

## Chippenham Future Energy Landscape Workshop one and two

### Summary of outputs and next steps





## Introduction

The Future Energy Landscapes (FEL) project is an approach to local energy planning developed by the Centre for Sustainable Energy (CSE) and the Campaign to Protect Rural England (CPRE) and part-funded by the Department for Business, Energy and Industry Strategy.

The FEL approach arose from recognition that although public attitude surveys repeatedly demonstrate high overall public support for renewable energy in the UK, once projects are proposed in a given location, they are often fiercely resisted. This can be in part attributed to standard planning consultation and target-setting processes at the local authority level which do not provide the opportunity for communities to carefully and strategically consider how a low carbon transition in their area might happen. Therefore, communities often do not feel adequately involved and consulted on proposed developments.

The FEL methodology is intended address this deficit by creating an informed consensus within a community as to the type and scale of renewable energy plant and energy efficiency activity which could be acceptable. The outputs of the workshop are used to inform the consultation process and policies within the neighbourhood plan.

This note provides provisional outputs from the first of two FEL Workshops held in Chippenham on 15<sup>th</sup> February 2020 which are to be confirmed and amended by participants in a follow up event on the 24<sup>th</sup> of February 2020. Before the second workshop participant's homework is to discuss the key outputs and conclusions from the first workshop with friends and neighbours. Whilst made up of local residents, the workshops themselves cannot be held to be representative of the full range of opinion in the local community, and therefore the intention is that once the workshop outputs are confirmed, they will be the basis of further engagement with the wider public, prior to the formal consultation and referendum on the plan. CSE is able to offer further support through this process.

## Summary of workshop sessions

### 1. Places and Services

Following a brief opening session dealing with the framework for the day and introductions, workshop participants were asked to create a map reflecting their relationship to the local area. Once drawn, each participant then added coloured post-it notes to their personal maps: yellow for positive places or services in the local area, blue for those with negative associations and pink for those which had been important which have now been lost. Finally, these post-it notes were added onto one large communal map of Chippenham.



Every personal map differed in size, geography and important features according to the life stage, habits and interests of its creator. Nevertheless there were common themes, enabling an overall sense to be gleaned of the 'neighbourhood' of the people in the room and areas that were particularly cherished or valued.

Overall, it was clear that people had a strong attachment to the place and enjoy living there. There was a positive identification with many places within Chippenham as well as its geographical location. In particular, participants treasured the range of green and open spaces both those which are outside of but within reach of the town, and the numerous parks and informal greenspaces within the town boundaries such as the river front and associated paths, as well as numerous other walking routes and informal greenspaces. John Coles Park was named by many participants as an important local asset. Community facilities – particularly schools, the Olympiad leisure centre, railway station and Library were also felt to be important and valued.

Most negative feelings were directed towards the transport system in and around Chippenham. There was an almost unanimous agreement that there was an over-reliance on cars in the town – leading to numerous cross cutting issues including: congestion, safety and accessibility issues for pedestrians and cyclists, air pollution, and negative impacts on the public realm and town centre. A number of participants felt that the busy ring roads around Chippenham formed a barrier preventing pedestrians, dog walkers and cyclists accessing the countryside immediately adjacent to the town. Participants also identified that public transport options were expensive and unreliable which contribute to the reliance on cars.

The changing nature of the town centre/high street was the focus of discussions around important services and places that had been lost within the neighbourhood. For instance, there was a consensus that the increase in large supermarkets had negatively impacted on the strength and diversity of local independent retailers. Some participants felt that the local architectural heritage was beginning to be lost and could be revived. There was also concern that important community spaces had been lost such as pubs and churches, and that this contributed to a general feeling that Chippenham lacked in community meeting spaces. There was also general feeling that informal local green spaces had gradually been lost and there was concern that other areas were at risk.

#### **Places and services with positive connotations**

- Green spaces – Jubilee Fields, Monkton Park, Baydons wood/meadow The Island, St Andrews orchard space, and wider meadowland and countryside around the town.
- Cycle and footpaths
- Great schools
- Library and hospital
- Olympiad leisure centre
- Good train connections

#### **Places and services with negative connotations**

- Over-reliance on cars
- Congestion / air pollution issues
- Separation of work and home
- Public transport infrequent, expensive and unreliable
- Not pedestrian friendly
- Large supermarkets replacing local businesses

#### **Valued local features lost or at risk**

- Loss of local businesses
- Concern that valued public services like library and hospital are under threat
- Changing atmosphere and character of town centre
- Fears of transitioning to a dormitory/commuter town
- unique aspects of Chippenham like the riverfront not celebrated
- loss of greenspaces within the town
- concern about past (and future) loss of pubs and churches

## 2. Landscape and land management

Discussion then moved to reflect more specifically on the landscape of Chippenham and the surrounding countryside. Using green post-it notes, participants were tasked with describing their local landscape and countryside with descriptive words (e.g. wild, beautiful, ugly); activities that they associate with the landscape (e.g. farming, hill walking) and; emotions (e.g. how they feel when they're out in the local countryside). The post-it notes were then attached to the communal map.

There was widespread affection for the countryside within and surrounding the town of Chippenham. Monkton Park and the open countryside to the south of the town centre – particularly Pewsham and Rowden Hill – were especially popular landscape features. Participants felt that the landscape outside the town, including the Avon Valley and local agricultural land, was fundamentally rural and associated with relaxation and happiness. Participants enjoyed using the landscape for a range of leisure activities including walking and cycling. The River Avon and its riverfront was widely identified as a defining and positive feature of the Chippenham landscape.

Most negative descriptions focussed around two themes. Firstly, there was a perception from some participants that the local landscape was stagnated in some way and that the countryside was dominated by agriculture and lacked wild spaces leading to a feeling that it was boring. Others felt that there was no overwhelming sense of ambition or vision around what the landscape could look like. In contrast to this however, a number of participants identified the mixture of small rural villages and farming heritage as valued landscape assets.

Secondly, there was concern among participants about the urban sprawl around the outskirts of the town, particularly to the east and south east of Chippenham. Proposals for new business, housing developments and roads around Chippenham were seen as a direct threat to the countryside surrounding Chippenham and the positive associations with this space. This reinforced a fear that locals might lose the feeling that they had a stake in the landscape. As a result, some participants felt strongly the need for a 'green buffer' around the town to stop further encroachment.

In conclusion, although a broad consensus emerged on both positive and negative aspects of the landscape, the discussion perhaps reflected that the landscape was valued in a more subjective manner by participants when compared to services around the town.

### 3. People and Organisations

In the final session before lunch, the group considered the people and organisations within the local area that had significant influence over decisions on what happens and where in Chippenham with a focus on decisions relating to the use of land.

The key groups that emerged from these discussions were:

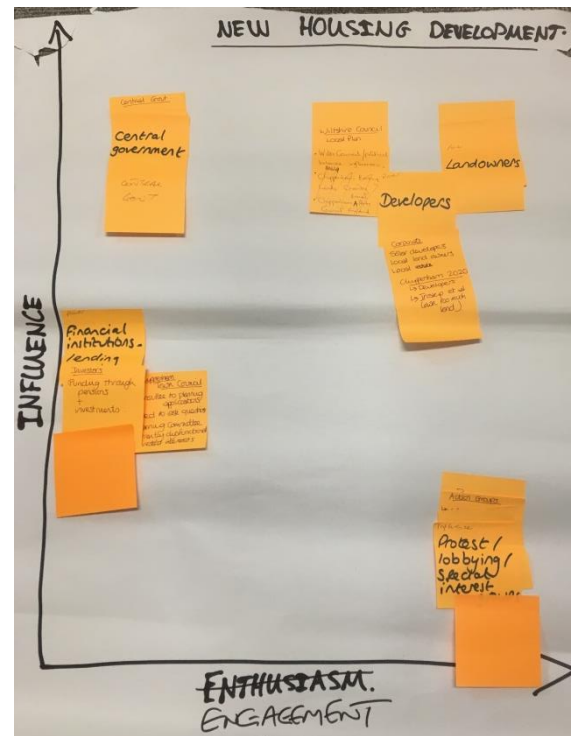
- **National Government:** influence through setting national planning policy, national infrastructure programmes and housing targets
- **Local Council:** Wiltshire Council have a large influence through a range of processes including the Local Plan, Local Transport Plan, and investment funds. Decisions happen in different areas of the council, although with council members sitting across multiple committees with correspondingly different levels of influence including the strategic planning committee, area planning committees and those working on the climate emergency declaration.
- **Town Council:** the town council was generally seen to be less influential, however the Chippenham Neighbourhood Plan was cited as a key process, although this has considerable overlap with community actors
- **Landowners:** landowners were deemed to be particularly influential given the requirement for land. However, it was considered that ultimately power lies with the local council planning policies and central government national planning policy and decision making.
- **Developers:** housing developers (especially the Chippenham 2020) and renewable energy developers were seen as the driving force behind new development and both influential and engaged
- **Private Sector:** prominent financial institutions and lending/investing organisations, local enterprise partnerships
- **Community:** protest/lobbying groups like XR, Zero Chippenham, Avon Needs Trees, generally seen to be very engaged in processes but often lacking in influence
- **District Network Operators (DNOs) / Gas Grid: Scottish and Southern Electricity Network are in the process of drafting its next '5 Year Plan' which will likely stress scope for more investment in renewables**

After this broad list of influencers was established, participants were tasked with imagining how these groups would come together around two specific hypothetical scenarios that might occur in the local community: a new housing development and a behaviour change campaign. In each case, participants discussed where different power groups would place on a graph with 'influence' (ie. power to influence events) charted on the y axis and 'enthusiasm' (ie. level of engagement with the project) on the x axis.



In the case of a new housing development, it was agreed that landowners, the local council and developers would all be both highly influential and enthusiastic. There was more debate about the exact levels of influence of central government and financial institutions, but broad agreement that they would not be that engaged with a new housing development. Finally, most concurred that protest/lobby groups would be very enthusiastic but hold little real influence.

In the case of a behaviour change campaign, it was agreed that most groups primarily interested in making profit (for instance landowners, financial institutions, developers) would probably have little interest, although they may well have influence, depending on the specifics of the campaign. In contrast, civil society groups, the local council, and organisations such as schools would both be engaged and relatively influential.



Stakeholder mapping - enthusiasm and influence over a new housing development

#### 4. Community Energy

After lunch, discussion moved to focus on energy within the local community. To warm up, participants were asked to briefly consider their personal energy usage. The discussion centred on the use of energy both in the form of heat and appliance use, and highlighted that the largest proportion of domestic energy usage goes towards heating, whether of space (58% of total), or water (24% of total). Given that the vast majority of homes in Chippenham are heated using gas, this highlights the challenge associated with decarbonising domestic heating systems.

It was agreed that, in general, domestic energy use has increased over the last 100 years - partly owing to the rise of central heating and greater reliance on electrical appliances and partly to different attitudes to, and behaviours of, using energy to heat homes. For instance some participants highlighted a feeling that (particularly) younger people tend to be less conservative with the use of heat energy, and will more likely to turn heating up rather than take other steps to warm up, such as put more clothing on.

Discussion also covered how patterns of energy generation and usage have changed over the last 100 years in the UK. In terms of generation it highlighted the shift away from coal as the UK's primary energy source towards a more diverse mixture of gas, various renewable technologies such as hydroelectric, wind, and solar; and also small amounts of nuclear. This trend is likely to see a change from energy generated at large centralised power stations, and transported via a network of pylons, to more localised generation such as through small scale renewables.



The change from centralised to decentralised energy generation and distribution will have a corresponding impact on the landscape across the UK in the future, and this formed the basis for discussion during the next section of the workshop.

## 5. Energy in the Landscape

### Present

Having established this historical context, participants were next briefed to think about the relationship between energy and the landscape in present-day Chippenham.

All participants were aware that the local community is dependent on gas as the principal source of heat energy; however the landscape impacts of this energy source in the Chippenham area are negligible given that it is transported via subterranean pipes.

In contrast, infrastructure associated with the provision of electricity was noticed by participants. Discussion centred on infrastructure associated with electricity distribution located towards Melksham and the south-west of the town. Many participants were aware of this, as well as various large electricity pylons which are significant landscape features in some parts of the local area. As well as this aesthetic impact, it was noted that concerns around the noise and safety of pylons (especially when located close to housing) were prominent locally, especially amongst residents of the Cepen Park estate. Overall, then, participants felt that electricity infrastructure was a negative feature of the landscape that continued to arouse local criticism. Renewable energy infrastructure is less present in the landscape around Chippenham. While participants were aware of sites in the area where there are ground mounted solar photovoltaic (PV) arrays, typically on agricultural land, generally due to their low height, these were not deemed to have significant landscape impacts.

Also noted were a number of anaerobic digesters located on agricultural land, adjacent to other agricultural buildings, while some participants were aware of these, some had not previously noticed them. Generally there was a feeling that these pieces of energy infrastructure blended in with other agriculture buildings.

### Future

Each participant was asked how they feel the relationship between the energy and the local landscape might change over the next 10 or 20 years.

The participant group broadly felt very positively about an increased development of renewable energy infrastructure within the local area. The two key areas for growth in terms of electricity provision were identified as solar and wind. Most agreed that there was scope for increased domestic solar PV coverage, as well as potential for the utilisation of any industrial roof space. Solar PV options were both considered to have minimal landscape impacts and deemed to be uncontroversial.

Although there was debate about the acceptability of wind turbine installations for the wider community, the participant group felt positively about these, and proposed that up to three large scale wind turbines<sup>1</sup> sited on agricultural land to the east and south east of Chippenham would be acceptable to the community.

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<sup>1</sup> Large scale wind turbines are defined as 2.5MW installations which can power approximately 1500 homes.

The group also felt very positively about a hypothetical small scale hydro project at the site of the Chippenham Weir in the centre of the town, and again, with regards to community acceptability it was deemed suitable.<sup>2</sup>

With regards to the decarbonisation of heat, the installation of domestic alternatives to gas boilers such as heat pumps were seen as uncontroversial in terms of community acceptability. However, issues around the practicalities and costs to home owners and the local council / housing associations were raised.

With regards to new housing development, district heating infrastructure was also looked upon favourably, and again was seen to have minimal landscape impacts. However, questions were raised as to how the Neighbourhood Plan policy may encourage the uptake of such technologies.

Although not considered further as part of the energy plan, there was also discussion about the use of waste incinerators as a form of meeting heat demand. This type of technology was generally seen to be more controversial than other types of localised energy generation, due to concern about pollution and more generally how such technology is perceived.

## 6. Community Energy Plan

After discussions had come to a close, participants were introduced to the CESAR software – a tool designed to help community participants plan how some or all of the local areas energy needs could be provided using energy generation and energy saving developments around four key areas: renewable heat, renewable electricity, renewable heat and electricity and energy saving. This was then used to devise a hypothetical community energy plan.

The key infrastructure proposals adopted in the Community Energy Plan for Chippenham were:

### Renewable electricity

- Large-scale wind: 3 x 2.5MW installations, producing 16,500 MWh of renewable electricity a year, costing £7.5 million. Located on agricultural land to the south and south west of Chippenham.
- Small-scale hydro: 1 installation, producing 876 MWh of renewable electricity a year, costing £800,000. Potential to link up with EV charging spots in the public car park. To be sited at the old Chippenham Weir in the centre of the town.
- Domestic solar PV: 800 installations, producing 2560 MWh of renewable electricity a year, costing £4.8 million. These would be likely to be delivered on new homes through planning policy requirements on developers.
- Ground-mounted solar PV: 5 installations, producing 2375 MWh of renewable electricity, costing £3 million. Potential sites included unattractive agricultural land, There may also be useable large scale roof space such as industrial buildings and the Olympiad leisure centre.
- Anaerobic digestion (electricity): 1 installation, producing 720 MWh of renewable electricity a year, costing £630,000. Consideration needs to where such an installation would be sited.

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<sup>2</sup> One participant highlighted that although in community acceptability terms the site would be suitable, previous studies had shown that the site was not technically feasible for micro hydro. However, given recent advances in technology there was interest in investigating this site further.

## Renewable heat

- Solar thermal domestic: 200 installations, producing 500 MWh of renewable heat, costing £700,000.
- ASHP: 1000 installations, producing 12000 MWh of renewable heat, costing £8,400,000.

Biomass heating (domestic/district heating) was ruled out due to concerns about long-term feasibility and sustainability: lack of local resources for this.

## Energy Saving Measures

- Old houses/high cost<sup>3</sup>: 5000 installations, saving 23500 MWh of energy, costing £16.25 million.
- New houses/high cost<sup>4</sup>: 3333 installations, saving 14333 MWh of energy, costing £10.83 million.
- Old houses/low cost<sup>5</sup>: 10000 installations, saving 8556 MWh of energy, costing £1.5 million.
- New houses/low cost<sup>6</sup>: 6667 installations, saving 3926 MWh of energy, costing £1 million.

Old houses/very high cost were ruled out due to the small proportion of these compared to the whole housing stock in Chippenham.

Retrofitting existing buildings was considered an attractive option as it has many co-benefits such as lowering resident's energy bills and making their homes more comfortable. In general, there was widespread agreement that behaviour change initiatives could be beneficial and important, and should be linked with other energy saving measures, although behaviour change initiatives are difficult to link to planning policy.

## Overall

In sum, the proposed changes would:

- Provide 24% of Chippenham's annual electricity demand (19093 MWh of 79057 MWh)<sup>7</sup>
- Provide 7% of Chippenham's annual heat demand (16438 MWh of 230951 MWh)
- Cost roughly £55,413,333

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<sup>3</sup> Installing a condensing boiler and loft insulation

<sup>4</sup> Installing a new condensing boiler and either cavity wall insulation or loft insulation.

<sup>5</sup> Installing draught proofing and a lighting upgrade.

<sup>6</sup> Installing draught proofing and a lighting upgrade.

<sup>7</sup> the model assumes that a proportion of electricity generated is used for heating, as based on national averages

## Summary of Workshop 2

The second workshop, which took place in Chippenham on 24th February 2020, offered participants the opportunity to share how the outline community energy plan produced in the first workshop was received in the wider community and to discuss how the plan could be translated into policy.

### Community feedback on renewable energy infrastructure options

- Although the existing solar farms around Chippenham were not viewed negatively, feedback since the first workshop indicated that some residents preferred the concept of wind turbines over the prospect of more solar farms. This owed largely to concerns about farms taking up swathes of productive agricultural land and access issues.
- Nonetheless, turbines were not unanimously supported. Many local residents were less keen on turbines located in proximity to their homes. Also, there was some scepticism amongst participants regarding the feasibility of wind generation around Chippenham.
- The majority of work shop attendees reported that the prospect of a micro-hydro development on the old weir site was well received in the wider community. There was satisfaction that this was a historic use of the river and that this would tie together with the aim of celebrating the riverfront that featured in the discussion during the first workshop.
- Insulation and other retrofitting measures were broadly popular amongst people consulted.

### Energy and neighbourhood planning policy – next steps

After this feedback was shared, the final session of the workshop looked forward to consider how the community energy plan for Chippenham might be translated into neighbourhood planning policy, following further engagement with the community, and the potential next steps on from this.

This included planning policy to support:

- Onshore wind and solar development
- community owned renewable energy projects
- renewable and low carbon heat in new developments
- Energy Efficiency Retrofits to existing housing stock
- Community Infrastructure Levy funding of climate change objectives

The slides from this presentation can be found within appendix A. The slide deck details a range of policy options which have been successfully implemented by other neighbourhood planning groups and that may present options for Chippenham Neighbourhood Plan Steering Group to pursue further. The following section discusses some points which came up during the discussion in further detail.

## The Feasibility of Wind Power

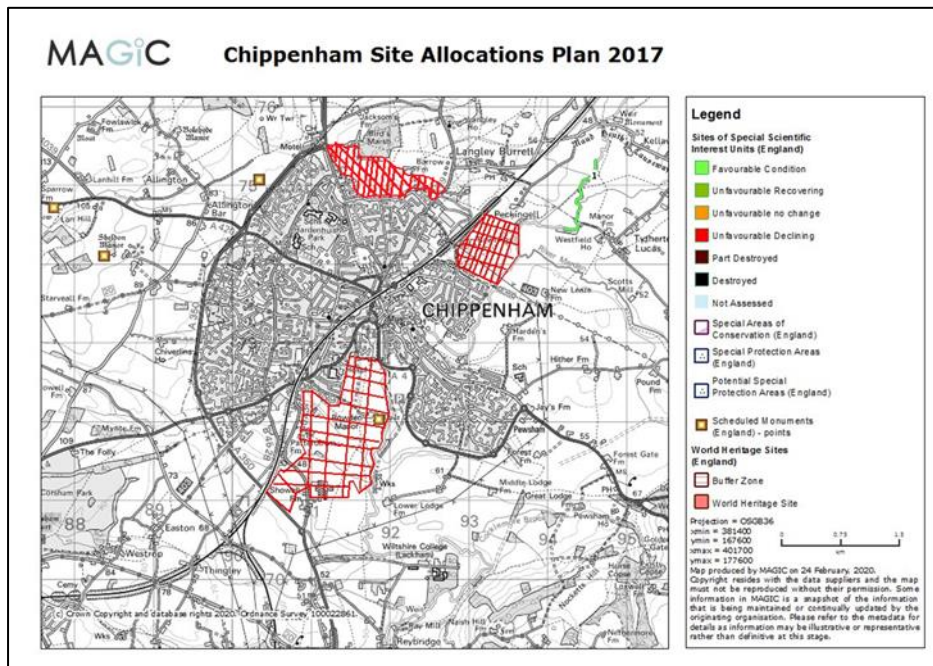


Figure 1: Environmental and historic environment designations

Figure one shows planned housing site allocations<sup>8</sup> (red hatched areas) from the 2017 Chippenham Site Allocations Plan overlain with key environmental and historic environment designations in the wider chippenham area. During the workshop, arable land south and south west of Chippenham appeared to be broadly favoured by workshop participants as a theoretical site for wind power generation. There is a Scheduled Monument listed within the site allocation boundary in this area, and also new homes planned. The impact of any energy infrastructure on new homes, and the existing Scheduled Monument will need to be carefully considered.

There appears to be no other significant constraints. Some of this broad area to the south west does lie outside of the Chippenham Neighbourhood Plan boundary which may present additional challenges with regards to setting supportive planning policy, and would require collaborative working with adjacent neighbourhood plan groups and the district council.

### Database modelling

NOABL, the UK National Wind Speed Database is an air flow model that estimates the effect of topography on wind speed. Each value stored in the database is the estimated average for a 1 km square at 10 m, 25 m or 45 m above ground level. The application of NOABL has been designed for exposed locations, and may give an indication of average wind speed in different parts of the country.

Typically for a wind turbine to be viable, windspeeds of above 5-6 m/s at 45 m above ground level are required. As can be seen in the diagram above NOABL modelling indicates that wind speed over Chippenham is around 5.8 – 6.0 m/s at 45 m, therefore suggesting that wind power development may be technically feasible.

<sup>8</sup> <http://www.wiltshire.gov.uk/csap-adopt-adopted-may-2017..pdf>



Ultimately it will normally be necessary to erect an anemometer on a mast over the course of at least a year to measure actual wind speeds at a site prior to lodging a planning application for a wind farm. This may need temporary planning permission in itself.

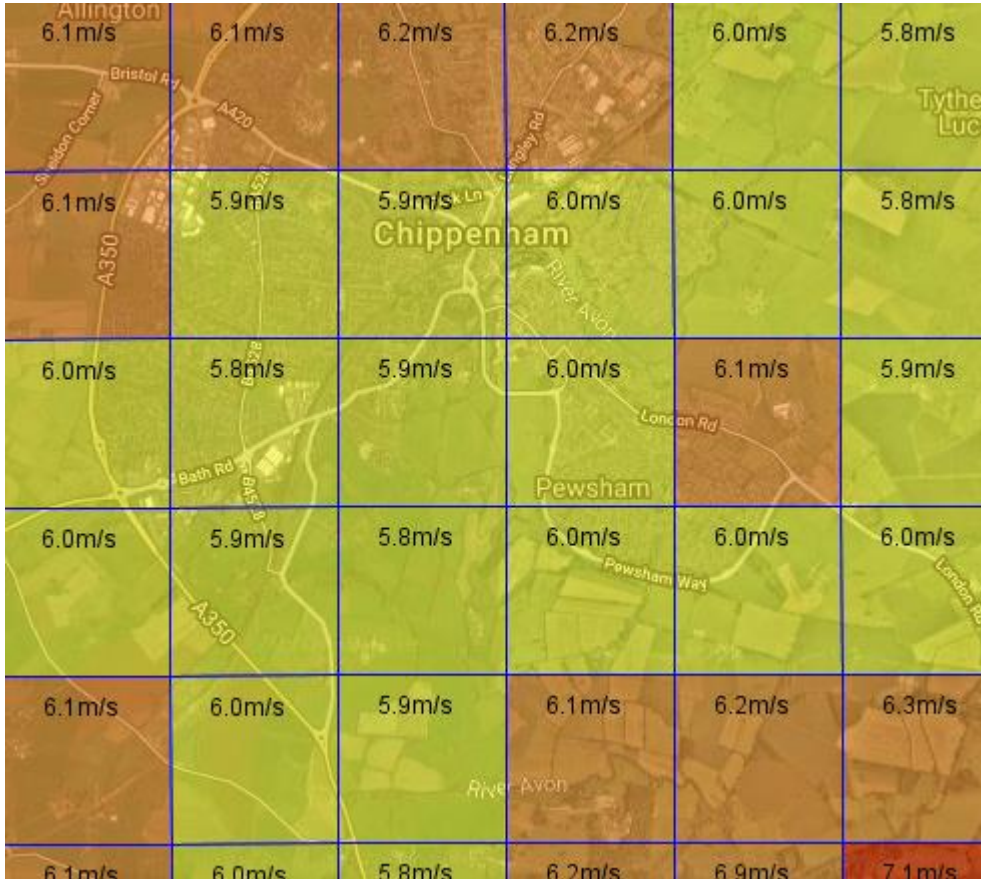


Figure 2 NOBL modelled windspeed at 45m above ground level

This accurate wind speed modelling enables the energy output from the turbine to be calculated accurately. With the costs of developing, building and maintaining the turbine, renting the land and connecting to the national grid, the developer can assess whether the development would be viable.

Given the NOBL wind speed model demonstrates that a wind turbine may be technical feasible, if further community engagement demonstrates broad community support, it would potentially be worthwhile developing neighbourhood plan policy to facilitate onshore wind which is either community owned or led, or with significant community benefit as key component. For further information on identifying suitable areas for wind as part of the neighbourhood plan process, please see CSE's guidance note<sup>9</sup> and slides within Appendix A.

<sup>9</sup> <https://www.cse.org.uk/downloads/reports-and-publications/community-energy/planning/neighbourhood-planning-wind-guidance.pdf>

### The Feasibility of a Micro Hydro site

A weir site is present in chippenham town centre and is shown in figure 3. This formed a basis for discussion within the workshop as a potential site for a community owned or led small scale hydro project. Hydro systems are often the most complex type of energy generating infrastructure and need a wide range of expertise and resources to be successful with the necessary environmental permits. They are therefore a difficult proposition as a first community energy project. Community Energy England has a wide range of information and resources available<sup>10</sup> which make a good port of call as a first step to assessing feasibility. This should be carried out alongside further community engagement.

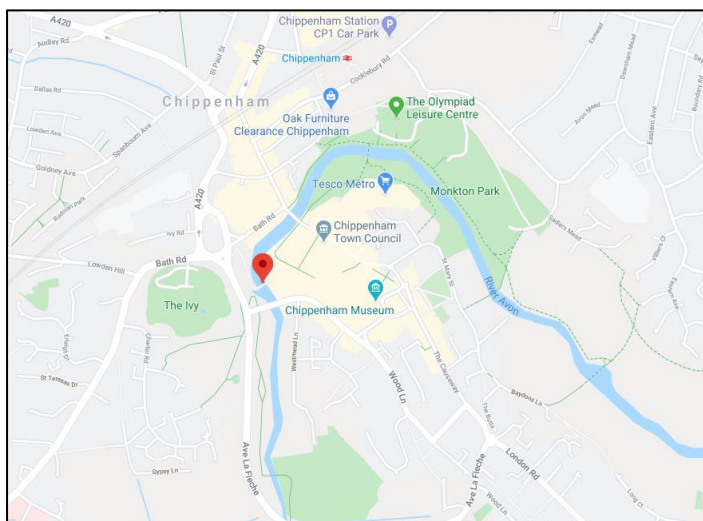


Figure 3: Site of Chippenham Weir

### Funding options for Community Owned Renewable Energy Projects

Once further consultation has been carried out, community support for renewable energy projects has been established and planning policies are in place. Another consideration to take in the viability of community energy projects will be financial viability.

#### Community Infrastructure Levy (CIL) to fund retrofitting measures

The Community Infrastructure Levy (the 'levy') is a charge which can be levied by local authorities on new development. Most new development which creates net additional floor space of 100 square metres or more, or creates a new dwelling, is potentially liable for the levy. Areas with an adopted neighbourhood plan are entitled to 25% of CIL funding generated from any development within the plan in the area.

Without a neighbourhood plan in place, the local authority can 'repatriate' a lot of CIL to more densely populated areas. With a neighbourhood plan, the community can retain contributions, and

<sup>10</sup> <https://hub.communityenergyengland.org/resources/hydropower/>



also ask for contributions from other district-wide pots if there is a strategic policy in place for how CIL should be best spent.

Given that tackling the heat demand of existing buildings is a significant challenge in decarbonising the UK economy, defining heat demand reduction projects such as retrofitting existing housing as a strategic CIL investment priority in the neighbourhood plan would be a beneficial strategic step to take.

### **Rural Community Energy Fund (RCEF)**

RCEF provides support to rural communities in 2 stages:

- stage 1: grants of up to £40,000 for a feasibility study for a renewable energy project
- stage 2: grants of up to £100,000 for business development and planning of feasible schemes

The Rural Community Energy Fund<sup>11</sup> is available to rural communities in England that represent a rural community of fewer than 10,000 residents; or more than 10,000 residents but within a local authority area which is classified by the Office of National Statistics as 'predominantly rural'. In this case, it appears that as Wiltshire is classified as 80% rural, chippenham would qualify for support through RCEF<sup>12</sup>.

### **Renewable Heat Incentive (RHI)**

The RHI can apply to both Domestic<sup>13</sup> and Non-domestic<sup>14</sup> properties and is provides financial support to install the use of renewable heat.

Applicants can claim for:

- biomass boilers
- solar water heating
- certain heat pumps

Payments are made for seven years and are based on the amount of renewable heat made by the installed heating system.

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<sup>11</sup> <https://www.gov.uk/guidance/rural-community-energy-fund>

<sup>12</sup> <https://www.gov.uk/government/statistics/local-authority-rural-urban-classification>

<sup>13</sup> <https://www.gov.uk/domestic-renewable-heat-incentive>

<sup>14</sup> <https://www.gov.uk/non-domestic-renewable-heat-incentive>

## Conclusions

This document has detailed the process and findings of Future Energy Landscape energy planning exercise which was carried out with residents of Chippenham. It has also highlighted some key points on feasibility and planning which will require consideration during further community consultation.

These outputs form the basis for further consultation processes and which in turn inform the development of neighbourhood plan policy and any associated activities around energy such as community owned renewable energy projects and retrofitting schemes.