothermal: an early stage opportunity with yet-unknown potential

## Council role

The Council can explore the potential for geothermal to provide heat for heat networks, working with commercial partners. The Council can support the NHS to develop its geothermal ambitions.

## The opportunity

There is some geothermal potential around the Quantock and Mendip hills in Somerset. This resource is at an early stage of exploration. Geothermal energy is suitable for heat network and net zero village trials. Noise and visual impact are minimal, with sound not exceeding 45 decibels in the recent Eden Geothermal project in Cornwall. There may also be opportunity to explore the potential for heat recovery from mine water from the former coal mines in the Mendip area.

There is interest from local stakeholders, particularly at Yeovil Community Hospital, within the context of decarbonising steam-heated buildings. Food and drink manufacturing organisations use heat for hygiene at 65 and 85°C, which is suitable for geothermal. Heat networks, geothermal or otherwise, can be planned in areas with new housing developments to coincide with building works and maximise benefits from the new network.

The first stage of any large geothermal project is a feasibility study and options appraisal, which will cost c.£25,000 depending on scope. Geothermal's levelised cost of energy can be relatively low, with projects achieving as low as \$26/MWh in France.

## Challenges

Investment for feasibility stages would be challenging, but some funding streams exist for later development stages. This results in high capital risk for initial project planning stages.

## RECOMMENDATIONS

### 10.1.

**Working with commercial partners, the Council could apply for funding for a feasibility study to explore the permeability and presence of water at depths of 1,500m near Yeovil for district heating.** Other areas may also be explored further, such as communities near the Quantocks. There may be opportunities to work across area boundaries with neighbouring authorities, for example with Dorset Council, which is exploring similar opportunities.

### 10.2.

**The Council can provide political support for projects with the NHS, such as de-steaming the Musgrove Hospital site using geothermal heat.**

# Next steps

This Somerset Energy Investment Plan sets out the key opportunities for decarbonising Somerset's local energy system and some longer-term or lower-priority areas to consider. Recommendations are made throughout for actions that the Council should or could take to prime the market, plan for decarbonisation, or work in partnership with external organisations. Pursuing partnership opportunities is essential, as these present the potential to leverage external finance and skills.

However, delivering the actions will inevitably require Council time, resources, skills and funding. The Council has recently announced the need for very significant budget cuts from April 2024 to enable it to

balance the books. As a result, allocating resources and funding to non-statutory energy actions will be challenging. However, the jobs, GVA and investment potential of delivering the opportunities in this action plan are significant and in many cases rely on council action to be realised. The Council will need to consider how to deliver these opportunities within the financially constrained environment.

**The next step will be for the Council to consider this Plan internally and with external stakeholders and partners. It should further prioritise the actions recommended, drawing up internal action plans with allocated resources and funding for each area.**

# Summary of all recommendations

1—

## **Decarbonisation of the Council's own estate and operations: priming the market**

### 1.1 Developing generation and storage sites on council land in partnership with local organisations and community groups

1.1.1 The Council could play a proactive role in developing new solar, wind and storage projects in Somerset, using a range of approaches.

### 1.2 Retrofitting Council assets and buildings

1.2.1 The Council should develop a retrofit plan for all council-owned buildings, including offices, leisure facilities and heritage assets that delivers a net zero estate by 2030.

1.2.2 The Council should work with the supply chain to ensure its procurement approach for retrofit is accessible to local companies, helping to build the skills in the local area and retain the investment benefit locally.

1.2.3 The Council should transition council fleets, buses and refuse vehicles to EVs.

### 1.3 Developing a portfolio approach to decarbonising the estate

1.3.1 The Council should meet with Bristol City Council to discuss the City Leap approach and explore the potential for replicating it in Somerset

2—

## **Large-scale solar, wind and battery storage development: seizing the opportunities for the rural economy**

### 2.1 Setting out a vision for land use and energy that delivers co-benefits for nature and the agricultural community

2.1.1. The Council should facilitate the debate around appropriate land use in Somerset through the development of a land use framework.

2.1.2. The Council should consider how to reduce negative impacts and encourage biodiversity enhancements through its renewable energy policies by consulting with biodiversity experts.

2.1.3. The Council should consider how to support the coexistence of renewables and agriculture, reviewing best practice on existing schemes, working with the rural community and developing appropriate local planning policy and guidance.

### 2.2 Positive local planning policy to transform delivery in appropriate locations

2.2.1 The new Local Plan could include robust planning policy to support the development of high-quality large-scale solar, wind and energy storage projects that maximise local benefits, subject to other considerations such as social, environmental and economic factors.

### 2.3 Supporting local and community development of new solar, wind, storage and innovation projects

2.3.1. The Council can provide direct support to community energy organisations developing generation, storage and flexibility projects.

3—

## **Unlocking energy efficiency and retrofit: the #1 opportunity for energy jobs and GVA creation**

### 3.1 Comprehensive retrofit support programmes are needed for every segment of the market

3.1.1. The Council should produce a plan to decarbonise all council stock, sharing learning with other social housing providers.

3.1.2. The Council should review plans to support low-income households who do not live in social housing.

3.1.3. The Council should build on existing work with community energy organisations and local providers to extend support for the 'self-funding' market.

### 3.2 Using the new local plan to support retrofit and deliver zero carbon homes

3.2.1. The Council could review the potential for conservation areas and listed buildings to incorporate low carbon and energy efficiency measures – and issue appropriate guidance.

3.2.2. The Council could use its local plan to set retrofit targets, giving political backing to investment in retrofit.

3.2.3. The Council could adopt zero carbon housing and non-domestic standards in its local plan to improve local ambition

### 3.3 Facilitating local hubs to develop local skills

3.3.1. The Council could facilitate or coordinate local hubs to develop local skills for low carbon heating and retrofit installations.

3.3.2. The Council should lead a skills transfer programme in partnership with educational institutions that uses facilities and workforces brought into Somerset by projects such as Hinkley and the gigafactory.

4—

**Electrifying heat demand:  
high levels of off-gas properties present an opportunity for heat pumps**

**4.1 Targeting low carbon heat rollout using planning policy and zoning analysis**

- 4.1.1. The Council could use its new local plan to stop new gas connections.
- 4.1.2. The Council should commission a heat zoning analysis, aided by data from a housing stock analysis, to identify areas and neighbourhoods best suited to heat pumps and district heating.
- 4.1.3. The Council should work closely with the DNOs to inform their network investment strategy, sharing details of electrification programmes and pushing the networks to invest in the needed network capacity.
- 4.1.4. The Council should consider developing a water source heat pump innovation trial in partnership with local businesses or public sector organisations.

**4.2 Net Zero Heat Village Trial: a local community approach to exploring net zero in rural areas**

- 4.2.1. The Council should work in partnership with community energy organisations to develop a Net Zero Heat Village trial.
- 4.2.2. The Council should work in partnership with community energy organisations on other approaches to heat decarbonisation.

**Transport electrification and demand reduction:  
building on existing work to plan the necessary infrastructure**

**5.1 Developing public charging infrastructure and actions to support the rollout of electric vehicles**

- 5.1.1. The Council should use the 2024 refresh of its EV strategy to continue its focus on destination and on-street charge point deployment, to serve tourist destinations, schools, workplaces and those without off-street parking.
- 5.1.2. The Council could work in partnership with the private sector and DNOs to explore innovative approaches to developing EV charging infrastructure to support local charging needs and to bring co-benefits to the area.
- 5.1.3. The Council could consider undertaking a public communications campaign to communicate the economic benefits and additional co-benefits of reducing emissions and air quality to encourage consumers to switch to EVs.
- 5.1.4. The Council should work with partners to support the development of approaches that enable those on lower incomes to access EVs.

**5.2 Public transportation action plan: an innovative approach is needed to support rural public transport**

- 5.2.1. The Council should work in partnership with bus companies to support their transition to electric fleets.
- 5.2.2. The Council should work in partnership with transport providers and communities to develop innovative approaches to rural public transport.
- 5.2.3. The Council could work in partnership with rail companies to open new stations on existing rail lines and consider how to better integrate rail and bus travel to enable end-to-end public transport use.
- 5.2.4 The Council could continue to promote active travel through local planning and infrastructure delivery

6—

**Grids and flexibility:  
extending the local authority role on influencing local energy systems and infrastructure**

**6.1 Engagement and capacity, understanding energy system needs in local plans and planning process**

- 6.1.1 The Council should engage in two-way dialogue with both DNOs and the Gas Distribution Network (GDNs) to join up local plans and network plans.
- 6.1.2 The Council should look for opportunities to be involved in network innovation projects working in partnership with the network operators.
- 6.1.3 The Council should commit to building capacity and internal resources to understand network issues.

**6.2 Influencing the RESP, developing local and regional priorities**

- 6.2.1 The Council should support the development of the RESP – allocating resources to influence its development so that it delivers vital network infrastructure.
- 6.2.2 The Council should work with local authorities in the region to develop strategic priorities and start processes of cross-boundary collaboration on energy infrastructure.

**6.3 Steering the strategic development of hydrogen in Somerset**

- 6.3.1 The Council should set out a strategic statement that it will prioritise hydrogen for hard-to-decarbonise sectors such as agricultural transport, aviation, industrial applications and long duration energy storage.
- 6.3.2 The Council could work in partnership with EDF Energy to explore the potential to produce ‘pink’ hydrogen at Hinkley Point C.

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6.3.3 The Council could work in partnership with aerospace experts and local airports to explore the development of air transportation hydrogen hubs.

6.3.4. The Council could work with industry based in Somerset to collaborate on clean hydrogen strategies.

6.3.5 The Council should encourage feasibility studies in the Triassic saltfield near Bridgwater to understand the possibility of future hydrogen storage.

7—

**Rooftop solar Deployment: will be predominantly market led but a boost to the supply chain is needed**

7.1. The Council could lead by example by installing rooftop solar on all viable estate buildings, prioritising the use of local firms to support supply chain development.

7.2. The Council could encourage high energy users to develop solar installations for on-site operations where feasible and not already installed, through informational campaigns and guidance highlighting the business case.

7.3. The Council could support homeowners to understand the benefits of installing solar on their roofs, providing impartial information about potential bill savings and costs, e.g. through [Somerset Energy Saver](#) web pages.

7.4. The new local plan could include a net zero carbon requirement that supports the delivery of appropriate solar PV.

7.5. The Council could work with local solar firms and colleges to boost jobs, apprenticeships and upskilling programmes for the sector.

8—

**Large-scale tidal lagoons: a potential nationally significant energy opportunity – if national backing can be secured**

8.1. The Council should consider whether to publicly and politically support the development of large-scale tidal lagoons in the area. It could work with developers to raise awareness of the opportunity and co-benefits. It could undertake a campaign to influence government to consider the lagoon as a nationally significant project. Without national support, the lagoon will be difficult to progress.

8.2. If national interest is secured in the lagoon, there are a range of supportive actions the Council could take, including working with developers to ensure local skills and training are in place, to anticipate planning hurdles in advance and to communicate benefits to the public.

8.3. The Council could support jobs, supply chain and skills development of the offshore sector more broadly, such as floating offshore wind, through its economic development functions.

9—

**Rural generation schemes: a limited role in delivering the Pathway, but with the potential to offer locally targeted benefits**

9.1. The Council could encourage permitting and develop local planning policy and guidance that supports small renewable generation sites such as AD and hydropower. In developing AD policy, the Council should consider:

- a. Any future AD strategies should target cattle farmers to maximise value and methane absorption to reduce scope 1 emissions.
- b. Waste feedstocks should be prioritised, with the use of agricultural land to provide energy crops limited.

9.2. The Council could choose to work alongside organisations like British Hydropower Association to influence the Environment Agency on revising permitting requirements and to ask central government to introduce support mechanisms for small hydropower.

10—

**Geothermal: an early stage opportunity with yet-unknown potential**

10.1. Working with commercial partners, the Council could apply for funding for a feasibility study to explore the permeability and presence of water at depths of 1,500m near Yeovil for district heating.

10.2. The Council could provide political support for projects with the NHS, such as de-steaming the Musgrove Hospital site using geothermal heat.

# 06

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## Appendices



# Appendix 1: Scenario methodology Somerset's electricity generation Net Zero Pathway compared with a sensitivity delivering the equivalent of 100% of 2050 demand

Somerset's Net Zero Pathway achieves local renewable generation that meets the equivalent of 45% of local 2050 electricity consumption. The level of solar and wind deployment needed to meet the equivalent of 100% consumption levels is represented in the table below. These figures are illustrative only and, given market conditions, grid constraints and Somerset's resources, are unlikely to be achievable.

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| Technology               | Baseline (MW) | Pipeline (MW) | Additional capacity needed to meet 45% by 2050 <sup>1</sup> | Annual average build-out (MW) <sup>2</sup> | Total 45% target land use   | Additional capacity needed to meet 100% by 2050 <sup>3</sup> | Annual average build-out (MW) | Total land use for illustrative 100% capacity |
|--------------------------|---------------|---------------|---|--|-----------------------------|--|-------------------------------|---|
| Large-scale solar        | 313           | 653           | 444   | 42   | 2,853 Ha (0.8% of Somerset) | 2,400  | 49                            | 6,732 HA (2.0% of Somerset)                   |
| Domestic rooftop solar   | 46            | --            | 364   | 14   | 120,000 roofs <sup>4</sup>  | 200  | 56                            | 179,500 roofs <sup>6</sup>                    |
| Commercial rooftop solar | 32            | --            | 86  | 3  | 12,000 roofs                | 250  | 6                             | 16,900 roofs                                  |
| Onshore wind             | 2             | --            | 152   | 6  | 61 turbines <sup>5</sup>    | 400  | 22                            | 222 turbines                                  |

1. Calculated using Regen analysis of NGED and SSEN DFES net zero 2050 scenarios.
2. Starting in 2024.
3. Based on very high levels of Somerset's resources being deployed.
4. Assumes a 3.4 kW average for domestic rooftops and a 10 kW average for commercial rooftops. These are upper estimates, not accounting for improved technologies over time. In the Net Zero Scenario, c.34% of all domestic roofs will have a rooftop system installed by 2050.

5. Estimating wind's impact on land use can be misleading. According to the [Energy and Climate Intelligence Unit](#), around 1% of land taken up by a wind farm is used by turbines, leaving 99% for other potential uses such as farming or ecosystem services.
6. In the 100% sensitivity, c.50% of all domestic roofs will have a rooftop system installed by 2050.



## Appendix 2: Economic benefits methodology

Generation costs have been calculated in terms of capital expenditure (CAPEX) as opposed to operational expenditure. For the purposes of these energy plans, initial investment is more pertinent to securing project funding.

Operational costs (OPEX) have been calculated and considered for some technologies to inform the strategic direction of technology uptake in the Pathway. For example, higher abstraction licence costs of hydropower limit the amount of uptake of this technology. Similarly, operations and maintenance of anaerobic digestion is considerably higher than wind and solar at all scales.

Building energy efficiency improvements were calculated using Somerset's EPC recommendations. To avoid double counting heat installation costs, all recommendations relating to the installation of electrified heating or small-scale generation technologies were excluded. Results were scaled to the estimated total number of houses in Somerset, giving the estimated total cost for all housing in Somerset.

### Sources & assumptions:

1. Renewable Generation: Department for Energy Security & Net Zero 2023, [Electricity Generation Costs 2023](#). All costs are calculated in 2021 real GBP prices and the medium scenario was taken. For certain technologies where several cost categories overlap (i.e. AD and AD CHP), an average value was taken. All generation costs have been calculated in 2021 real GBP and not adjusted for inflation.
2. Small-scale wind: Micro Certification Scheme data extract for small-scale wind included 7 data points on installation costs for small wind turbines. The average cost per kW (£9,437.88) was used.
3. Battery storage: National Renewable Energy Laboratory (NREL) 2023, 2021 Annual Technology Baseline (ATB) Cost and Performance Data for Electricity Generation Technologies. Battery technology CAPEX costs were estimated taking an average value across battery storage duration values. This leads to significant variation, e.g. in utility-scale batteries which see a CAPEX of \$621 for 2hr storage versus \$2,465 for 10hr battery storage units, and thus could be overestimated. All values have been converted to GBP using a 0.79 GBP per USD exchange rate.

4. Retrofit: The cost of energy efficiency retrofits was estimated via the EPC certificate recommendations to improve the overall energy efficiency of buildings. Assumptions of average cost by EPC rating were calculated for available data and infilled where cost was not available for that EPC (A-C: £4,000; D: £7,300; E: £11,100; F: £13,900; G: £15,400). The same was done for minimum and maximum values to provide a range of uncertainty.
5. Heat: Heating costs have been calculated using the March 2023 Renewable Heat Incentive [RHI monthly deployment data](#). Cost values for the most popular installation size were taken, e.g. 2-10 kW for ASHP and 6-15 kW for GSHP.
6. EV Chargers: Costs for EV chargers align with assumptions used in the Somerset EV Charging Strategy, which bases its cost estimates on the [UK Government Electric Vehicle Charging in Residential and Non-residential Buildings](#) consultation.

The local benefit to the economy from developing Somerset's Net Zero Pathway out to 2050 was calculated through Gross Value Added (GVA) and Full Time Equivalent (FTE) multipliers for each technology from a variety of sources ranked by recentness of publication and relevancy.

FTE refers to the number of job years, in other words, a full year of one person being employed full time. This does not equate to the total number of jobs or persons employed. The multipliers used refer to direct jobs that are likely to be Somerset-based, which in most cases are limited to on-site construction and installation jobs.

GVA is a measure of value added through a projection of goods and services while subtracting taxes on production. As GVA estimates vary, a central estimate for each technology was used, and the minimum and maximum were also calculated to show the range of possibility and inherent variability of jobs and GVA estimation. Where sources provided a significant outlier, it was removed from the calculated average to avoid skewing final numbers. The ONS GVA multiplier of 1.7 is used as a benchmark.

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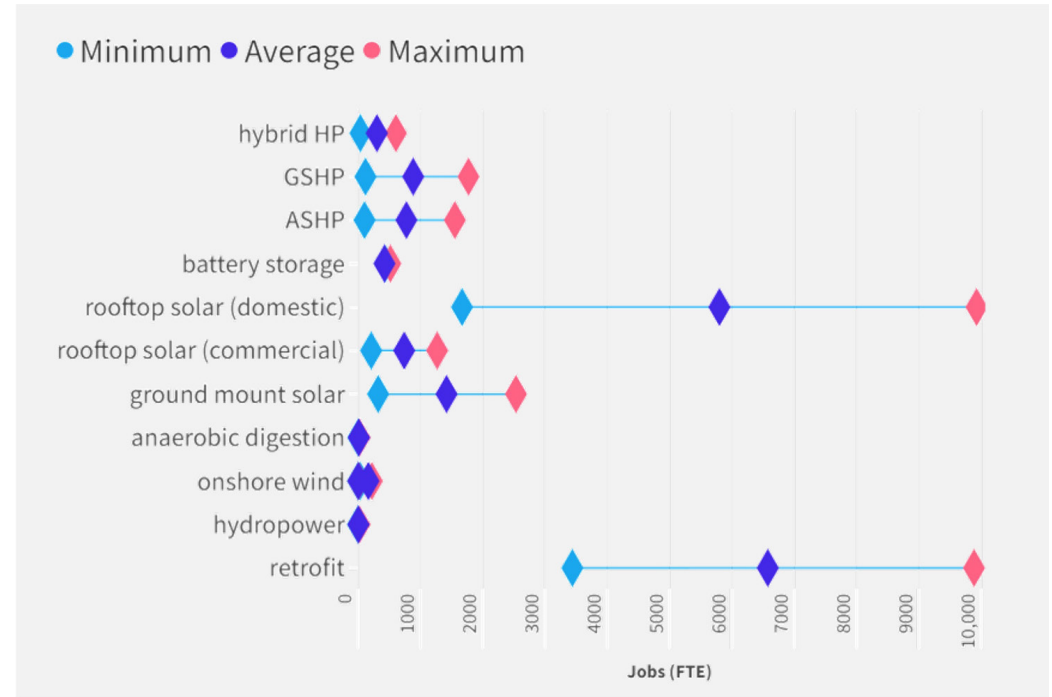
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### Estimated number of job (FTE) years from implementing Somerset's Net Zero Pathway

When estimating figures like FTE, there is always a range of uncertainty due to different methodologies and economies from which multipliers are calculated. The economic analysis and figures presented in this report present the average.

The graph here is included to display the range of uncertainty involved in using jobs multipliers. For example, rooftop solar and retrofit have large ranges among the multipliers found. Despite this, even the minimum in these two categories remains higher than any other low carbon development measure as part of the Net Zero Pathway. Therefore, regardless of the uncertainty of the degree of employment, these sectors are still likely to be the main sources of new jobs and skills in the county.





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## Somerset Rivers Authority Funding

For its first full year of work in 2015-16, the SRA had **Interim Funding** from the Department for Environment, Food and Rural Affairs (Defra), Somerset's local authorities (at that time the county council, and five district councils) and Somerset Drainage Boards Consortium. Defra gave £1.9million, Somerset County Council gave £600,000, and the district councils and Somerset Drainage Boards Consortium together gave £200,000, making £2.7million in total.

In December 2015, the Department for Communities & Local Government (as it was then called) gave Somerset County Council and the five district councils the power to raise a '**shadow precept**' of up to 1.25% of 2016-17 council tax, to fund the SRA in 2016-17.

The reason why the figure of 1.25% of 2016-17 council tax was chosen for the SRA's shadow precepting for 2016-17 was because it came tidily close to reproducing the SRA's initial annual Interim Funding budget of £2.7million.

The power to raise a shadow precept for the SRA has since passed to the new Somerset Council, which replaced the county council and the district councils in April 2023. Somerset Council had to consolidate contributions from 5 councils into 1. The SRA charge on council tax is now set at £14.65.

In the 2024-25 financial year it is estimated that £3.059million will be raised through council tax for the SRA. The total amount raised for the SRA gradually increases each year as the number of households in Somerset increases. The amount charged per household remains at £14.65.

The Parrett and Axe Brue Internal Drainage Boards also choose to contribute a total of £20,000 a year.

David Mitchell

SRA Senior Manager

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