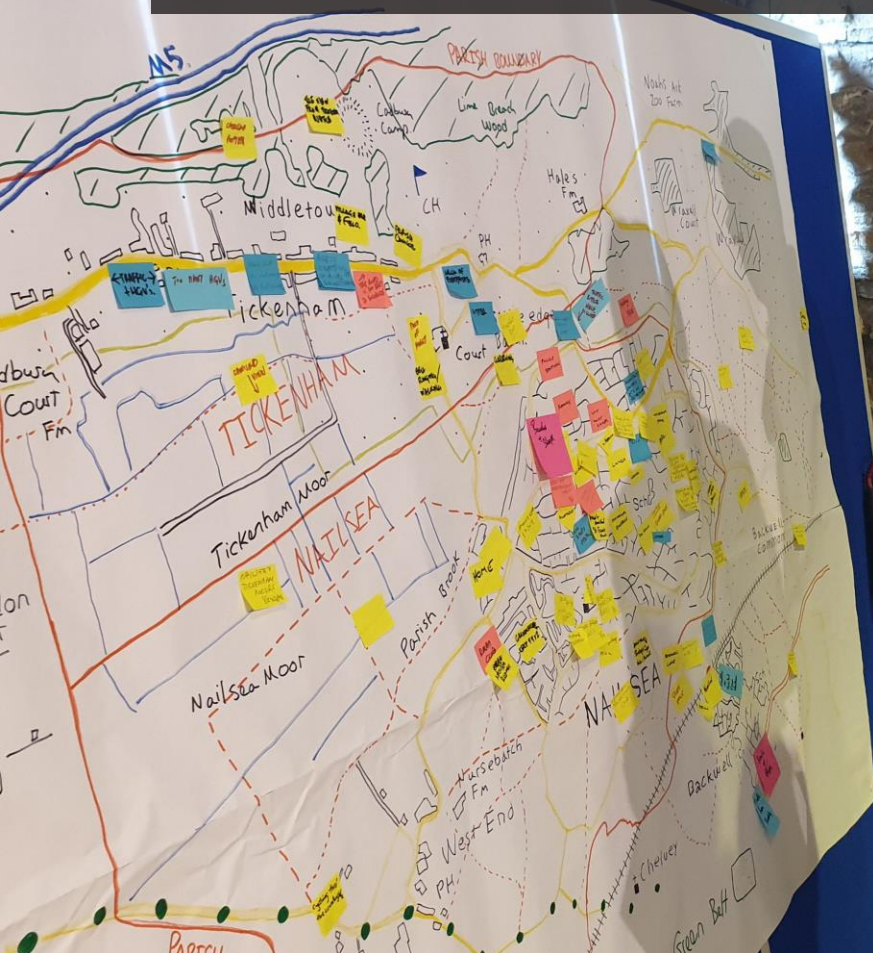


September 2022

North Somerset renewable energy consultation findings



By the Centre for Sustainable Energy,
for North Somerset Council



Contents

Executive summary	4
1. Introduction and context	6
1.1 Engaging the local community and delivering the workshops	7
1.2 Selecting the communities.....	7
1.2.1 Publicising the workshops.....	7
1.2.2 Workshop format and structure	8
1.3 Online consultation.....	8
2. Congresbury and Puxton findings	10
2.1 Summary of workshop outputs – Congresbury and Puxton	10
2.2 Summary of online consultation – Congresbury and Puxton	12
2.2.1 Wind turbines in West Hewish, by the M5 motorway	12
2.2.2 Community ownership of wind turbines	13
2.2.3 Solar farm in West Hewish, adjacent to M5 motorway.....	14
2.2.4 Expansion of existing solar farms.....	15
2.2.5 Anaerobic digestion	15
2.2.6 Overall energy generation	16
2.2.7 Demographic data for respondents to online consultation – Congresbury and Puxton	18
3. Nailsea and Tickenham findings.....	19
3.1 Summary of workshop outputs – Nailsea and Tickenham	19
3.2 Summary of online consultation – Nailsea and Tickenham.....	21
3.2.1 Wind turbines on Tickenham Moor	21
3.2.2 Ground based solar farms.....	25
3.2.3 Anaerobic digestion	27
3.2.4 Mine water heat.....	29
3.2.6 Demographic data for respondents to online consultation – Nailsea and Tickenham	29
4. Yatton and Kenn findings	30
4.2 Summary of workshop outputs – Yatton and Kenn.....	30
4.3 Summary of online consultation – Yatton and Kenn	32
4.3.1 One large wind turbine between North End and Kenn Moor Gate.....	32
4.3.2 Three medium-sized wind turbines on Kenn Moor	33
4.3.3 Community ownership of wind turbines	35
4.3.4 Solar energy	36

4.3.5 Anaerobic digestion	38
4.3.6 Overall energy generation	39
4.3.7 Demographic data for respondents to online consultation – Yatton and Kenn.....	40
5. Policy recommendations	41
5.1 Preferred locations for renewable energy.....	41
5.1.1 Congresbury and Puxton.....	41
5.1.2 Nailsea and Tickenham	41
5.1.3 Yatton and Kenn.....	42
5.2 Other recommendations.....	42
5.2.1 Community benefit	42
5.2.2 Anaerobic Digester.....	43
6. Appendices.....	44
6.2 Appendix A – Congresbury and Puxton online consultation data	44
A1 Renewable technologies.....	44
A2 Demographics	46
6.3 Appendix B – Nailsea and Tickenham online consultation data	48
B1 Renewable technologies.....	48
B2 Demographic data.....	50
6.4 Appendix C - Yatton and Kenn – online consultation data	52
C1 Renewable technologies	52
C2 Demographic data.....	56
6.5 Appendix D - Renewable energy technology information.....	58
D1 Solar	58
D2 Wind turbines	59
D3 Energy battery storage	60
D4 Anaerobic digestion	60
D5 Community ownership	61

Executive summary

North Somerset Council (NSC) commissioned the [Centre for Sustainable Energy](#) (CSE) to carry out community engagement with three areas in North Somerset. The engagement aimed to understand the type, scale and location of future renewable energy development which could be acceptable to local people, to the council set policy the community is comfortable with and has meaningfully influenced. The workshop and consultation will inform the council's emerging planning policies which will guide the future development of renewable energy projects in the area.

The three areas were: Congresbury and Puxton, Nailsea and Tickenham, and Yatton and Kenn. These areas were chosen based on their high potential for renewable energy generation. CSE ran a workshop for local people in each of the three areas. At these, participants considered which parts of the local area were special and should be protected. Following this, they explored which types of renewable energy could potentially be developed in the future. Residents considered the size and location of energy technologies including wind turbines, ground-based solar panels and anaerobic digestion.

After each workshop, there was follow-up online consultation to collect wider opinion on what was discussed in the workshop. The following is a summary of the workshop and consultation findings for each area, along with CSE's policy recommendations.

Congresbury and Puxton

Online consultation from those in Congresbury and Puxton was broadly positive, and people felt the workshop's suggestion of putting wind turbines and solar panels by the M5 was sensible as the landscape is already spoilt by traffic. The workshop suggestion of expanding the existing four solar farms received a more mixed, but overall positive response. There were some concerns over loss of agricultural land, visual impact, and impact of construction traffic.

The following suggestions received majority support in the workshop and consultation therefore CSE would recommend these locations could be identified for renewable energy development in the local plan:

- A medium sized wind farm of 100-metre-tall wind turbines, a ground-based solar farm and battery storage by the M5 motorway, to the north-west of Hewish. This was on the condition the technologies are community-owned or led, as agreed by local people in the workshop and consultation.
- The expansion of the four existing ground-based solar farms. Although this would need to consider the concerned comments and address these through policy criteria.
- Amending policy DP7 (related to renewable energy) to include expansion of solar farms, given support in Congresbury and Puxton for this.

Nailsea and Tickenham

In Nailsea and Tickenham, online respondents had a majority negative response and several concerns about the workshop suggestion of several wind turbines on Tickenham Moor. This is due to their size, location and potential impact on wildlife. A suggested ground-based solar farm from the

workshop development received a mixed reaction in online consultation. No location was suggested for this in the workshop. In online comments, some suggested floodplains would be a suitable location for a solar farm, while others had concerns about loss of agricultural land to the panels. However, there was a positive online reaction to the suggestion of [mine heat water](#) development under Nailsea.

We do not recommend that preferred locations for wind turbine or solar farm development are identified in Nailsea and Tickenham, due to the lack of clear consensus on this. However, support does exist for potential mine water heat generation if this is found to be feasible. Therefore, this energy source could be identified within heat policy.

Yatton and Kenn

For Yatton and Kenn, online responses were broadly positive to workshop participants' suggestion of a large wind turbine to the north of Yatton and the railway line, as well as three medium wind turbines on Kenn Moor. However, some comments raised concern about size and location of the suggested wind turbine near the village. There was a positive response to the suggestion of ground-based solar panels near the M5.

The following suggestions received majority support in the workshop and consultation therefore CSE would recommend these locations could be identified for renewable energy development in the local plan:

- A large, 130-metre-tall wind turbine to the north east of Yatton. This was on the condition the turbine is community-owned or led, as agreed by local people in the workshop and consultation.
- A small-scale wind farm of 100-metre-tall wind turbines on Kenn Moor to the east of Kenn. This was on the condition the turbine is community-owned or led, as agreed by local people in the workshop and consultation.
- A medium ground-based solar farm next to the M5 to the north of East Hewish.

General findings and recommendations

Across all three areas, workshop participants supported the idea of having an anaerobic digester, although no potential location was identified. In online comments, there was some concern over the visual impact of a suggested anaerobic digester, although overall most respondents did feel either positive or neutral about the suggestion. Also in online comments, people expressed a preference for locating it away from residential development and in areas already impacted such as farms or industrial estates. CSE would suggest amending policy DP7 to set out criteria based on these comments for assessing anaerobic digestion proposals.

Additionally, throughout the workshops and consultation, people felt more supportive of renewable energy development which the community owns or can financially benefit from. This was a particularly strong sentiment for wind turbines. In Congresbury and Puxton as well as Yatton and Kenn, wind turbine support was conditional on the community benefitting. CSE recommend tighter wording in policy DP7 to require all renewable energy development to provide community benefit.

1. Introduction and context

North Somerset Council declared a climate emergency in February 2019. They aim to become carbon neutral by 2030, which means reducing net carbon emissions across the district to zero by 2030. The [Climate Emergency Strategic Action Plan](#) identifies the need to increase renewable energy generation to meet this target.

NSC Council is also updating its Local Plan in light of its carbon reduction commitments. This plan will cover the period 2023 - 2038. A local plan is a document prepared by the council, in consultation with the community, which sets out planning policies and proposals for new development. In Spring 2022 NSC ran a consultation on the preferred options for the plan [which can be found here](#). Following the consultation, the Council will create a final draft of the plan. This final draft will have further consultation with local people before being submitted, signed off and adopted by December 2023.

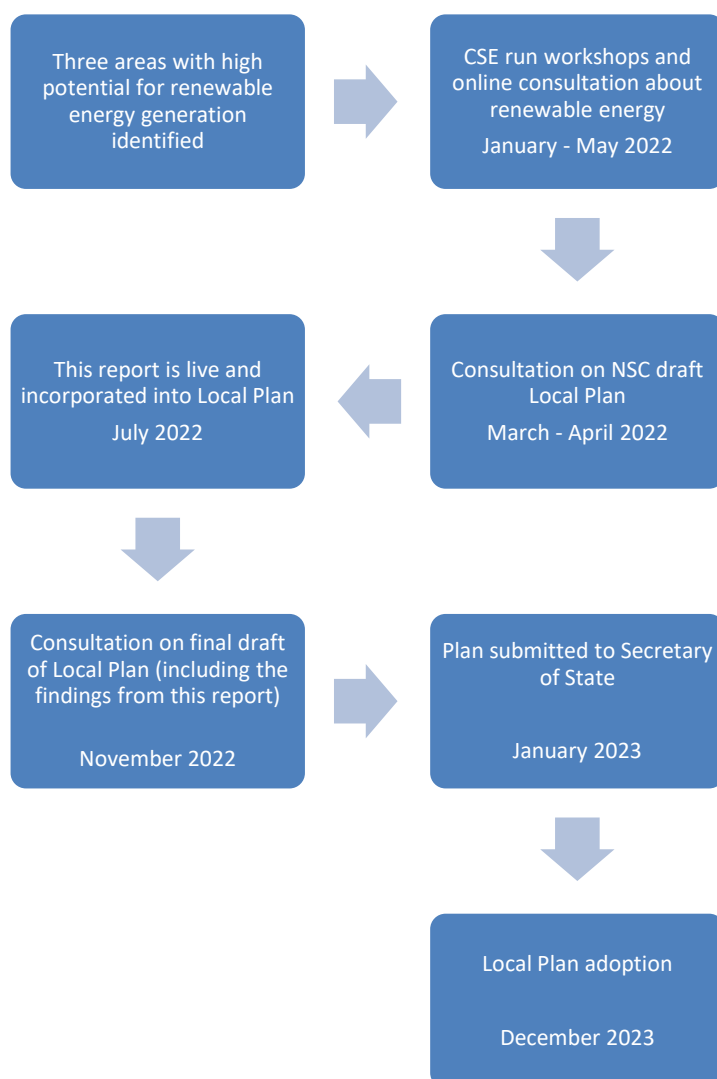


Figure 1 - Local Plan timeline and where this consultation fits in

Emerging local plan policy DP7 sets out criteria that future renewable energy planning proposals are assessed against. The policy aims to encourage more renewable energy generation across North Somerset. It proposes to identify search areas and preferred locations for different types of technology, where community support for these is demonstrated.

Therefore, NSC would like to include more supportive renewable energy policies in its Local Plan. As part of the ongoing consultation on this plan, they'd like to find out more from local communities about how and where renewable energy could be developed.

1.1 Engaging the local community and delivering the workshops

NSC commissioned the [Centre for Sustainable Energy \(CSE\)](#) to carry out detailed engagement with selected communities. This aimed to understand the type, scale and location of renewable energy development which might be acceptable. The workshop and consultation will help the Council create policy which has been meaningfully influenced by the local community. The policy will then guide future development of renewable energy in the area.

1.2 Selecting the communities

Three areas were chosen by NSC and CSE as the focus for the project. This was based on a [Renewable Energy Resource Assessment Report \(RERAS\)](#) undertaken on behalf of the Council. The RERAS showed the areas likely to have significant potential for renewable energy development.

The three chosen areas were the parishes of:

- Congresbury and Puxton
- Nailsea and Tickenham
- Yatton and Kenn

A team from CSE worked with NSC to run three workshops and an online consultation to engage residents about renewable energy. The outputs from this are detailed in this report and will be used to inform renewable energy policies in NSC's Local Plan.

1.2.1 Publicising the workshops

For each area, CSE created a community engagement plan to publicise the workshops and ensure a diverse range of people attended. CSE identified and contacted a wide range of organisations which have access to different sections of the community, such as:

- Local news and events websites
- Local Facebook groups
- Parish Council and Councillors
- Sports clubs
- Churches and faith groups
- Libraries
- Societies and groups e.g. walking and wildlife groups, historical and archaeological associations

- Neighbourhood watch groups
- Senior Citizens' Lunch Club
- Women's institute and Rotary clubs

This work aimed to reach a broad range of people in the local community, to ensure a diverse range of voices were captured in each workshop.

CSE contacted people via email and phoned organisations to explain the relevance of the events to their members. We used social media, articles in the local press and physical posters around each parish.

Following the workshop, CSE publicised the online consultations using the same methods.

1.2.2 Workshop format and structure

CSE hosted an engaging and participatory workshop for each of the three areas. This took place on a weekend daytime with a maximum capacity of 20 people per workshop.

The workshop activities included:

- Adding notes to a blank map of the area for people to start thinking about areas that were special to them/liked/disliked.
- A series of short videos about renewable energy, giving participants objective information on the characteristics, impacts and pros and cons of different forms of renewable energy. Participants in Congresbury and Puxton opted not to view these videos.
- Choosing from a of 'menu' renewable energy (e.g. solar panels, wind turbines) that could go in the area. The menu was based on what is technically possible and suitable from the RERAS study.
- Identifying areas on the map where different technologies could go e.g. wind turbines on Tickenham Moor.
- As technologies were chosen, CSE entered them into a spreadsheet. This showed everyone how much energy they would produce and how much carbon they would save.

The workshop outputs should be taken as high-level suggestions of the type, scale and location of renewable energy that local people could potentially support in the future. Any renewable energy proposals by NSC will be subject to further consultation as part of the Local Plan.

1.3 Online consultation

While efforts were made to attract a diverse group of people to attend the workshops, they were necessarily limited in size. Therefore, they cannot be assumed to be representative of the full range of opinion in the local community.

To address this, CSE published the workshop outputs online on the Commonplace consultation platform. This website summarised what was discussed in the workshop and collected feedback as to whether the views expressed at the workshop were shared by the wider community.

These outputs included:

North Somerset renewable energy consultation findings

- A digital version of the map, showing potential locations for renewable energy.
- A survey about the renewable energy suggested in the workshop including questions about the type, location, size and ownership of each technology.

The consultation was open for six weeks for each area.

2. Congresbury and Puxton findings

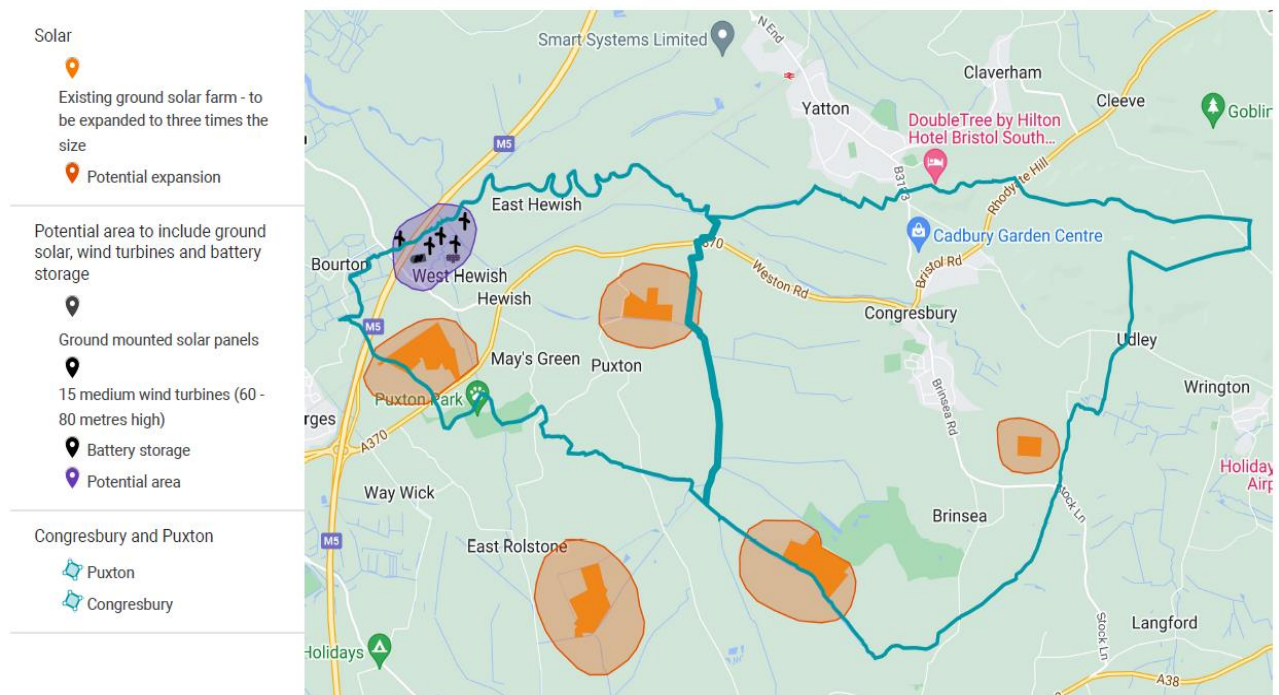
2.1 Summary of workshop outputs – Congresbury and Puxton

During this workshop, participants supported potential development the technologies outlined in table 1. [Find out more about renewable energy in a visual guide in appendix D.](#)

Table 1 – Summary of technologies suggested by Congresbury and Puxton workshop participants

Technology	Location	Details
Up to 15 medium scale wind turbines (each up to 1 megawatt in energy output and 100 metres in height).	By the M5 motorway, to the north west of West Hewish.	On the condition the turbines are community owned, with profits being returned to the community. Each turbine would provide power for about 550 homes per year, or 8,250 in total. Note for reference, Congresbury and Puxton contain 1,600 homes.
A ground-based solar farm and development of community scale battery storage.	Same location as 15 wind turbines - by the M5 to the northwest of West Hewish.	No size was specified
The significant expansion of the four existing ground based solar farms within the two parishes (which currently generate 29 megawatts of electricity, equivalent of powering 8060 houses), with the potential to approximately treble their size.	Various across the area.	Increasing the size of these ground based solar farms would mean about a further 70 megawatts of electricity could be generated (equivalent of powering 26,860 houses). Note for reference, Congresbury and Puxton contain 1,600 homes.
One 500 kilowatt Anaerobic Digester.	No location was discussed.	

A more detailed record of the workshop is attached at appendix A.



2.2 Summary of online consultation – Congresbury and Puxton

Respondents in the online consultation were broadly positive towards the development of all the technologies. People felt putting wind turbines by the motorway was a suitable choice of location. There were concerned comments about the expansion of existing solar farms due to the impact of construction traffic, visual impact and potential loss of agricultural land. Doubts were also raised about the anaerobic digester due to its visual impact.

2.2.1 Wind turbines in West Hewish, by the M5 motorway

Most respondents in the online consultation felt broadly positive about the proposed wind turbines, with 87% of respondents were either 'happy' or 'satisfied' with the size of the suggested wind turbines and 87% of respondents either 'happy' or 'satisfied' with the number of suggested wind turbines (figures 3 and 4).

Respondents agreed with the workshop participants that locating wind turbines and battery storage by the motorway was a good location. One respondent said locating the wind turbines by the motorway is good because *"this already a noisy and spoiled area, meaning that putting turbines here can't hurt."*

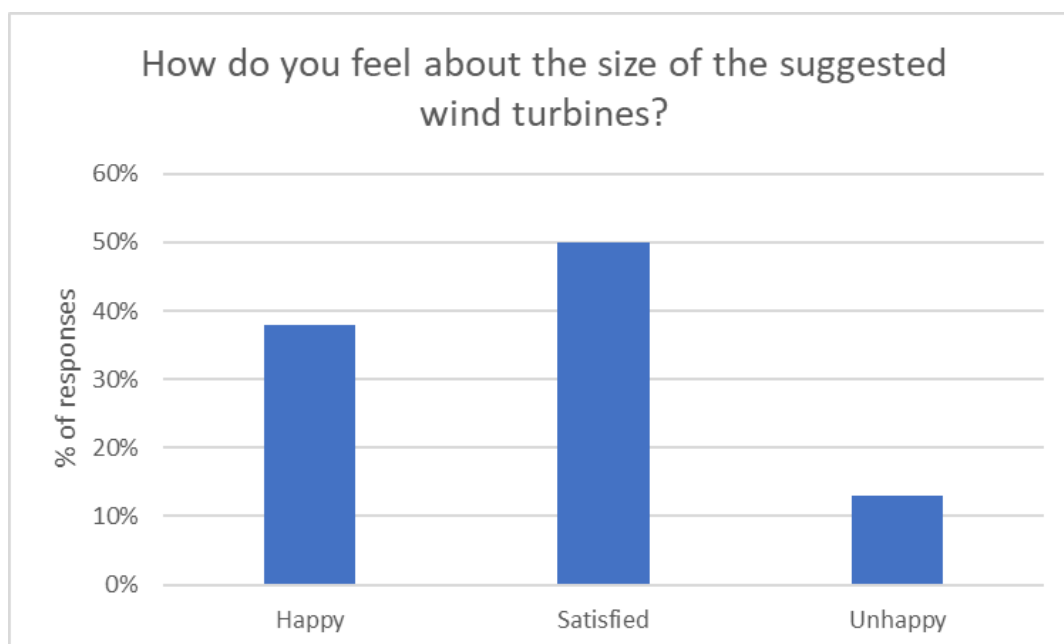


Figure 3 – Attitudes towards size of suggested wind turbines (8 responses to this question).

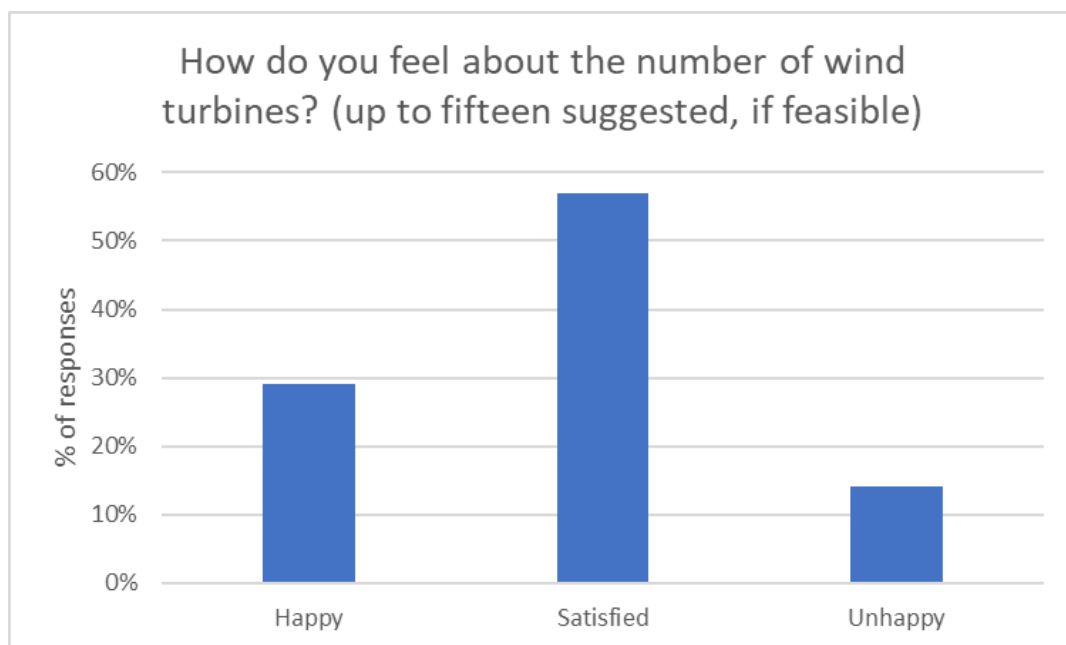


Figure 4 – Attitudes to the quantity of suggested wind turbines (7 responses to this question).

2.2.2 Community ownership of wind turbines

During the workshop, a condition for the group's support was that the turbines should be community owned, with profits being returned to the community. 83% of respondents strongly agreed the wind turbines should be community owned. [Our definition of community ownership is in appendix D.](#)

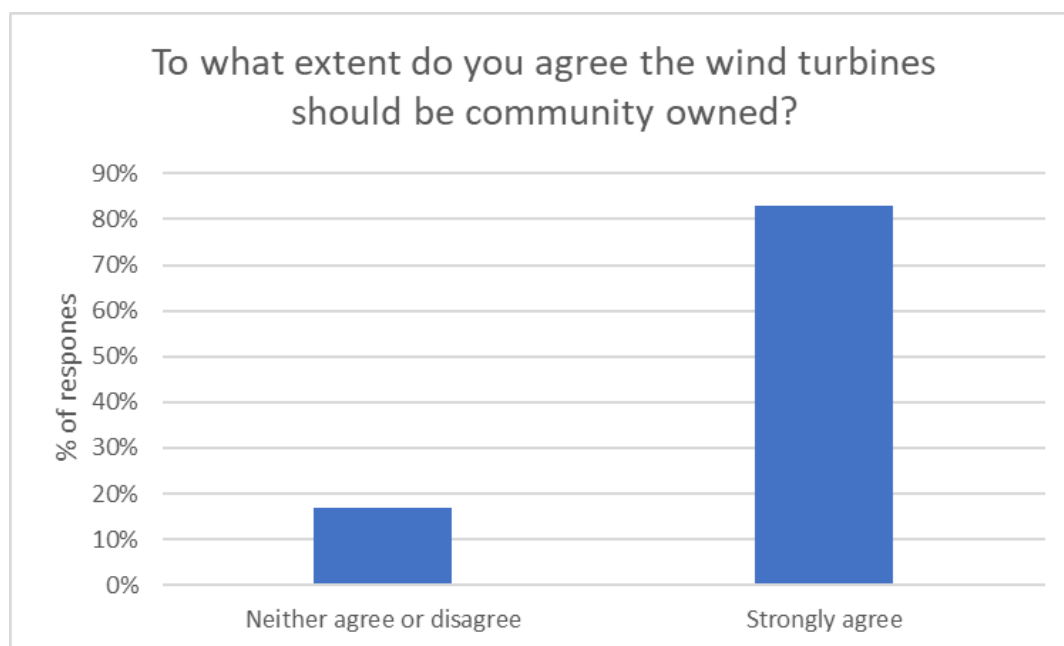


Figure 5 – Opinion on community ownership of suggested wind turbines (6 responses to this question).

2.2.3 Solar farm in West Hewish, adjacent to M5 motorway

In the online consultation, 75% of respondents were 'happy' or 'satisfied' with the proposed ground-based solar panels (figure 6).

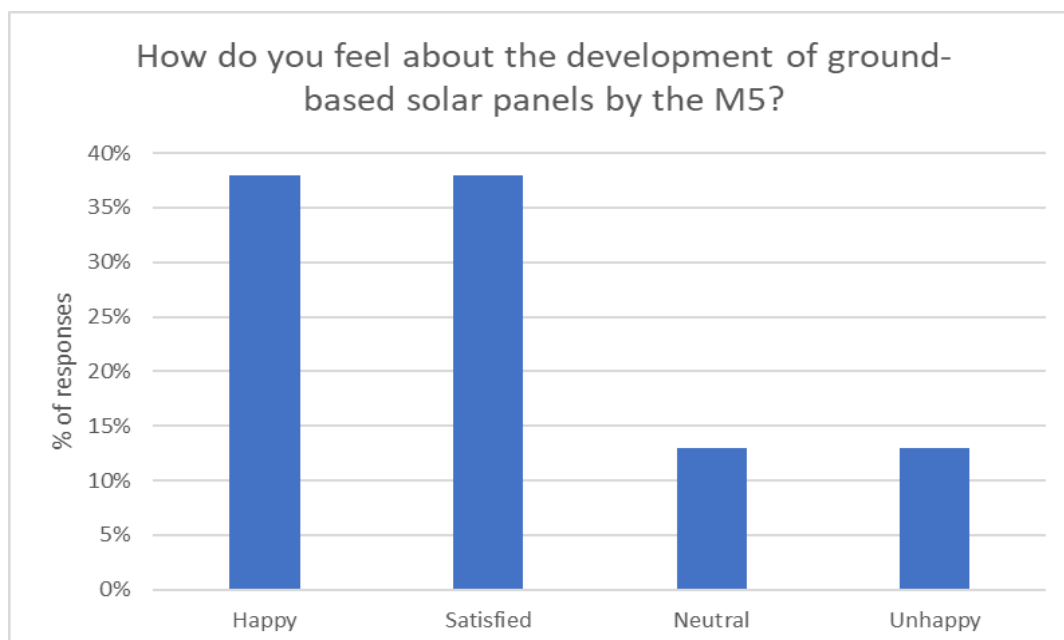


Figure 6 – Attitudes towards suggested development of ground-based solar panels (8 responses to this question).

Other online comments made about the ground-based solar panels included:

- Concern about loss of agricultural land to the panels, and a preference for locating them on brown field sites or in poorer quality agricultural land
- Wanting to see more solar panels on buildings instead of fields, with incentive to householders to afford installation
- This specific quote: *“As a household, we are happy for all proposed items to go ahead. We hope that these would possibly eventually help lower the cost of energy bills. Although I would like to raise a slight concern about the amount of solar farms and the size of them. Especially the one near East Rolstone.”*

2.2.4 Expansion of existing solar farms

In the online consultation, most respondents supported the expansion of the existing solar farms. 63% of respondents felt either 'happy' or 'satisfied' with the suggestion (figure 7).

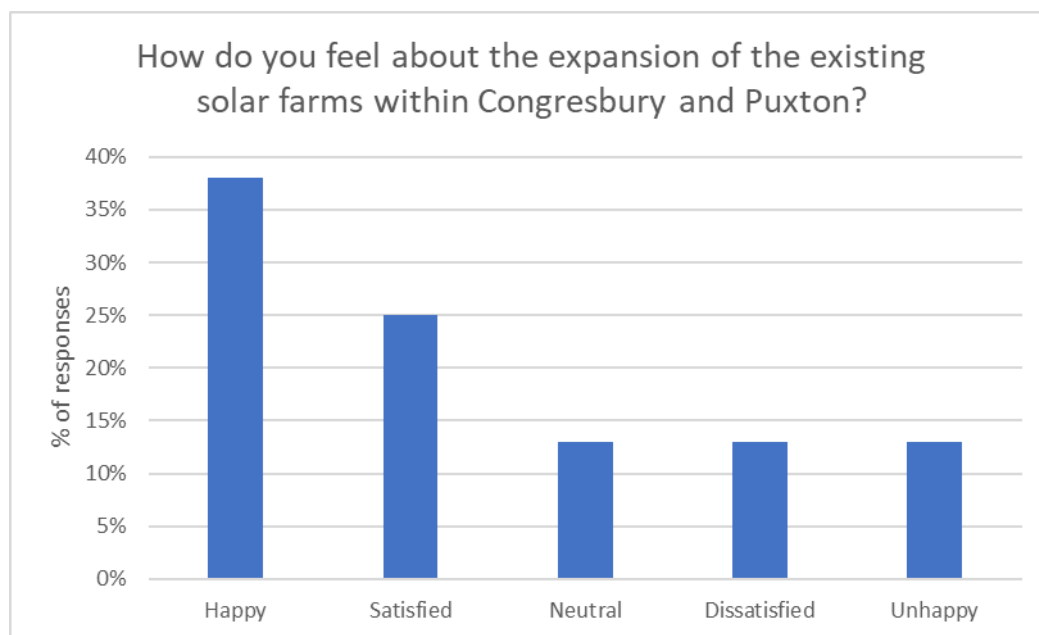


Figure 7 – Attitudes towards the suggested expansion of existing solar farms (8 responses to this question).

There were two specific comments about the suggestion of expanding solar panels in the Honey Hall area:

- *"Happy about installing more solar panels but concern over how they are built and operated. Not keen on further expansion using access via Honeyhall Lane and suitable access should be prerequisite of any development."*
- *"Feel positive about having more renewable energy but concern that access to the existing solar farm is already contentious as Carditch Drove is unmetalled and Honey Hall Lane is a single lane. Currently, maintenance trucks continue to access the solar farm along this route. Solar farms need to go somewhere where the access is good. Near motorways where the views have already been destroyed seems like a good idea. Similarly with wind turbines."*

2.2.5 Anaerobic digestion

The online response to the suggested anaerobic digester was a mixed picture. 38% felt 'unhappy' while a further 38% felt either 'happy' or 'satisfied'. Several comments raised concern around having another large industrial development in the landscape, alongside the existing electricity substations for Hinkley Point nuclear power station.

No location for the anaerobic digester was discussed in the workshop. Respondents to the online consultation gave the following suggestions of where it could go:

- Along the A370 or at Puxton Park
- Mendip Spring Golf Club
- Near the Thatchers factory
- Near the motorway, far away from where people live
- Concern that an anaerobic digester will add another big industrial item to the landscape when there's already the [Sandford substation](#) for electricity

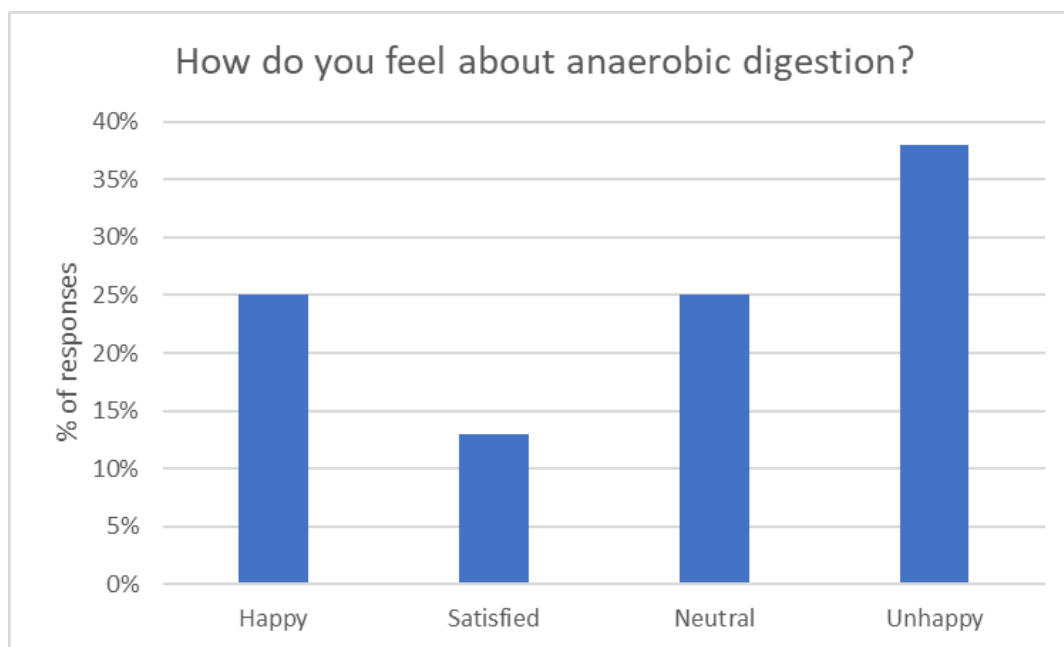


Figure 8 – Attitudes towards suggested anaerobic digester (8 responses to this question).

2.2.6 Overall energy generation

The existing solar farms in the area already generate roughly twice as much electricity from renewable sources than is used by households within Congresbury and Puxton. The additional renewable energy (wind and solar) suggested in the workshop would result in Congresbury and Puxton generating approximately 8 times more electricity than is used locally from renewable sources. This would generate approximately 7% of the North Somerset's electricity demand projected for 2030.

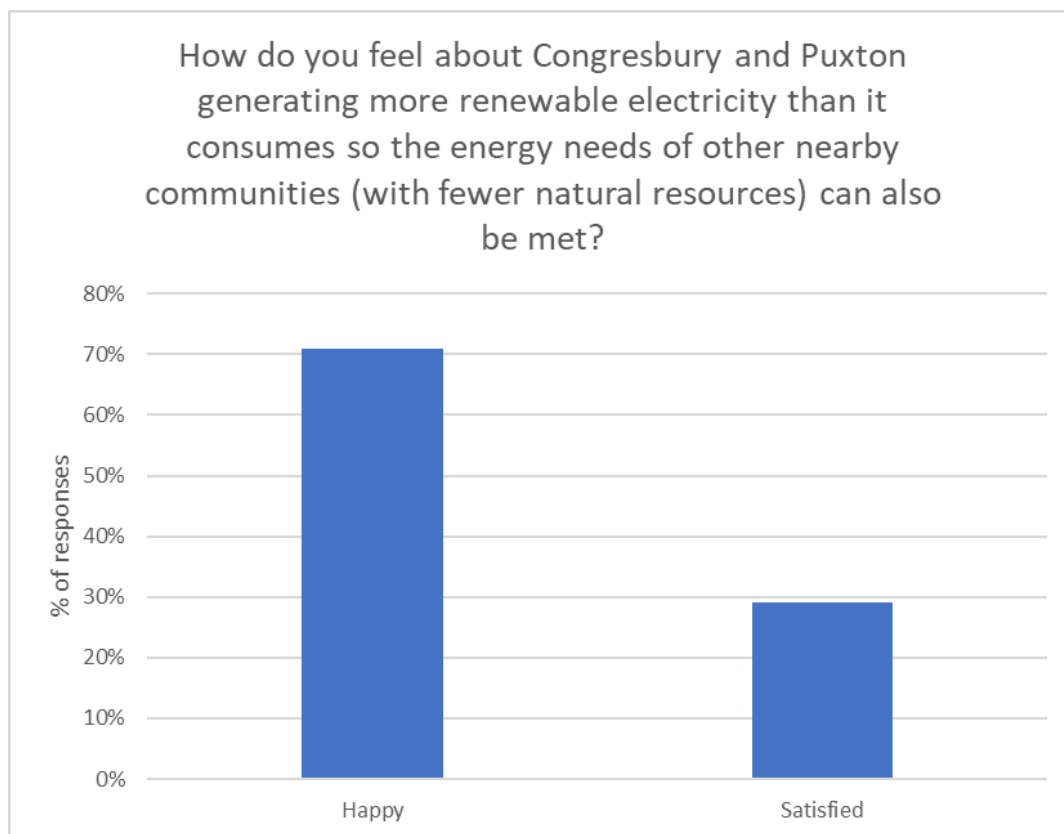


Figure 9 – Attitudes towards potentially generating more energy in Congresbury and Puxton than the parishes consume (7 responses to this question).

All respondents to the online consultation felt positively about the community generating more energy than it uses locally (figure 9). Comments about this suggested support are conditional on the community benefitting financially from this:

- The profits are only used within Congresbury and Puxton
- Benefits and costs should be shared proportionately
- It would be helpful to understand more about the potential community benefit

Other general comments made in consultation included:

- *“We should be prioritising sites for wind turbines as well as making it mandatory for new build houses to be passivhaus or better as standard. New homes should all be off gas and use air source heat pumps & rooftop solar.”*
- *“I work in the energy from waste sector and believe that a mix is required. There is a lot of focus on wind and solar and it is a shame we can't harness the Severn's tidal range. I am interested in looking into a slightly more ambitious project that would use a process called pyrolysis to take all local waste (initially organic waste) and turn it into bio-energy and a carbon rich biochar (which has a value as). Not only does this generate renewable energy, but also a carbon sequestering by-product which is an excellent soil enhancer. Energy can be*

in the form of heat or electricity and it may be this can be used to charge local electric vehicles or provide district heating.”

2.2.7 Demographic data for respondents to online consultation – Congresbury and Puxton

Full demographic data for the Congresbury and Puxton online consultation is in appendix A. The majority (55%) of respondents were retired, with the remainder working full-time or being self-employed. Similarly, respondents tended to be older, with 50% aged 65-74. Nearly all respondents lived in the area, with a smaller proportion working, walking or travelling through the area. There was a fairly even gender split among respondents with 54% identifying as a woman and 46% as a man.

3. Nailsea and Tickenham findings

3.1 Summary of workshop outputs – Nailsea and Tickenham

During this workshop, participants supported potential development the technologies outlined in table 2. [Find out more about renewable energy a visual guide in appendix D.](#)

Table 2 – Summary of technologies suggested by Nailsea and Tickenham workshop participants

Technology	Location	Details
Two large wind turbines, around 140 metres tall.*	Tickenham Moor.	Each turbine would provide power for about 1600 homes per year, or 3,250 in total. Note for reference, the parishes of Nailsea and Tickenham contain 7,460 homes, therefore these turbines could supply 43% of the two parishes' homes with renewable electricity.
A ground based solar farm, of up to around 20-megawatt capacity.* A solar farm of this size would be approximately 90 acres, or around 40 football pitches.	No location was identified in the workshop.	The equivalent of powering 5371 homes. Note for reference, the parishes of Nailsea and Tickenham contain 7,460 homes.
One 500 kilowatt Anaerobic Digester.	No location was discussed.	

*Participants' support for the turbines and solar farm was depends on their impact on the Site for Special Scientific Interest.

Figure 10 shows these technologies mapped out.

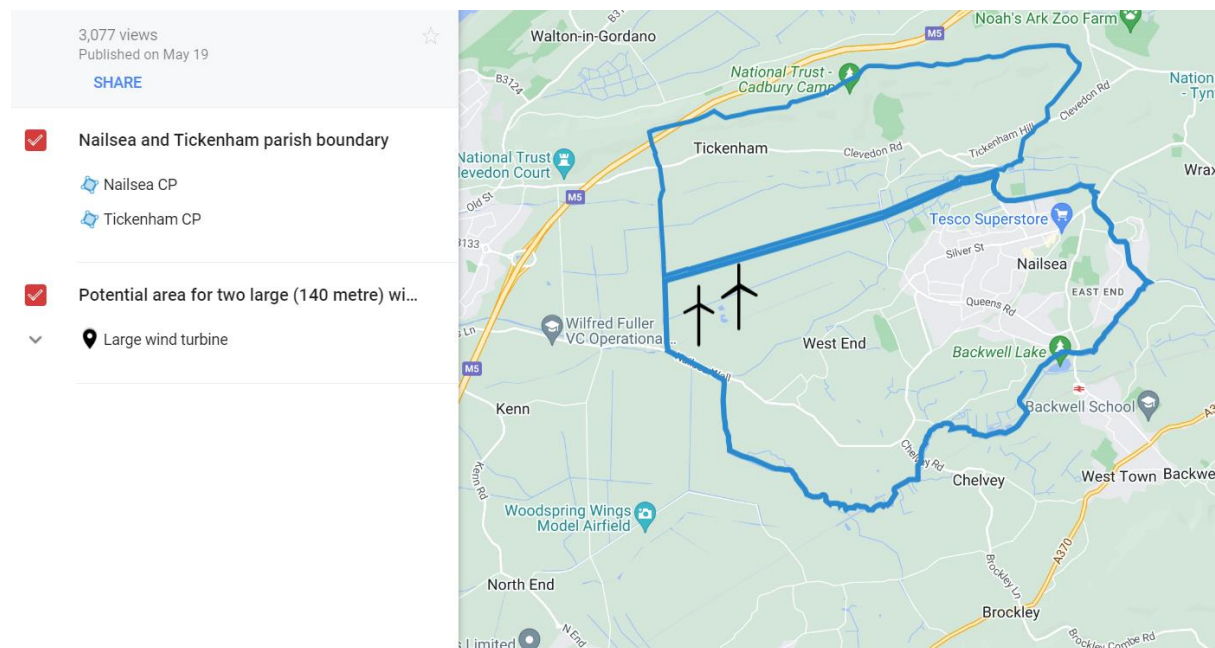


Figure 10 - Location of suggested development from the Nailsea and Tickenham workshop

3.2 Summary of online consultation – Nailsea and Tickenham

Response in the online consultation was a mixed picture for most technologies. There was concern about the size and quantity of wind turbines and the potential negative impact on the local Site of Scientific Special Interest. Similarly, the suggested ground-based solar panels prompted a mixed response, with concern over loss of agricultural land and comments suggest a prefer for rooftop panels. There was concern over the anaerobic digester. Comments suggested the need to screen a potential digester with trees to reduce negative visual impact, as well as place it away from residential areas. The majority of respondents felt positively about the potential for mine water heat generation.

3.2.1 Wind turbines on Tickenham Moor

A narrow majority were opposed to the size the proposed turbines on Tickenham Moor, with a polarised reaction from online respondents, see Figure 11. Whilst 26% of respondents were happy and 18% were satisfied with the size of the turbines, the greatest proportion (36%) were unhappy, with a further 11% feeling dissatisfied.

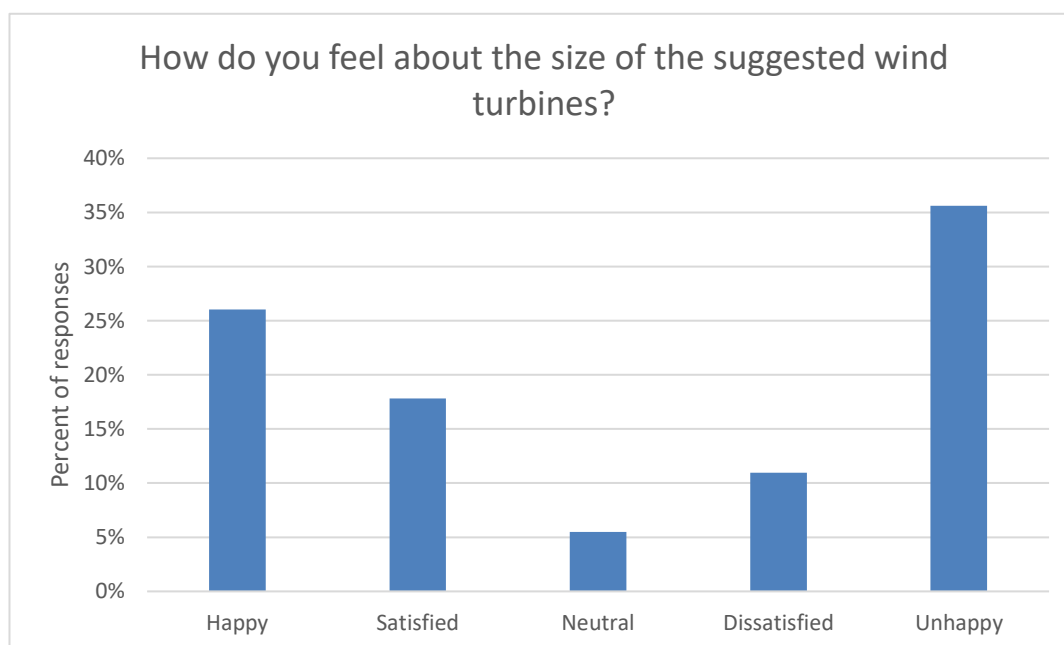


Figure 11 - Attitudes towards size of 140m tall wind turbines in Nailsea & Tickenham (70 responses to this question).

There was a similarly polarised reaction to the number of proposed turbines (Figure 12). Overall, there was majority support for the number of proposed turbines (28% happy, 27% satisfied), but 31% of respondents (the greatest proportion) were unhappy with the number of turbines, with a further 8% expressing dissatisfaction.

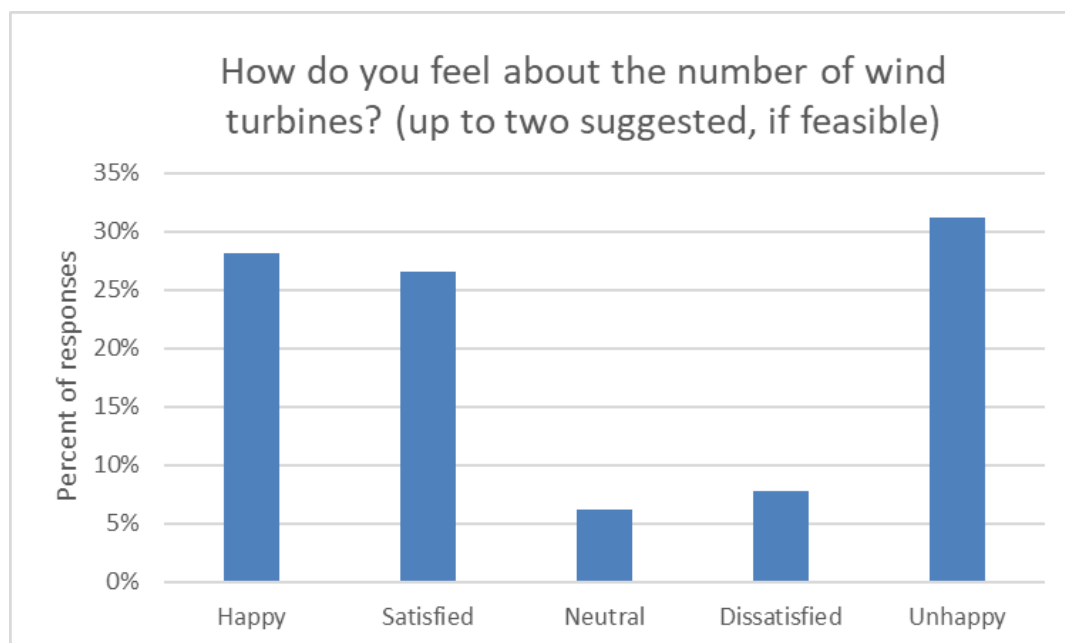


Figure 12 - Attitudes towards number of suggested wind turbines in Nailsea & Tickenham (64 responses to this question).

Additional comments were received from 43 people about the potential wind turbine's location on Tickenham Moor, which were equally mixed. Responders commonly stated the need to know more information about the viability of the location and impact on wildlife, and often suggested alternative locations.

A smaller cluster of comments were supportive, and some even argued for expansion of the number of wind turbines to power all of Nailsea, or more of North Somerset. One respondent said: *"I would have thought there's scope for more than two large turbines in this area; and by expanding the area to the south-west (towards Yatton), there might be scope for a very ambitious wind farm project."*

A larger cluster of people commented that they were supportive of renewable energy but that the location was inappropriate. Many were concerned with the area being a Site of Special Scientific Interest (SSSI), and the impact that turbines would have on local birdlife and bats.

As shown in figure 13, the Tickenham, Nailsea and Kenn Moor Site of Special Scientific Interest covers an extensive area. The citation¹ from Natural England clarifies that the SSSI is designated for its population of water plants and insects found along the drainage ditches and rhynes. However the areas between the drainage ditches was still identified as being potentially suitable for onshore wind development within the Renewable Energy Resource Assessment Report commissioned by the council. If planning permission were to be sought for any major renewable energy development in this location, it is likely that an environmental impact assessment would be required, with the impact on the SSSI assessed in detail.

¹ <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000021.pdf>

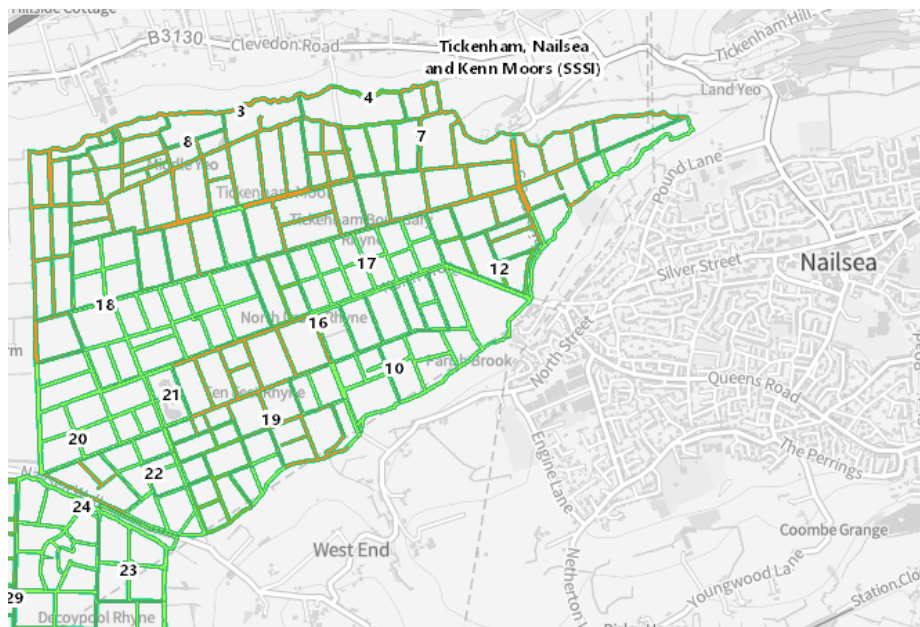


Figure 13 - Tickenham, Nailsea and Kenn Moors Site of Special Scientific Interest²

Others were concerned that the noise and ‘intrusive’ visual would spoil an undisturbed rural location and impact residents, horse riders and walkers negatively. A group of responses compared the introduction of turbines to the new pylons in the area as both intrusive eyesores for the community and financially unviable.

Other common issues or questions related to:

- The technical viability of the location (being in low a valley, with unpredictable winds)
- The cost of connection to the network
- The extent of the benefit to the local community
- The context that other big developments in the area have been refused in the past (therefore making this development similarly unlikely/unwanted)
- The lifetime cost of the turbines and who would be paying
- The need for a more holistic approach beyond parish boundaries

Comments demonstrated the extent of concern:

- *“The height 100- 140 metres is massive that’s between 35 & 75 metres higher than the London Eye together with the 80m span of the blades the turbines will be hugely intrusive in an SSSI area [sic]. What study has been carried out identify this as a suitable location for wind turbines in terms of performance, cost & benefit [sic]. A North Somerset coastal location must better as it would provide the maximum number of generation days.”*
- *“Wrong location. A couple of turbines right on the coast, or a series of much smaller turbines along the length of the M5 would be better.”*

² Source of image: <https://magic.defra.gov.uk/magicmap.aspx>

- *“It feels that a valley is probably not the best placement for wind turbines.”*
- *“It is important to see meaningful studies and data from existing installations to understand noise and Infrasound consequences on health in the area. Similarly, we should have assurances that there will be no negative impact on local airborne wildlife. For local residents the sheer size of these feels intrusive and would encourage perhaps more smaller turbines (if viable for above considerations).”*
- *“I feel wind turbines can be fantastic (more environmentally friendly) energy producing resources, however, when placed in unsuitable locations, they can be detrimental to that environment. The location suggested in this scenario is unsuitable. The turbines would spoil a beautiful, largely unspoilt area.”*

Many who objected to the Tickenham Moor location also suggested some alternative options. Suggestions included:

- Wind turbines located offshore or along the coast e.g. Avonmouth, Bristol channel, estuary
- Wind turbines along the M5 to the north of Tickenham ridge
- Smaller wind turbines in the area, 60 or 80m tall instead of proposed 100-140m tall
- Wind turbines on high ridge locations (away from housing, valleys, floodplains)
- Solar panels on all new homes in the area
- Larger scale ground solar farms
- Tidal power
- A hydro generator on the Yearling Ditch sluice

Overall the response suggests there does not appear to be a consensus in support of the proposed onshore wind turbines in Nailsea and Tickenham.

3.2.2 Ground based solar farms

The online consultation questions focused on ground based solar panels. Similarly with wind turbines, responses were mixed. While in total more respondents were happy, satisfied or neutral (27%, 21% and 13% respectively), a large proportion of respondents were unhappy (30%) and a further 10% were dissatisfied (figure 13).

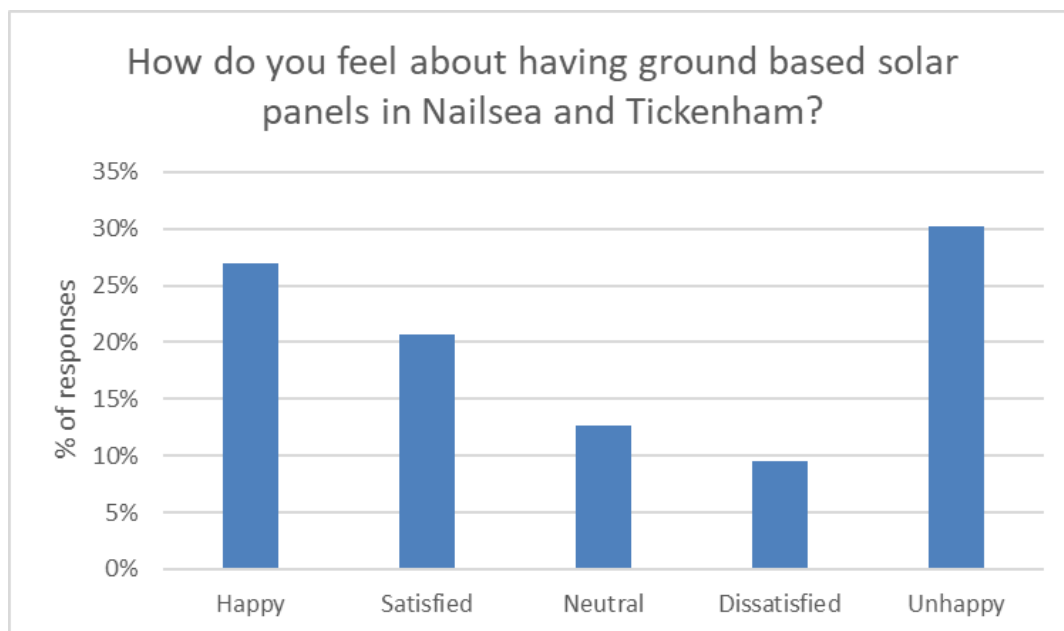


Figure 14 - Attitudes towards ground-based solar panels in Nailsea and Tickenham (63 responses to this question).

Responders were asked to comment on possible locations for a ground based solar farm. There was huge variety in the responses. People commented on both sides of several location options. Some people suggested farmer's fields while others conversely argued that agricultural land should be kept for crops and livestock. Some people argued for protection of visuals, green spaces and wildlife, while others argued that moors and floodplains were unused and therefore reasonable locations.

Locations suggested included:

- Unused or unproductive land, with low visibility e.g. with a treeline or hedge surrounding
- Floodplains, if solar panels could be safely installed e.g. on Nailsea Moor, Tickenham Moor or the Causeway
- South-facing railway embankments
- Industrial areas e.g. docks
- Failand Ridge
- Nailsea Wall
- Wraxall
- Along the motorway

A cluster of responses proposed that domestic or large-scale rooftop solar PV was more suitable for the area. People suggested that mass domestic rooftop solar PV should be supported with funding or subsidies, and that warehouses, industrial farm buildings, superstores and car parks would be better locations. This quote illustrates this:

"I would prefer if the solar panels were put on existing homes and buildings - we need green spaces for our wildlife and recreation. Roof space is going to waste - that feels like a much better place for the solar panels."

Many people expressed concerns about the suggested 90-acre solar farm. Concerns stemmed from the appropriateness of a solar farm taking up agricultural land and impeding food security, the visibility of a solar farm from homes or roads, potential disruption to green spaces, and the efficiency of solar panels in the Somerset climate. The ethical and environmental credentials of solar farm developers were also questioned. This quote illustrates this:

"Nailsea Wall, however; a) it sounds horrendous b) in our climate the efficiency of the panels would be low c) the land would be better used for the production of food eg grain crops. If panels were to be installed then the land on each side of the motorway should be used but not in a sprawling way."

Overwhelming strong support for solar PV on roofs was expressed during the opportunity for further general comments.

- *"In houses and businesses it's a no-brainer."*
- *"Add to roof of Tesco and industrial sites, not fields."*
- *"Rather than a 90 acre site, solar panels should be required on all new housing a condition of the planning consent & grants provided for the installation on existing housing."*

People expressed strong support for local incentive schemes and subsidies to encourage all domestic homes, as well as industrial, commercial and community buildings to install solar PV. Many identified installation costs as prohibitive. Barriers that people referenced included:

- Frustration that all new homes in the area are not being built with solar PV already
- The need to consider the cost of batteries as well
- Efficiency of solar on cloudy days
- Low rebate rates from the Safe Export Guarantee scheme
- *This quote: "We have them. Should be encouraged. Downside is the poor payment from SEG. Also installing a battery was too expensive for us."*

Overall the response suggests there does not appear to be a consensus in support of solar farm development in Nailsea and Tickenham and no favoured locations have been identified.

3.2.3 Anaerobic digestion

During the online survey, respondents were asked about their overall attitude towards anaerobic digestion (figure 14). The largest proportion of respondents were neutral towards this technology, far more so than for wind or ground based solar (35%). However, there was again an almost-even split between happy and satisfied (20% and 12% respectively) and unhappy and dissatisfied (21% and 12% respectively).

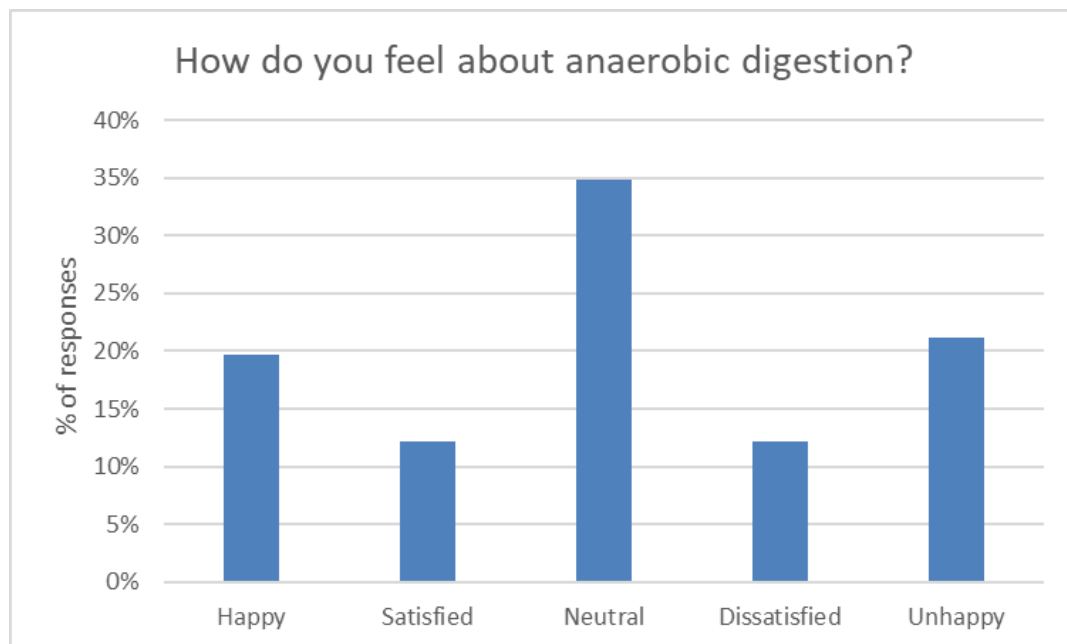


Figure 15 - Attitudes towards anaerobic digestion (66 responses to this question).

Responders commented on possible locations for an anaerobic digester in the area. The main themes in the 39 responses received were:

- Anaerobic digestion could be too 'dirty' for the area i.e. large, unsightly, smelly
 - People suggested it would be suitable if screened with trees or located in industrial areas such as Avonmouth
- The emissions from transporting waste to the plant and infrastructure costs would negate/limit the benefits, also considering the lower kW output compared to wind turbines
- Queries about the availability of animal waste, the suitability of the roads, and the size of a potential plant.

26 respondents made comments or qualification on possible locations for an anaerobic digester. Locations suggested were:

- Local dairy farms
- Local identified brownfield sites
- Avonmouth
- Bridgewater (*outside North Somerset Council's area*)
- Near the local motorway

- North Somerset outside of Nailsea & Tickenham
- Old quarries
- Coates Industrial estate
- Sewage works

Qualifications for the support included:

- The need for screening by trees
- The need for roads suitable for heavy traffic
- That the plant does not cause additional congestion for residents
- That the plant be in an isolated area away from residents, i.e. on a farm or an industrial area
- That the plant be outside Nailsea and Tickenham

These quotes further illustrate some respondents' feelings:

- *"This feels like a dirty solution when so much cleaner options are available. Perhaps there could be space near WSM but I don't think anyone would be happy about having this on their doorstep."*
- *"What about the impact caused by transportation of the waste products? The location needs to be away from housing."*
- *"The location of an anerobic digester in North Somerset could be investigated, but there is no appropriate location in Nailsea/Tickenham area."*

3.2.4 Mine water heat

Participants at the workshop expressed support for the possible development of district heating network in Nailsea using water within the mines as a heat source, though questioned its likely feasibility. Support was also expressed for linking other heat sources into this heat network.

Online survey respondents were asked for their attitude towards using mine water heat, shown in Figure 15 below. A majority of respondents were satisfied on this issue (38%), and a large proportion were neutral in attitude (24%). A minority were dissatisfied (7%) or unhappy (3%). Mine water heat was the least polarising technology for online respondents.

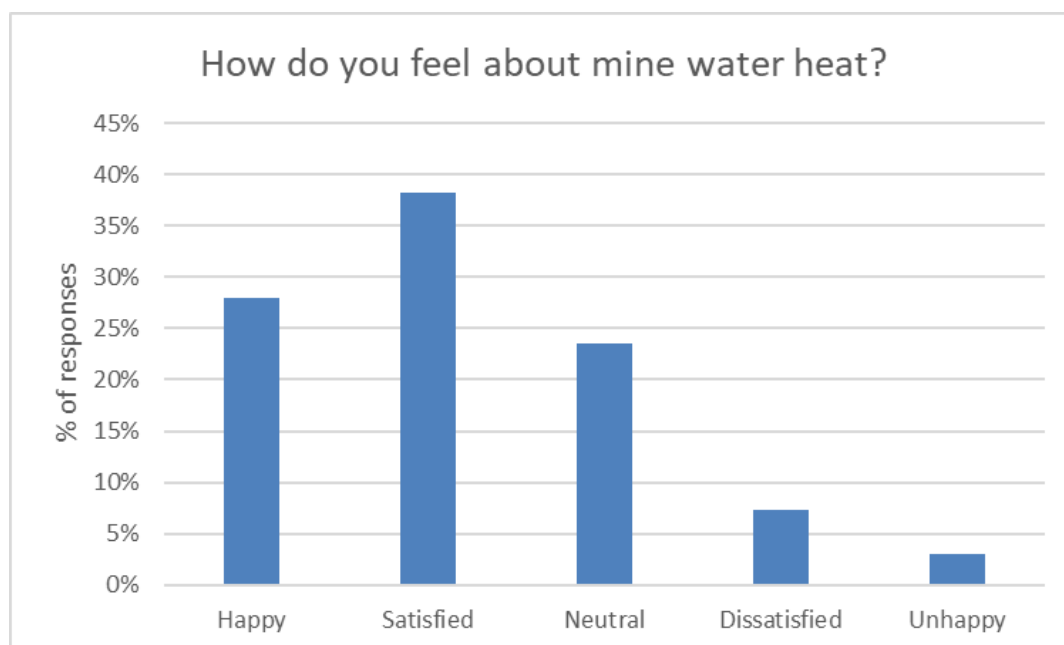


Figure 16 - Attitude towards use of Nailsea mines for a heating network (66 responses to this question).

3.2.6 Demographic data for respondents to online consultation – Nailsea and Tickenham

Full demographic data for Nailsea and Tickenham is in appendix B. Most online respondents lived in the area, with some working or commuting in the area. The majority of respondents were women aged between 35 and 64 (39% of respondents), or men aged between 65 and 74 (24% of respondents). In terms of employment, almost two-thirds were employed (61%), and around one-third were retired.

4. Yatton and Kenn findings

4.2 Summary of workshop outputs – Yatton and Kenn

During this workshop, participants supported potential development the technologies outlined in table 3. [Find out more about renewable energy a visual guide in appendix D.](#)

Table 3 – Summary of technologies suggested by Yatton and Kenn workshop participants

Technology	Location	Details
One large wind turbine.	Between North End and Kenn Moor Gate.	This would power approximately 1400 homes over a year. For reference, there are about 3600 homes in the Yatton and Kenn.
Three medium wind turbines.	Kenn Moor.	This would power approximately 1700 homes over a year. For reference, there are about 3600 homes in the Yatton and Kenn.
Ground-based solar panels. Up to 17.5 megawatts of panels could be installed. This would cover approximately 84 acres, the equivalent of around 37 football pitches.	Next to the M5 motorway.	This would power approximately 4700 over a year. For reference, there are about 3600 homes in the Yatton and Kenn.
One 500 kilowatt Anaerobic Digester.	Support for farm or industrial locations as suitable for development of an anaerobic digester but no specific location identified.	

4.3 Summary of online consultation – Yatton and Kenn

Respondents in the online consultation were broadly positive towards the development of all the technologies. There were several concerned comments about the size of the large wind turbine. Doubts were also raised about the anaerobic digester due to its visual impact and potential smell. Some comments also reflected on the need to further understand how renewable energy generated could be used locally and have economic benefit to local people, particularly considering rising energy prices.

4.3.1 One large wind turbine between North End and Kenn Moor Gate

The response in the online consultation was generally supportive, with 74% responding positively to the suggested location (figure 17) and 62% responding positively to the size (figure 18).

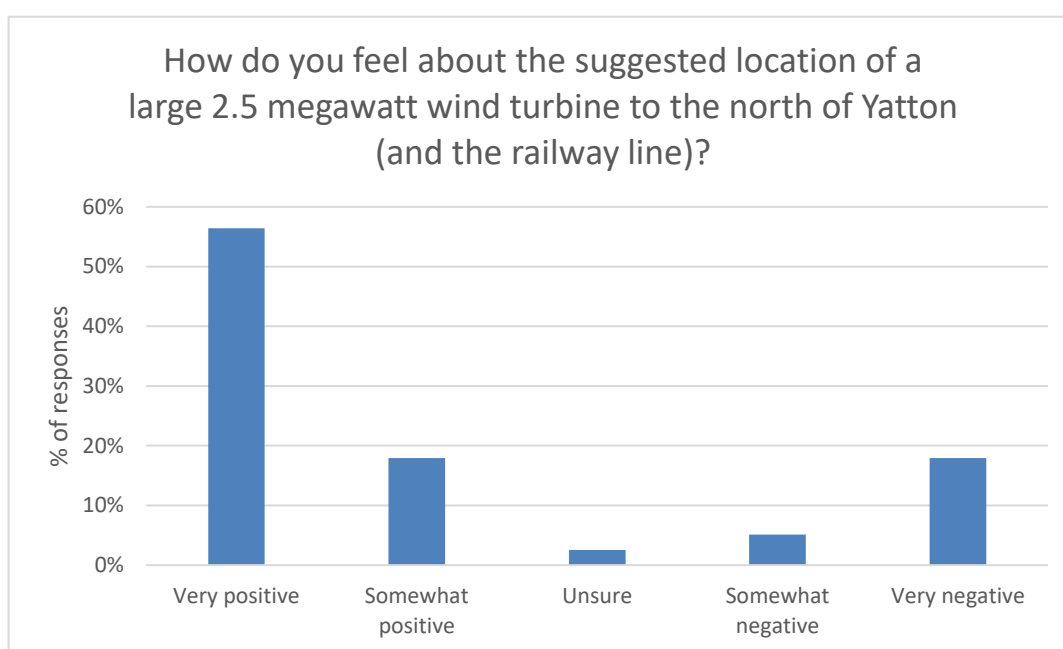


Figure 18 – Attitudes towards the suggested location of a large wind turbine (39 responses to this question).

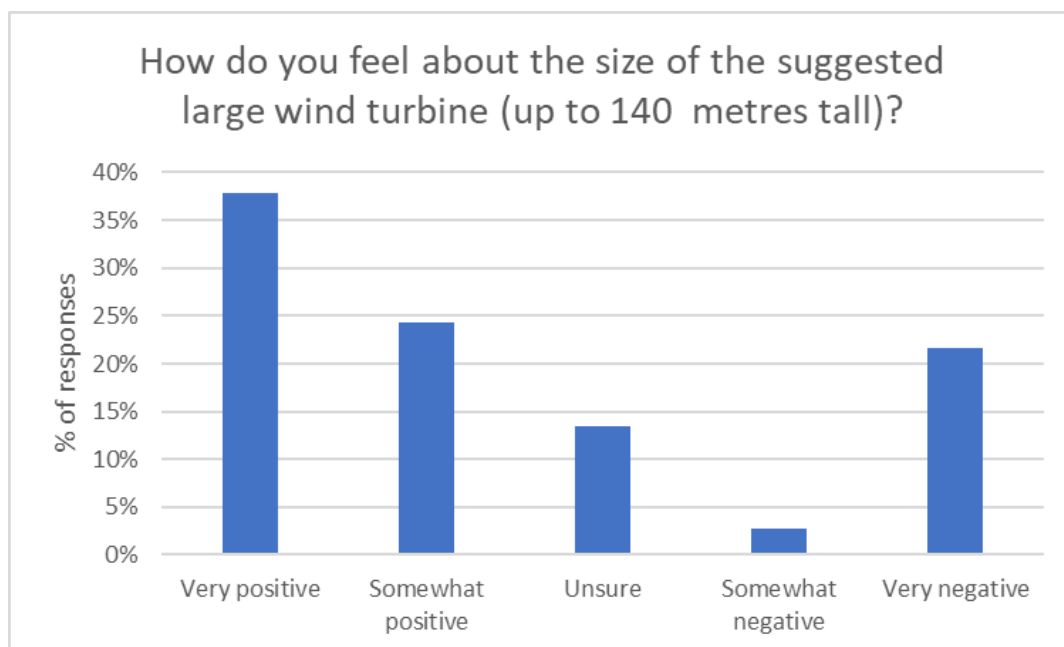


Figure 19 – Attitudes towards the size of the suggested large wind turbines (37 responses to this question).

4.3.2 Three medium-sized wind turbines on Kenn Moor

The response in the online consultation was generally supportive, with 77% 'very positive' or 'somewhat positive' about the location for the turbines, 82% 'very positive' or 'somewhat positive' about the size and 77% 'very positive' or 'somewhat positive' about the number of turbines (figures 19, 20 and 21).

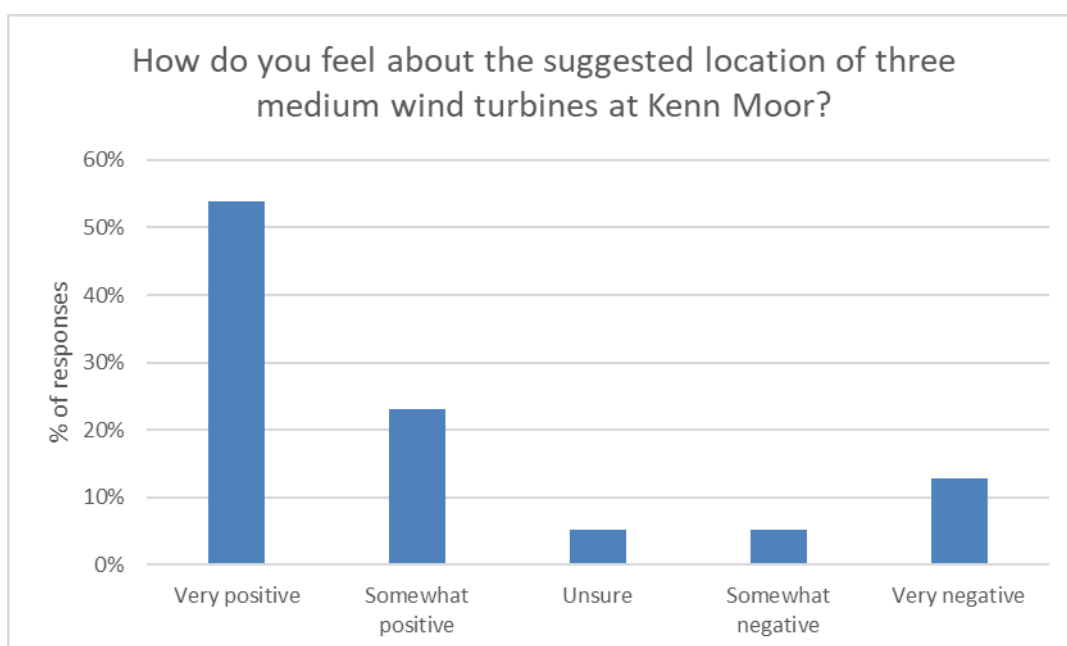


Figure 20 – Attitudes towards the suggested location of three medium wind turbines on Kenn Moor (39 responses to this question).

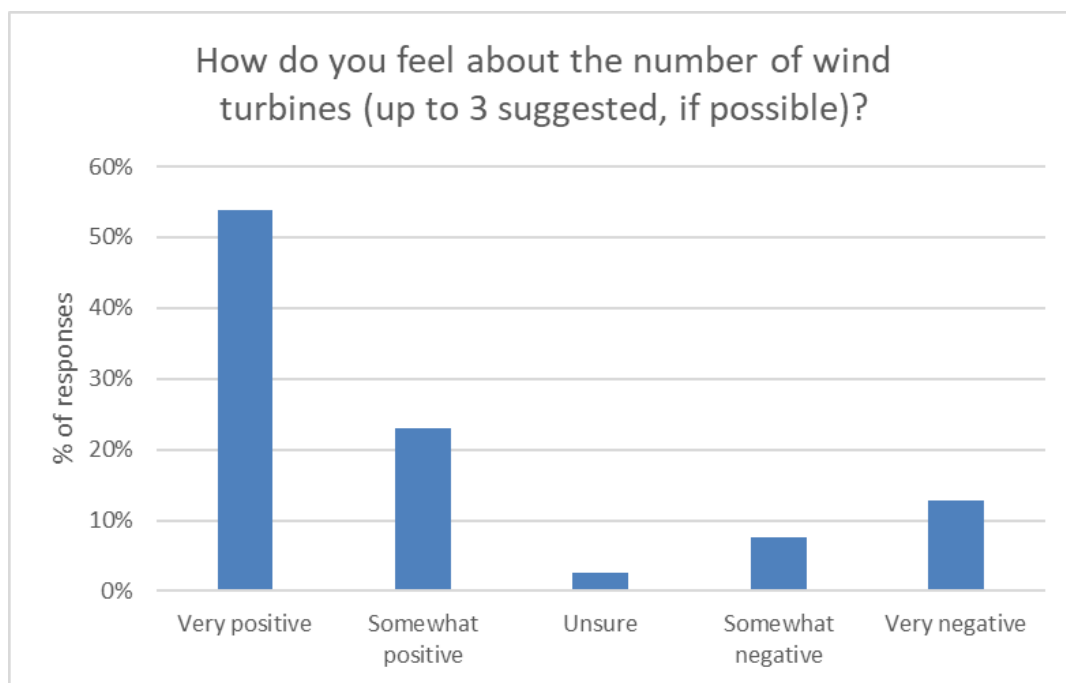


Figure 22 – Attitudes towards the number of suggested wind turbines (39 responses to this question).

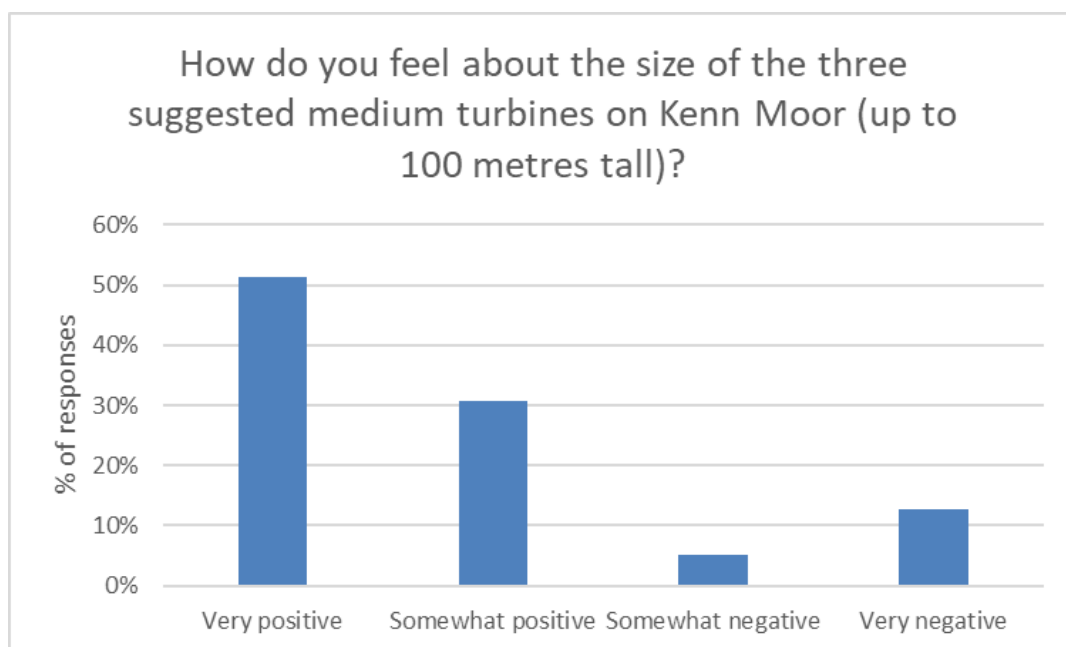


Figure 21 - Attitudes towards the size of three suggested turbines (39 responses to this question).

Comments about the wind turbine development included:

- Concern about their impact on wildlife, particularly bats and birds
- Concern about location on/near SSSI with a suggestion the turbines should be by the motorway instead
- Concern the size of the large turbine would “*dwarf the village*” and is too close to houses – questioning whether the blades would break light coming into houses
- The need to embrace renewable energy schemes and take advantage of wind energy
- The three medium turbines near the village are acceptable and adverse impact outweighed by benefits for the environment
- Preference for wind turbines (and solar panels) over nuclear power

4.3.3 Community ownership of wind turbines

During the workshop, a condition for the group’s support was that the turbines should be community owned, with profits being returned to the community. In the online consultation most respondents strongly agreed the wind turbines should be community owned (figure 22). [Our definition of community ownership is in appendix D.](#)

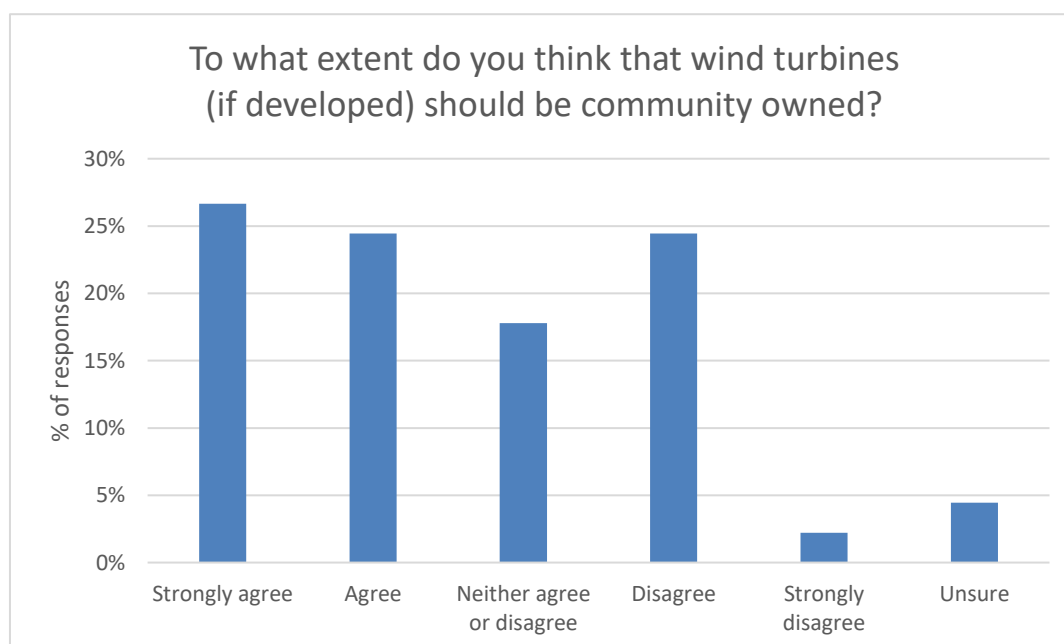


Figure 23 – Opinion on community ownership of suggested wind turbines (45 responses to this question).

4.3.4 Solar energy

72% respondents felt 'very positive' or 'somewhat positive' about the suggested location of the ground-based solar panels (figure 23).

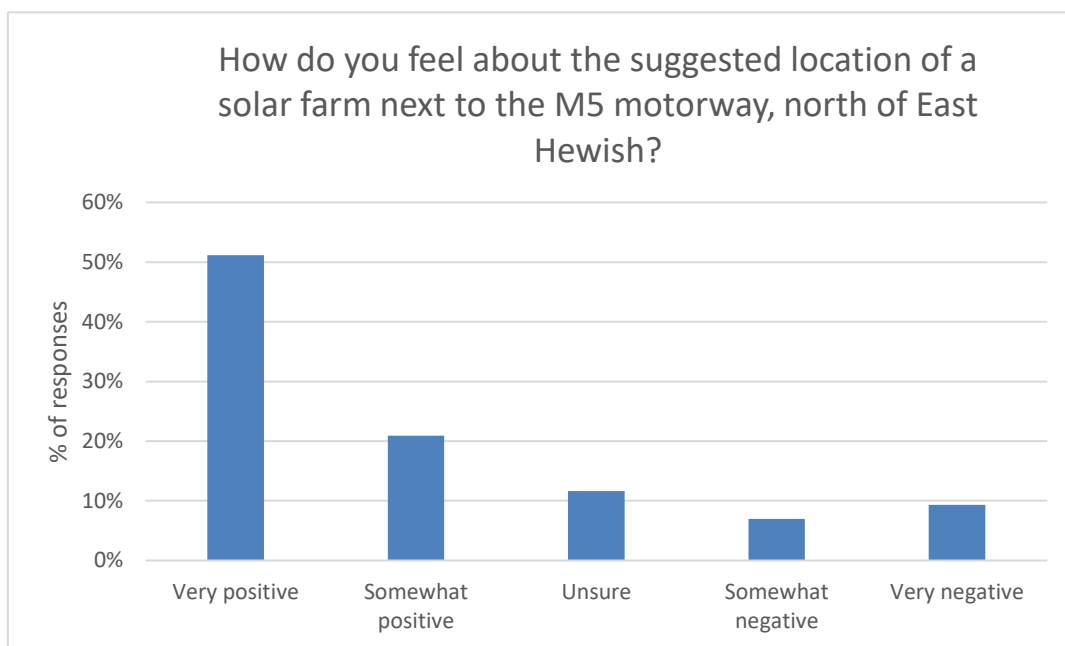


Figure 24 – Attitudes toward suggested location of solar farm (43 responses to this question).

Comments about ground-based solar panel development included:

- Supportive of location next to M5 motorway as area already got traffic noise
- Concern that panels would be using land that could be used for farming/food-growing instead
- Idea of grazing sheep under and around the panels
- Support conditional on panels not being detrimental to wildlife
- Support for investment in renewable energy and one suggestion that proposal could be larger scale

Workshop participants suggested it was likely that up to 10% of homes within Yatton and Kenn may install solar photovoltaic (PV) panels in the next 5 years. Due to this largely being driven by individual resident situations, no specific locations were identified. In online consultation, 91% responded positively to this (figure 24).

Workshop participants also suggested it was likely that up to 5% of homes within Yatton and Kenn may install rooftop solar thermal panels on their homes to provide hot water in the next 5 years. Due to this being largely driven by individual resident situations, no specific locations were identified for these. In online consultation, 83% responded positively to this (figure 25).

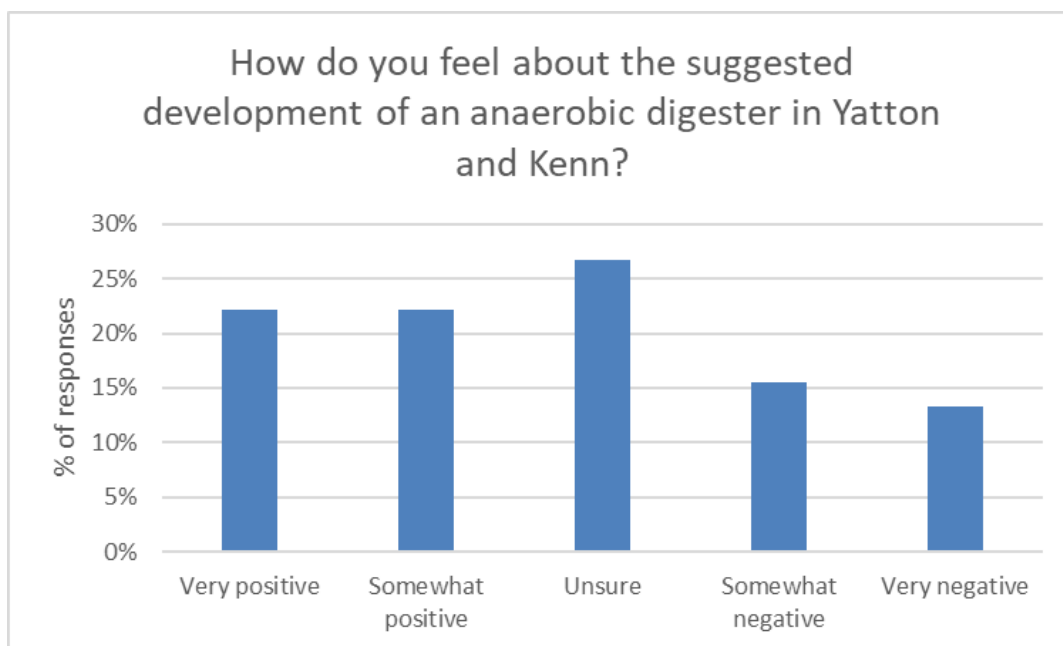


Figure 25 – Attitudes towards the suggested anaerobic digester (45 responses to this question).

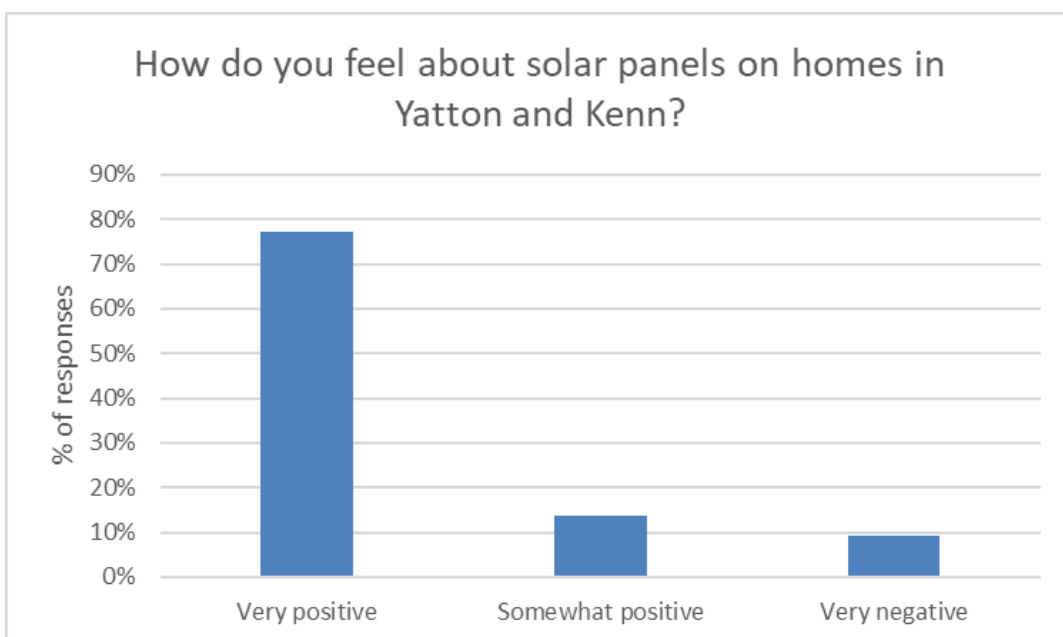


Figure 26 – Attitudes towards solar panels on homes (44 responses to this question).

Comments about rooftop solar panels and solar thermal development included:

- Upfront cost is prohibitively expensive, particularly without subsidisation
- Panels should be standard on roofs and all new builds should have them on
- Should also be looking at installing them on large commercial buildings
- Lack of understanding around the benefits of solar thermal
- More understanding wanted around payback period
- Feeling that more rooftop solar and solar thermal is needed to generate more energy than at present

4.3.5 Anaerobic digestion

Response to the anaerobic digester was mixed. 44% reported feeling 'very' or 'somewhat positive', and 28% reporting feeling very or somewhat negative. The greatest proportion (25%) reported feeling unsure about the proposed anaerobic digester.

The following comments are suggestions from the online consultation about where an anaerobic digester could go:

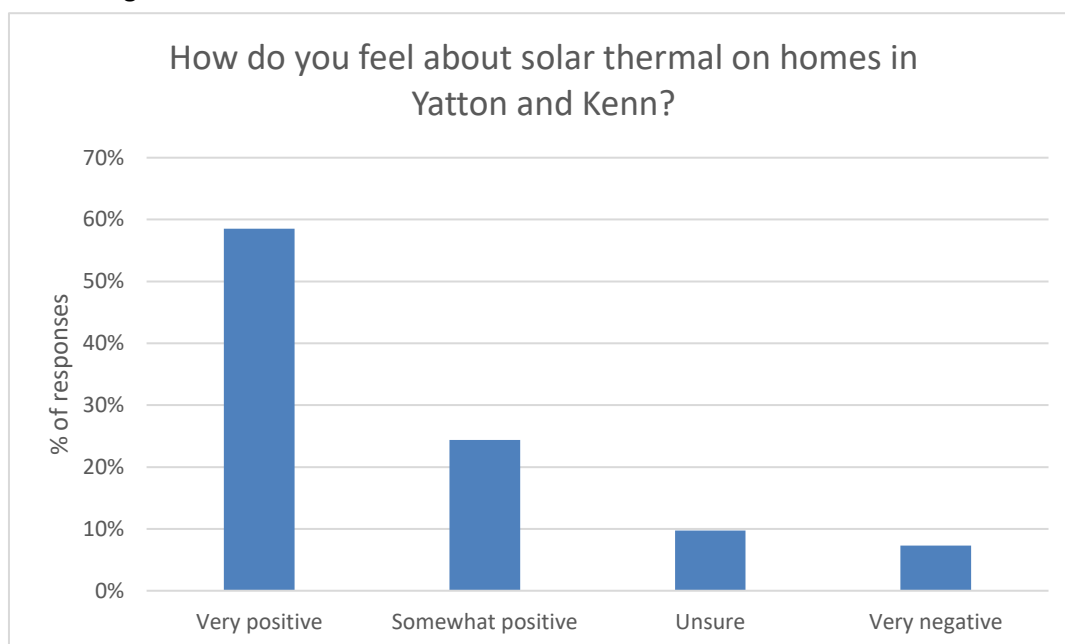


Figure 27 – Attitudes towards solar thermal on homes (41 responses to this question).

- Near the motorway
- Far away from Yatton and Kenn
- Away from residential properties and downwind of them
- Around the already industrial site of Arnold's Way
- Near the Smart Systems factory in North End

Other comments about anaerobic digestion included:

- Concern over the negative visual impact, the noise and the smell
- Concern over burning methane

- Would be great if it was connected to community composting schemes and if it were community-owned
- Opposition to the idea of material being shipped in specifically for the digester rather than it being connected to a nearby farm and using slurry from that
- Having an information board about how anaerobic digestion works and why this type of energy generation is important for the future

4.3.6 Overall energy generation

The renewable energy sources suggested in the workshop would result in Yatton and Kenn generating 118% of its electricity use from renewable energy. Therefore, the parishes would be generating more electricity than they use. Excess electricity could be used by other nearby communities, for example, communities with fewer renewable resources. This would generate approximately 2% of the North Somerset's electricity demand projected for 2030.

In the online consultation, 61% of respondents felt 'very positive' about this and a further 16% felt 'somewhat positive' (figure 27).

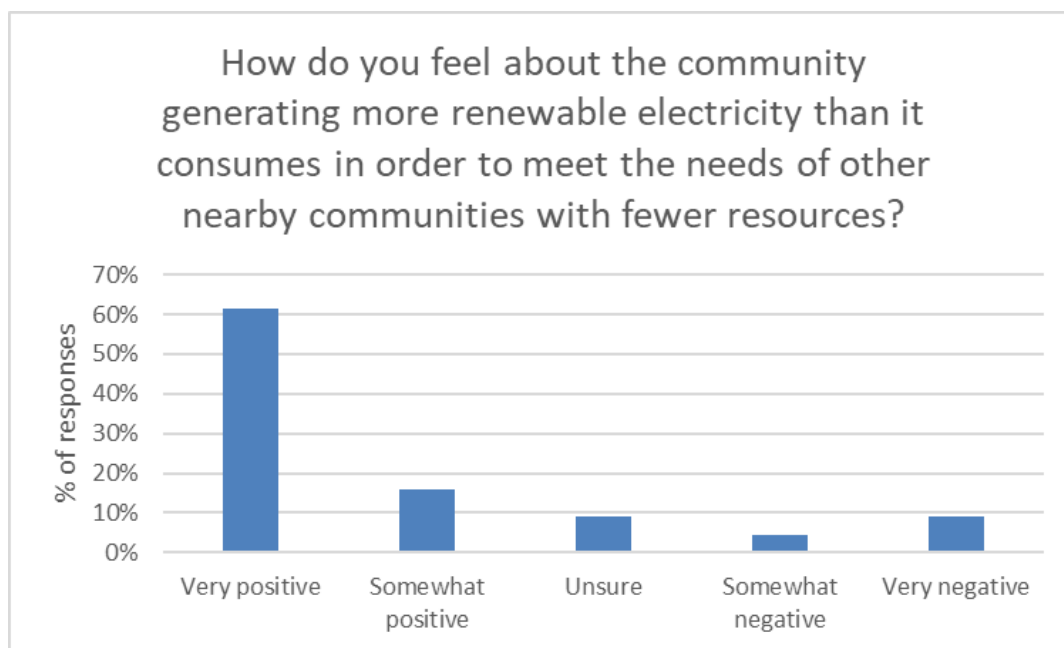


Figure 28 - Attitudes towards potentially generating more energy in Yatton and Kenn than the parishes consume (44 responses to this question).

Other comments made about renewable energy in the consultation were:

- A feeling that better insulation should be prioritised as step 1 and the lack of grants available for this, even for those claiming some benefits. Several other comments agreeing with this, mentioning concern over increasing energy bills
- Pleased to see this very local strategy consultation for generating more power from renewable sources

- A question around how renewable energy developed in the area could be used locally with economic benefit to people, rather than being sent into the national grid
- Wanting to understand how having renewable energy near homes could provide discount on people's energy bills. Something Octopus energy might be offering

4.3.7 Demographic data for respondents to online consultation – Yatton and Kenn

Full demographic data for the Yatton and Kenn online consultation is in appendix C. 58% of respondents work full or part time, with the remainder mostly retired or self-employed. People aged 45-64 made up 55% of respondents, with a fairly even split of those either side of that age bracket. Most respondents lived in the area, with a smaller proportion working, commuting or studying in the area.

Conclusion/ recommended next steps?

5. Policy recommendations

Following the findings outlined in this report, CSE have made the following recommendations.

5.1 Preferred locations for renewable energy

The following forms of renewable energy received majority support in the workshops and the online consultations which followed. They would be likely to carry support if identified as preferred locations for renewable energy in the local plan. Local plans are the documents drawn up by local authorities, often with input from residents, outlining the planning priorities of the council area. This ensures the right development happens in the right place at the right time.

5.1.1 Congresbury and Puxton

- A medium sized wind farm of 100-metre-tall wind turbines. Each up to 1 megawatt in energy output, equivalent to providing power for about 550 homes. They would be located by the M5 motorway, to the north-west of West Hewish. This support was conditional on the turbines being community owned or led, with profits being returned to the community.
- A ground-based solar farm and the development of community scale battery storage. This in the same location as the fifteen wind turbines, by the M5 to the northwest of West Hewish.

[Figure 2 shows the location of these suggestions on a map.](#)

- The significant expansion of the four existing solar farms within the two parishes. However, there were several concerned comments about the visual impact, access to the sites, and traffic issues which would need to be addressed through policy criteria.
- The Congresbury and Puxton workshop also suggested that in some areas where existing solar farms have been accepted by the local community, there may be scope for their enlargement. We would suggest amending policy DP7 to allow for this:

Proposals for wind turbines, ~~and~~ solar photovoltaic arrays and the expansion of existing ground based solar farms will be supported in principle within the Search Areas...

The additional renewable energy (wind and solar) suggested in the workshop would result in Congresbury and Puxton generating approximately eight times more electricity than is used locally from renewable sources.

5.1.2 Nailsea and Tickenham

While a proportion of the community supported the proposed wind turbines in Nailsea and Tickenham (two large turbines on Tickenham Moor) opinion was quite polarised. 26% of online respondents were unhappy about the size of the turbines and 20% of respondents unhappy about the number of proposed turbines. Online comments largely found wind turbines to be better located

elsewhere. Considering the concerns, there does not appear to be a consensus in support of the suggested wind turbines in Nailsea and Tickenham.

There was narrow majority support for ground-based solar farms in Nailsea and Tickenham in the online consultation, but no consensus emerged either from the workshop or the online consultation as to preferred locations. CSE do not recommend that preferred locations for wind turbines or a solar farm development are identified in Nailsea and Tickenham.

However, there was significant support expressed for the use of mine water heat in Nailsea for district heating. This support was both in the workshop and online consultation. If likely to be technically feasible and economically viable, this energy source could be identified within NSC's heat policy

5.1.3 Yatton and Kenn

- A large community owned or led wind turbine with a blade tip height of 130 – 140 metres. 2.5 megawatt in output, which would power approximately 1400 homes over a year. Located to the east of North End and to the north of Yatton and the railway line.
- A small wind farm of medium scale community owned or led wind turbines, with a blade tip height of approximately 100 metres. Each turbine is one megawatt in output, powering around 560 homes. Located on Kenn moor to the east of Kenn and to the south of Nailsea Wall.
- The installation of a medium sized solar farm next to the M5 motorway, to the north of East Hewish.

[Figure 17 shows the locations of these suggestions on a map.](#)

The renewable energy sources suggested in the workshop would result in Yatton and Kenn generating 118% of its electricity use from renewable energy.

5.2 Other recommendations

5.2.1 Community benefit

The renewable energy suggested and supported with both Congresbury and Puxton, and Yatton and Kenn, would exceed the total electricity demand of these four parishes if delivered. Respondents to both online consultations were extremely supportive of this, subject to the parishes benefitting financially from hosting this infrastructure.

Throughout the workshops, participants felt strongly about the importance of community ownership and of host communities deriving more of a benefit from developments going ahead around them. Communities are more supportive of renewable energy projects which they own, or benefit from financially. This came out most strongly in the context of wind turbine proposals, where in the Congresbury and Puxton workshop, and to a lesser extent the Yatton and Kenn workshop, support for the wind turbines was dependent on the developments being community owned.

Draft policy DP7 of the emerging local plan currently states:

Particular support will be given to renewable and low carbon energy generation developments that are led by and/or meet the needs of local communities. Support will be given to community energy schemes which provide energy for local facilities or development areas. Where community support is identified for a specific technology at a given location, this will be identified as a preferred location for that technology.

This wording gives support for community owned or led renewable energy projects but does not exclude entirely commercial projects from coming forward. We would recommend that the council explore tightening this wording up to require that all renewable energy developments provide for community benefit. Policy RE1 of the Cornwall Climate Emergency DPD³ includes policy wording which could assist:

f. It provides for a community benefit in terms of profit sharing or proportion of community ownership and delivers local social and community benefits. Commercial led energy schemes with a capacity over 5MW shall provide an option to communities to own at least 5% of the scheme subject to viability;

An alternative to this would be to specify within the list of preferred locations that some locations are specified for community energy development. For example, in Congresbury and Puxton, identifying the potential for a **medium sized wind farm of medium scale wind turbines – community owned or led.**

5.2.2 Anaerobic Digester

While no favoured locations were identified, the potential for an anaerobic digester was considered in all three workshops. In all three online consultations most respondents were either positive or neutral, albeit raising concerns about traffic, visual impact and impacts on residential areas. CSE would suggest amending policy DP7 to set out criteria based on these comments for assessing anaerobic digestion proposals.

³ www.cornwall.gov.uk/media/1gkn3rla/sd01-cedpd-draft-master-with-edits.pdf

6. Appendices

6.2 Appendix A – Congresbury and Puxton online consultation data

A1 Renewable technologies

Table 4 – Data from Congresbury and Puxton online consultation

How do you feel about the size of the suggested wind turbines?	Responses	%
Happy	3	38%
Satisfied	4	50%
Unhappy	1	13%
Total	8	100%
How do you feel about the number of wind turbines? (up to fifteen suggested, if feasible)	Responses	%
Happy	2	29%
Satisfied	4	57%
Unhappy	1	14%
Total	7	100%
To what extent to you agree the wind turbines should be community owned?	Responses	%
Neither agree or disagree	1	17%
Strongly agree	5	83%
Total	6	100%
How do you feel about the development of ground-based solar panels by the M5?	Responses	%
Happy	3	38%

Satisfied	3	38%
Neutral	1	13%
Unhappy	1	13%
Total	8	100%
How do you feel about the expansion of the existing solar farms within Congresbury and Puxton?	Responses	%
Happy	3	38%
Satisfied	2	25%
Neutral	1	13%
Dissatisfied	1	13%
Unhappy	1	13%
Total	8	100%
How do you feel about anaerobic digestion?	Responses	%
Happy	2	25%
Satisfied	1	13%
Neutral	2	25%
Unhappy	3	38%
Total	8	100%
How do you feel about Congresbury and Puxton generating more renewable electricity than it consumes so the energy needs of other nearby communities (with fewer natural resources) can also be met?	Responses	%
Happy	5	71%
Satisfied	2	29%
Total	7	100%

A2 Demographics

Table 5 – Demographic data for respondents to the Congresbury and Puxton online consultation

Employment	Responses	%
Retired	6	55%
Self-employed	1	9%
Working full-time	4	36%
Total	11	100%
Gender	Responses	%
Man	6	46%
Woman	7	54%
Total	13	100%
Age group	Responses	%
25-34	1	8%
35-44	1	8%
45-54	2	17%
55-64	2	17%
65-74	6	50%
Total	12	100%
Connection to area*	Responses	
I live here	11	
I work here	3	
Walks and travel through	1	
I work here	1	
*Multiple options could be selected		

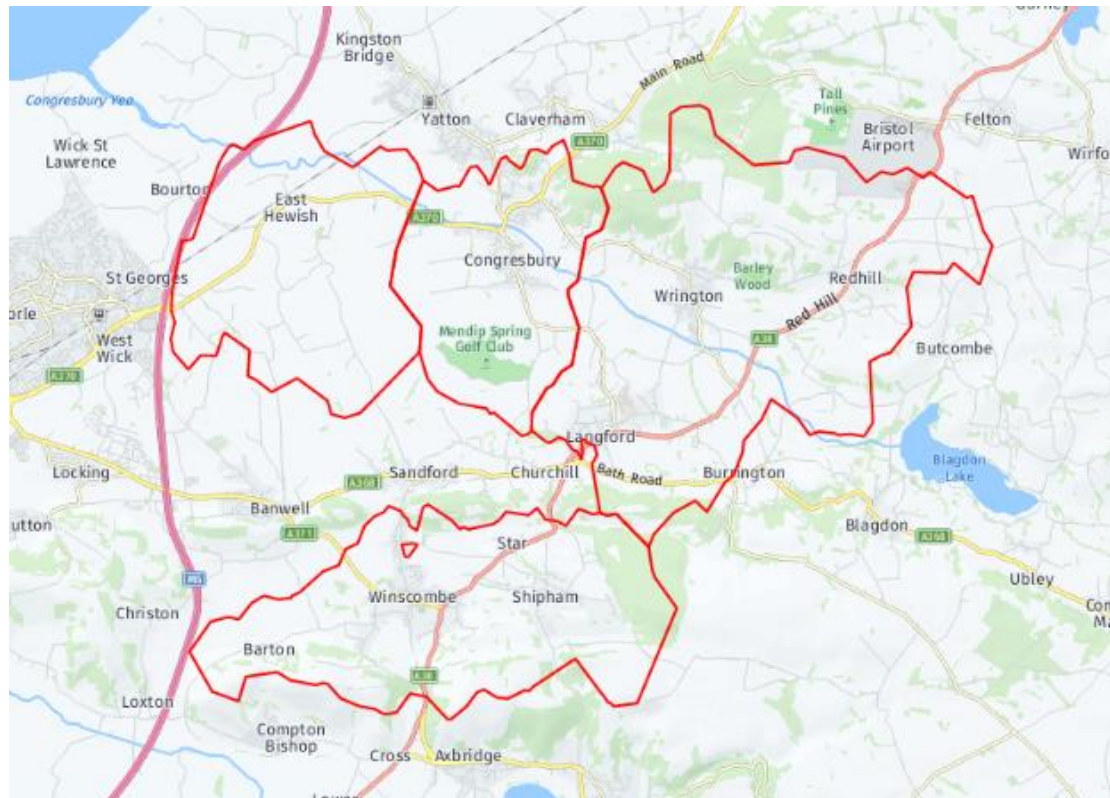


Figure 29 – Map showing postcode areas of respondents to the Congresbury and Puxton online consultation.

6.3 Appendix B – Nailsea and Tickenham online consultation data

B1 Renewable technologies

Table 6 - Data from Nailsea and Tickenham online consultation

How do you feel about the number of wind turbines? (up to two suggested, if feasible)	Responses	%
Happy	18	28%
Satisfied	17	27%
Neutral	4	6%
Dissatisfied	5	8%
Unhappy	20	31%
Total	64	100%
How do you feel about the size of the suggested wind turbines?	Response	%
Happy	19	26%
Satisfied	13	18%
Neutral	4	5%
Dissatisfied	8	11%
Unhappy	26	36%
Total	73	100%
How do you feel about having ground based solar panels in Nailsea and Tickenham?	Response	%
Happy	17	23%
Satisfied	13	18%
Neutral	8	11%
Dissatisfied	6	8%

Unhappy	19	26%
No response	10	14%
Total	73	100%
How do you feel about anaerobic digestion?	Response	%
Happy	13	20%
Satisfied	8	12%
Neutral	23	35%
Dissatisfied	8	12%
Unhappy	14	21%
Total	66	100%
How do you feel about this (mine water heat)?	Response	%
Happy	19	28%
Satisfied	26	38%
Neutral	16	24%
Dissatisfied	5	7%
Unhappy	2	3%
Total	68	100%

B2 Demographic data

Table 7 - Demographic data for respondents to the Nailsea and Tickenham online consultation

Gender	Responses	%
Woman	26	57%
Man	17	37%
Other	1	2%
Prefer not to say	2	4%
Total	46	100%
Age	Responses	%
16-24	1	2%
25-34	2	4%
35-44	10	22%
45-54	5	11%
55-64	10	22%
65-74	15	33%
75-84	3	7%
Total	46	100%
Employment Status	Responses	%
Retired	16	35%
Full-time	12	26%
Part-time	12	26%
0-hr contract	1	2%
Other	1	2%
Self-employed	3	7%

North Somerset renewable energy consultation findings

Unemployed	1	2%
Total	46	100%
Connection to the area*	Responses	
I live here	50	
I work here	4	
Other	2	
Total	56	

*Multiple options could be selected

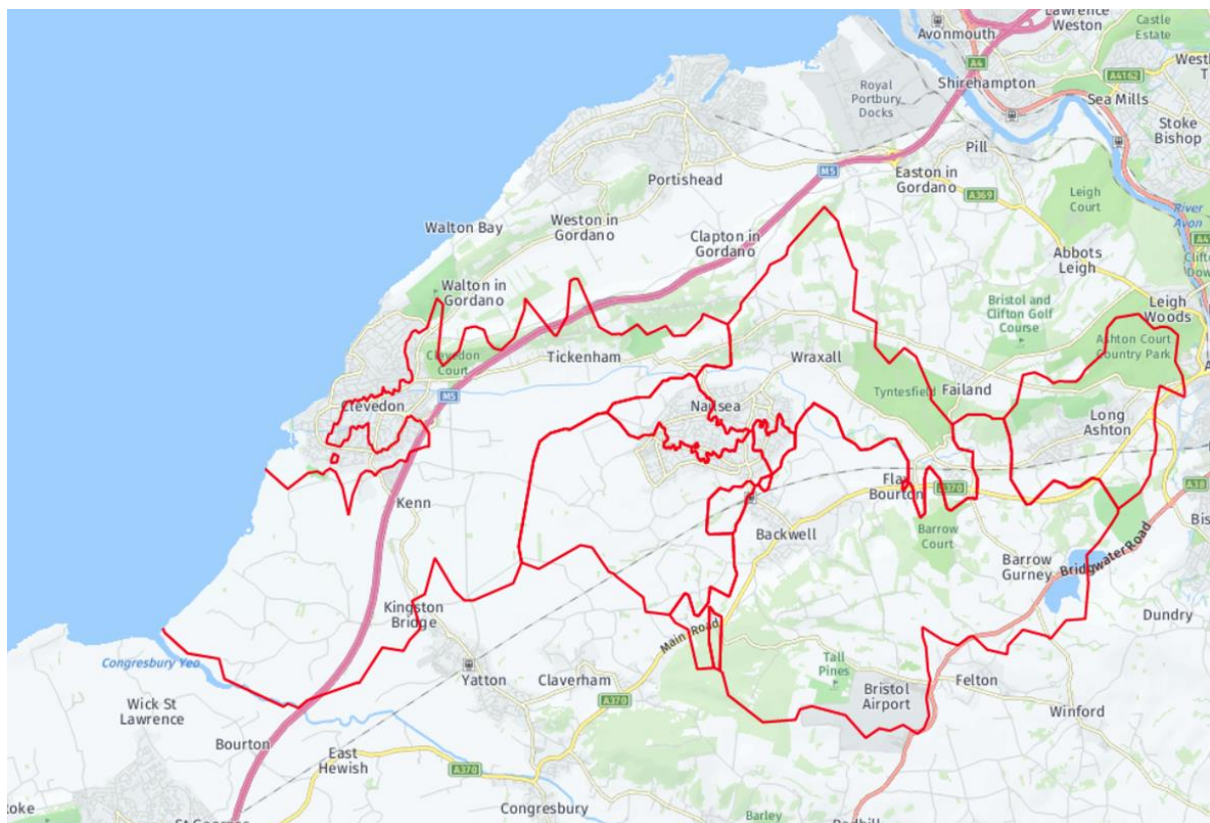


Figure 30 – Map showing postcode areas of respondents to the Nailsea and Tickenham online consultation.

6.4 Appendix C - Yatton and Kenn – online consultation data

C1 Renewable technologies

Table 8 - Data from Yatton and Kenn online consultation

How do you feel about the suggested location of a large 2.5 megawatt wind turbine to the north of Yatton (and the railway line)?	%	Responses
Very positive	56%	22
Somewhat positive	18%	7
Unsure	3%	1
Somewhat negative	5%	2
Very negative	18%	7
Total	100%	39
How do you feel about the size of the suggested large wind turbine (up to 140 metres tall)?	%	Responses
Very positive	38%	14
Somewhat positive	24%	9
Unsure	14%	5
Somewhat negative	3%	1
Very negative	22%	8
Total	100%	37
How do you feel about the suggested location of 3 medium wind turbines at Kenn Moor?	%	Responses
Very positive	54%	21
Somewhat positive	23%	9
Unsure	5%	2
Somewhat negative	5%	2

Very negative	13%	5
Total	100%	39
How do you feel about the size of the suggested medium 1 megawatt turbines at Kenn Moor (up to 100 metres tall)?	%	Responses
Very positive	51%	20
Somewhat positive	31%	12
Somewhat negative	5%	2
Very negative	13%	5
Grand Total	100%	39
How do you feel about the number of wind turbines (up to 3 suggested, if possible)?	%	Responses
Very positive	54%	21
Somewhat positive	23%	9
Unsure	3%	1
Somewhat negative	8%	3
Very negative	13%	5
Grand Total	100%	39
To what extent do you think that wind turbines (if developed) should be community owned?	%	Responses
Strongly agree	27%	12
Agree	24%	11
Neither agree or disagree	18%	8
Disagree	24%	11
Strongly disagree	2%	1
Unsure	4%	2
Grand Total	100%	45

How do you feel about the suggested location of a solar farm next to the M5 motorway, north of East Hewish?	%	Responses
Very positive	51%	22
Somewhat positive	21%	9
Unsure	12%	5
Somewhat negative	7%	3
Very negative	9%	4
Grand Total	100%	43
How do you feel about solar panels on homes in Yatton and Kenn?	%	Responses
Very positive	77%	34
Somewhat positive	14%	6
Very negative	9%	4
Grand Total	100%	44
Would you be likely to install solar PV panels on your home or business?	%	Responses
Very positive	48%	20
Somewhat positive	7%	3
Unsure	14%	6
Somewhat negative	12%	5
Very negative	19%	8
Grand Total	100%	42
How do you feel about solar thermal on homes in Yatton and Kenn?	%	Responses
Very positive	59%	24

Somewhat positive	24%	10
Unsure	10%	4
Very negative	7%	3
Grand Total	100%	41
How do you feel about the suggested development of an anaerobic digester in Yatton and Kenn?	%	Sum of Responses
Very positive	22%	10
Somewhat positive	22%	10
Unsure	27%	12
Somewhat negative	16%	7
Very negative	13%	6
Grand Total	100%	45
How do you feel about the community generating more renewable electricity than it consumes in order to meet the needs of other nearby communities with fewer resources?	%	Sum of Responses
Very positive	61%	27
Somewhat positive	16%	7
Unsure	9%	4
Somewhat negative	5%	2
Very negative	9%	4
Grand Total	100%	44

C2 Demographic data

Table 9 - Demographic data for respondents to the Yatton and Kenn online consultation

Age	%	Responses
25-34	6%	2
35-44	19%	6
45-54	26%	8
55-64	32%	10
65-74	13%	4
75-84	3%	1
Total	100%	31
Gender	%	Responses
Man	48%	15
Woman	52%	16
Total	100%	31
Employment status	%	Responses
Working full-time	45%	14
Working part-time	13%	4
Retired	16%	5
Self-employed	19%	6
Other	6%	2
Total	100%	31
Connection to area*	Responses	
I commute through here	4	
I live here	48	
I study here	2	

I work here	18	
Total	72	

*Multiple options could be selected

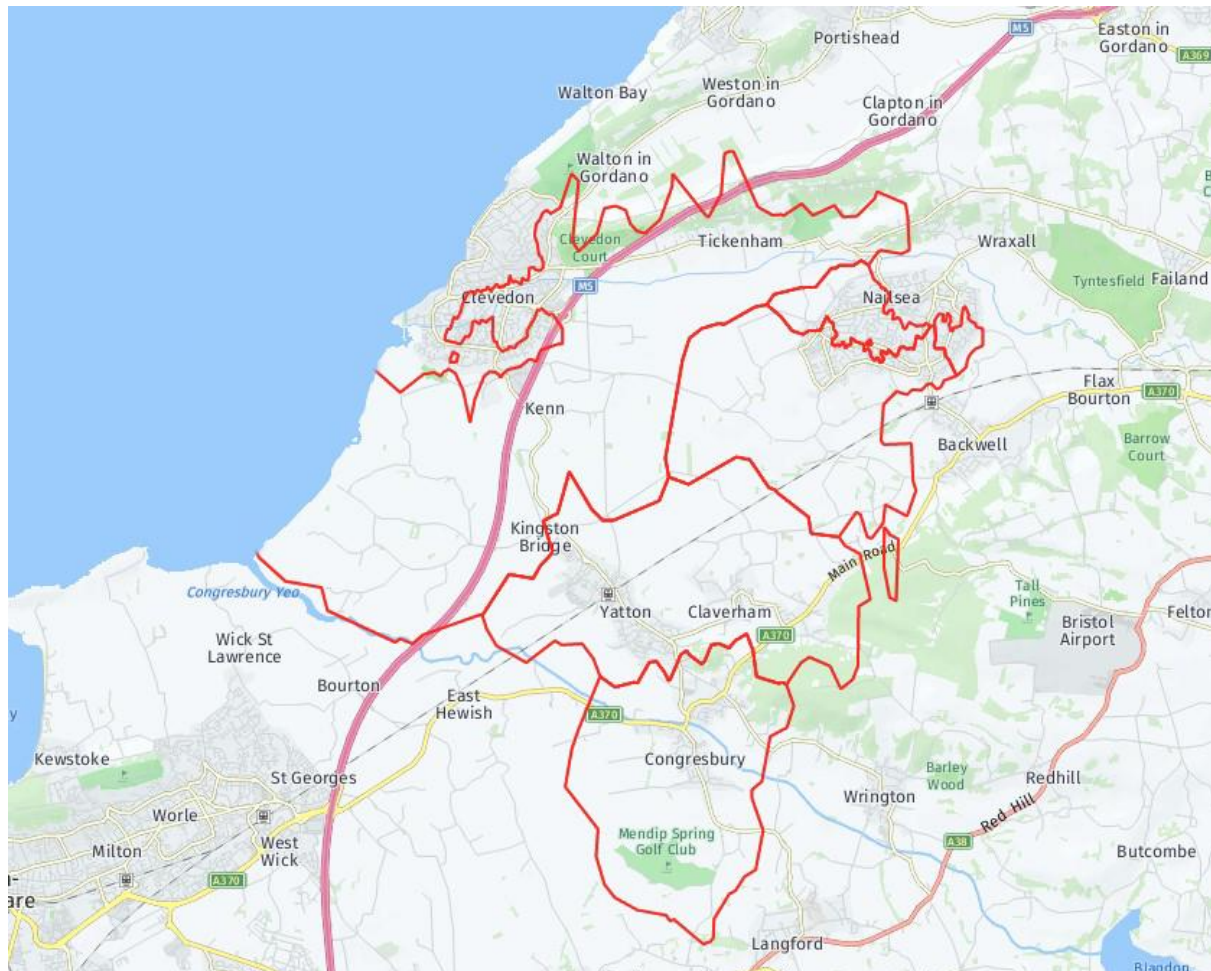





Figure 31 – Map showing postcode areas of respondents to the Yatton and Kenn online consultation.

6.5 Appendix D - Renewable energy technology information

D1 Solar

Table 10 – Different type of solar technologies

Type	Image
<p>Roof solar panels, often referred to as solar photovoltaic (PV) turn sunlight into electricity through the 'solar cells' they contain.</p>	 <p>Figure 32 – Rooftop solar panels. Photo credit: Vivint Solar via Unsplash</p>
<p>Ground mounted solar panels, also known as a solar farm, work the same way as roof panels but are located on the ground.</p>	 <p>Figure 33 – Solar farm. Photo credit: Gabriel via Unsplash</p>
<p>Solar thermal involves using solar panels to absorb the heat of the sun and transfer it to the water you use in the home.</p>	 <p>Figure 34 – Rooftop solar thermal. Photo credit: CSE website</p>

D2 Wind turbines

These work by wind turning the blades of the turbine around which spins a generator and creates electricity.

Wind turbines can be different sizes and the height of the turbine will affect how much electricity it can produce. Larger turbines have a greater visual impact, but also substantially greater output than smaller turbines. An 80 meter (3 megawatt) turbine would typically generate 270 times as much electricity as a 15 meter tall (10 kilowatt) turbine.

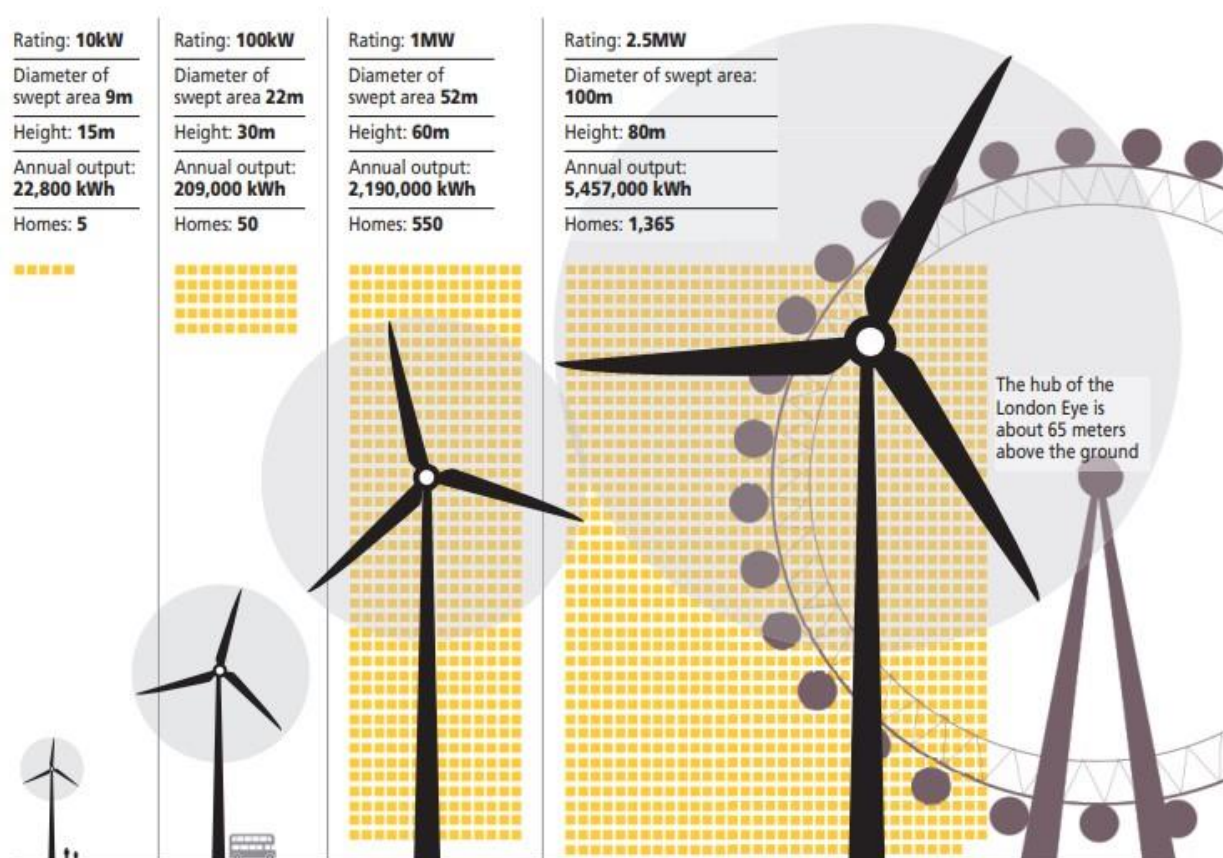


Figure 35 – Wind turbine sizes and outputs. Photo from CSE Neighbourhood Planning Guidance

D3 Energy battery storage

Sometimes more energy will be generated than is being used, for example on a sunny and windy day. Battery storage means that energy can be stored for use at another time, such as on a cloud, still day.



Figure 36 – Energy battery storage. Photo credit: Sungrow via Unsplash

D4 Anaerobic digestion

Anaerobic digestion works when organic matter (for example animal manure and food waste) is broken down in the absence of oxygen, producing methane which is then burnt to produce heat and/or electricity.



Figure 37 - the 1.1 megawatt Ancala anaerobic digestion facility located in Weston-super-Mare. [Source: Biogen.](#)

D5 Community ownership

Renewable energy projects range from 100% community owned projects to partially community owned projects to fully private enterprises, albeit still offering some community benefits.

Private developments contribute a proportion of their profits into funds that benefit the local community, but community owned renewable energy projects return all their profits to the community.



St James Court
St James Parade
Bristol BS1 3LH

0117 934 1400
www.cse.org.uk
[@cse_bristol](https://twitter.com/cse_bristol)

Charity 298740