Loders Community Energy Workshop

September 2024

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1	NB	17/9/24	DT/GW	19/9/24		
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3	NB	02/10/24	NB	04/10/24	NB	07/10/24

Contents

1: Executive Summary

Loders Community Energy Group hosted a Community Energy workshop on 11th September 2024, which was facilitated by the Centre for Sustainable Energy and commissioned by Dorset Climate Action Network. This used the Future Energy Landscapes methodology.

The workshop was the start of a conversation about renewable energy in the Loders Parish area and was exploratory and hypothetical in nature at this stage. Workshop participants were given an understanding of why carbon reduction was important an overview of the various technologies that might be possible. Participants were empowered to consider what makes their area special and make their own choices about what might be acceptable in terms of renewable energy development, and why.

From the menu of options, participants supported these technologies:

- 1 wind turbine (1MW) and/or 1 solar farm (2.5MW) – with options for developing both, or for just having 1 wind turbine or 1 solar farm (with pros such as increased energy security, reduced energy bills and community benefits to be weighed up against cons such as landscape impact).
- An expectation that rooftop solar panels, heat pumps, and electric vehicle ownership will increase in the Parish over the next 5-10 years.

If both the wind turbine and solar farm were built, the Parish would be generating power at night and in the windier winter period when heat demand is greater and also in effect become a net exporter of renewable energy. If all the chosen technologies were all built in their entirety, the annual carbon emissions of the Parish associated with electricity, heat and vehicles would reduce from 2,534 tonnes of CO2 equivalent to 1,744 tonnes of CO2 equivalent, with the remainder of the carbon emissions mainly being associated with burning fossil fuels locally for heating.

A long list of potential locations for the wind turbines and solar farms was created, which can be used as the starting point for future considerations.

The workshop cannot be assumed to be representative of the full range of opinion in the local community. We recommend that efforts are made to publish the workshop outputs and a survey taken of wider community viewpoints, which can be used to verify the results.

The workshop utilised tools, such as CESAR[1], incorporating many assumptions. These provide useful contextual information for participants to be able to make informed decisions, but do not replace the need to undertake more detailed feasibility work or local evidence production.

[1] CSE Community Energy Saving and Renewables Tool

Hopefully they stimulate further discussion and act as a basis to continue conversations about renewable energy developments in the Parish.

A second workshop will be held on 9th October 2024 to discuss more about the location and extent of potential renewable energy projects in the Parish, with particular focus on supplying locally generated energy for EV charging and poorer households. This will build on the results of this initial workshop, and to involve more people in the aims and objectives of Loders Community Energy Group.

2: Introduction and background

On Wednesday 11th September 2024, Loders Community Energy Group[2] hosted a Community Energy workshop for local people in the Parish of Loders and surrounding areas. The workshop was led by the Centre for Sustainable Energy[3] (CSE), an independent national charity that supports people and organisations from across the UK to tackle the climate emergency and end the suffering caused by cold homes. 22 people attended.

The workshop was commissioned by Dorset Climate Action Network[4] (DCAN), an environmental and climate change charity and networking organisation, who have been operating in Dorset for the last 4 years. DCAN have some 950 members, supporting around 80 different organisations, working together for a shared vision of a clean, green, sustainable Dorset.

The workshop was supported financially by the Communities and Culture fund which is administered by Dorset Council and a representative from Dorset Council (Keziah Rookes) was present as an observer.

The workshop was commissioned to support Loders Community Energy Group in their aim to create a more sustainable and energy-efficient community. Originally established by the Parish Council, the group has recently transitioned into the hands of passionate residents, with continued support from various local organisations. Loders Community Energy Group has ambitious aims to develop a Community Energy Project (CEP) to serve the priorities of local people, which will help the Parish:

- reduce its carbon footprint and other forms of air pollution;
- generate renewable energy to reduce bills and increase energy security and reliability;
- help people to replace oil boilers with low carbon alternatives; and
- help people to move to electric powered vehicles.

The CEP aspires to generate enough low-carbon renewable energy to cover the community's total future energy needs, to provide heat and power to homes and support sufficient off-road EV charging points that are subsidised for local people. It will also promote better home insulation and replacing oil boilers with low carbon alternatives.

The aim of the workshop was to explore the potential for community energy generation in the Parish of Loders (an area of around 300 homes) and discuss the type, size and rough location of renewable technologies that might be acceptable to local people. It was an exploratory and

[2] https://www.lodersenergy.co.uk/
[3] https://www.cse.org.uk/
[4] https://www.dorsetcan.org/

hypothetical workshop, intended to be the start of a conversation, which will be further explored in future workshops.

This report summarises what was said in the workshop but cannot be assumed to be representative of the full range of opinion in the local community. The workshop should therefore be seen as the start rather the end of the conversation.

Background: climate change and high energy bills

The way we produce and use energy is one of the main causes of climate change. Historically, our energy system has been based on burning fossil fuels such as coal or gas to produce electricity and heat. This process creates emissions, such as carbon dioxide, that trap the sun's heat leading to climate change. **The UK has a legally binding target of reaching net zero emissions by 2050, with the aim of reducing carbon from electricity production to zero by 2035**[5].

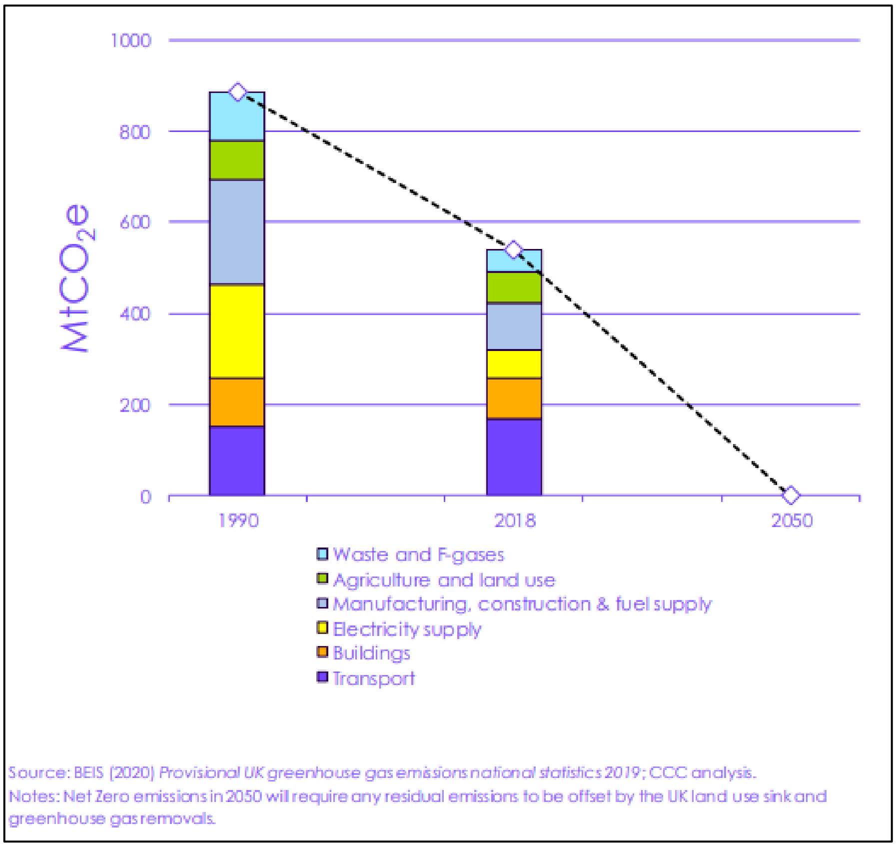

Figure 1: For the UK to meet Net Zero by 2050, carbon emissions must fall in all sectors and at a faster rate than the last thirty years. Carbon emissions generated by electricity supply are shown in yellow. Source: [Climate Change Committee]

[5] The new Government has an even more ambitious manifesto pledge of achieving 'clean energy by 2030': https://labour.org.uk/wp-content/uploads/2024/03/Make-Britain-a-Clean-Energy-Superpower.pdf

Figure 1 shows that emissions from electricity production have fallen by 74% since 1990 – and 65% in the last decade[6]. This has occurred as coal-fired power stations have closed, electricity demand has fallen, and renewable generation capacity has increased.

Emissions from buildings and transport have changed little over that period.

Reaching that 2050 net zero target means we need a lot more energy from renewable sources like wind and solar, given that the Climate Change Committee forecast that energy consumption is set to increase significantly to accommodate the increased consumption for transport and heating. Nationally, we will therefore need to quadruple the amount of renewables that have already been built (Figure 2).

At the same time, energy costs are soaring, in part due to our dependence on fossil fuels, and many people in the UK can't afford to heat their homes, impacting their health and wellbeing.

Figure 2: Electricity generation sources to reach net zero (2020-2050). Source: Climate Change Committee

and Figure 4 show the price of energy bills since 2019, and how events outside the average household's control can impact them, with the national average energy bill in October 2024 estimated to be £1,714 (they will likely be higher in Loder due to the predominance of oil heating systems). The benefits of moving to more renewable energy should include lower energy costs for residents and the increased electrical capacity enabling more residents to convert to heat pumps and EV-based transport. Community-led renewable energy projects can tackle both climate change and fuel bills, in a way that benefits the areas where they're developed.

[6] https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf - page 62

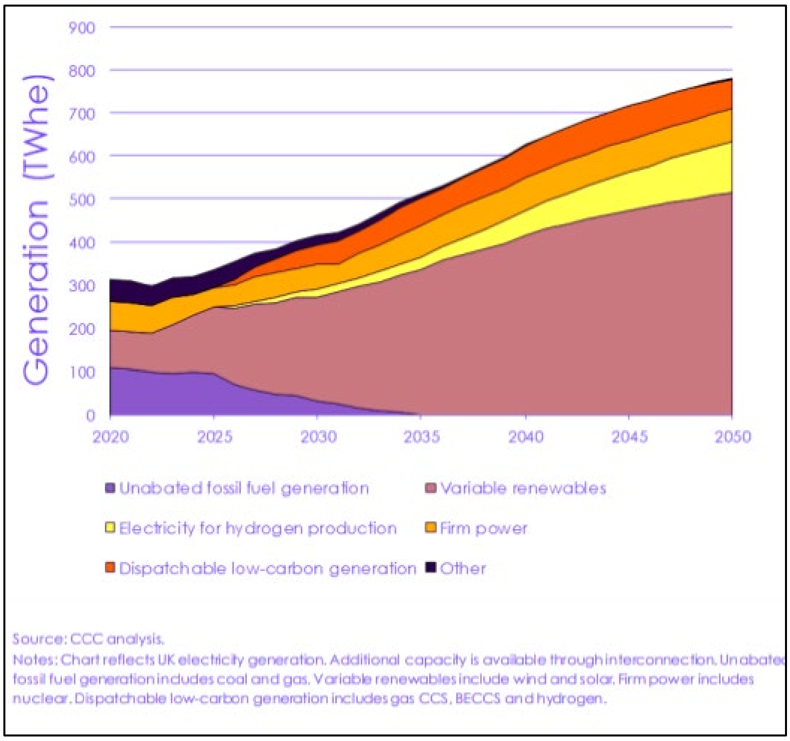

Figure 2: Electricity generation sources to reach net zero (2020-2050). Source: [Climate Change Committee]

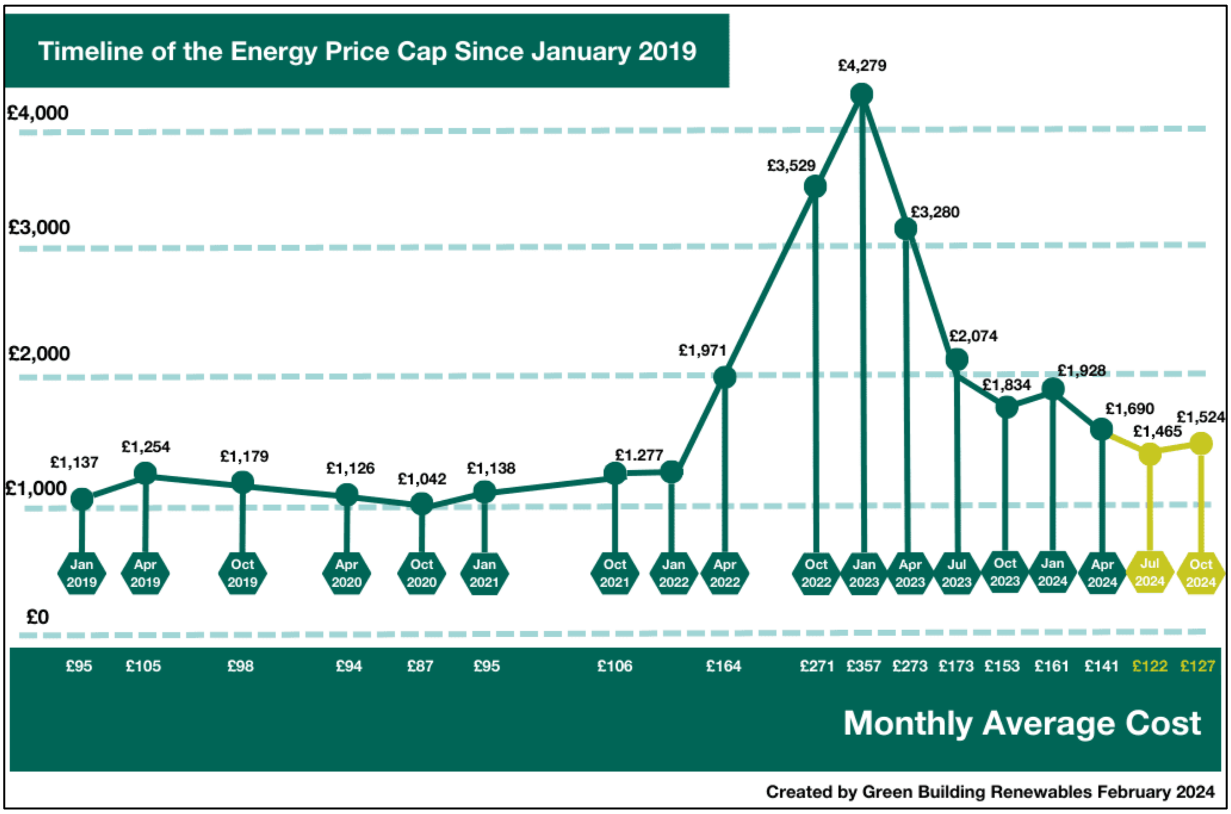

Figure 3: Energy Price Cap and monthly average cost for dual fuel households. Source: Green Building Renewables

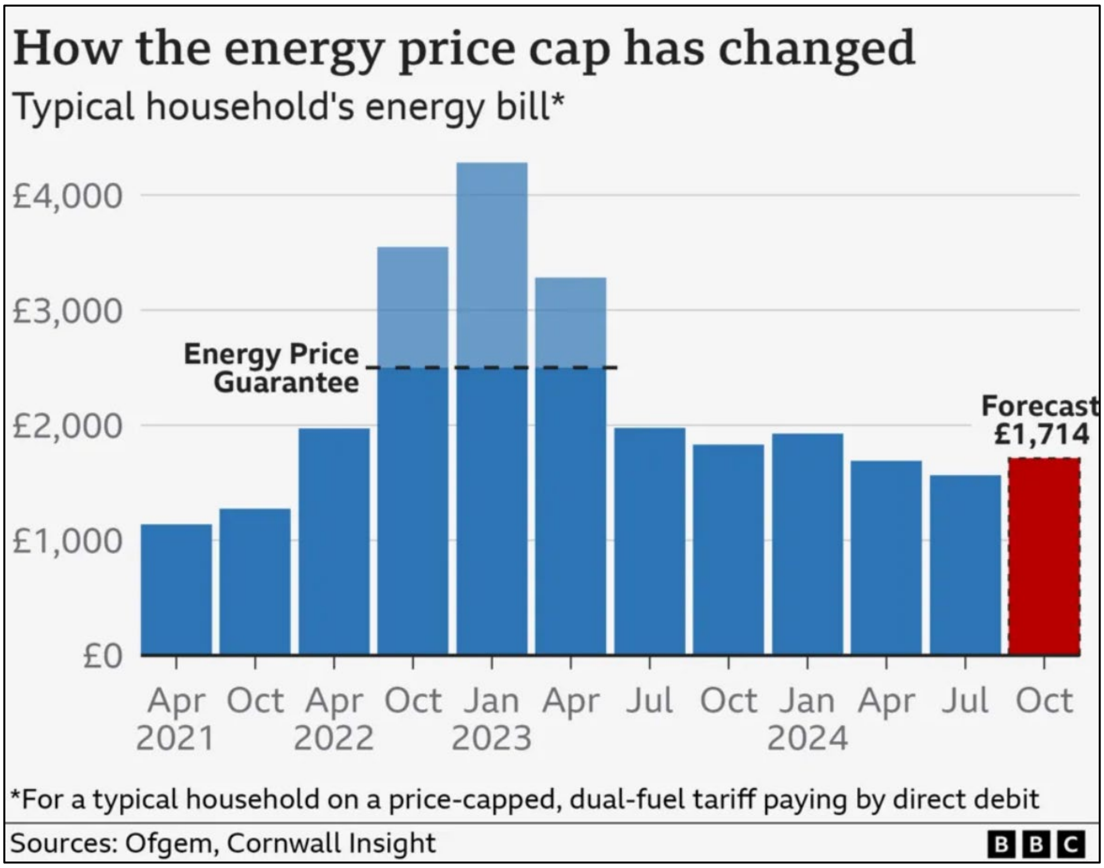

Figure 4: Typical household's energy bill 2021-24. Source: BBC

Workshop Context

Overall public support for renewable energy is high. Figure 5 shows support for different types of renewables at a national level. At least three quarters of people were supportive of solar energy (88%) and on-shore wind (78%).

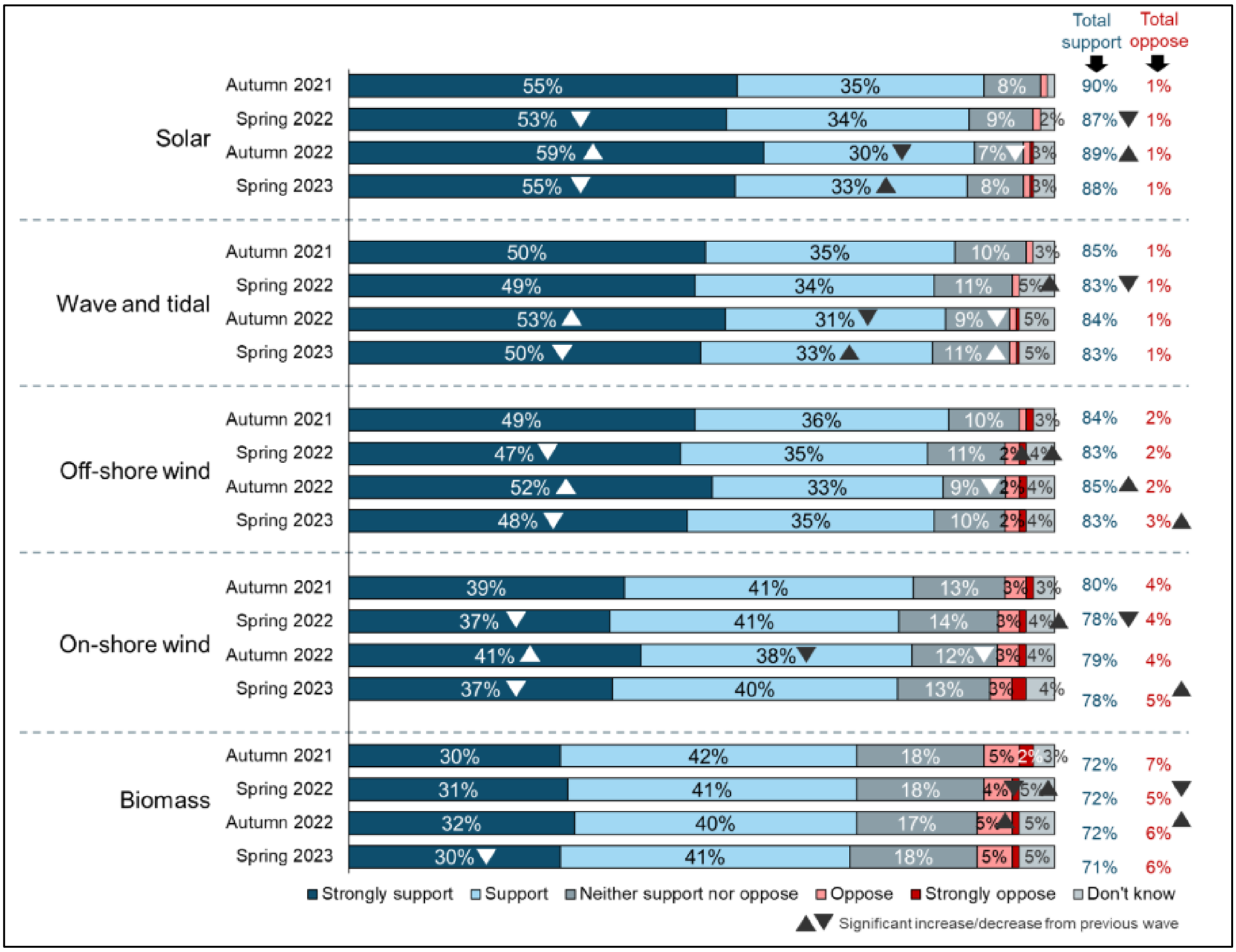

Figure 5: Percentage of people supporting the use of specific renewable energy developments. Source: DESNZ

However, support often reduces when a renewable energy development is proposed nearby.

Figure 6 shows that only 54% of people would be happy about a solar farm being built in their local area, while 43% would be happy for an onshore wind farm to be built in their local area. Just over a quarter said they did not mind either way about each of these (28% for both wind farms and solar farms).

The reasons for this reduction in support are varied, but people expect that they can meaningfully influence how, and what, renewable energy projects will happen in their area. Objections will happen if these expectations are not met.

More meaningful public engagement is vital if we are to roll out renewable energy at scale, with an emphasis on collaborative working rather than consultation (Figure 7). Communities also prefer if there is at least some local ownership of the scheme leading to some control and material local benefits.

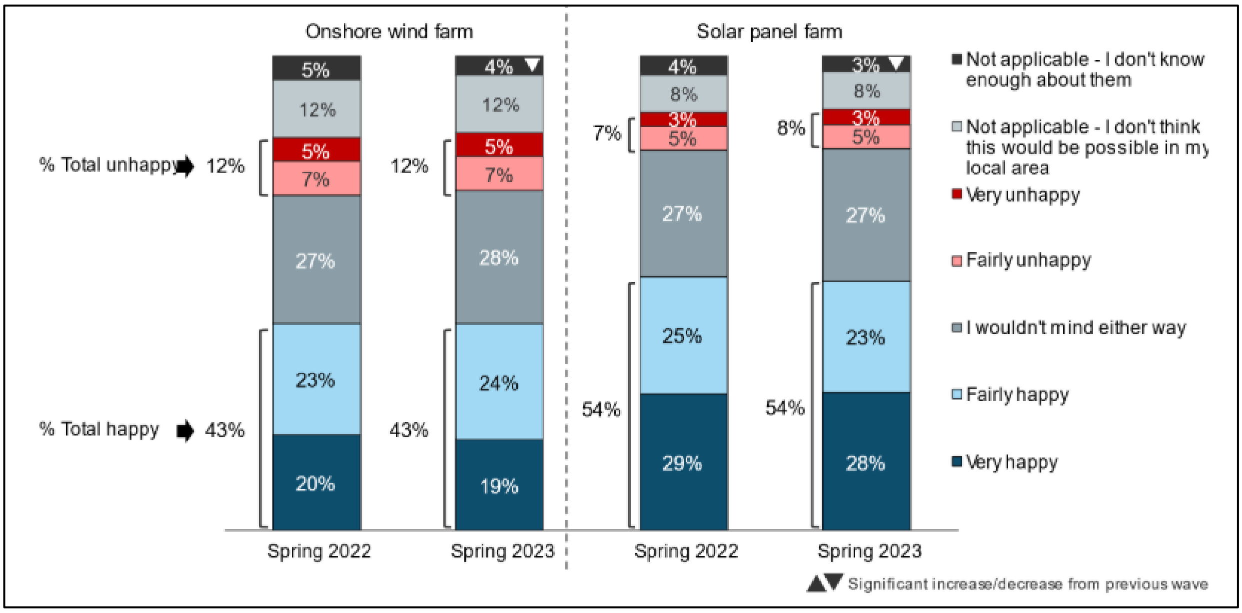

Figure 6: Percentage of people that would be happy for an onshore wind farm and solar panel farm to be constructed in their local area. Source: DESNZ

<< Less participation -------------------- More participation >> (centre for sustainable energy)

	NO PARTICIPATION	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
Sample Activities	Observation, diary studies	Public exhibitions, newsletters, websites	Public meetings, surveys, focus groups, online forums, social media	Workshops, liaison / steering groups	Charrettes, co-design, neighbourhood planning	?
Participation goal	None	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions	To obtain public feedback or analysis, alternatives and / or decisions	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered	To partner with the public in each aspect of the decision, including the development of alternatives and the identification of the preferred solution	To place final decision making in the hands of the public
Promise to the public	None	You will be kept informed	You will be kept informed. Your concerns and aspirations will be listened to and acknowledged. There will be feedback on how public input influenced the decision	You will be kept informed. Your concerns and aspirations will be directly reflected in the alternatives developed. There will be feedback on how public input influenced the decision	You will provide advice and innovation in formulating solutions. Your advice and recommendations will be incorporated into decisions to the maximum extent possible	Your decisions will be implemented

Figure 7: The Spectrum of Participation (adapted from the International Association of Public Participation). Traditional engagement methods tend to involve information sharing, or consultation exercises. More meaningful and participative public engagement is vital if we are to roll out renewable energy at scale, with more emphasis on involvement, collaborative working, empowerment, and tangible benefits.

Future Energy Landscapes

Future Energy Landscapes is a pioneering approach to community engagement on local renewable energy projects. Originally created by CSE in partnership with CPRE it aims to create space for local people to discuss renewables in their area. This means the community can talk about local needs, potential benefits from renewables and explore any concerns in a meaningful way. In the workshop, communities are invited to choose the type, location, and size of different renewable energy based on what is technically possible and where they think local areas should be protected. Workshops are exploratory and hypothetical, aiming to be the start of a conversation. The FEL approach was used for this workshop, aiming to be the start of a conversation that would inform the Loders Community Energy Project.

Community Energy

Community energy is about people and communities taking democratic control over their energy future, by understanding, generating, using, owning and saving energy in their communities, as well as working together across regions and nationally[7].

Community Energy Groups are community-led (whether wholly owned and/or controlled by communities or through a partnership with commercial or public sector partners) and can provide local generation of renewable energy to provide heat and/or power, energy efficiency improvements of buildings, low carbon community transport and electric vehicle (EV) charging.

In 2023, community energy projects nationally provided 398MW of renewable electricity capacity, saving 166MtCO2[8] and £4.4m in energy bills, whilst contributing £12.9m to local economies from organisational expenditure and community benefit funds[9].

Benefits of community energy include access to cheap green energy, reduction in pollution and carbon emissions, putting local communities at the heart of the energy system, building new skills and relationships, and investing the profits in local communities.

The Government is supportive of community energy[10] and has an ambition to see the delivery of 8GW of small and medium-scale renewable energy projects through partnering with and providing funding and support to Local and Combined Authorities and Community Energy Groups. Each year, GB Energy will make available up to £600m in funding for local authorities and up to £400m low interest loans for communities. This will support a more decentralised and resilient energy system, with more local generation and ownership. The Government has also committed to providing community energy groups with commercial, technical and project-planning assistance, increasing their capability and capacity to build a pipeline of successful projects in their local areas. This is set against the overall targets[11] now set by the

[7] https://communityenergyengland.org/how-to-pages/definition-benefits-and-potential-of-community-energy
[8] Equivalent emissions to 209,570 passenger round trips from London to New York.
[9] https://communityenergyengland.org/pages/state-of-the-sector
[10] https://assets.publishing.service.gov.uk/media/66a235daab418ab055592d27/great-british-energy-founding-statement.pdf
[11] https://labour.org.uk/wp-content/uploads/2024/03/Make-Britain-a-Clean-Energy-Superpower.pdf

Government of more than tripling solar power to 50GW and more than doubling onshore wind capacity to 35GW by 2030.

[Community Energy England](https://communityenergyengland.org) was founded in 2014 by practitioners within the community energy sector to act as the voice of the sector and help put people at the heart of energy transformation. They represent over 300 community energy and associated organisations involved in the delivery of community-based projects and services, and provide opportunities for community energy practitioners to connect, learn, share business models and help each other overcome obstacles. Loders Community Energy have recently joined this group.

Community Energy England hosts a national map[12] of community energy organisations and projects (Figure 8) which illustrates the sheer scale and diversity of community energy projects being delivered across the country. Whilst delivering community energy projects could be seen as a daunting prospect for new community energy groups, there is an ever-growing community of practice out there that can provide support and encouragement – you are not alone! There are a number of community energy projects within South and West Dorset (Figure 9) which can provide inspiration for the Loders Community Energy Project, including wind and solar schemes.

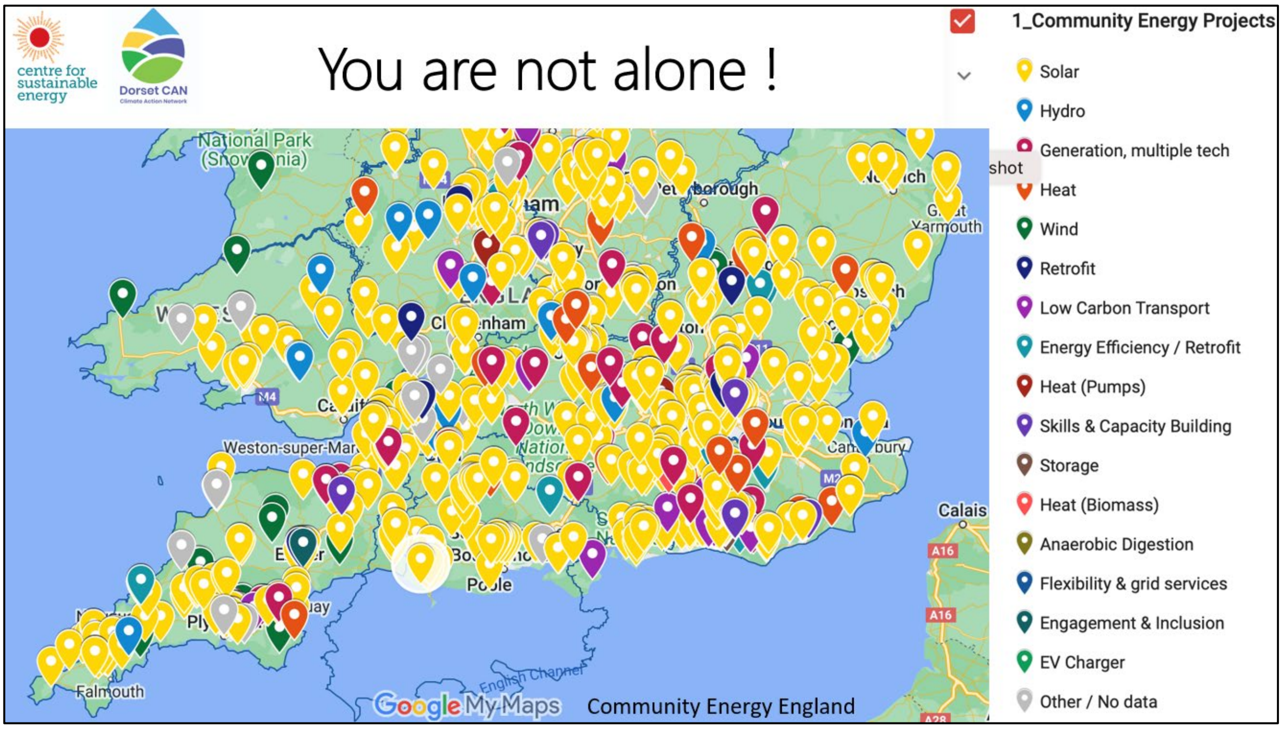

Figure 8: National Community Energy Map. Source: Community Energy England

[12] https://communityenergyengland.org/pages/nationalmap

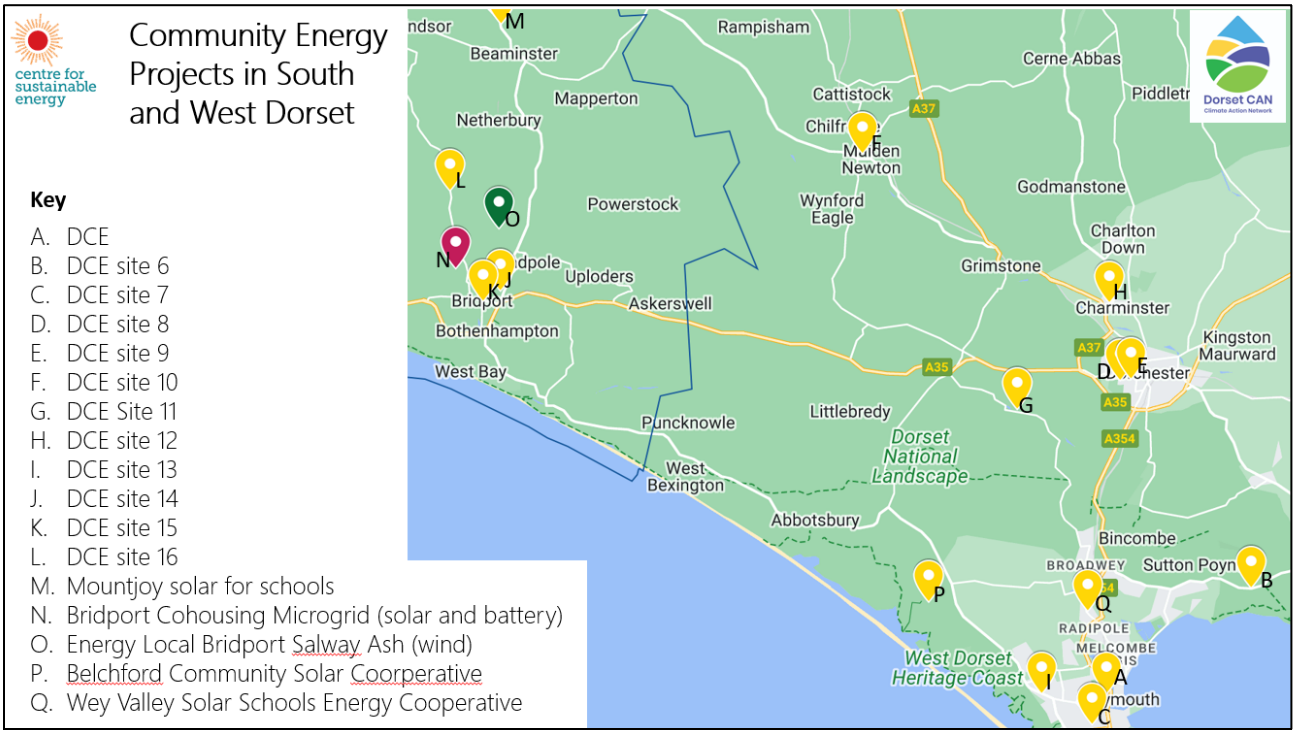

Figure 9: Community Energy projects in South and West Dorset

3: What is the local area like?

Workshop participants interacted with a large hand drawn map of the Parish of Loders (Figure 10) by adding coloured sticky notes for different prompts (Figure 11). CSE then facilitated a discussion to develop a greater understanding of the landscape and places that were important to local people. The main points which were raised are summarised in Table 1.

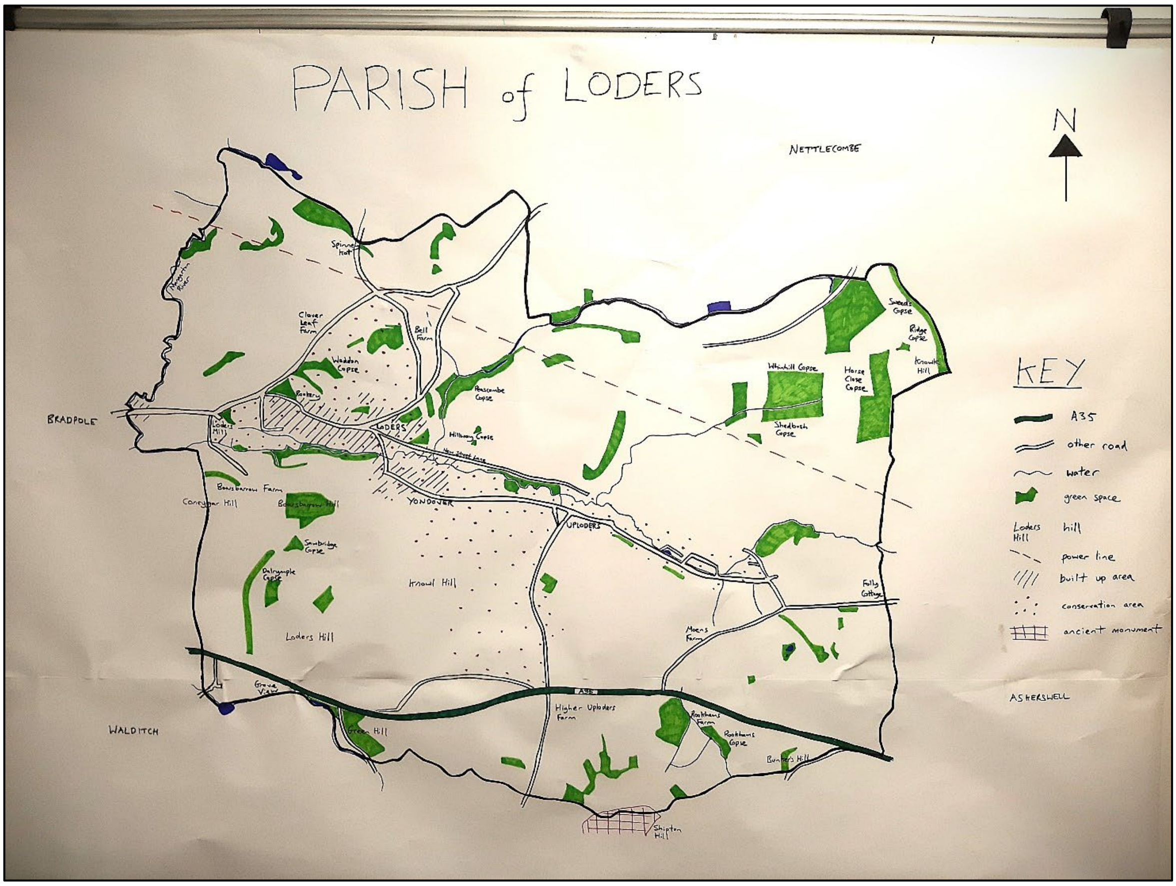

Figure 10: The large scale FEL map of the study area, covering the Parish of Loders

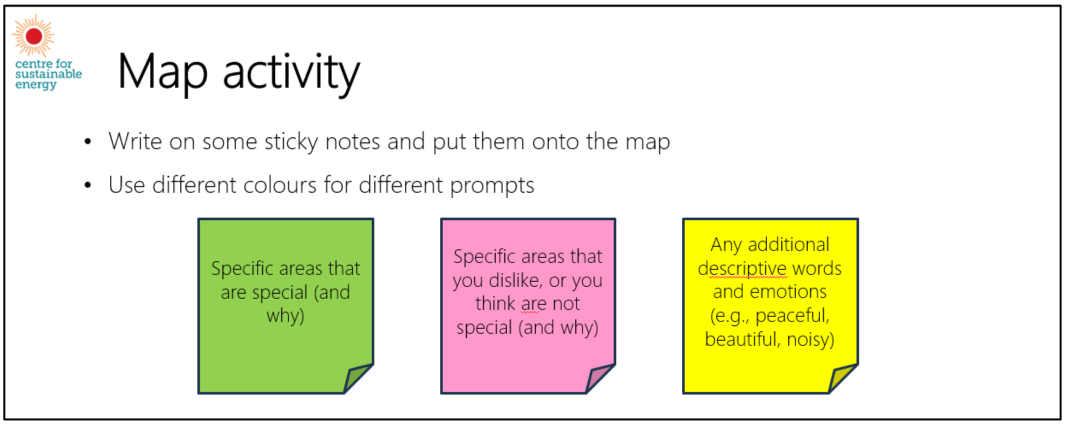

Figure 11: Instructions issued on engaging with the FEL map

Table 1: Summery of comments following FEL map activity

Colour	Main points raised
Green: specific areas that are special	• The iconic landscape of Loders, within the Dorset National Landscape (formally known as the AONB) and an Area of Special Landscape Interest • The linear village main street and characterful stone buildings (x2) • Locks Hill (house in Uploders) • Waddon Hill (x5) • Boarsbarrow Hill (x6) • Bell Hill • Askers River and immediate environs (x2) • Peascombe Copse and nature reserve • Railway line natural corridor • Wellplot playing field (x2) • The view from Knowl Lane looking west towards Bridport and Pilsdon • The area between housing and the River Askers • The open spaces around the villages • The medieval strip lynchets on Knowl Hill (x3) • Crutchley Farm wooded hill • Historical lime kilns in the fields to the north east of Uploders • All gaps seen from roads in and out of Loders • Rolling hills • Footpaths • Rivers
Pink: specific areas that are disliked	• Bell Farm and its derelict buildings (x4) • The area behind the empty cottage next to O'Briens' (Bell Cottage) • Smishops Lane derelict building • Nearby road closed for years (creating an informal public footpath) • The A35 – noisy, ugly, fumes, traffic queues) • The high voltage power line • One or two old pylons near Mangerton • Area behind Collins Nets
Yellow /Orange: descriptive words and emotions	• The railway walk to Powerstock, allowing people to explore the area • The willow tree in the nature reserve • Tranquil • Rural • Peaceful • Nature and the natural landscape • Abundant unspoilt natural beauty • Unspoilt quiet walks • Beautiful views • Mostly undeveloped • Historical housing • Few pylons • Dark sky

Figure 12: The completed FEL map, with comments from the local community

The completed map (

Figure 12) and ensuing group discussion illustrates that the whole of the Parish is considered to be an iconic and special landscape, located as it is within the Dorset National Landscape and designated as an Area of Special Landscape Interest. This includes the linear settlement pattern of the villages of Loders, Yondover and Uploders (which are seen in the landscape as one area), their distinctive characteristics (including uniform use of local stone in the buildings), and their landscape surroundings of the rolling hillsides and valleys. A number of local hills were singled out as being of special importance, including Waddon Hill, Boarsbarrow Hill, Knowl Hill, and Bell Hill, contributing to important views and green open spaces surrounding the villages, as well as being intrinsically beautiful and areas that support nature and biodiversity. Some, such as Knowl Hill, were also noted for their historic importance with visible medieval strip lynchets, which form part of an extensive Conservation Area. Other areas that were singled out include the former railway line, now used as an important recreational route, the Askers River corridor and Wellplot playing field.

Spatially, as shown in

Figure 12, the majority of these locations are clustered around the villages, and to their south, south east, north and north west. There were notably less green sticky notes included around the eastern and southern parts of the Parish, or the north west corner.

In conversation it was clear that the comments were about the sides of the hills that are prominent from the houses and some roads where lateral views are open. Further workshops can explore whether the invisible / less visible flat tops or “far sides” are considered valuable.

There were few areas that were especially disliked, which suggests that residents feel lucky to live there. However, there was a notable cluster to the north of Loders around Bell Farm and its derelict buildings (farmed until 10 years ago; was proposed for a 5MW battery storage scheme a few years ago, but was never built), and a number of other nearby locations in the vicinity of Bell Farm that either have derelict buildings (such as at Smishops Lane) or are empty/not used (such as an area behind what is believed to be called Bell Cottage - the empty cottage next to O’Briens’).

Two significant pieces of infrastructure were identified as being disliked: the A35, a strategic road running across the southern part of the Parish which was variously described as being noisy and ugly, with associated traffic fumes and traffic queues; and the National Grid Chickerell-Axminster 400kV high voltage power line running East-West across the northern part of the Parish. Other discrete areas were identified, such as some old pylons near Mangerton, and the area behind Collins Nets in Uploders.

More general feedback, indicated by the orange sticky notes, reinforced why parts of the Parish were identified with the green sticky notes as being special: the Parish is perceived as being tranquil, peaceful and rural in nature, mostly undeveloped, set within nature and the natural landscape with abundant unspoilt natural beauty. Within this landscape there are unspoilt quiet walks, with beautiful views, and dark skies. There are few pylons (with the notable exception being the high voltage power line noted above).

Figure 13: Members of the local community interacting with the FEL map

Selected photos of the map comments are reproduced in Appendix 3.

4. What renewable energy was suggested?

The main activity in the workshop brought participants to the 'Sunshine Café' where a menu of renewable energy options was shared (Figure 15), based on what could be potentially achievable within the study area. In the absence of any available technical evidence from the Council on renewable energy potential[13] in the Loders area, high level constraints mapping[14] (Figure 14) was utilised to sieve out areas that would be unlikely to be suitable for hosting larger scale renewables such as wind turbines or solar farms. The constraints used to sieve out areas were limited to:

- Inadequate wind resource
- Heritage impact
- Proximity to residential areas
- Ecology/wildlife
- Aviation/MOD
- Unsafe distance from transportation routes, powerlines, etc.

The constraints mapping exercise revealed at least 16 broad areas that could have potential for renewable energy, by virtue of the fact that they were not 'sieved out' by the constraints listed above. The same 16 areas were used for both consideration of wind and solar in the exercise. It should be noted that no technical feasibility work was undertaken to ascertain the actual technical potential for these sites to generate renewable electricity from wind turbines or solar panels; rather this method was used to initiate a discussion on what people felt about the principle of hosting renewables in their Parish, utilising different broad locations that had not already been 'sieved out'[15].

To help participants make choices, the menu was translated into maps of the study area that were used during the workshop (Figure 16). This allowed participants to review the suggested 16

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[13] Dorset Council did commission a strategic study called the 'Dorset Low Carbon Energy Route Map and Evidence Base", which includes a renewable energy resource assessment, identifying areas with potential to support large-scale solar PV and onshore wind. However, the Dorset AONB, in which the Parish of Loders is located, is considered in this study as a 'Hard Constraint', and so no opportunities are identified (Dorset Low Carbon Opportunities Evidence Base.pdf (dorsetlep.co.uk)). The study recognises that in reality, a number of existing renewables sites are already in existence in the AONB. The planning system does not consider AONB designations as absolute constraints, and it is possible to gain planning consent in appropriate locations. A finer grain of analysis should be considered by the Council for areas such as Loders, which may reveal smaller scale opportunities that could be appropriate for community energy schemes.

[14] Obtained from https://wewantwind.org/

[15] This does not replace the need to undertake feasibility work on these locations in the future, if any are to be taken forward.

potential broad locations for renewables and refer back to the FEL map to see where areas they identified as being 'special' or 'disliked' intersected with the potential locations for renewables.

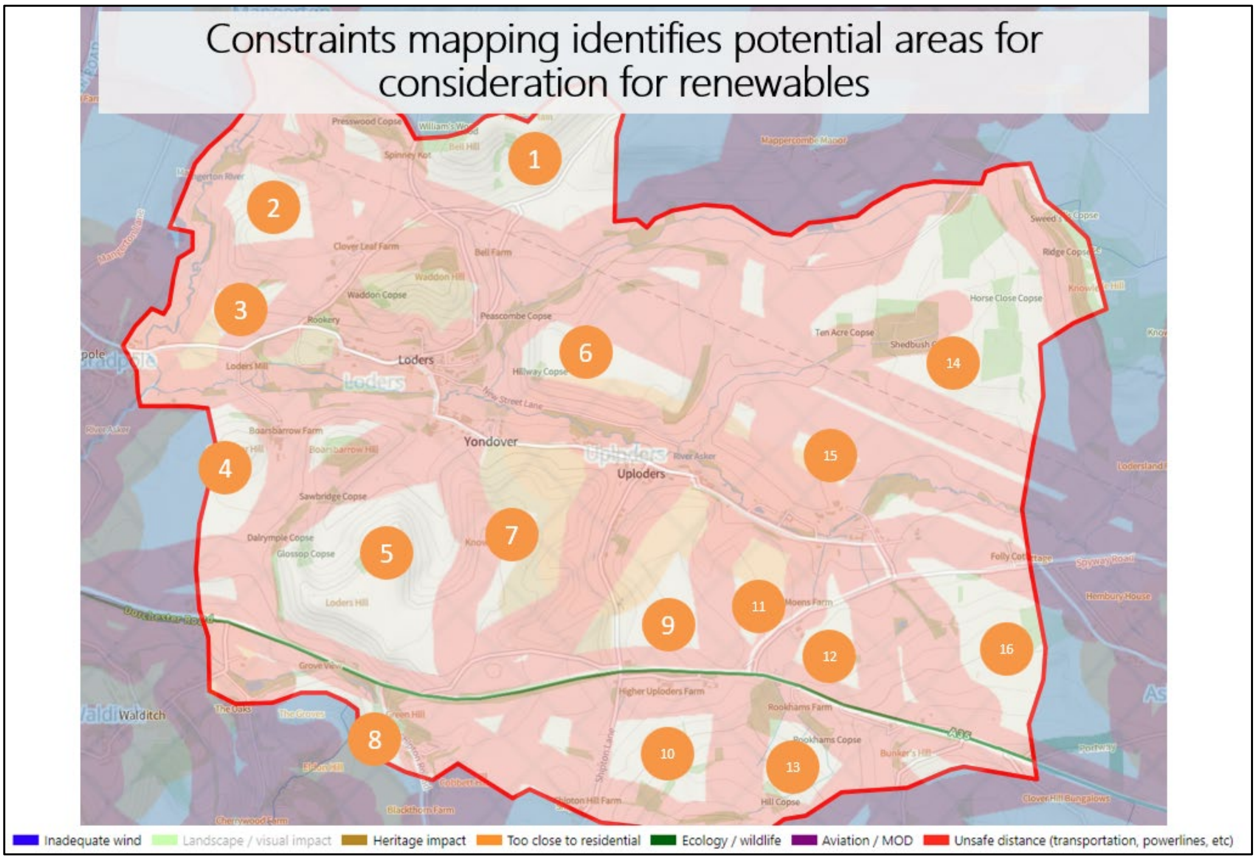


Figure 14: Constraints mapping identifies potential areas for consideration for renewables

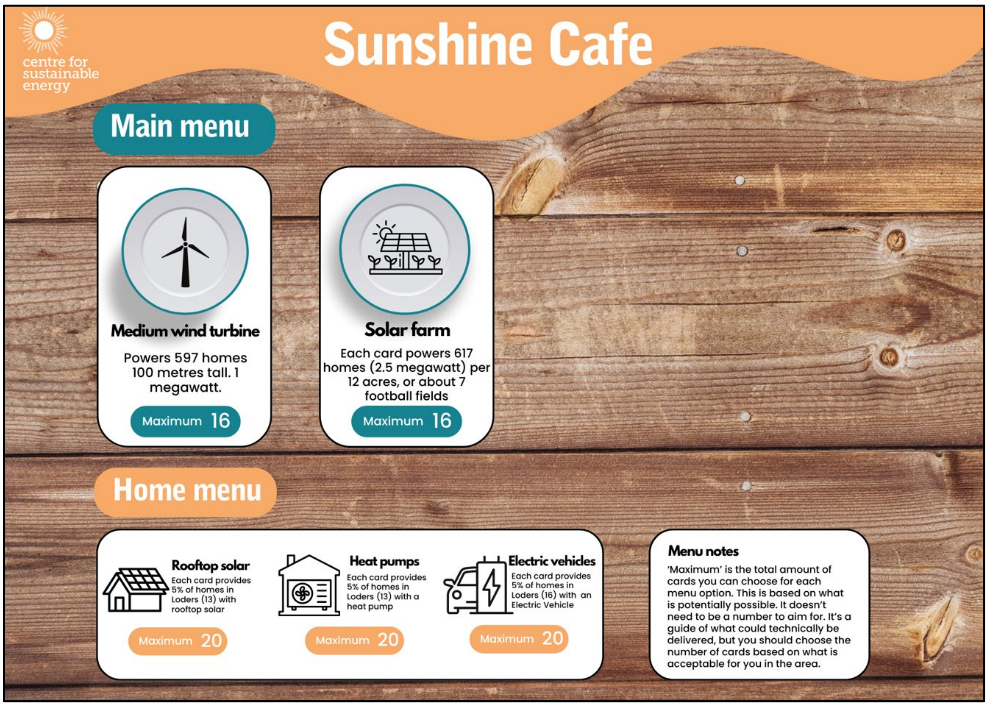


Figure 15: The renewable energy menu for Loders produced for the workshop

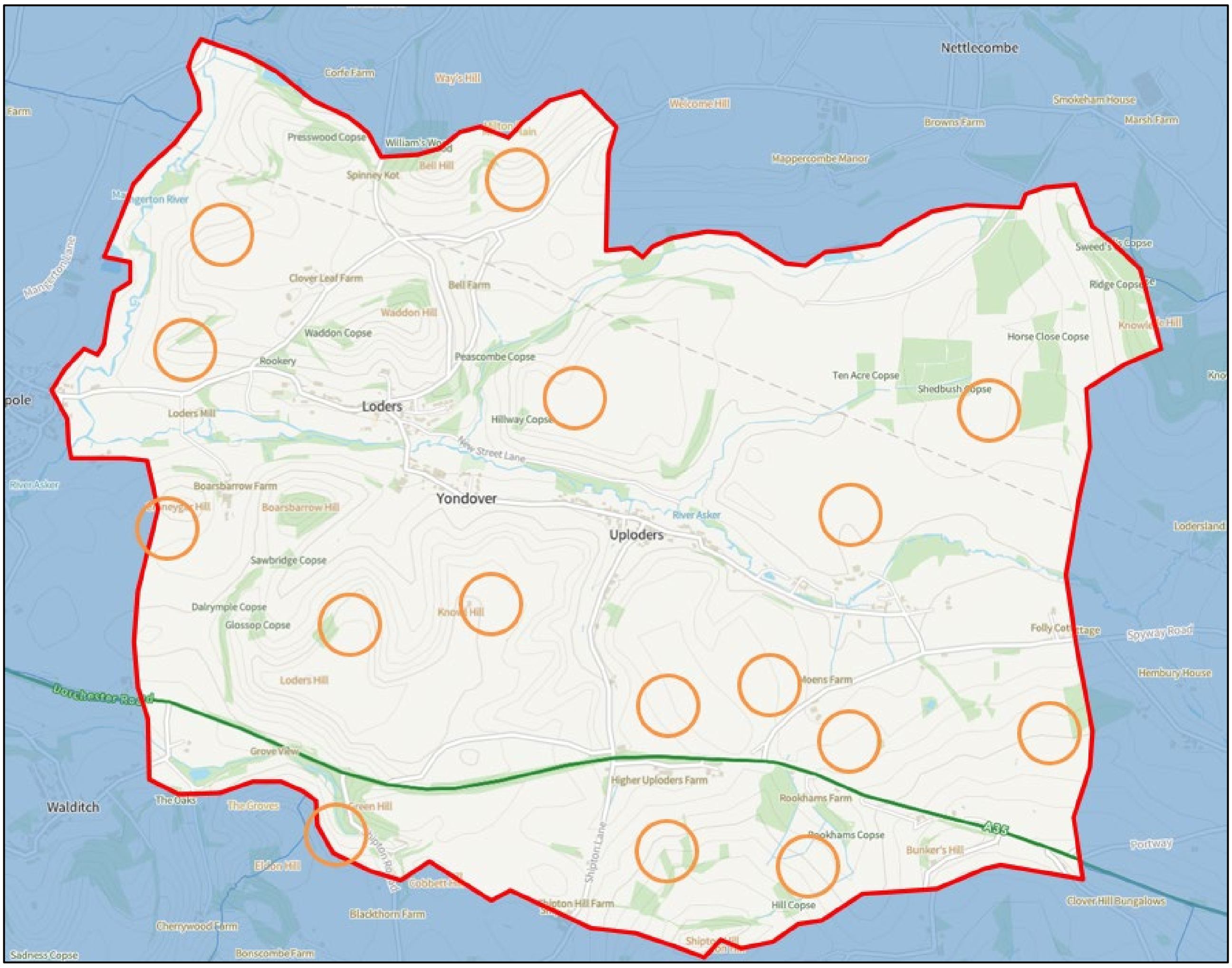


Figure 16: Potential areas identified for wind turbines and solar farms

Contextual information (see section 5 and Appendix 1) was presented to participants on the different technologies they would be considering (both large scale and domestic – wind turbines, solar farms, rooftop solar, heat pumps and electric vehicles) to ensure everyone had a basic understanding of each one, how they work, and some key considerations such as height or land take. Additional slides were shown as follows:

- Existing energy infrastructure in the Parish, focusing on the National Grid Chickerell-Axminster 400kV power line, which is a traditional lattice design and around 50m tall, a similar height to the hub height of 1MW wind turbines.
- Wind turbine sizes in relation to a typical house, showing the average height of a wind turbine in the UK
- A local example of a wind turbine in the local area (Salway Ash) which is 24m high to its hub and 34m high to the tip of its blades, and has a capacity of 50kW (smaller than the ones participants considered in the workshop)
- A local example of a solar farm in the local area (Rampisham North) which is 5ha in size and has a 4.4MW capacity (larger than the ones participants considered in the workshop)

In five breakout groups, participants deliberated how much of each technology they thought might be acceptable in their area, keeping in mind areas that were special/liked/disliked from the previous map activity, and their own local knowledge. Each group was given individual maps for wind and solar (Figure 17) and asked to reach a consensus on the number of wind turbines and solar farms which they thought might be acceptable, and if possible, indicate the location(s) of these technologies.

Once a consensus was reached, the group was asked to place the number of cards (an example is shown in

Figure 18) equivalent to their choice (for example, a group placing two wind cards on the map were indicating that they thought two wind turbines would be acceptable in the Parish), and then, as an optional task, indicating possible locations using sticky dots.

Participants were allowed to suggest alternative locations to the 16 that were suggested if they wished to do so. Participants were instructed not to see the maximum potential as a target to reach – the activity was aimed at understanding what they would be happy with. Participants were also allowed to say that no wind turbines or solar farms were acceptable if this was the consensus of their group.

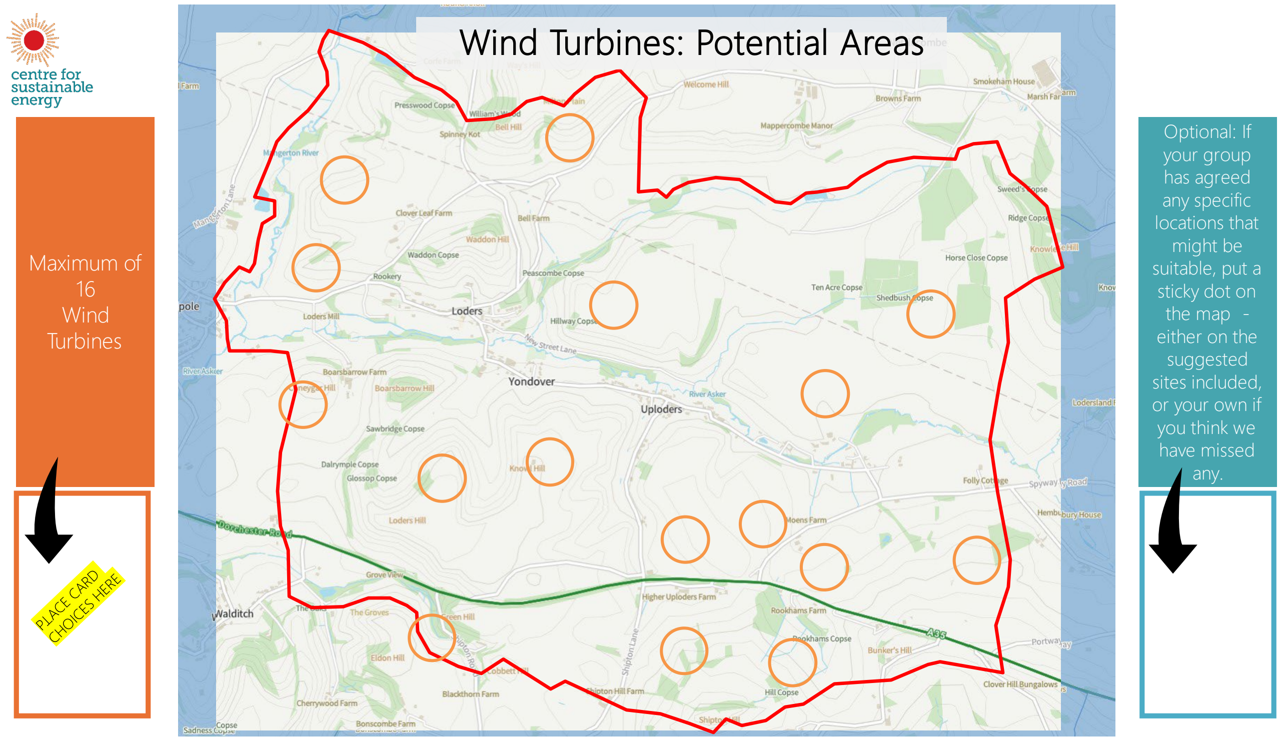


Figure 17: An example of the maps that participants used in their breakout groups

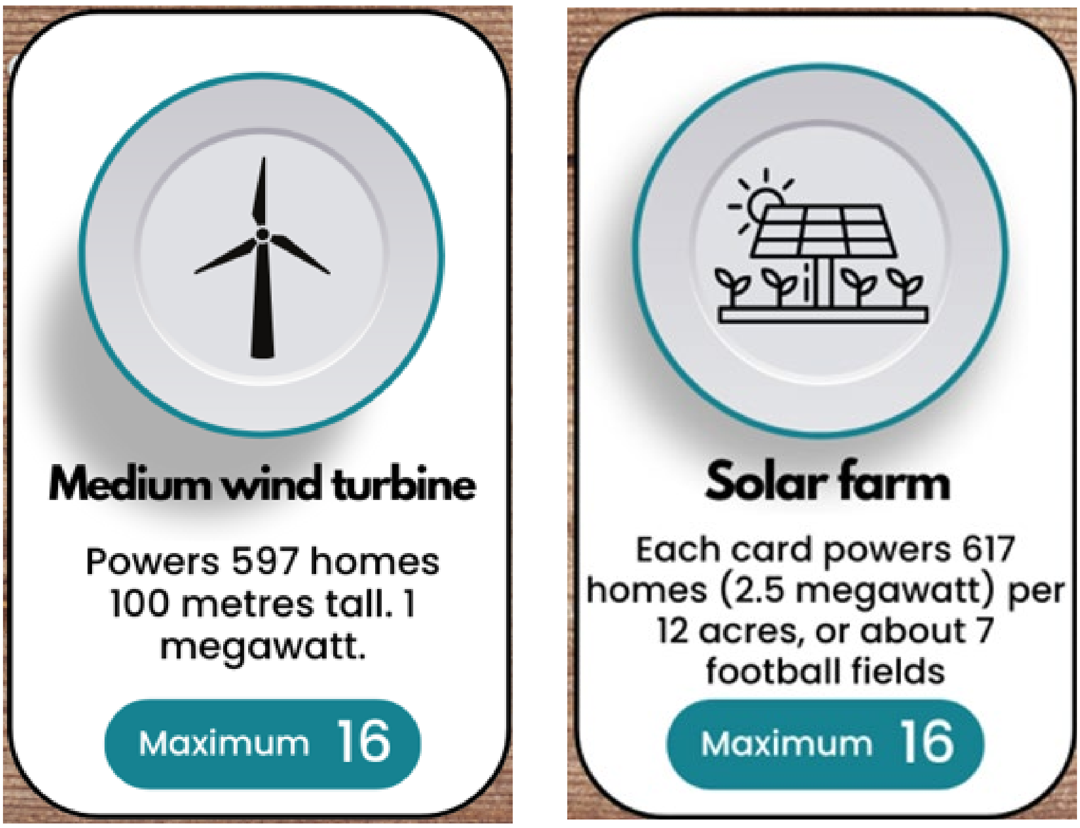


Figure 18: Example of the cards used to represent menu choices on the maps

Participants were then asked to discuss the potential for the domestic scale technologies of rooftop solar panels and heat pumps[16] and agree what percentage of all homes in the study area might realistically get each technology in the next 5-10 years. Finally, participants were asked the same question for Electric Vehicle take-up (helping people to move to electric powered vehicles is one of the aims of Loders Community Energy Group – in the workshop, it was explained that more EVs in the Parish would mean more electricity consumption, which would ideally be derived from renewable sources). Contextual information was given to the groups to assist their deliberations. Groups were asked to reach a consensus, and then write down their decisions on the sheets provided (Figure 19).

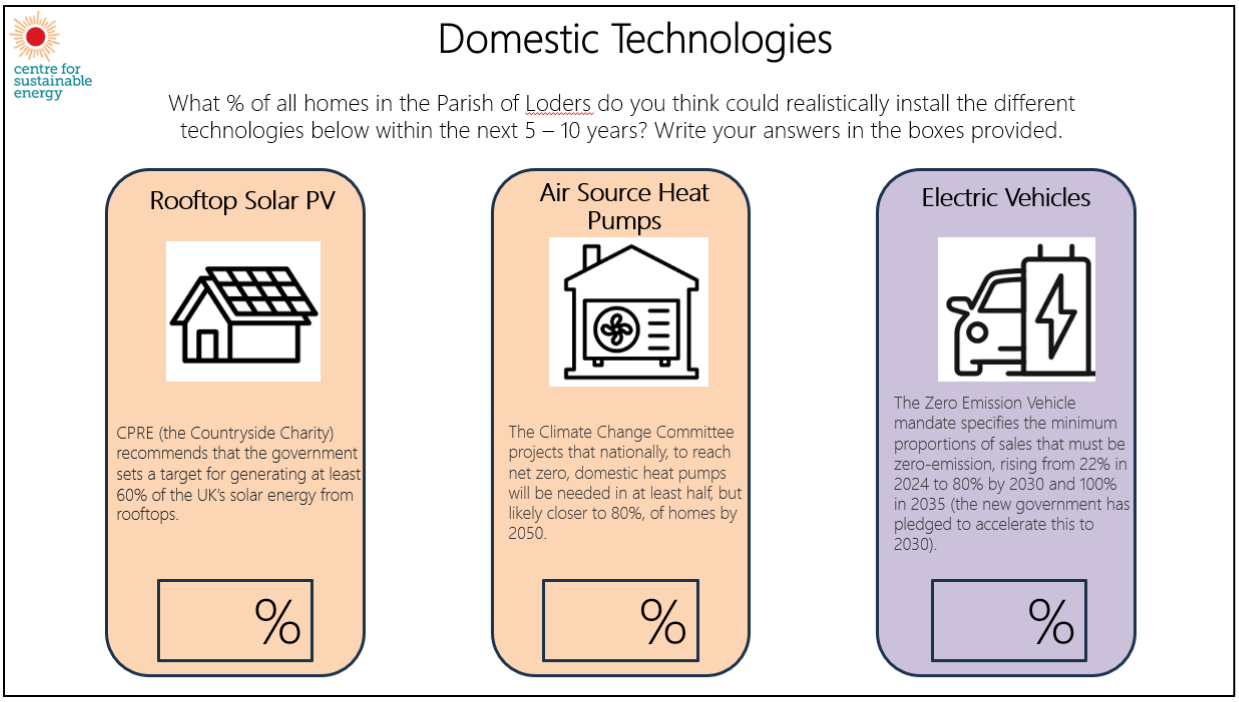


Figure 19: Sheets used by participants to decide their choices on domestic scale technologies

[16] For the purposes of the workshop, air source heat pumps were used because these are generally the most common and cheapest form of heat pump. However, it is acknowledged that in the context of Loders, these may also be potential for ground or water source heat pumps as well.

Figure 20: Participants deliberating their choices

Solar Wizard

During the discussion on domestic solar PV potential, the new Solar Wizard tool[17] created by CSE was highlighted as an easy and free way for participants to calculate the potential to generate electricity from rooftop solar panels on their own homes. In just a few clicks it can tell you how much electricity you might be able to generate from rooftop solar panels on your house, or any home or other building in England, Scotland or Wales. It provides quick and independent predictions about the viability of solar PV on single buildings or groups of buildings. You can use it to help you decide whether solar PV might be a good investment for own home. Or a group of neighbours can use it as part of a wider community-energy project.

Results of menu activity

Once groups had reached a consensus, and completed their selections of renewable technologies, scores were collated. Averages were taken for each technology and inputted into the CSE Community Energy Saving and Renewables (CESAR) tool. The tool uses census

[17] https://solarwizard.org.uk/

information and data on the study areas energy use so people can see how different technologies impact carbon emissions and energy supply. The tool is a good way for participants to understand the implications of their decisions, but the results should only be used for illustrative purposes only. The initial choices made by the groups are shown in Table 2).

Table 2: Initial choices made by participants, by technology

Group	Acceptable Number of Wind turbines (1MW)	Acceptable Number of Solar Farms (2.5MW)	Realistic % of homes with Rooftop Solar PV in next 5 to 10 years	Realistic % of homes with Air Source Heat Pumps in next 5 to 10 years	Realistic % of homes with Electric Vehicles in next 5 to 10 years
1	6	10	45%	30%	50%
2	1	1	60%	20%	15%
3	3	3	10%	5%	15%
4	5	3	25%	20%	40%
5	2	1	20%	30%	20%
Average (rounded)	3	4	32%	21%	28%

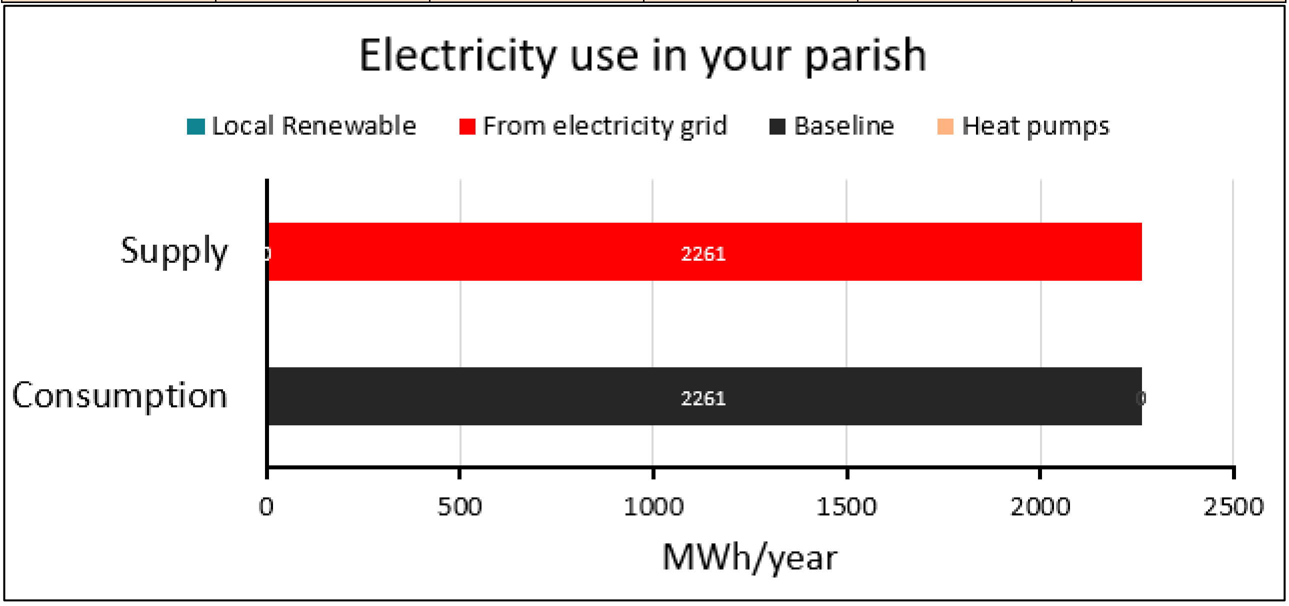


Figure 21: Electricity use in Loders Parish - baseline position

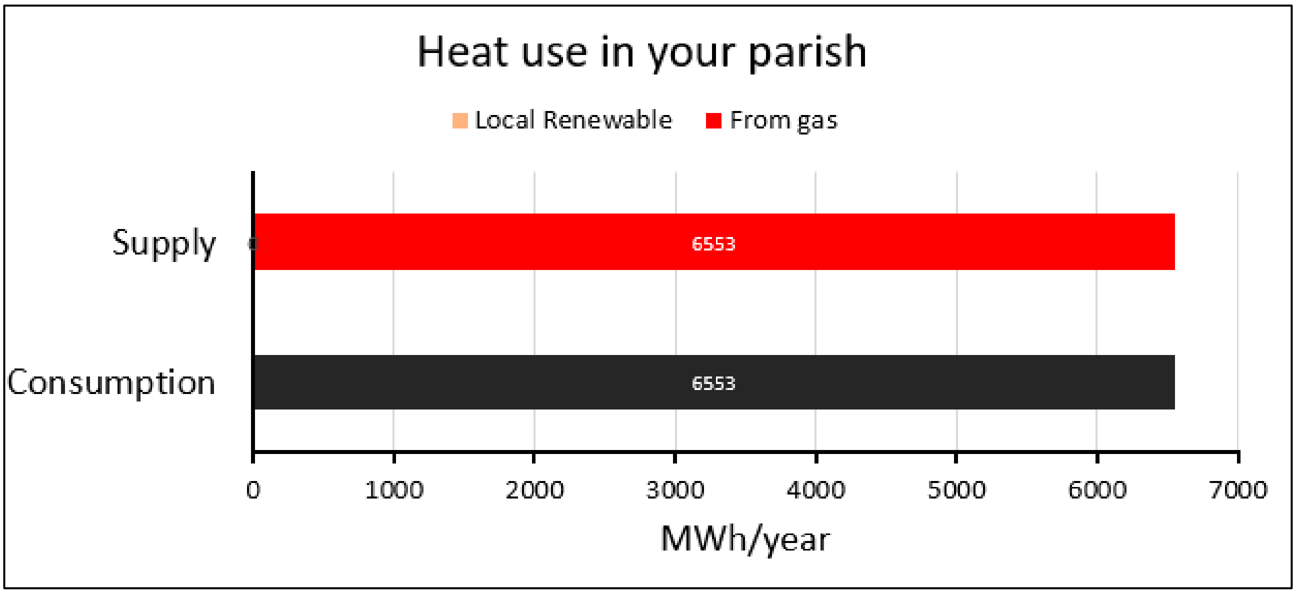


Figure 22: Heat use in Loders Parish - baseline position ("gas" includes oil and LPG bottles)[18]

Participants were shown graphs which illustrate the baseline position with regards to electricity and heat consumption in the Parish (Figure 21 and Figure 22). The tool suggests that Loders Parish consumes around 2,261MWh of electricity a year, and 6,553MWh of heat a year. The tool assumes that the sources for this electricity and heat are from the national grid, ultimately derived from a range of sources, including fossil fuels (in reality, a small amount of electricity is already generated from rooftop solar in the Parish, and most of the Parish gets its heat from LPG bottles, or oil, as it is not connected to the gas network).

Participants were then shown graphs which illustrate the impact of their choices, with a comparison shown with the baseline position. These are shown below, both by individual technology in Figures 23 to 27 (noting that in reality it is very unlikely that delivery would occur in this manner – there would be a mix rather than a reliance on only one technology) and then in totality (a more realistic scenario)[19]. The subsequent impact on associated carbon emissions was also shown.

[18] The horizontal scale is three times larger for heat than electricity under current usage estimates.
[19] The graphs are presented in this way in order for the reader to understand the relative impact of choosing different technologies. For example, building three 1MW wind turbines (Figure 26) produces 23 times the amount of electricity than installing rooftop solar on 32% of the properties in the Parish (Figure 23).

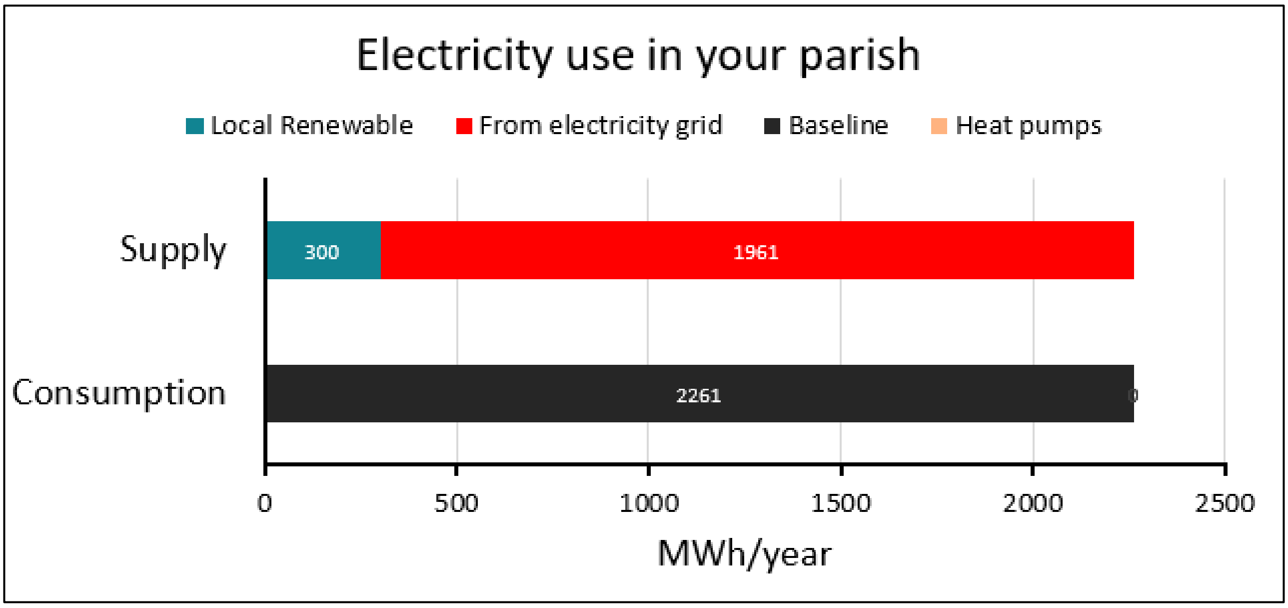
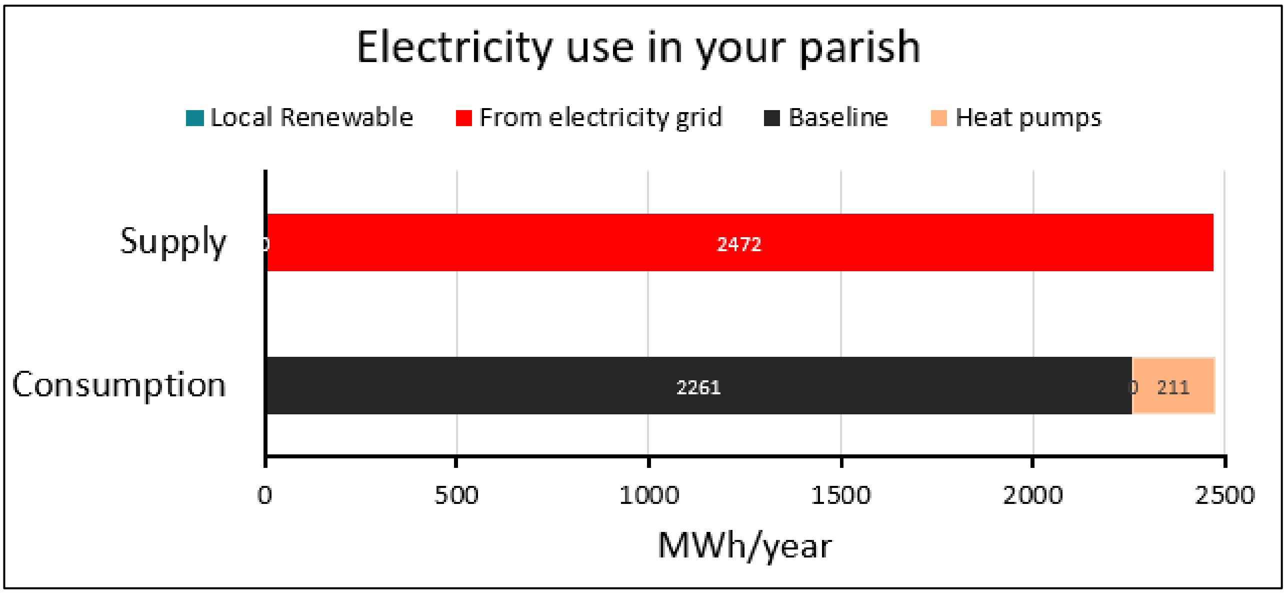


Figure 23: Electricity supply in Loders Parish assuming 32% of properties install rooftop solar PV



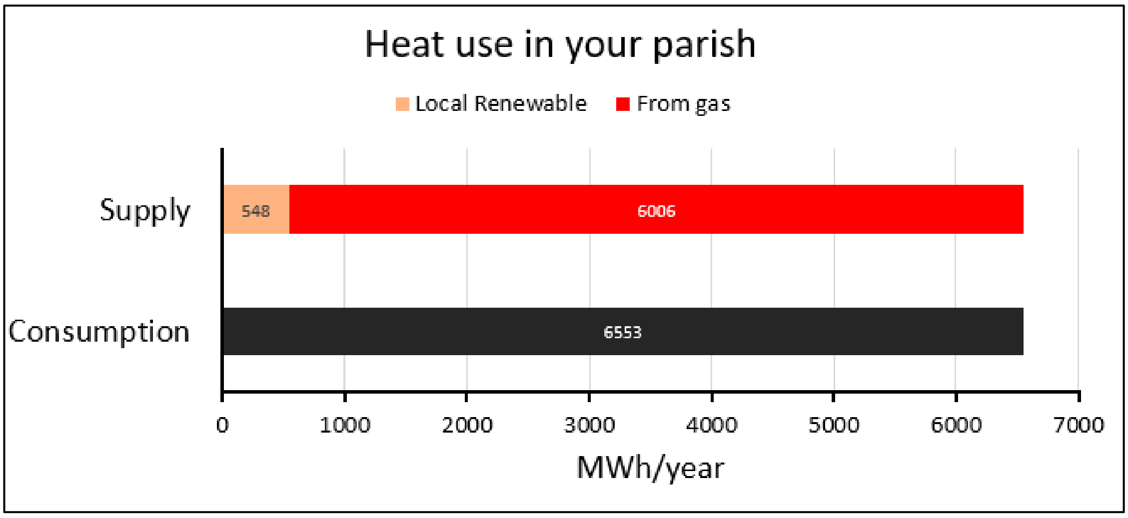


Figure 24: Electricity and heat use/supply in Loders Parish assuming 21% of properties install air source heat pumps ("gas" includes oil and LPG bottles)

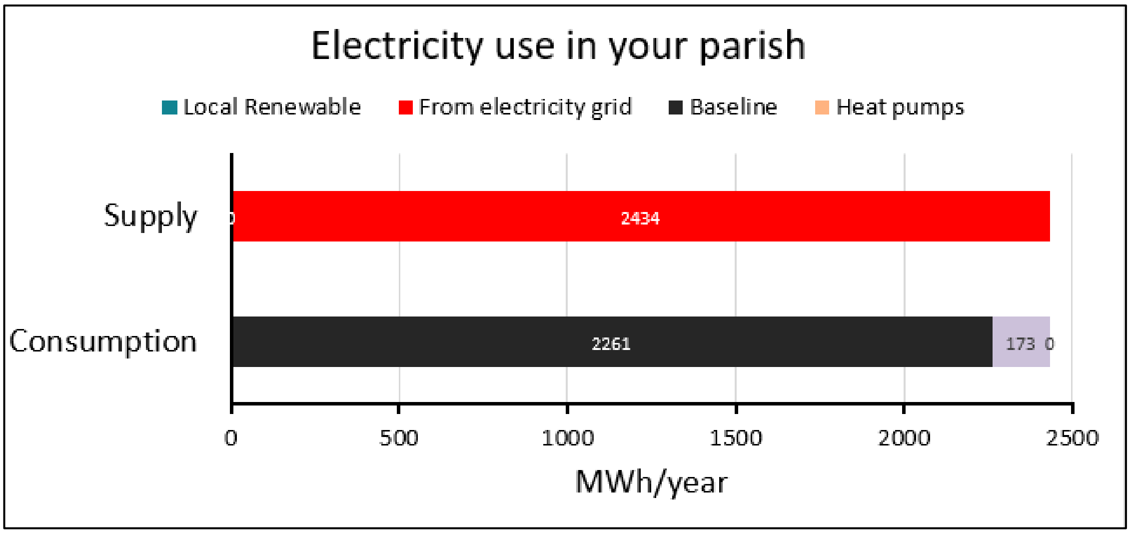


Figure 25: Electricity use in Loders Parish assuming 28% of properties have an electric car (purple shows additional electricity demand from electric cars).

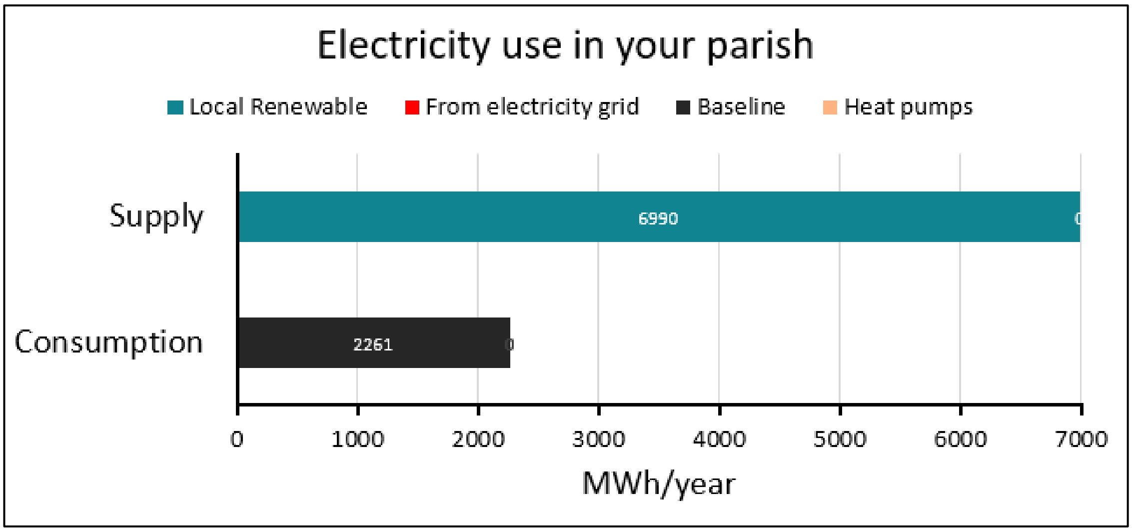


Figure 26: Electricity supply in Loders Parish assuming three 1MW wind turbines are built

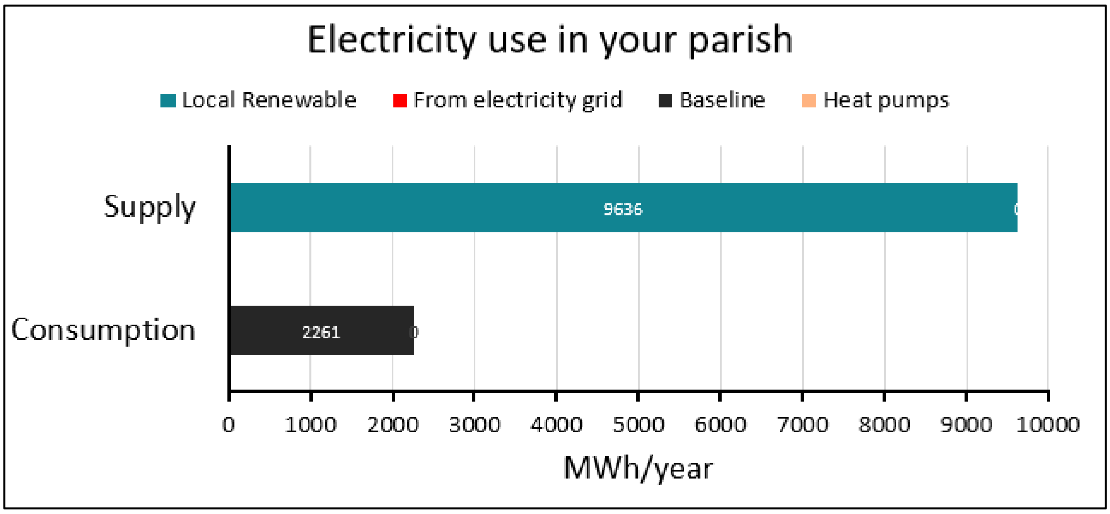


Figure 27: Electricity supply in Loders Parish assuming four 2.5MW solar farms are built

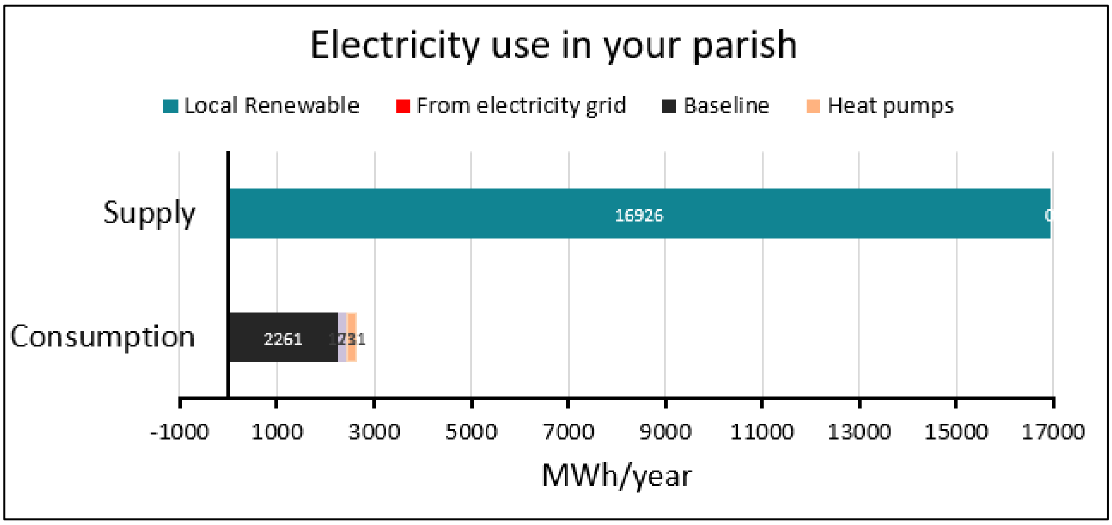


Figure 28: Electricity supply in Loders Parish assuming all chosen technologies are built

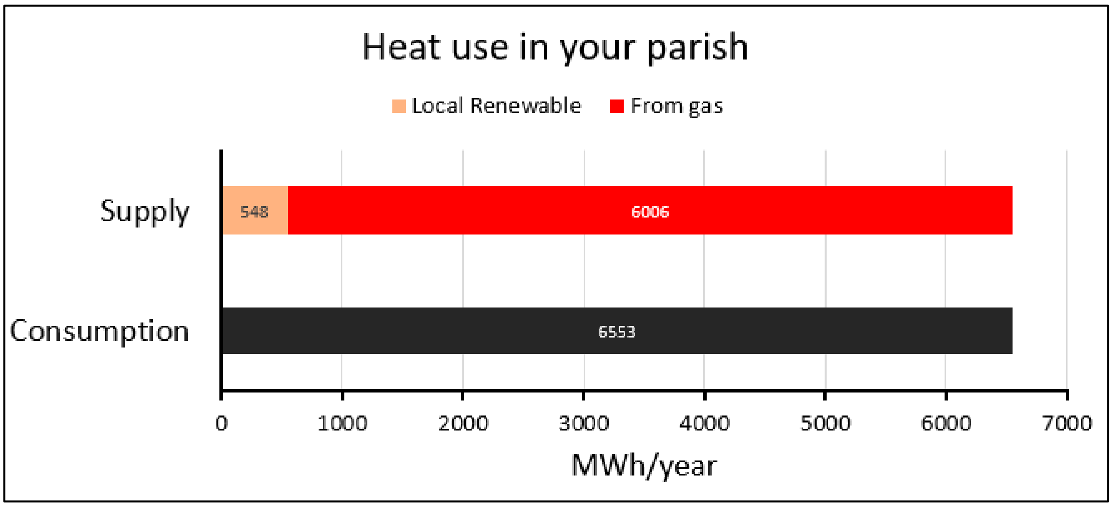


Figure 29: Heat supply in Loders Parish assuming all chosen technologies are built ("gas" includes oil and LPG bottles)

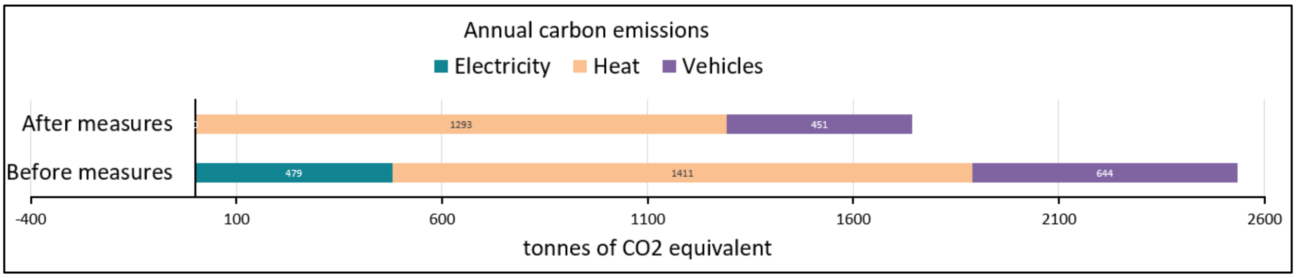


Figure 30: Annual carbon emissions associated with energy supply and vehicle use, before and after renewables choices assuming all technologies are built

In summary, the choices made by the groups, (summarised in Table 2) and their effects, are as follows:

- Domestic scale technologies (32% of properties with rooftop solar and 21% with heat pumps) would supply around 300MWh a year of renewable electricity and 548MWh a year of renewable heat.
- The addition of the heat pumps and 28% of properties owning an electric vehicle would create an additional electricity demand of 384MWh a year.
- The baseline (current) demand for electricity in the Parish is 2,261 MWh a year.
- The baseline (current) demand for heat in the Parish is 6,553 MWh a year.
- Domestic scale technologies would therefore not be enough by themselves to make Loders Parish self-sufficient in renewable energy. Renewable electricity generated by rooftop solar PV would in effect only service the additional demands created by the use of heat pumps and electric vehicles.
- Some larger scale renewable energy would be therefore needed to make Loders Parish self-sufficient.
- The choices made by the group with regards to wind turbines (3) and solar farms (4) would far exceed the demand in the Parish for electricity and heat. If these were all built in their entirety, the Parish would in effect become a net exporter of renewable energy.
- If the chosen technologies in were all built in their entirety, the annual carbon emissions of the Parish associated with electricity, heat and vehicles would reduce from 2,534 tonnes of CO2 equivalent to 1,744 tonnes of CO2 equivalent.

Potential locations for renewable energy installations (wind turbines and solar farms)

Most of the groups participated in the optional exercise to identify potential locations for both wind turbines and solar farms. Some groups chose from the 16 options provided, and others chose to identify their own suggestions, based on their local knowledge of the area.

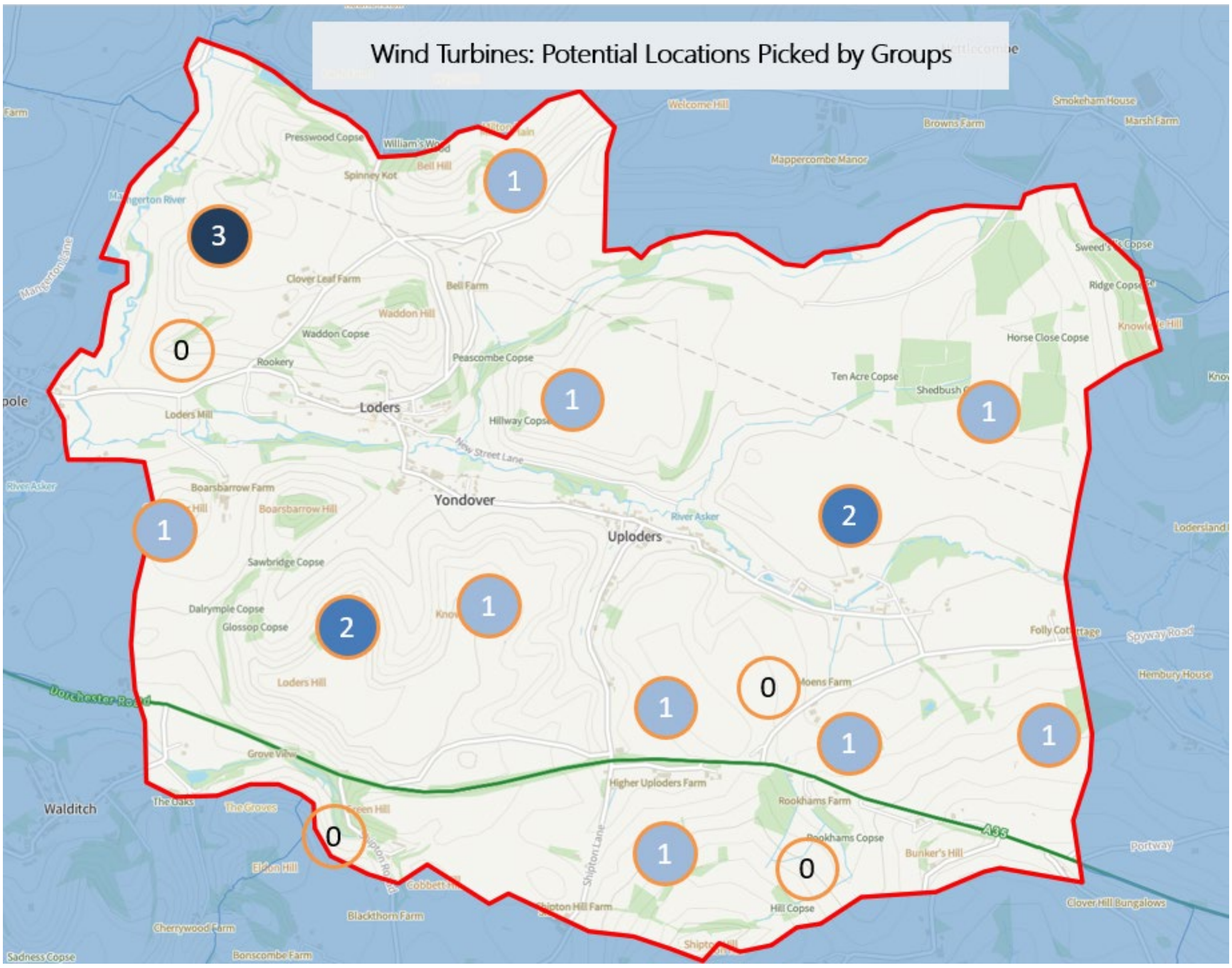


Figure 31: Potential locations identified by the groups for wind turbines (number signifies the amount of groups that had independently identified the location as potentially acceptable)

A summary of potential wind turbine locations identified by the groups (shown individually in Appendix 2) is as follows:

- Of the 16 suggested locations, 12 were identified by at least one group as being potentially suitable for a wind turbine (Figure 31).
- The location that was identified the most (by three separate groups) was the area to the north west of Clover Leaf Farm, in an area overlooking the Mangerton River.
- Two locations were identified by two separate groups: the area around Loders Hill, and the area to the north of Collins Nets.
- Nine locations were identified by a single group: the area around Bell Hill; the area around Hillway Copse; Coneygar Hill; Knowl Hill; the area to the north of Higher Uploders Farm (to the north of the A35); the area between Higher Uploders Farm, Shipton Hill and Shipton Hill Farm; the area to the south east of Moens Farm; the area to the south of Folly Cottage; and the area between Shedbush Copse and Horse Close Copse.

- The four locations that were not picked by any of the groups were the area to the north of Loders Mill, the area between Green Hill and Eldon Hill, the area to the west of Moens Farm, and the area between Hill Copse and Rookhams Copse.
- One group went further, and suggested options for hosting a grouping of three wind turbines in one location – those being Coneygar Hill, the area to the north of Collins Nets, or the area to the south of Folly Cottage – with the rationale being that a small grouping of three wind turbines in one location would be more aesthetically acceptable (or less harmful to the landscape) than spreading multiple individual wind turbines across separate locations.

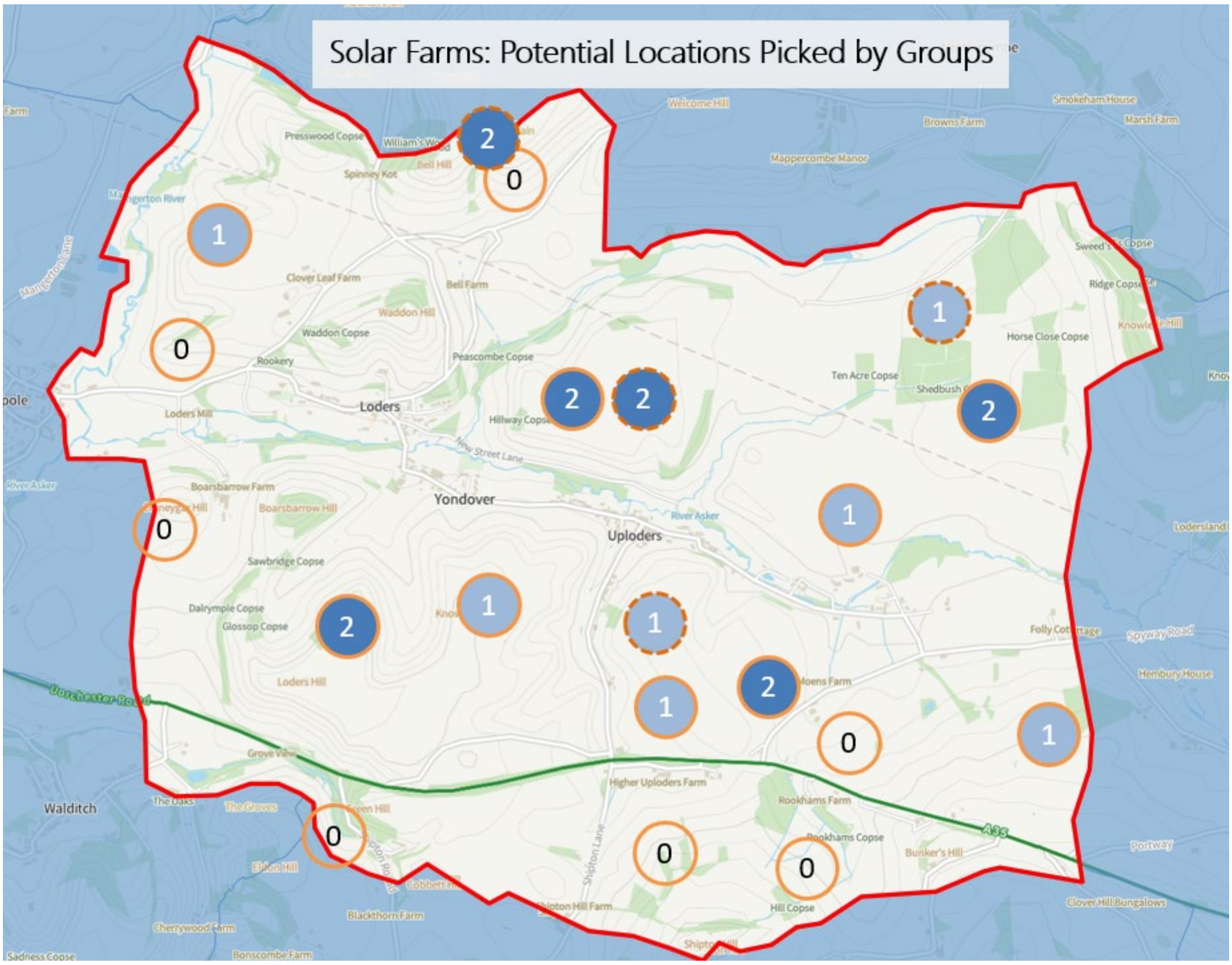


Figure 32: Potential locations identified by the groups for solar farms (number signifies the amount of groups that had independently identified the location as potentially acceptable)

A summary of potential solar farm locations identified by the groups is as follows:

- Of the 16 suggested locations, 9 were identified by at least one group as being potentially suitable for a solar farm (Figure 32).
- In addition, four additional locations were identified by at least one group as being potentially suitable for a solar farm (based on their own knowledge and opinions about

the area), identified in Figure 32 with the dashed lines. These were: Milton Plain/Bell Hill; the area to the east of Hillway Copse (north of New Street Lane); the area to the north of Shedbush Copse; and the area between Uploders and Higher Uploders Farm.

- This meant that 13 locations were ultimately identified by at least one group as being potentially suitable for a solar farm.
- There were six locations identified by two separate groups independently of each other as potentially suitable: Milton Plain/Bell Hill; Hillway Copse; the area to the east of Hillway Copse (north of New Street Lane); the area around Loders Hill; the area to the west of Moens Farm; and the area between Shedbush Copse and Horse Close Copse.
- There were seven locations identified by a single group: the area to the north west of Clover Leaf Farm; Knowl Hill, the area to the north of Higher Uploders Farm (to the north of the A35); the area between Uploders and Higher Uploders Farm; the area to the north of Collins Nets; the area to the north of Shedbush Copse; and the area to the south of Folly Cottage.
- The seven locations that were not picked by any of the groups were: the area around Bell Hill; the area to the north of Loders Mill; Coneygar Hill; the area between Green Hill and Eldon Hill; the area between Higher Uploders Farm, Shipton Hill and Shipton Hill Farm; the area between Hill Copse and Rookhams Copse; and the area to the south east of Moens Farm.

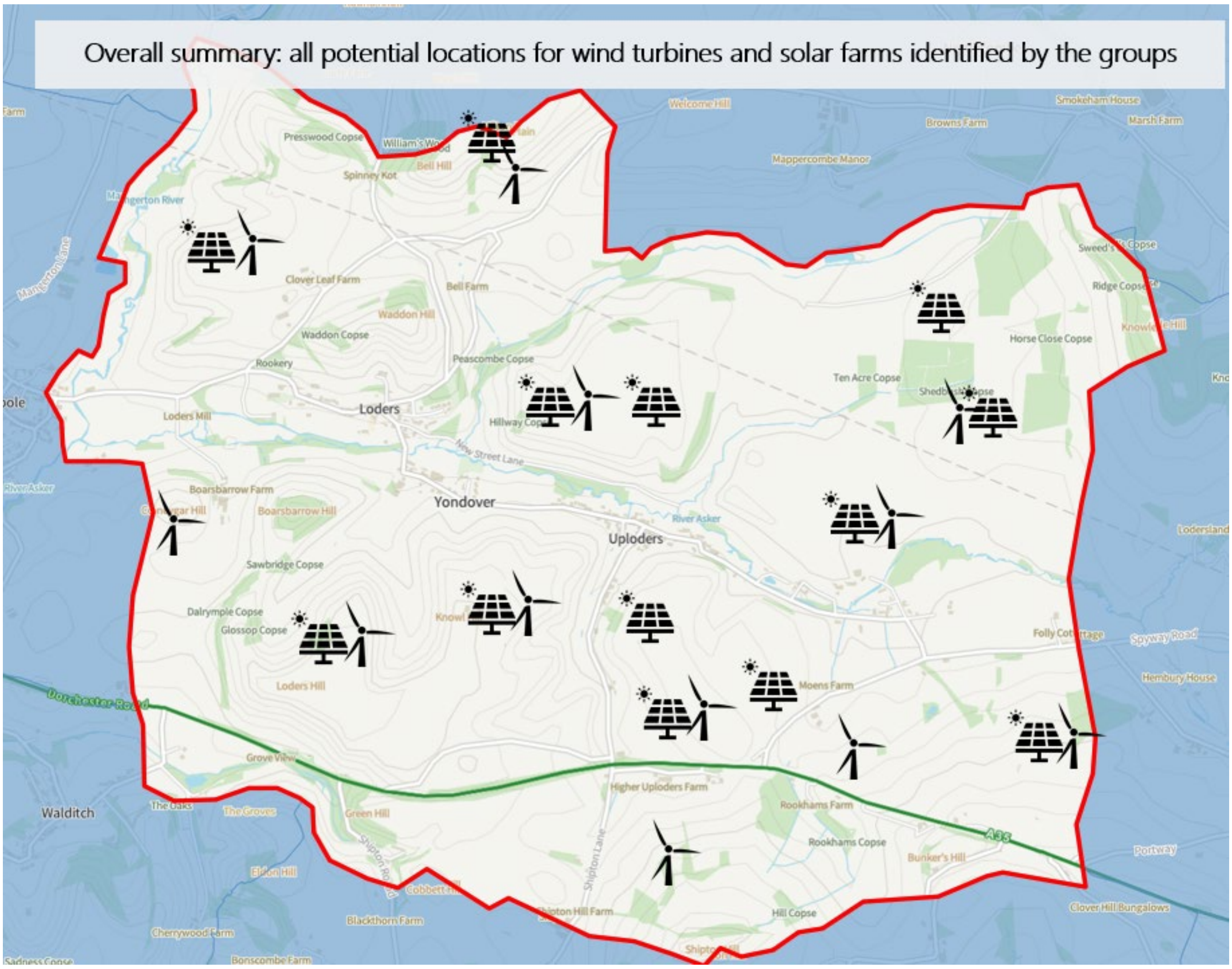


Figure 33: All potential locations for wind turbines and solar farms identified by the groups

Figure 33 shows all of the potential locations identified by the groups. Nine broad locations were identified as having potential for both wind turbines and solar farms. Three broad locations were identified as having potential for wind turbines only, and four broad locations were identified as having potential for solar farms only.

These locations are a collation of the choices made by all of the groups and exceed the maximum number of wind turbines and solar farms that were considered acceptable (3 wind turbines and 4 solar farms). They should instead be considered a long list of potential locations that could be explored in more detail in the future.

Whole Group Discussion

A whole group discussion followed, where participants reflected on their choices, with the benefit of seeing how these would impact on their energy consumption and carbon emissions. Key points included:

- There was a recognition that the community wants to do their bit, but there is a cost to the landscape. Pros and cons need to be weighed up.

- Participants were interested in how much renewable energy is required for the Parish, i.e. becoming self-sufficient in the first instance. There was consensus that it would be important to be self sufficient in renewable energy.
- Participants were clear that projects should have some community benefit/control, and that this was an important consideration that would affect their support.
- Heat pumps and EV chargers will put the electricity consumption up so there was a recognised need for increased electrical capacity.
- Some participants were interested in the prospect/benefits of producing additional renewable energy than is required to be self-sufficient, as this can be sold back to the National Grid and make money for community projects.
- Some participants were more focused on getting to self-sufficiency and concerned that expansion beyond this could be at the expense of the landscape.
- There was concern that getting planning permission for larger scale technologies would be more difficult in the AONB, especially for wind turbines.
- Heat pumps and rooftop solar PV may be more realistic/easier to get consent.
- There was recognition that some excess capacity would be required for future proofing.
- The group was conscious that the participants of the workshop were not necessarily representative of the views of other people in the Parish, and that therefore their views on workshop results should be sought.
- Loders is a small community, and participants didn’t want to propose any solutions that might be divisive.
- The proposition of developing renewables might be easier to pitch to the wider community if the options for wind turbines and solar farms are reduced in number.
- A pragmatic way forward would be to start with 1 turbine or 1 solar farm, to start with and then more generation capacity could be added later. Given time, the benefits associated with the installation of the renewables could be clearly demonstrated and communicated, and the case to install additional capacity could be made.
- It was notable that every group agreed that there was potential for at least 1 wind turbine and/or 1 solar farm. None of the groups identified that there was no potential for large scale renewables, even in this very protected and beautiful area.

Adjustments to the scores were agreed by the group, based on the whole group discussion, where there was consensus to reduce the number of wind turbines and solar farms to one each. There remained debate as to whether ultimately it would be best to focus on just one of these technologies (i.e. either a wind turbine or a solar farm) or to focus on one of each.

Table 3: Final group scores

	Acceptable Number of Wind turbines (1MW)	Acceptable Number of Solar Farms (2.5MW)	Realistic % of homes with Rooftop Solar PV in next 5 to 10 years	Realistic % of homes with Air Source Heat Pumps in next 5 to 10 years	Realistic % of homes with Electric Vehicles in next 5 to 10 years
Number	1	1	32%	21%	28%

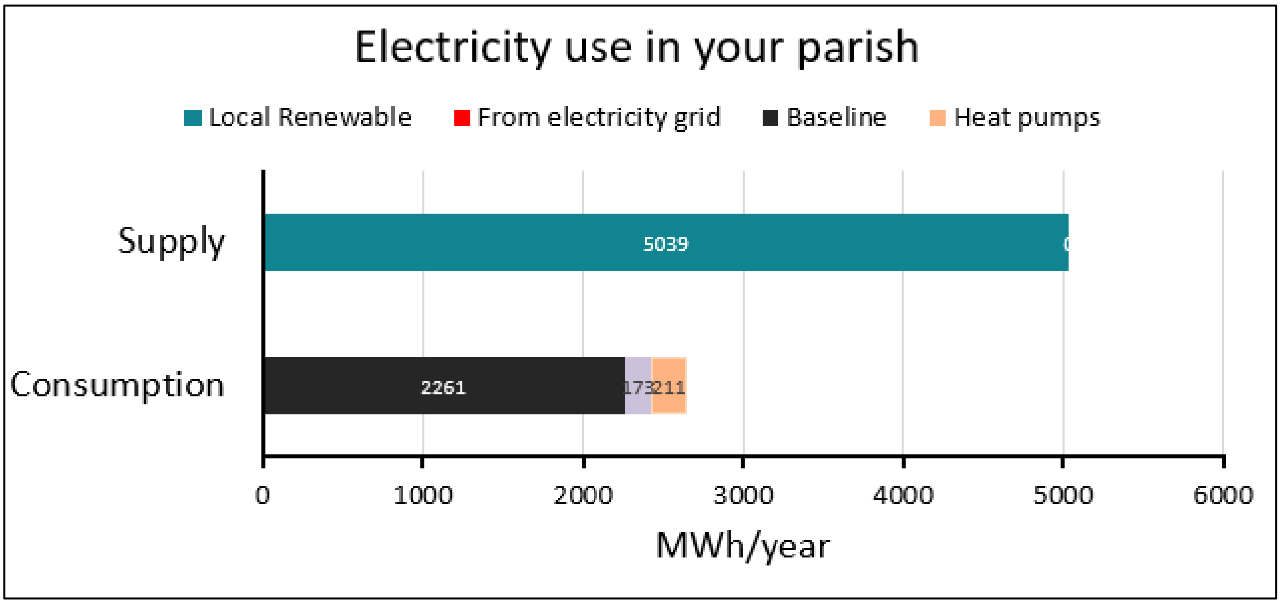


Figure 34: Electricity supply in Loders Parish assuming final choice are built

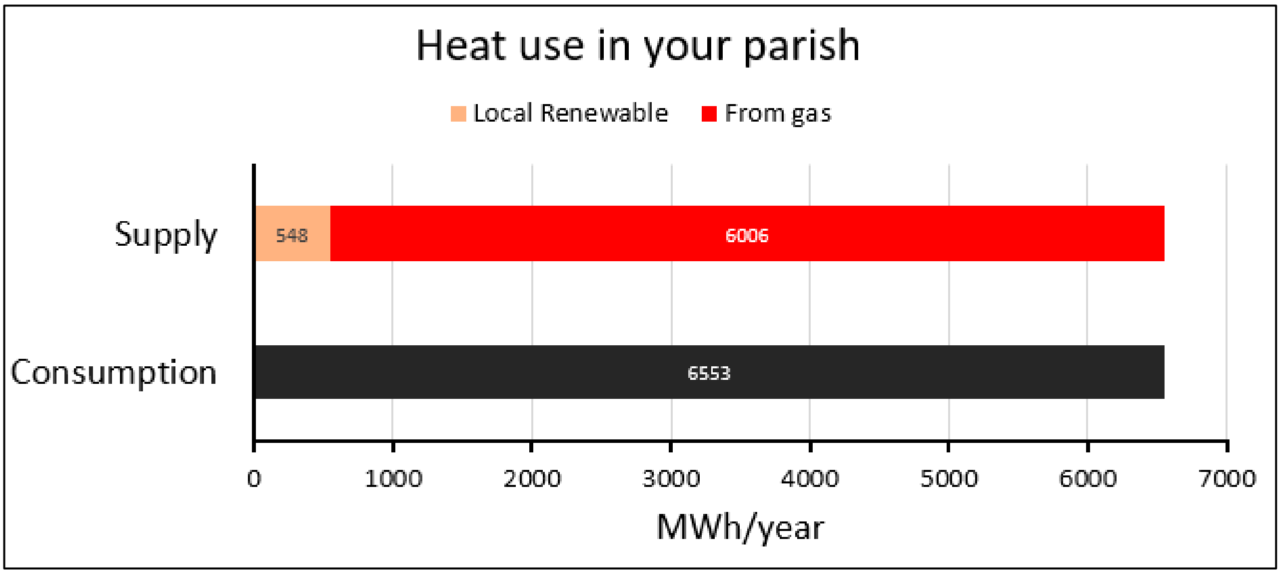


Figure 35: Heat supply in Loders Parish assuming final choices are built ("gas" includes oil and LPG bottles)

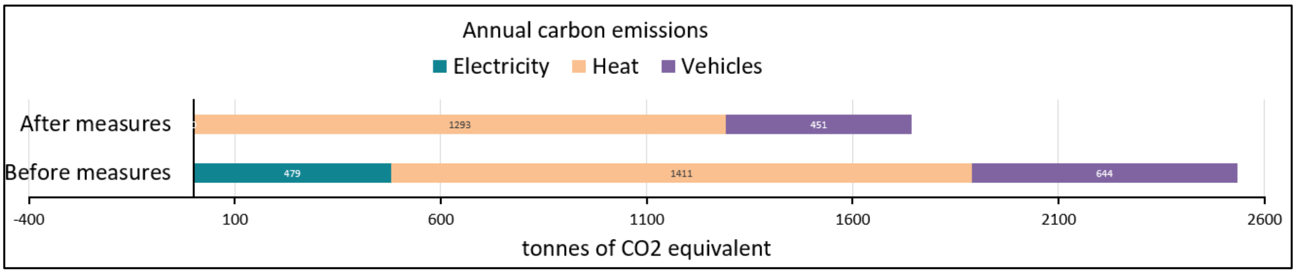


Figure 36: Annual carbon emissions associated with energy supply and vehicle use, before and after final choices

Figure 37: The final scores added to the FEL map

Technology options	How many?	Number of installations		Energy generated (megawatt hours) Electricity	Heat	Number of homes powered/heated	Cost
Medium wind turbine (100 metres, 1MW)	1	1		2330	N/A	597	£1,250,000
Solar farm (2.5 MW)	1	1		2409	N/A	617	£1,250,000
Air source heat pump - domestic	4	52	20%	N/A	548	52	£466,353
Solar panels - domestic	6	78	30%	300	N/A	77	£404,172
Electric car uptake	6	93	30%	N/A	N/A	N/A	N/A

Figure 38: Overall findings from the CESAR Tool

Conclusion and next steps

The workshop represents the start of a conversation about the acceptability of developing renewable energy projects within the Parish of Loders. There was consensus amongst participants that there was potential for at least 1 wind turbine and/or 1 solar farm within the Parish and identified a long list of potential locations which can be further explored in the future. There was also consensus that there could be greater uptake over the next 5-10 years of domestic technologies – rooftop solar, heat pumps and electric vehicles.

If the choices made by the groups in Table 3 were all delivered, the implications for the Parish are estimated as follows:

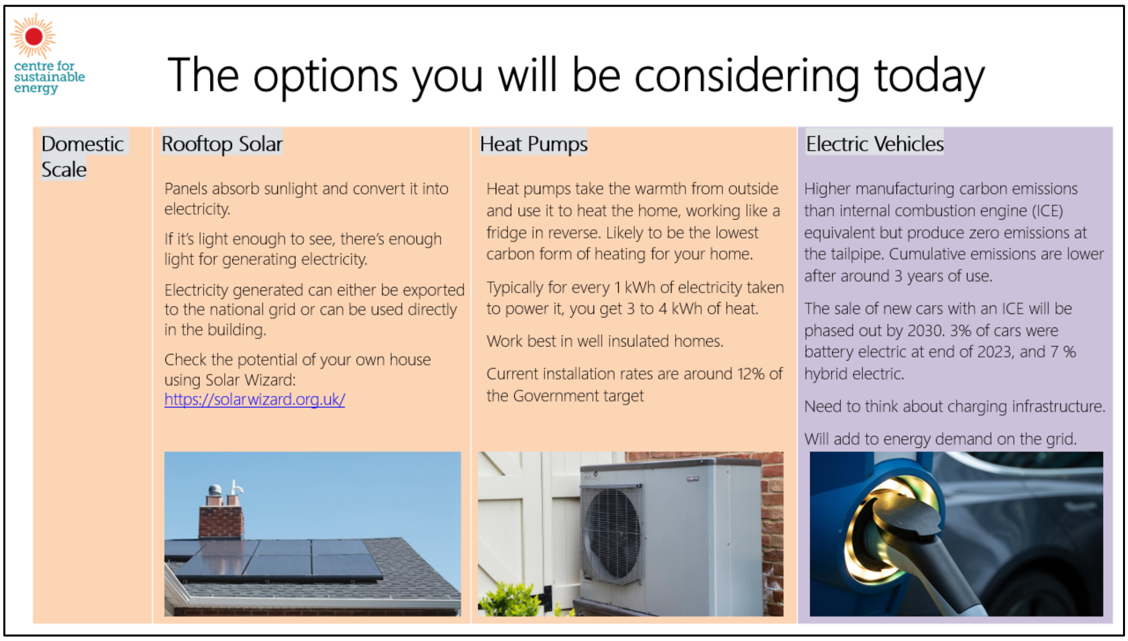
- Domestic scale technologies would supply around 300MWh a year of renewable electricity and 548MWh a year of renewable heat.
- The addition of heat pumps and electric vehicles would create an additional electricity demand of 384MWh a year.
- The baseline (current) demand for electricity in the Parish is 2,261 MWh a year.
- The baseline (current) demand for heat in the Parish is 6,553 MWh a year.
- Domestic scale technologies would therefore not be enough by themselves to make Loders Parish self-sufficient in renewable energy. Renewable electricity generated by rooftop solar PV would in effect service the additional demands created by the use of heat pumps and electric vehicles.
- Some larger scale renewable energy would be needed to make Loders Parish self-sufficient.
- Developing one wind turbine (2,330MWh per year of renewable electricity) or one solar farm (2,409MWh per year of renewable electricity) would broadly meet this total demand for electricity, but not create any flexibility for future proofing (i.e., if a greater percentage of home convert to heat pumps and/or electric vehicles than estimated by the groups, it would require a combination of a wind turbine and a solar farm to meet this additional electricity demand).
- If both the wind turbine and solar farm were built, the Parish would in effect become a net exporter of renewable energy.
- If all the chosen technologies were all built in their entirety, the annual carbon emissions of the Parish associated with electricity, heat and vehicles would reduce from 2,534 tonnes of CO_2 equivalent to 1,744 tonnes of CO_2 equivalent.
- Carbon emissions resulting from the generation of heat would still be an issue, which the take up of heat pumps starts to address, but not solve. Most of the heating in the Parish would still be by LPG bottles or oil. Other solutions could be investigated by the Community Energy Group, such as a heat network powered by renewable electricity.

The workshop cannot be assumed to be representative of the full range of opinion in the local community. We recommend that efforts are made to publish the workshop outputs and a survey taken of wider community viewpoints, which can be used to verify the results.

The outputs of the workshop can initially be used to shape and inform the second scheduled workshop to be held on 9th October 2024, and subsequent conversations. This could include more detailed consideration of the potential locations of renewable energy projects in the Parish, how they could contribute to the overall Community Energy Project (CEP) being considered by the Community Energy Group, and how they could contribute to the aspirations of the group of generating enough low-carbon renewable energy to cover the community's total future energy needs, install off-road EV charging points subsidised for local people, and investigate better home insulation and replacing oil boilers with low carbon alternatives.

Appendix 1: Information about renewable energy

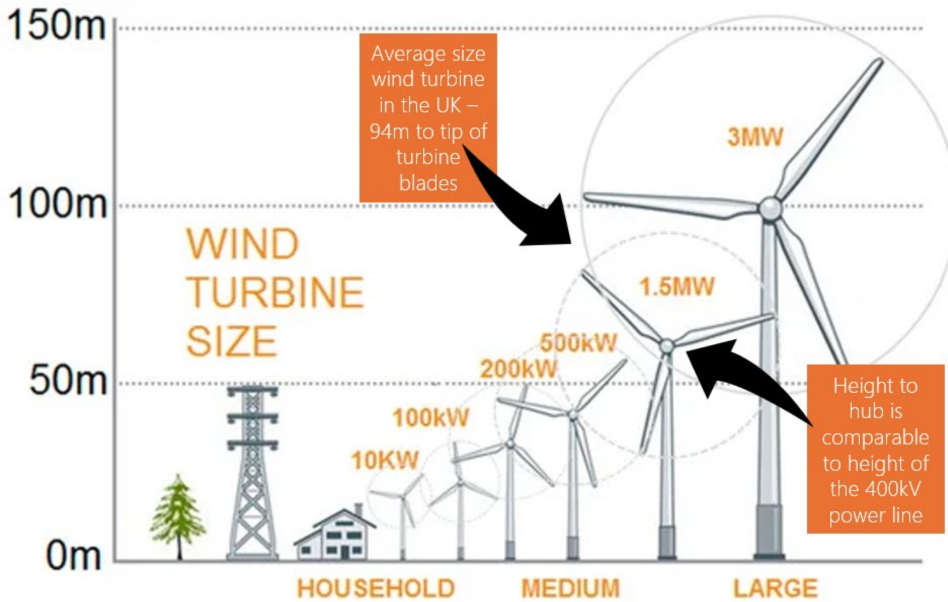
The following slides were presented to the group prior to the Sunshine Café activity. The purpose of these slides was to give all participants a high-level background to a range of technologies considered to be deliverable in Loders Parish.



Existing Energy Infrastructure in the Parish

- National Grid Chickerell-Axminster 400kV power line runs through the Parish.
- Traditional lattice design.
- About 50m tall.

Wind Turbine Sizes for context



centre for sustainable energy

Local Example: Salway Ash Wind Turbine

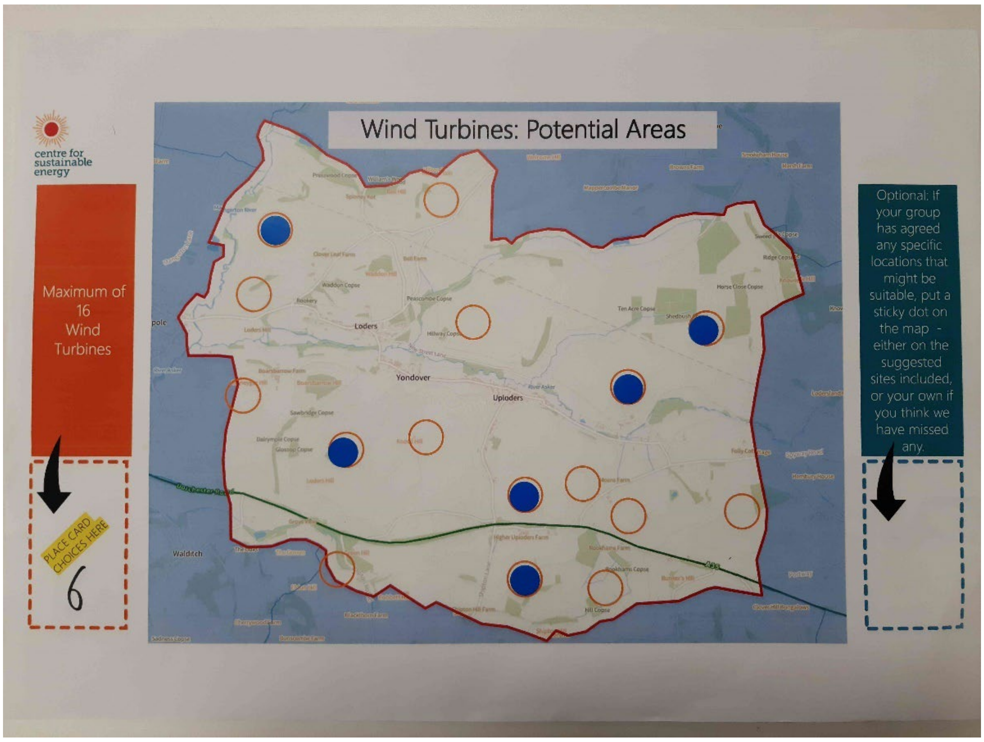
- 50kW wind turbine, developed by Dorset Community Energy
- 24m high to hub; 34m high to blades
- Energy Local Bridport went live in September 2021. Scheme allows householders in the Bridport area to purchase the electricity generated. Club members pay a 'match' price for the wind energy when it is available. The 'match' price is cheaper than a normal electricity tariff (with an anticipated saving of 10-15% on electricity bills over a year), but more than the generator would otherwise get, so everyone benefits.

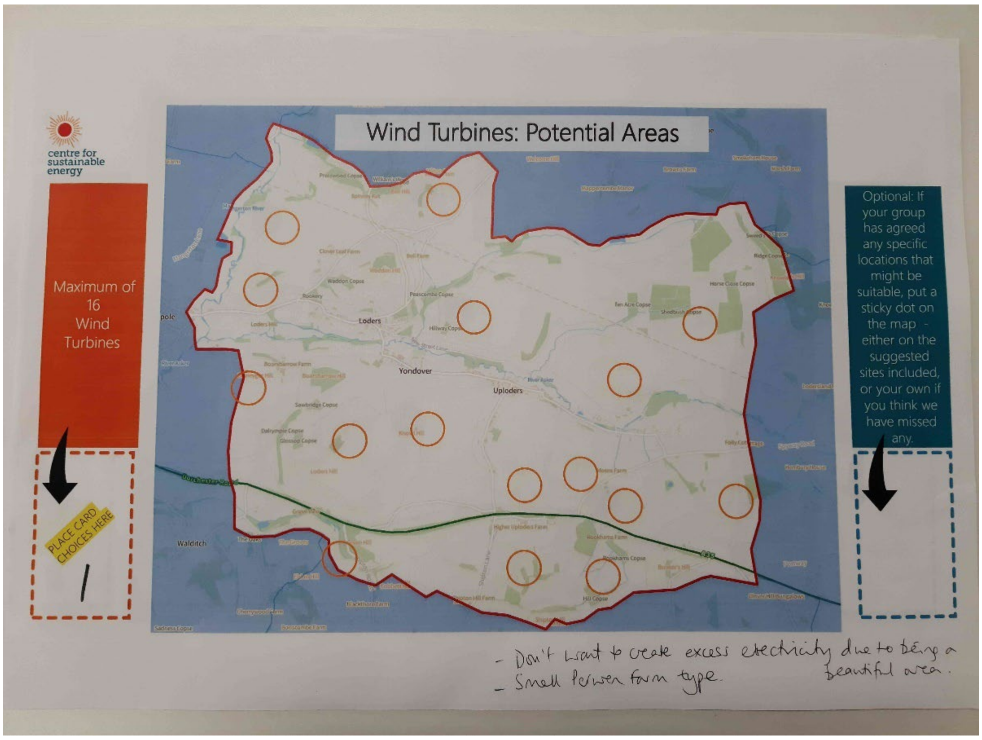
centre for sustainable energy

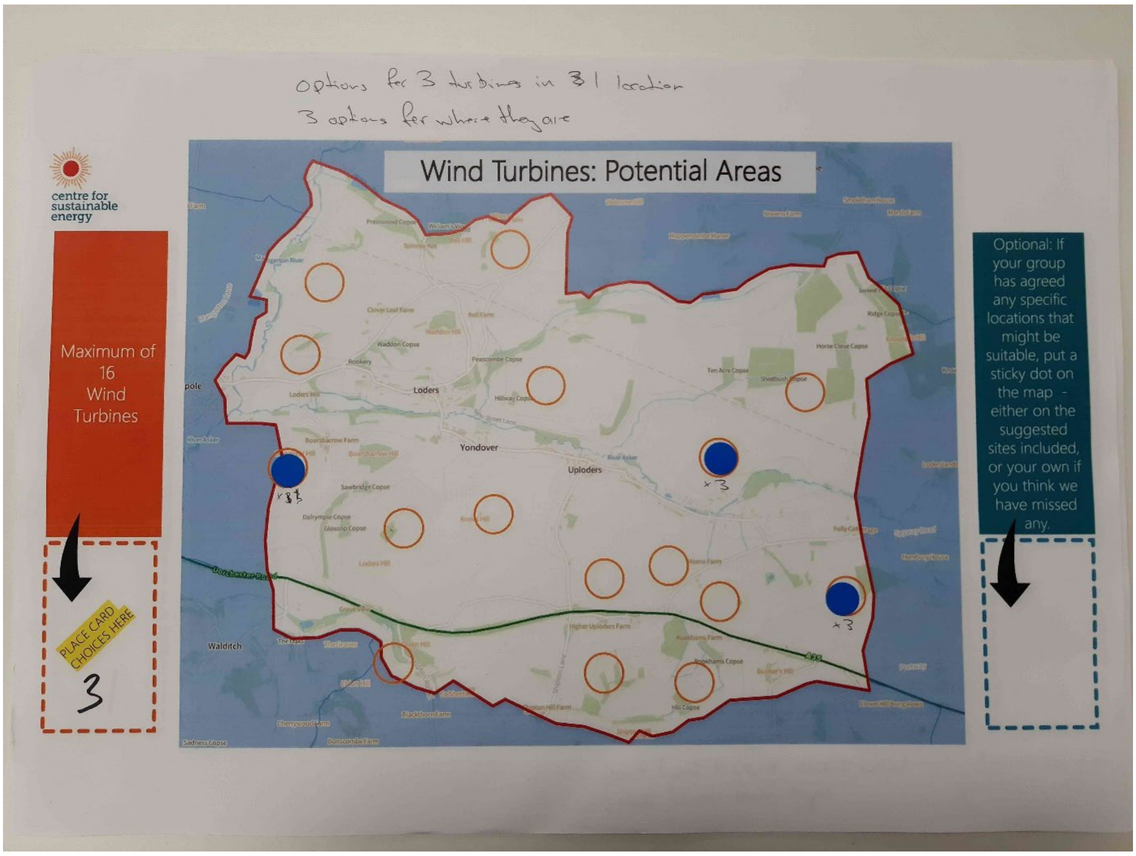
Local Example: Rampisham North Solar Farm

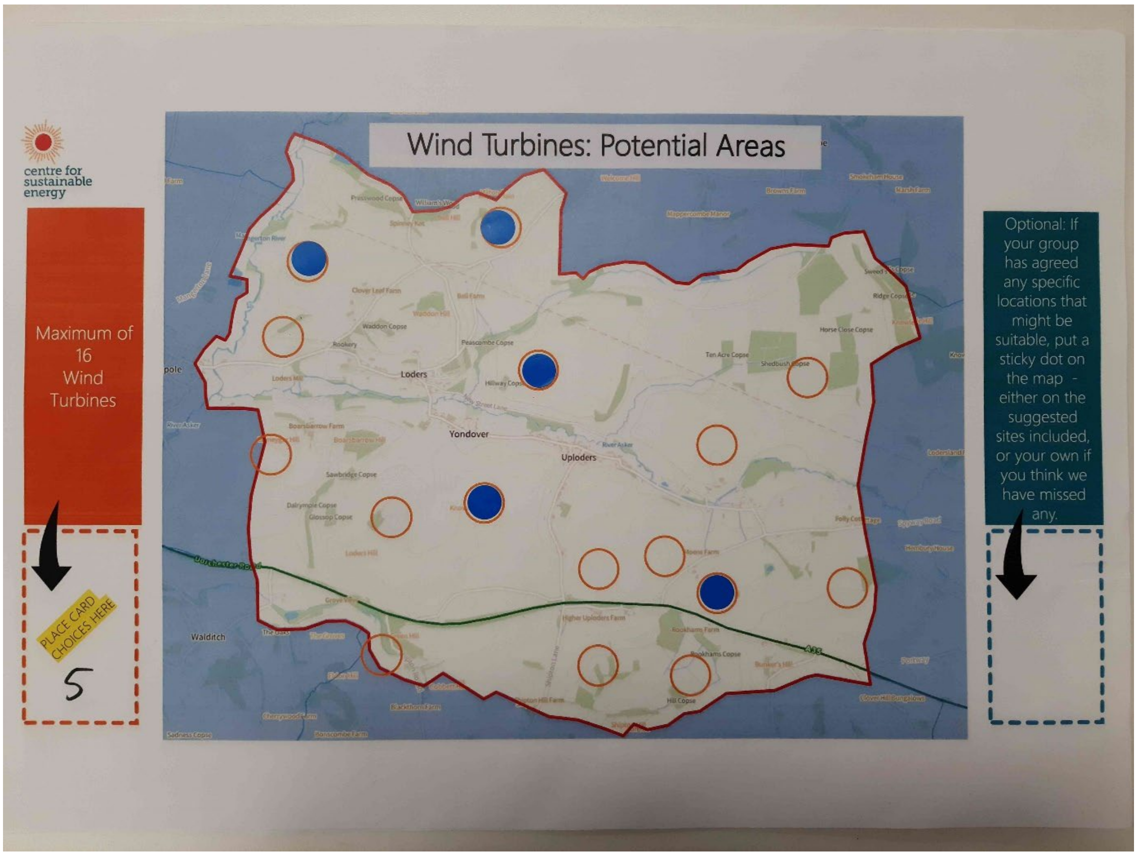
- Opened in 2017
- 4.4 MW capacity
- 5 hectares (13 Acres)

Appendix 2: Maps created by breakout groups identifying potential locations






Options for 3 turbines in 3 / location
3 options for where they are
Wind Turbines: Potential Areas
centre for sustainable energy
Maximum of 16 Wind Turbines
PLACE CARD CHOICES HERE
3
Optional: If your group has agreed any specific locations that might be suitable, put a sticky dot on the map - either on the suggested sites included, or your own if you think we have missed any.
Loders
Yondover
Uploders
Walditch
x3
x3
x3


Wind Turbines: Potential Areas
centre for sustainable energy
Maximum of 16 Wind Turbines
PLACE CARD CHOICES HERE
5
Optional: If your group has agreed any specific locations that might be suitable, put a sticky dot on the map - either on the suggested sites included, or your own if you think we have missed any.
Loders
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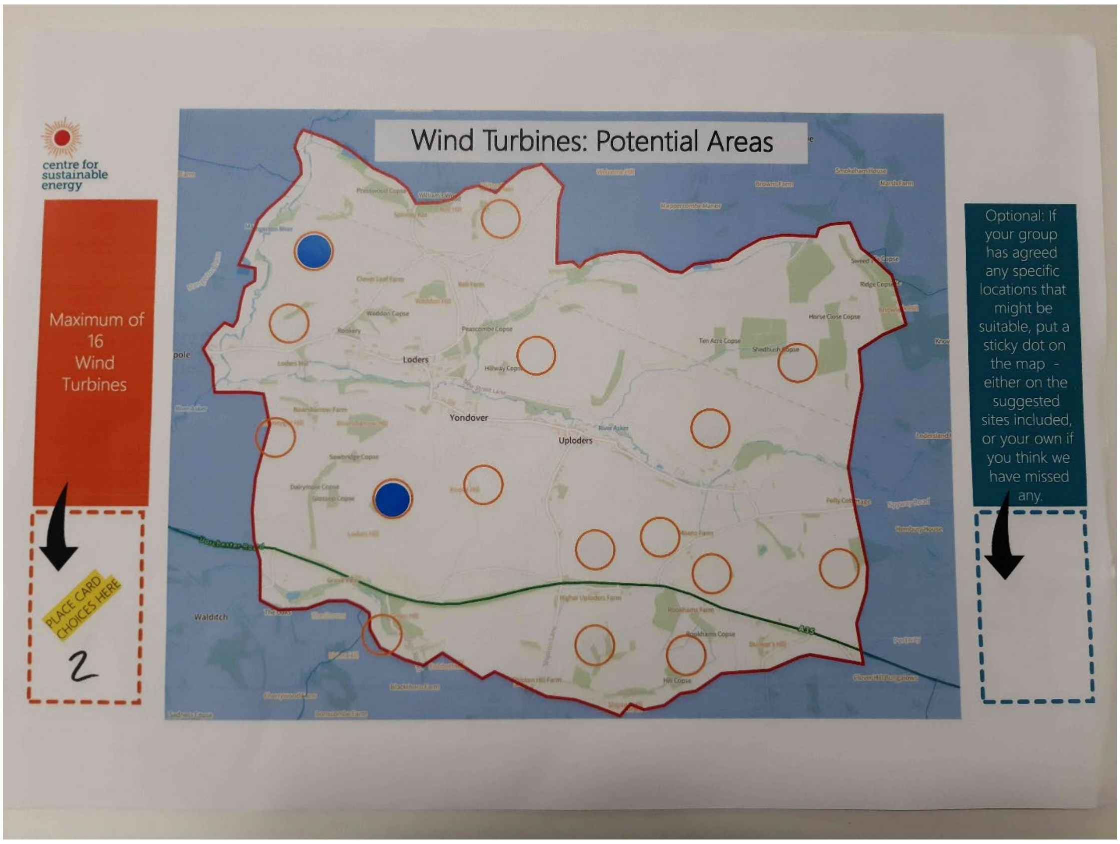
Uploders
Walditch


Wind Turbines: Potential Areas
centre for sustainable energy
Maximum of 16 Wind Turbines
PLACE CARD CHOICES HERE
2
Optional: If your group has agreed any specific locations that might be suitable, put a sticky dot on the map - either on the suggested sites included, or your own if you think we have missed any.
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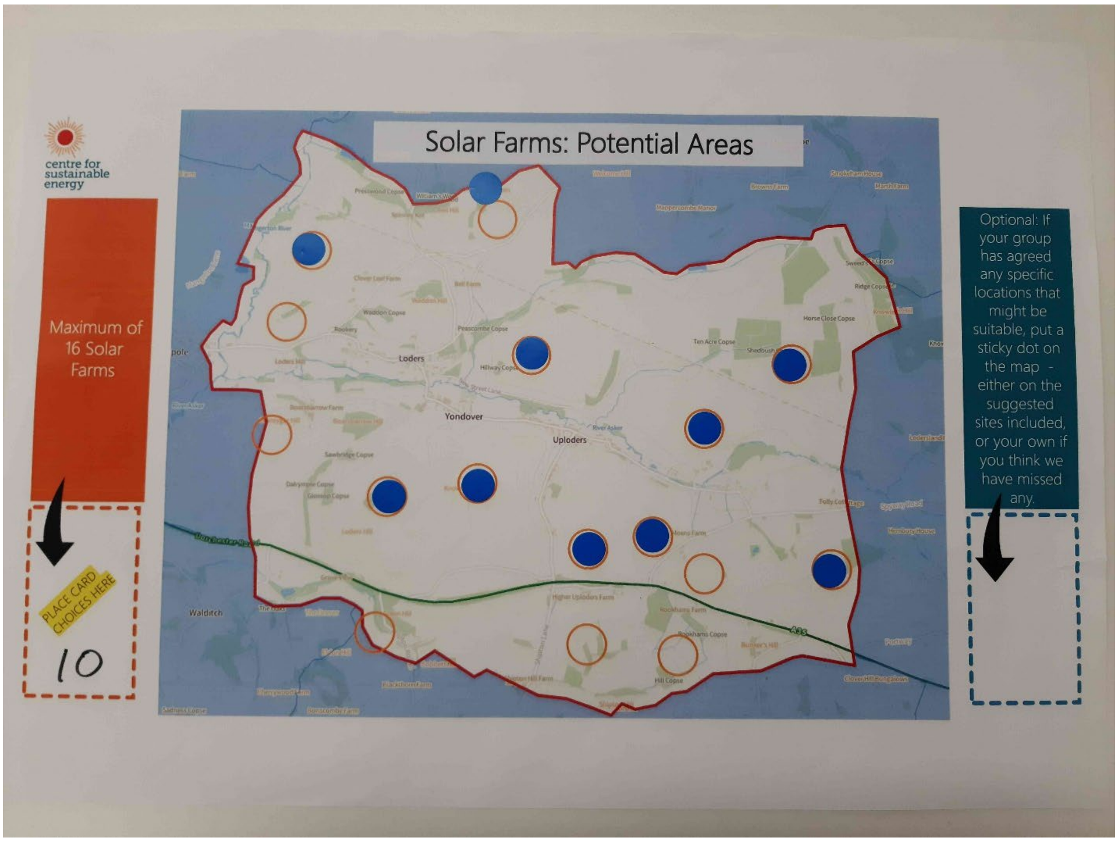
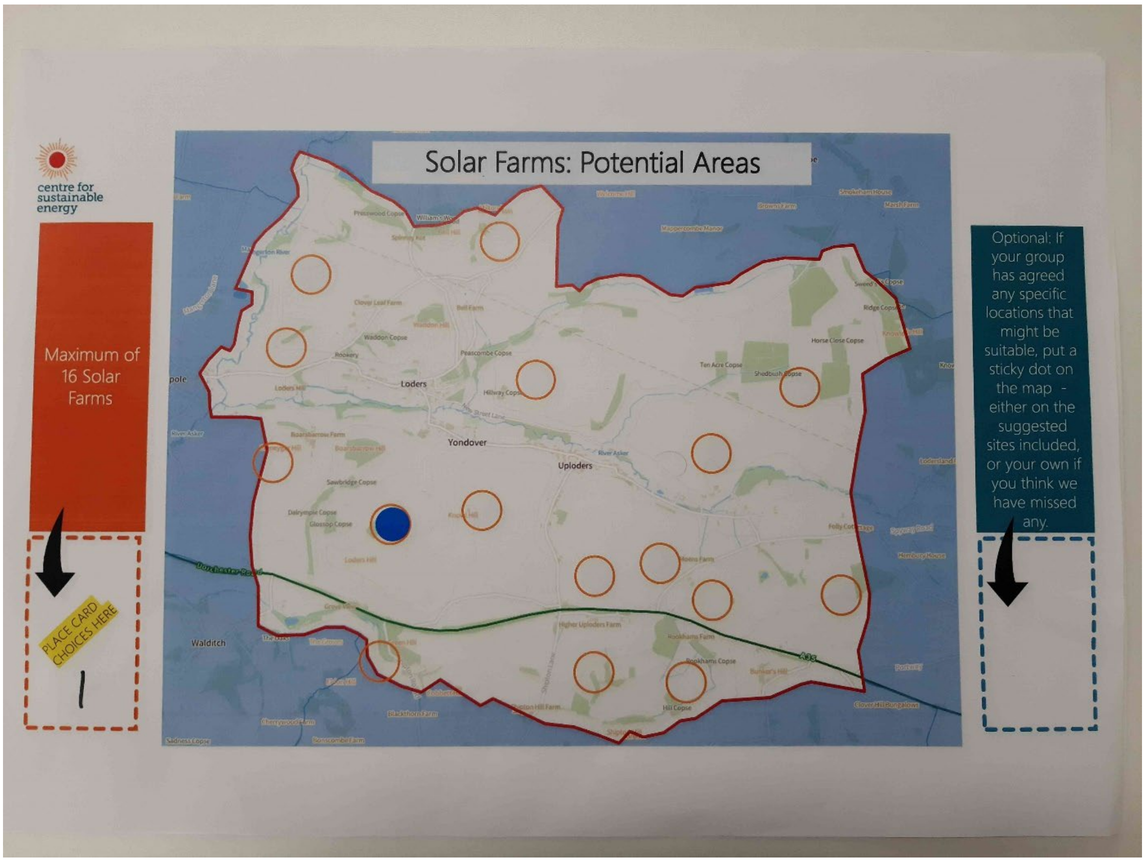
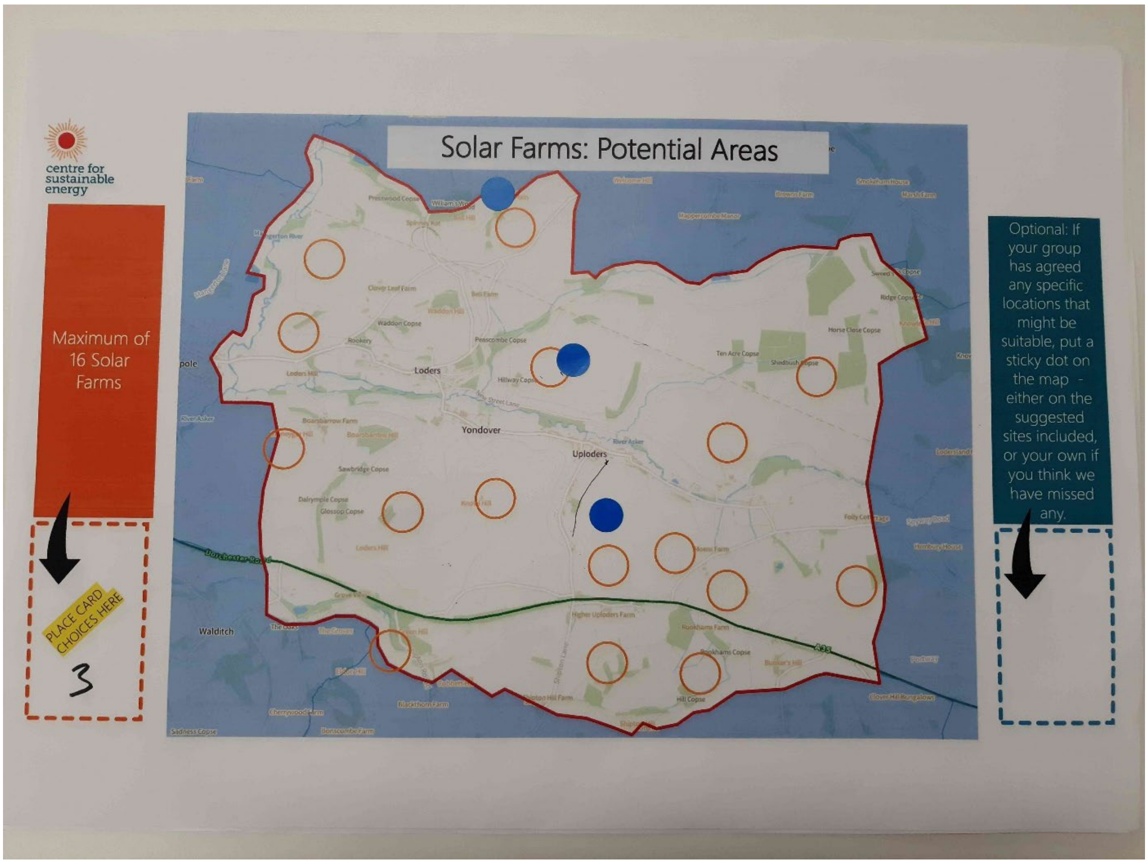
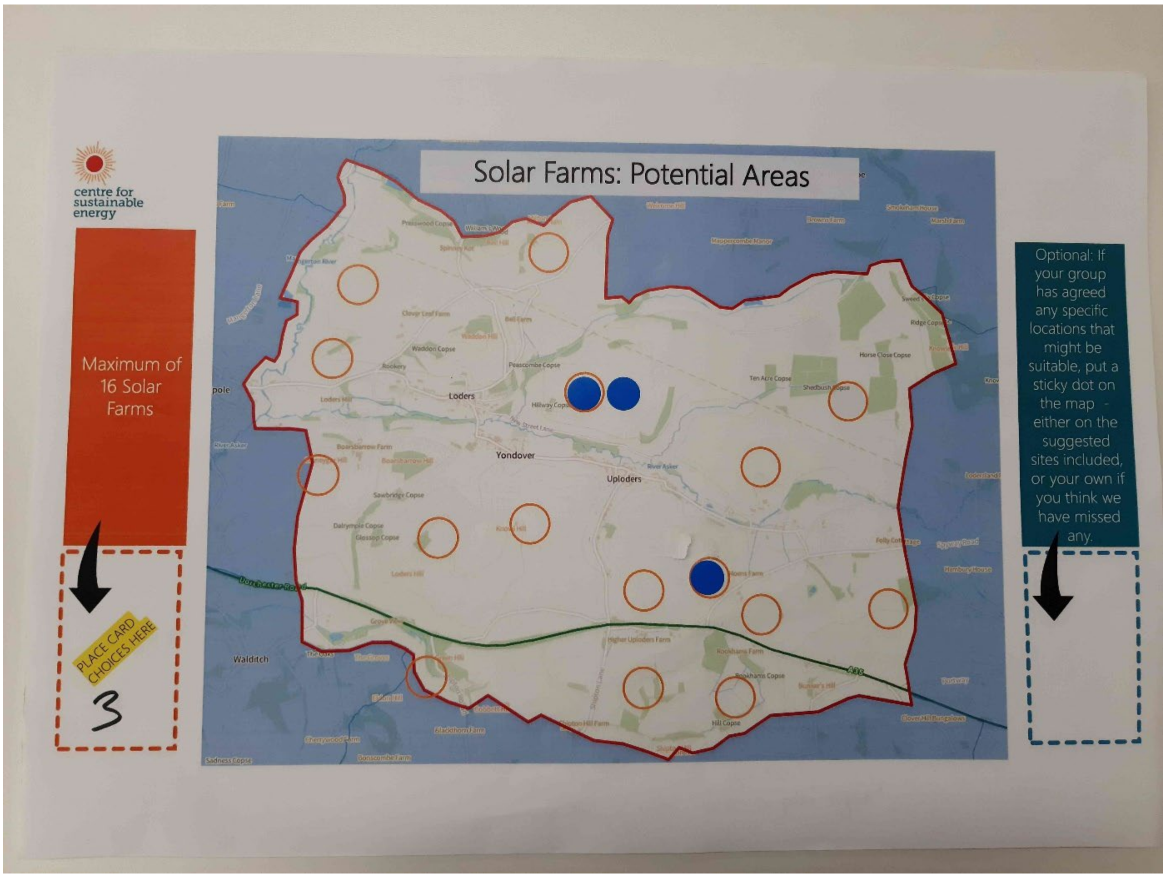
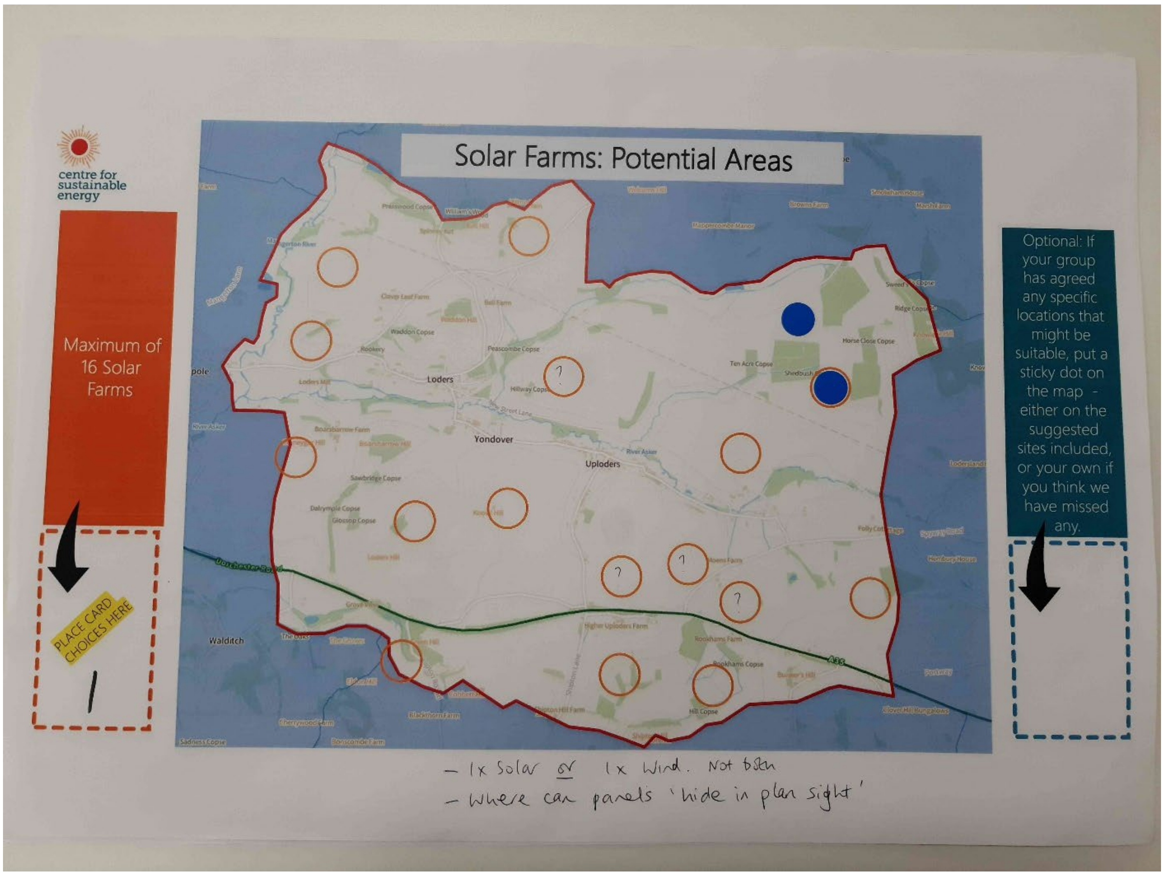
Yondover
Uploders
Walditch


Solar Farms: Potential Areas
centre for sustainable energy
Maximum of 16 Solar Farms
PLACE CARD CHOICES HERE
10
Optional: If your group has agreed any specific locations that might be suitable, put a sticky dot on the map - either on the suggested sites included, or your own if you think we have missed any.
Loders
Yondover
Uploders
Walditch


Solar Farms: Potential Areas
centre for sustainable energy
Maximum of 16 Solar Farms
PLACE CARD CHOICES HERE
1
Optional: If your group has agreed any specific locations that might be suitable, put a sticky dot on the map - either on the suggested sites included, or your own if you think we have missed any.
Loders
Yondover
Uploders
Waldich

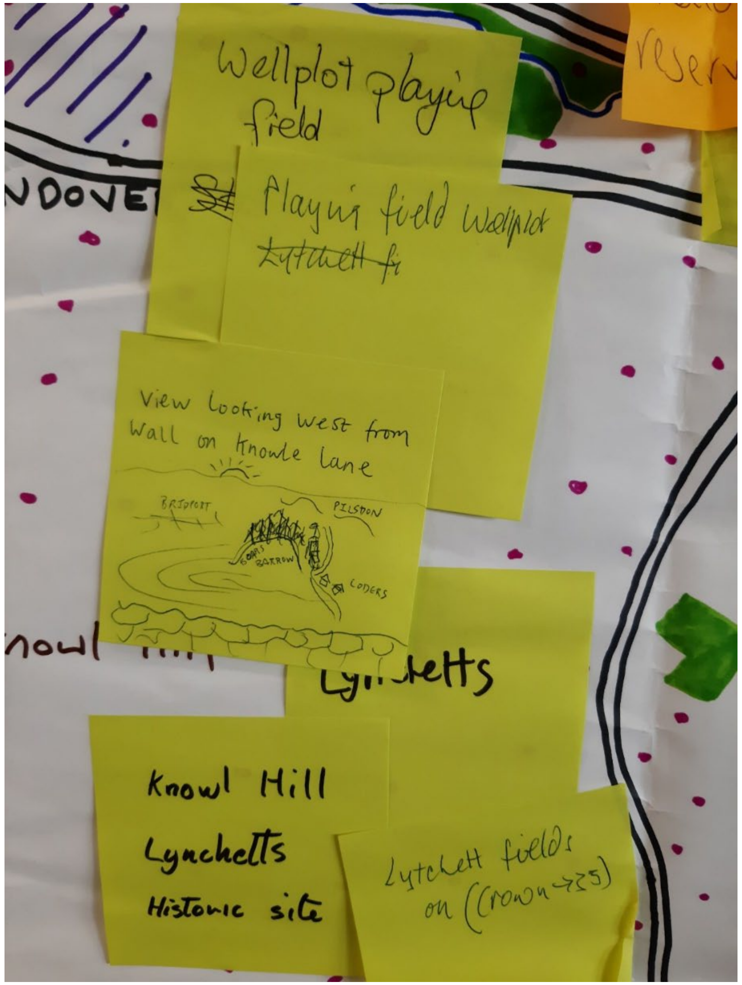

Solar Farms: Potential Areas
centre for sustainable energy
Maximum of 16 Solar Farms
PLACE CARD CHOICES HERE
3
Optional: If your group has agreed any specific locations that might be suitable, put a sticky dot on the map - either on the suggested sites included, or your own if you think we have missed any.
Loders
Yondover
Uploders
Walditch

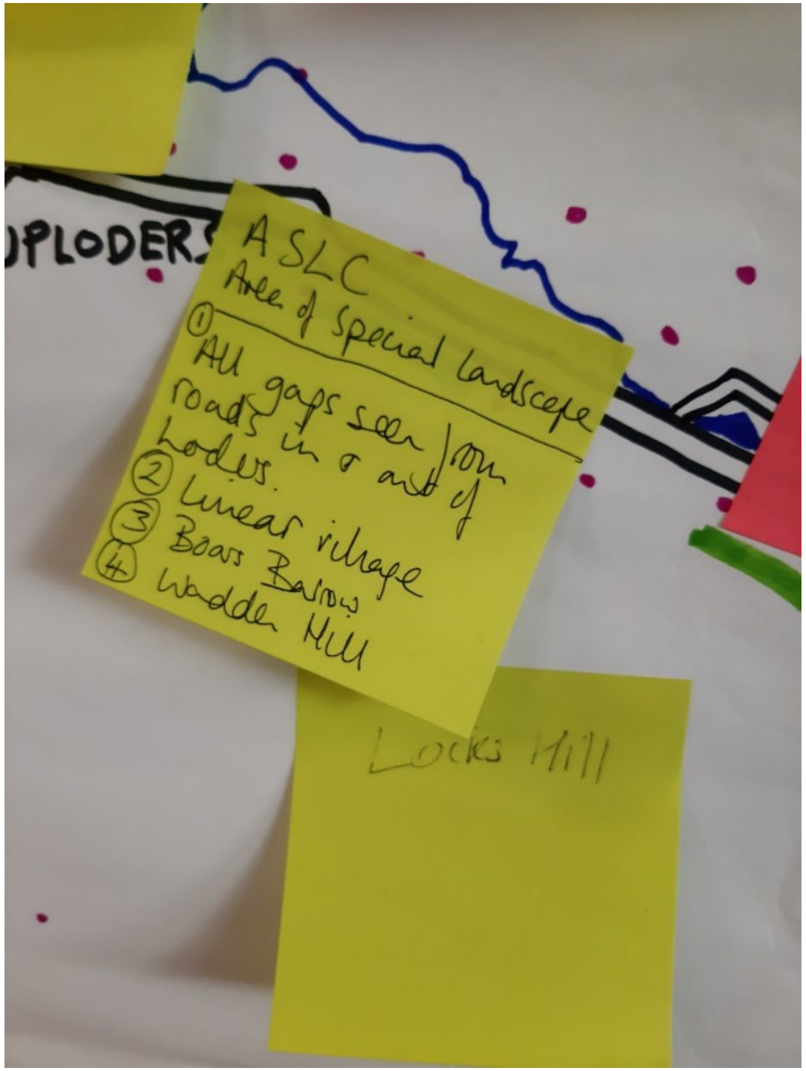

centre for sustainable energy
Maximum of 16 Solar Farms
PLACE CARD CHOICES HERE
3
Solar Farms: Potential Areas
Optional: If your group has agreed any specific locations that might be suitable, put a sticky dot on the map - either on the suggested sites included, or your own if you think we have missed any.

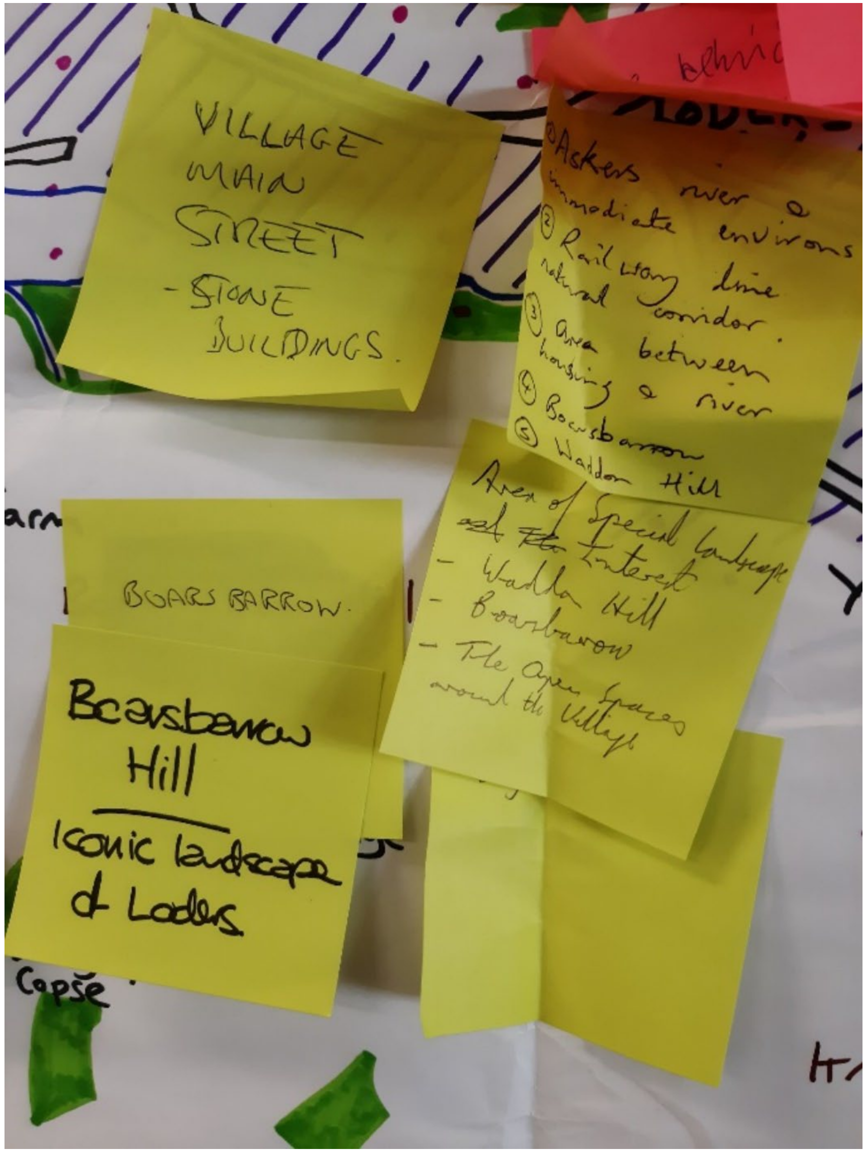

centre for sustainable energy
Maximum of 16 Solar Farms
PLACE CARD CHOICES HERE
1
Solar Farms: Potential Areas
Optional: If your group has agreed any specific locations that might be suitable, put a sticky dot on the map - either on the suggested sites included, or your own if you think we have missed any.
– 1x Solar or 1x Wind. Not both
– Where can panels 'hide in plain sight'

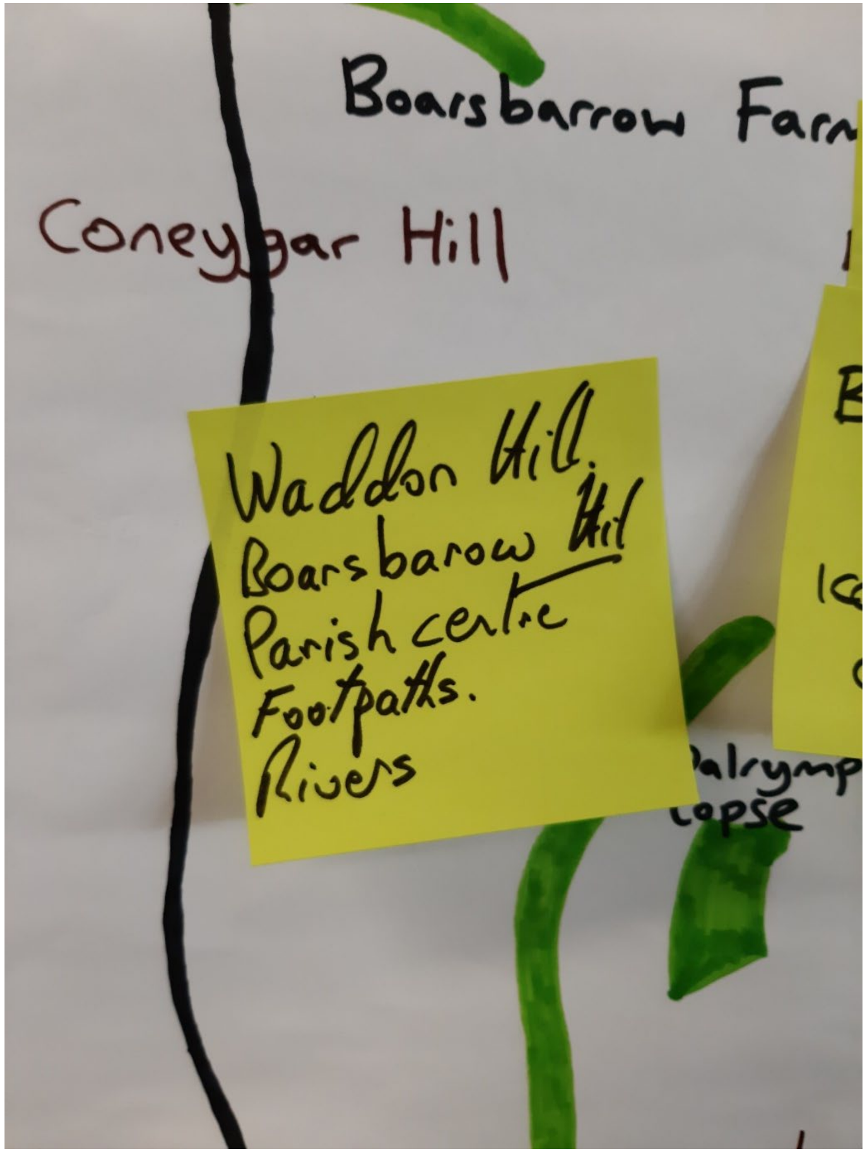
Appendix 3: Selected photos of the map comments

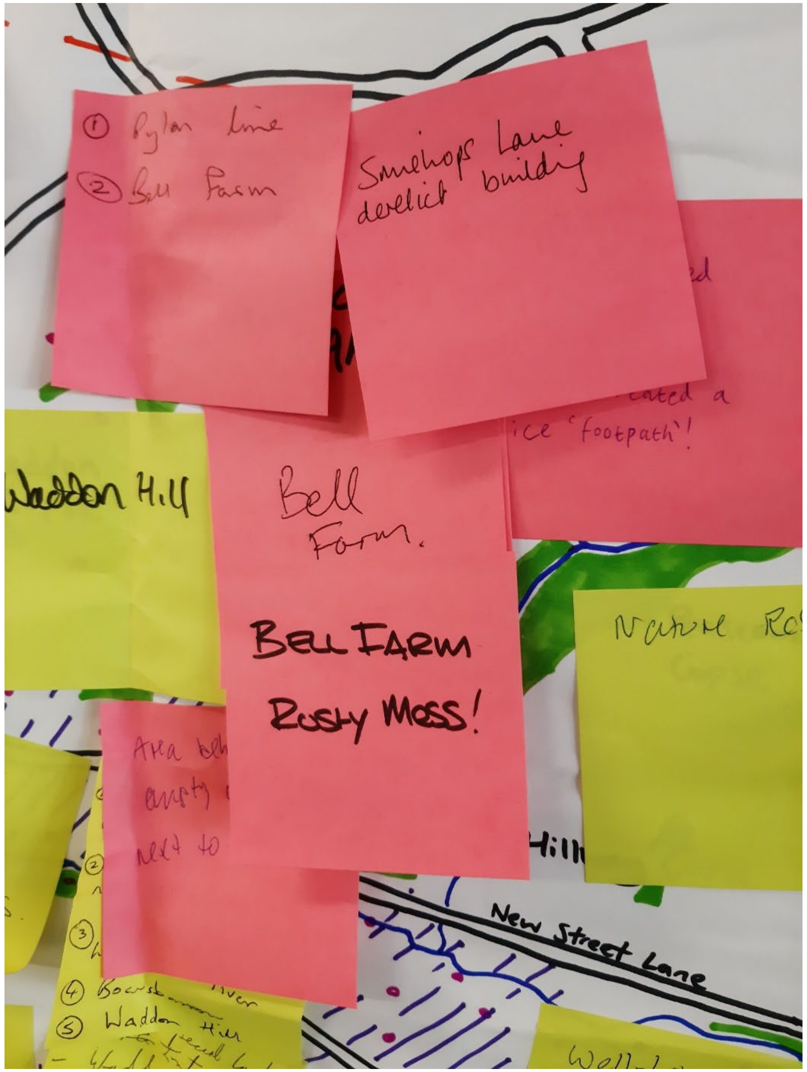
The photos below are a snapshot of some of the original comments.

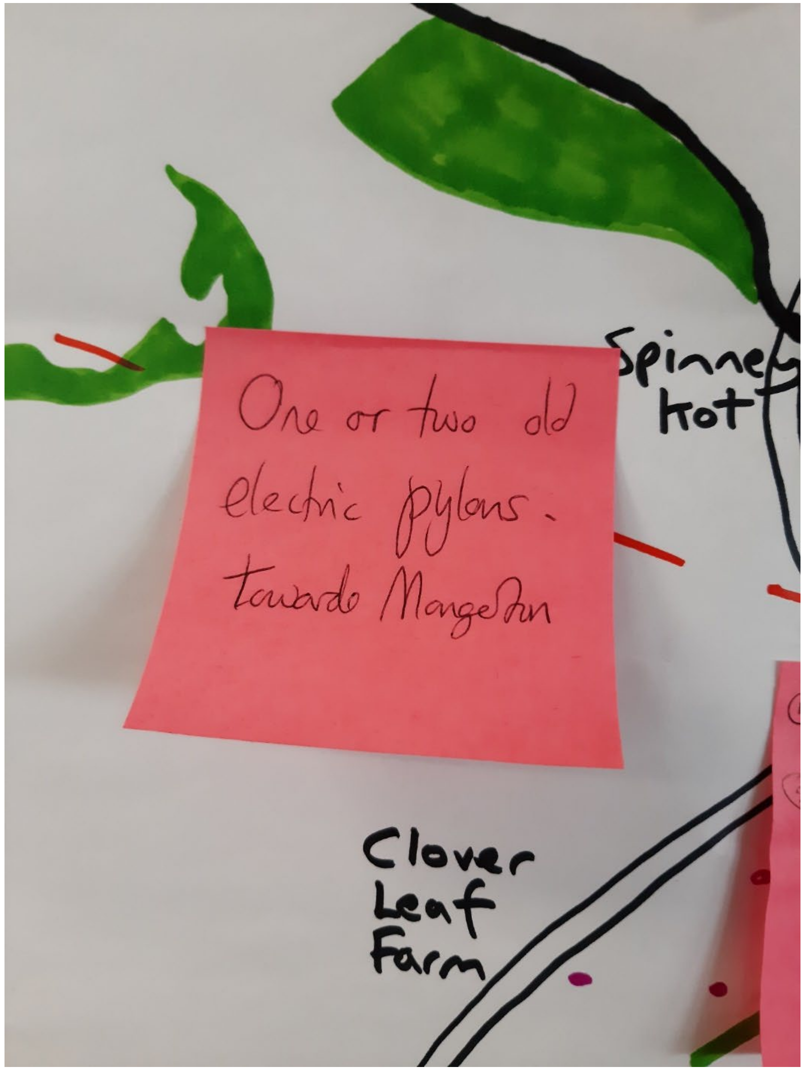


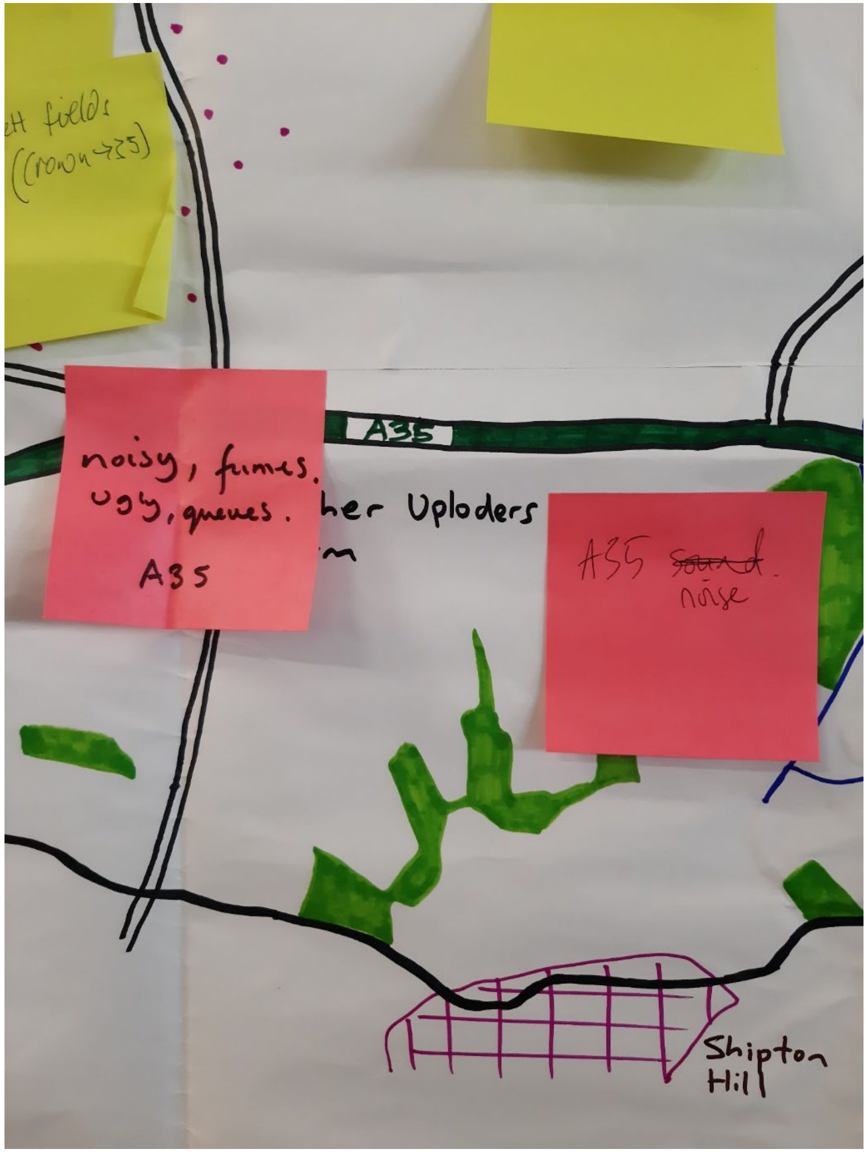


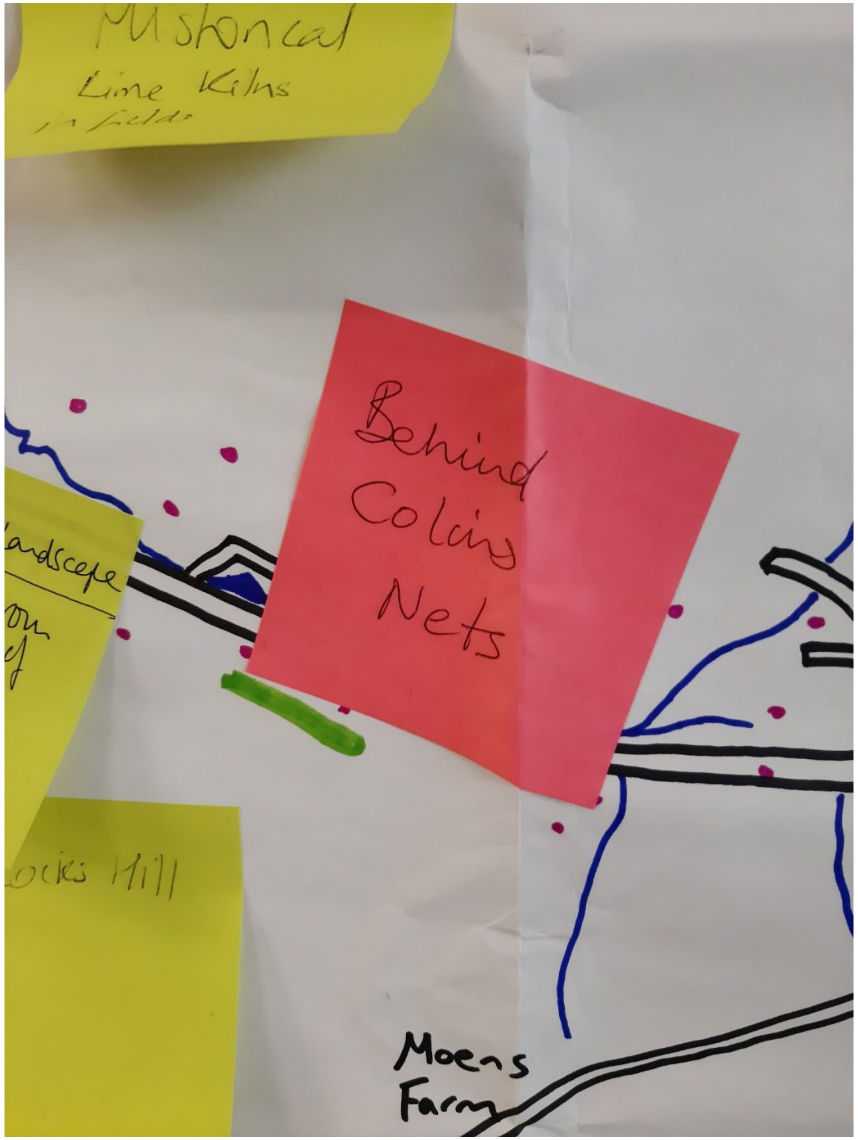

VILLAGE
MAIN
STREET
- STONE
BUILDINGS.
① Askers river & immediate environs
② Railway line natural corridor.
③ Area between housing & river
④ Boarsbarrow
⑤ Waddon Hill
Area of Special landscape and Interest
- Waddon Hill
- Boarsbarrow
- The Open Spaces around the Village
BOARS BARROW.
Boarsbarrow Hill
Iconic landscape of Loders
Copse

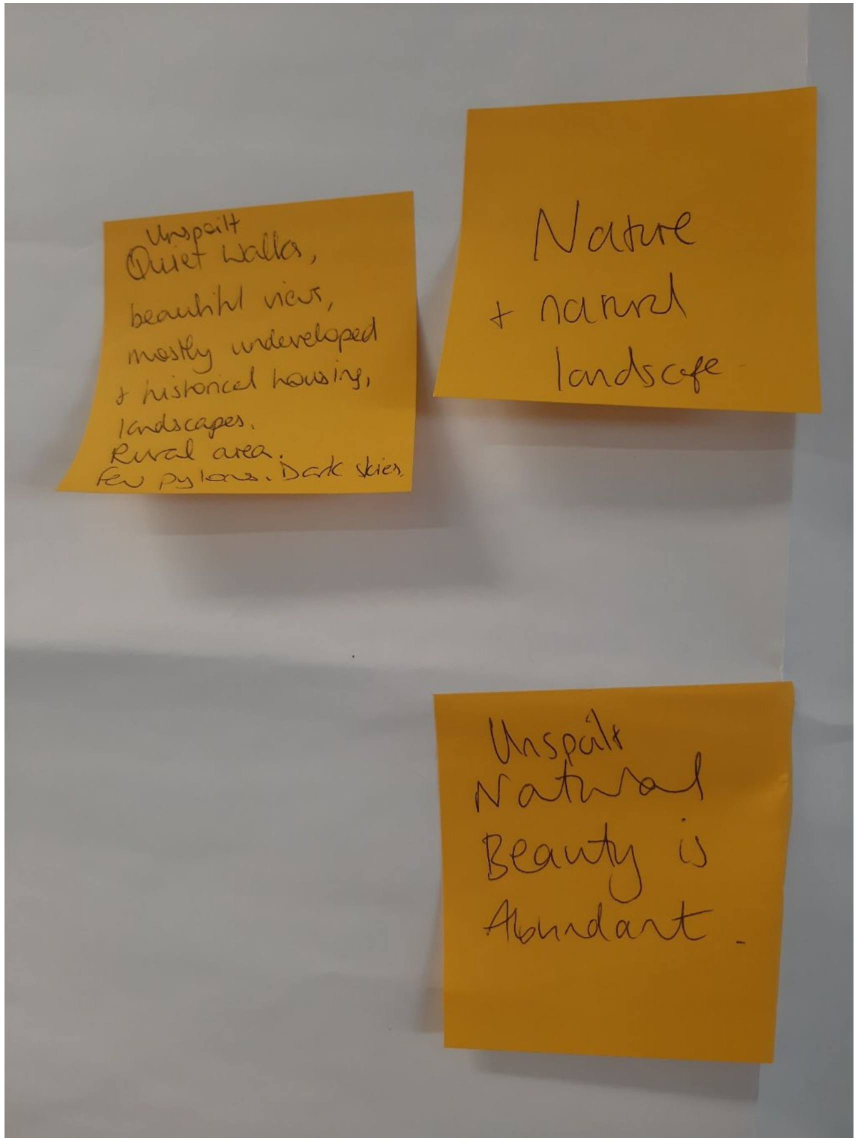

Boarsbarrow
Coneygar Hill
Waddon Hill.
Boarsbarow Hill
Parish centre
Footpaths.
Rivers
Copse

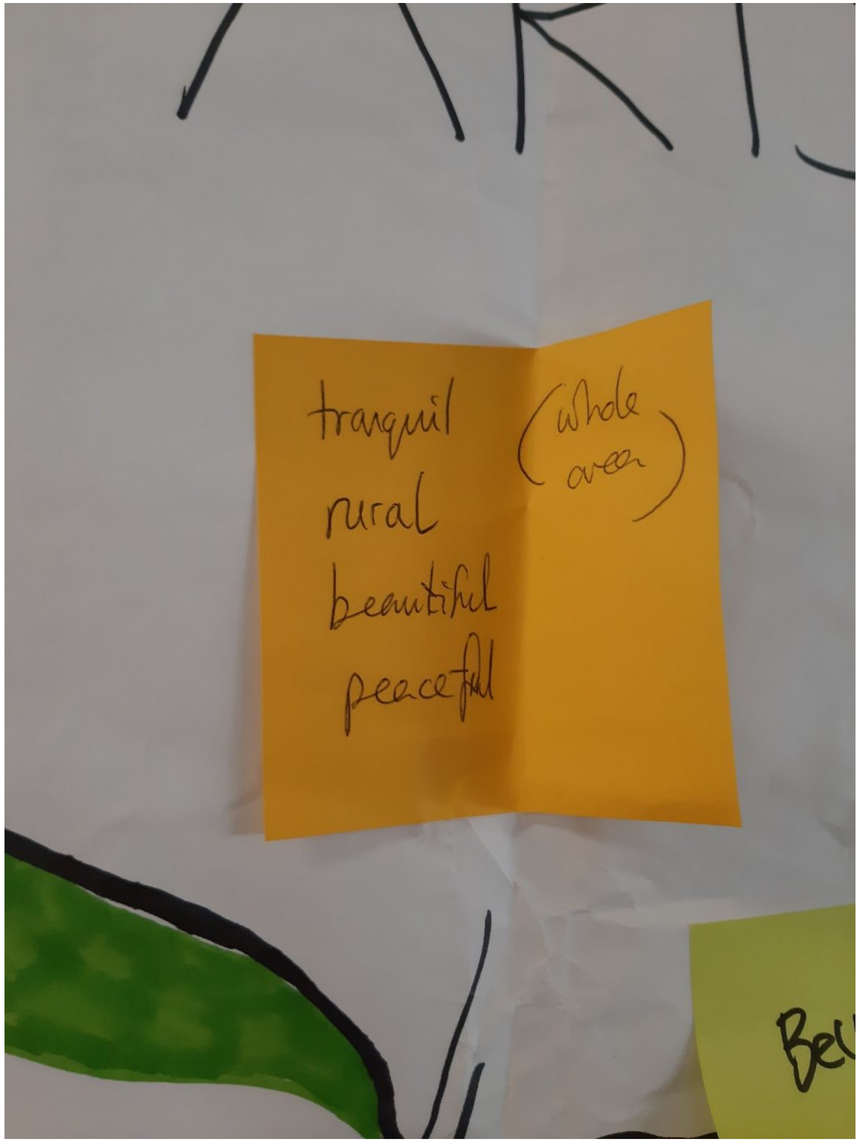

① Pylon line
② Bell Farm
Smishops Lane derelict building
Bell Farm.
BELL FARM
Waddon Hill
New Street Lane

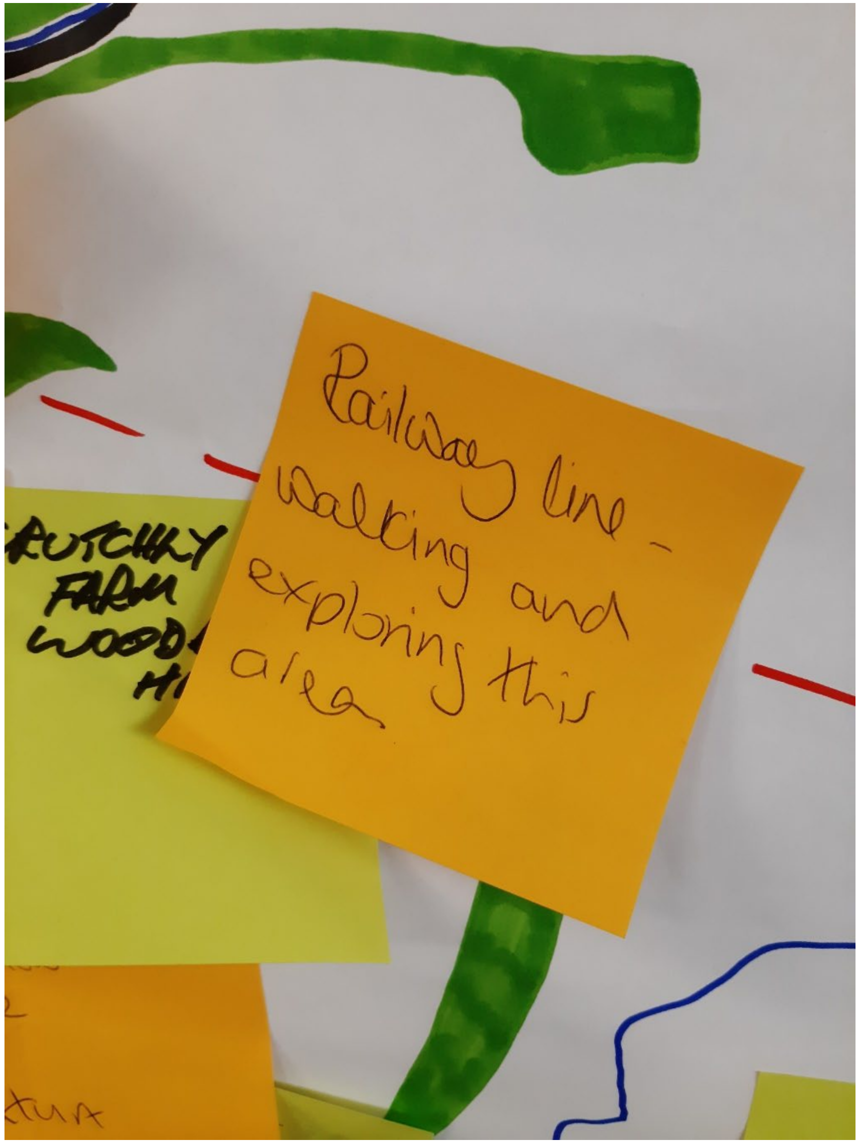

One or two old electric pylons. towards Mangerton
Clover Leaf Farm

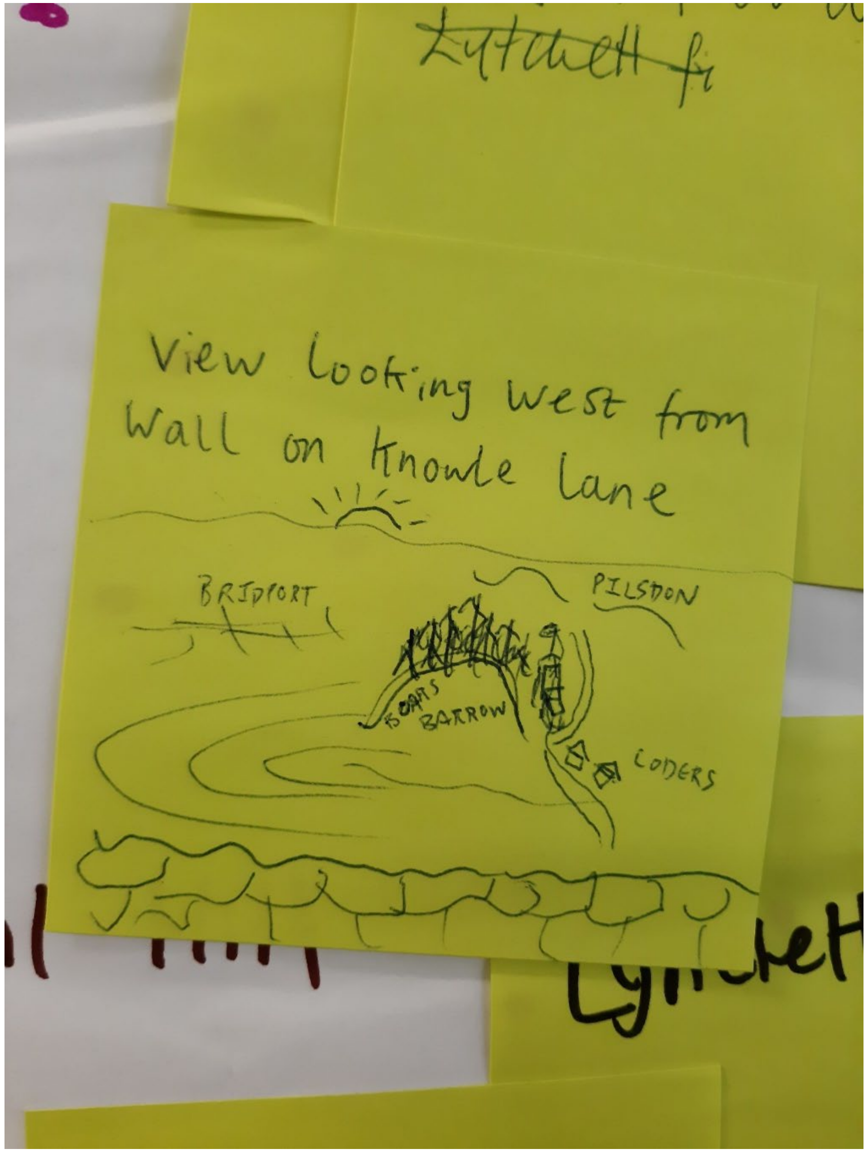

noisy, fumes.
ugly, queues.
A35
A35
A35 ~~sound~~ noise
Shipton Hill


Lime Kilns
Behind Colins Nets
Moens Farm


Unspoilt Quiet walks,
beautiful views,
mostly undeveloped
+ historical housing,
landscapes.
Rural area.
Few pylons. Dark skies
Nature
+ natural
landscape
Unspoilt
Natural
Beauty is
Abundant.


tranquil
rural
beautiful
peaceful
(whole
area)


Railway line - walking and exploring this area


View looking west from Wall on Knowle lane
BRIDPORT
PILSDON
BOARS BARROW
LODERS