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countryside
charity

The future of renewable energy in Stillingfleet: a community vision



Published by CPRE, the countryside charity © CPRE 2022

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Disclaimer: the artist's impressions reproduced in this vision document are illustrative montages showing technologies and locations which have been suggested by local residents attending the community workshops. They do not imply any intention to develop those sites by the relevant landowner or indicate the feasibility of doing so, either in engineering or planning terms. They have been created to indicate the likely change in the local landscape and to foster further discussion of the need for and acceptability of such changes.

CPRE, the countryside charity

CPRE is the countryside charity that campaigns to promote, enhance and protect the countryside for everyone's benefit, wherever they live. With a local CPRE in every county, we work with communities, businesses and government to find positive and lasting ways to help the countryside thrive - today and for generations to come.

What we do

We connect people with the countryside so that everyone can benefit from and value it. We promote rural life to ensure the countryside and its communities can thrive. We empower communities to improve and protect their local environment. Through all our work we look at the role of our countryside in tackling the climate emergency, including seeking ways to increase resilience and reduce impacts.

CPRE North Yorkshire

CPRE North Yorkshire was delighted to support this innovative project as we all recognise the growing demand for renewable energy. It is too easy for local communities to have external plans dropped on them, before they have chance to consider options. The local community knows its own landscape, and it is important that potentially conflicting pressures can be brought together in a way which is acceptable to local people and the quality of their lives.

MCS charitable foundation

MCS Charitable Foundation are pleased to support this project which is demonstrating how to engage and involve people from across Stillingfleet in the planning of renewable energy in their area. The project aligns with our vision for a world where everyone has access to affordable and reliable renewable energies for the benefit of the environment and communities.

About Stillingfleet

The Civil Parish of Stillingfleet lies between Selby and York, within the area of Selby District Council. The western boundary is formed by the River Ouse floodplain, which is still tidal in the Parish. The land rises gently to the east, reaching a height of 85 feet at Stillingfleet Hill, a post-glacial moraine feature. Most of the parish is farmland, woodland (some originally ancient) and estate parkland. In the south of the parish is the former Stillingfleet Mine, which formed part of the Selby Coalfield complex, mining coal between 1988 and 2004. To the east of the mine site, clay is still extracted from shallow pits and used at local brickworks.

The village is a small rural community that retains much of its ancient field patterns and built heritage, including traditional Yorkshire houses and church set around a central green and bridge. In 2011, the Parish population was 405 residents. The Parish is relatively small at 2587 acres. During the workshops that informed this document, we spoke to Stillingfleet residents with a wide range of backgrounds, including parish councillors, local farmers, plus working and retired residents from many walks of life.

The climate emergency and the countryside

As councils and countries declare a climate emergency, the impact is already clear in our daily lives. The seasons are on the move, crops grown for generations fail and some species hover on the brink of extinction. Our countryside is changing - and we need to make sure it does so in a way that helps mitigate the impacts of the climate emergency and creates a countryside that we can all cherish.

In recent years, floods from heavy rainfall have brought to life the devastation a changing climate has on our daily lives. Images of sandbags piled up outside doors, submerged cars in flooded streets and local shops ruined by muddy water are now all too common.

Farmers struggle to grow our food and maintain their livelihoods in the face of such extreme weather, pushing the resilience of the countryside and its embattled communities to the limit. And some of our most cherished natural icons, such as English oak trees and beloved wildlife like hedgehogs and bumblebees, face challenges to adapt to changing weather patterns. Ecosystems are facing collapse and the biodiversity of our countryside is declining unabated. All of this threatens the look, feel and health of the landscapes we know and love.

The decisions that we make now, and the approaches that we take, will shape our countryside and its communities for years to come. It's essential that we get it right from the start.

We know that achieving net-zero carbon emissions will mean a huge number of new renewable energy developments, many of which will be situated in rural areas, and this raises the prospect of potentially enormous landscape impacts, as well as new income streams, arising from the energy transition.

The need for rapid action must not be at the expense of the conservation and enhancement of our precious landscapes. For new renewables in the countryside to be done well, local people must be better involved in the decision-making process to minimise the impacts of new developments on landscapes and allow for a just transition to net-zero.

That is why CPRE has created the Community Visioning process – to empower the people of parishes like Stillingfleet to set out where and under what circumstances they believe that new renewable energy could be sited within their local landscape.

The Community Visioning process

The process used to create this vision was developed by CPRE, building upon previous work with the Centre for Sustainable Energyⁱ. It involved a series of three workshops in which residents of Stillingfleet came together to discuss how they felt renewable energy could be appropriately integrated within their local landscape.

In the first workshop attendees discussed their connection to Stillingfleet and the countryside around it. Residents identified areas in the local landscape that are particularly familiar or cherished, as well as those places that they felt less positively about and the parts of their countryside that were important to them but had been lost due to landscape or other changes. The discussion ranged over parts of Stillingfleet's countryside residents felt are particularly distinctive and their emotional response to the landscape – how they would describe it and how it makes them feel. This discussion set the context for how residents would react to potential changes to their landscape as a result of new renewable energy developments.

The second workshop focused on issues to do with energy infrastructure and how much electricity Stillingfleet residents need. This discussion began with attendees talking about their awareness and opinions of pylons, wires and other types of energy infrastructure (including renewable generation) in the countryside around them. We then considered how this might change as we use more electricity generated renewably in order to reduce carbon emissions contributing to climate change.

Using a tool (the CESAR spreadsheet) developed by the Centre for Sustainable Energy, attendees were able to explore how much renewable electricity would need to be generated in the Stillingfleet landscape in order to meet future needs, and how much different types of technology, like solar panels or wind turbines, could contribute towards this.

For the third and final workshop we used maps of the local landscape to pinpoint locations for where the new renewables could be sited. Issues around who would own and profit from new renewable energy schemes in the Stillingfleet countryside were also discussed, as were ways that the impact on the landscape of these schemes could be minimised and even deliver benefits to nature and wildlife locally. Working together, attendees filled in a map of the parish with where and how new renewable energy could be generated locally in the future, which forms the basis for this community vision.

The Stillingfleet landscape and renewable energy

In the workshops that created this vision it was clear that the residents of Stillingfleet have a very strong connection to their local landscape. In part this was informed by some attendees being closely involved in land management and farming and their understanding of the way in which their activities shape the countryside. The beauty, tranquillity and biodiversity of the surrounding countryside is a clear source of pride for local residents as was the cultural heritage, going back as far as the Vikings, Domesday and the 'Pilgrimage of Grace' revolt in 1536.

'Wonderful vistas and open views' 'great view from Stillingfleet Hill – can see the 'magnet' logo at Tadcaster brewery!'

'We've got some fabulous trees in the areas, such as evergreen oaks' 'Birds on the green: barn owl, heron and kingfisher' 'You often hear the skylarks'

'We've still got our common land and strip fields'

The benefits of the countryside were widely appreciated, especially for wellbeing:

'Rural, uncrowded and untouched by urban ugliness' 'conducive to contemplation' 'the endless green is very restful'

Although there is a good network of rights of way for walks and the nearby Sustrans off road cycle route linking York and Selby on an old railway track is valued, there were issues with lack of access to the banks of the river Ouse and having to cycle on busy roads.

Issues relating to road use, including rat-running off the A19, speeding motorcycles, and intimidation of cyclists, were a common bugbear, combined with an infrequent bus service which did not readily connect to local shops or services. Loss of village services, such as the local shop and pub also affected the degree to which people came together and considered themselves part of a community:

'I struggle to feel part of the place: no pub, school, shop – that's all changed' 'I rely on the social network of the village hall and church but there's no hub'

The discussions revealed a strong understanding of and connection to a working countryside, even by those who had moved to the village for family or amenity reasons.

'Feel very much part of the landscape and the growing seasons' 'Landscape and land informs daily life – dictates farming on a day-to-day basis' 'looked after, not just decorative; useful and well-maintained, crops sown'

Although the scale of new development, mostly in the form of new housing, in the parish was generally limited and often mitigated by good design, there were wider scale threats to the countryside. These included re-development of the former coalmine site and the proposed development of a large new settlement ('Heronby') on greenfield land on the eastern edge of

the parish. The Heronby scheme (at an options stage in terms of the developing Selby Local Plan) was seen as unsustainable and highly undesirable.

Throughout the visioning process, there was a general appreciation of the inevitable need for a transition to a low carbon future but some concerns were raised as to the cradle-to-grave impacts of wind turbines and solar panels, including embedded carbon. The difficulty of choosing the right low carbon solutions, when the future choices could be very different due to the speed of technology development, was also emphasized.

Some doubted whether local generation was the answer, instead suggesting economies of scale could be better achieved in less sensitive landscapes and with offshore wind. And there was no consensus as to whether wind turbines would be acceptable in the local landscape or if so at what scale. However more positive notes were sounded as well:

*'There's something aspirational and motivational about being a sustainable, low carbon village'
'It's not about aesthetics, it's about saving the planet!'*

There is already some limited renewable energy generation in the Parish, including a small wind turbine at Birkhill Farm; roof-mounted solar panels, again at Birkhill Farm but also in the village and at Stillingfleet House; and a biomass boiler feeding a number of farm cottages, also at Stillingfleet House. There is also a small 12 megawatt gas turbine power station at Stillingfleet Mine, fuelled by methane extracted from the capped mine shaft. It is due to close by the late 2020s when the methane will be exhausted.

Energy infrastructure such as electricity wires, poles and substations, was a minor issue to most residents, being not too intrusive and accepted in a reluctant and pragmatic way, as they were necessary. Everyone would rather they weren't there but accept them as 'part of the landscape'. A farmer pointed out how overhead wires could be dangerous with risks from large machinery. The small pylon line which cuts across the south-east edge of the parish was seen as more acceptable as it was better designed to fit with the landscape.

Solar was seen as the "easiest and least objectionable" option, especially if well screened (an acceptable scheme in nearby Sherburn in Elmet was cited) but land quality was mostly felt to be too good, being better kept for food production. It was also stated that farmers preferred to farm. The formerly developed coalmine site was seen as the best option.

'It's the only brownfield site we've got. We don't like it. Let's do something with it' 'it would be popular in the village' 'It would be a great story!'

Although deploying solar panels on domestic and farm building roofs was a supported option, this was not to be at the expense of the historic pantiled roofscape of the village. It was noted that currently the conservation area status of the village green prevented panels being installed, at least on the roofs facing onto the green. Some felt this restriction should be re-visited.

In terms of other technologies, there was consensus that anaerobic digestion was not a preferred option being intrusive, likely to generate traffic for feed-imports and was seen as small and inefficient, so not worth the trouble.

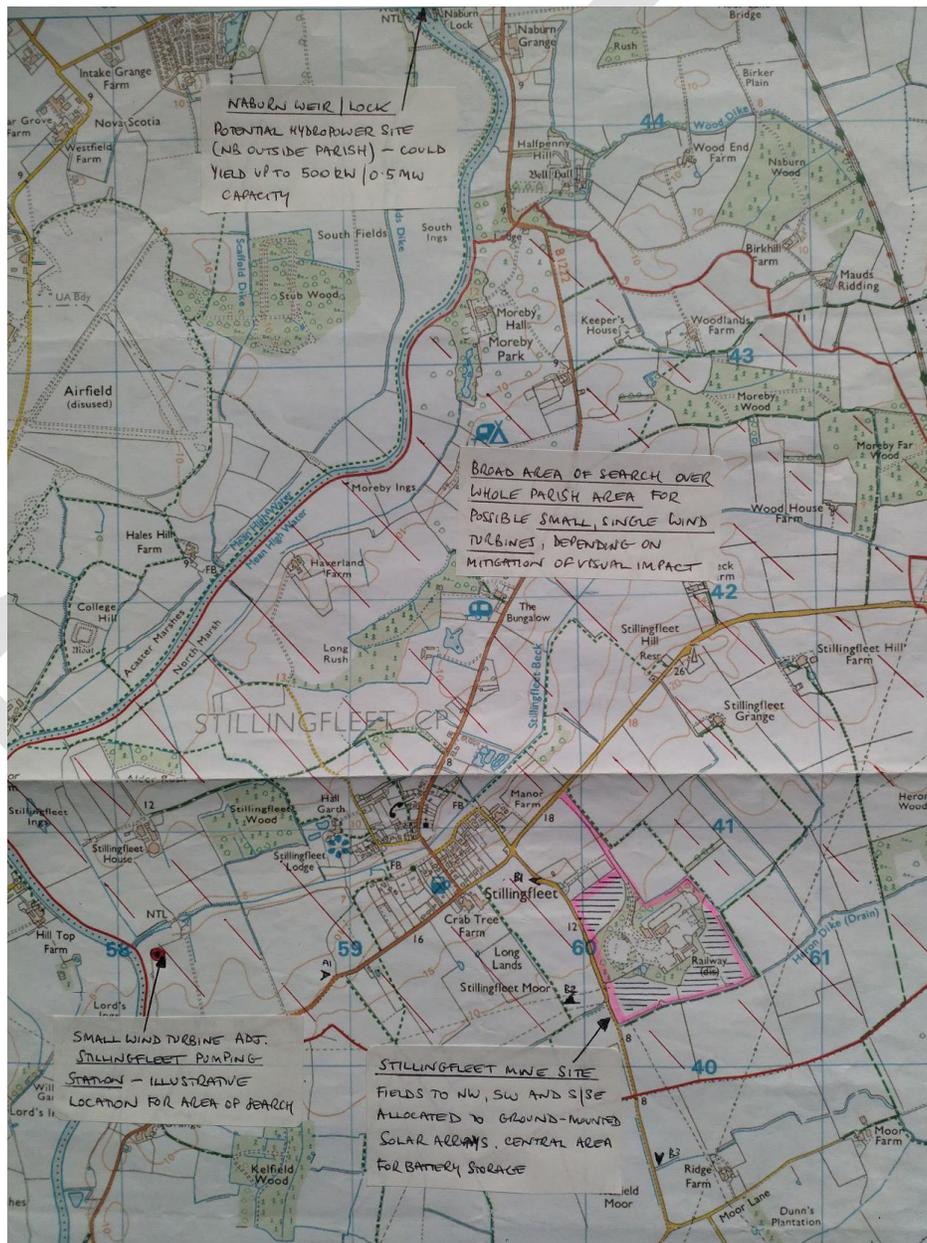
There was a strong preference for using the River Ouse's energy; currently the village was described as 'hydro-negative' as electricity was used at Stillingfleet Pumping Station to prevent flooding. However, it was understood that without a weir within the parish, it would be difficult to create the 'head' of water needed for generation, despite the large flow of the Ouse. A scheme just out of the village to the north, at Naburn Lock, was an option worth investigation.

Finally there was some support for nature-based solutions, such as more hedgerows and tree planting, although again not at the expense of high quality agricultural land. There was strong support for the need to use less energy by enhancing insulation, building very low carbon houses to *Passivhaus* standards, use of heat pumps and mandatory solar PV and solar gain on new build.

Map of proposed installations with notations

In total the workshop attendees proposed a vision for the future of renewable energy in the Stillingfleet landscape which includes:

- An occasional small wind turbine in suitable locations
- Up to 20 acres of ground mounted solar panels on the former coalmine site
- Possible hydro scheme just outside the parish on Naburn Lock
- Supplemented by solar panels installed on up to 25% of the houses and agricultural buildings across the Parish, providing approximately 100 properties with rooftop solar



Wind power

There was considerable ambivalence among attendees as to whether wind turbines were the right option in Stillingfleet's countryside. Setting aside possible sustainability issues to do with their carbon lifecycle, turbines were seen as somewhat divisive and emotive. Some thought that one larger turbine would be more acceptable than multiple small installations. It was also noted that the optimum site in terms of windspeed (Stillingfleet Hill) was already occupied by a telecommunications mast.

Local planning guidelinesⁱⁱ suggests a slightly reduced sensitivity to turbines up to 80m in the 'River Floodplain' landscape character type (LCT) but higher sensitivity) away from the river in the 'Vale Farmland with Plantation Woodland and Heathland' landscape character type. As the former LCT area coincided with landowner interest in a site on the south-west corner of the parish, an illustrative picture has been drawn up below of a small turbine adjacent to the river (see Figure 1).

Figure 1. A small turbine close to Stillingfleet Pumping Station as viewed from the B1222, looking north (towards Stillingfleet House). Note very high (flood) levels of River Ouse.



Roof-mounted solar

It was suggested that further low carbon solar energy could be boosted by an aim to retrofit roof mounted panels onto approximately 25% of existing domestic housing stock in the Parish, subject to the degree of financial incentives available to encourage uptake. There was also a discussion of the possibility of solar panels being sited on the roofs of agricultural buildings, although this should not be at the expense of roof functions (keeping building contents dry etc). It was further noted that a more pro-active approach might be needed in relation to solar on buildings within the village's Conservation Area, especially those facing onto the village green.

Ground mounted solar

The site of the former Stillingfleet Mine was seen as the most suitable site by far for ground mounted solar and possibly related energy infrastructure, such as battery storage. Many of the surrounding fields, that formed part of the overall land holding, had a good orientation (southerly) and were generally well-screened by roadside trees and high hedges (see Figure 2 and 3) and/or intervening distance (Figure 4). Where hedges had been lost or were in poor condition, this presented opportunities for biodiversity net gain through new planting which could provide further screening.



Figure 2. Solar panels adjacent to the Riccall road, NW of Stillingfleet Mine. The nearest property would be Mount Pleasant Farm.



Figure 3. Solar panels on the field adjacent and SW of Stillingfleet Mine, as seen from the footpath on Stillingfleet Moor to the west. Note winter view: trees not in leaf.



Figure 4. A distant view from the south of solar panel on field to south/SE of Stillingfleet Mine.

Other options for further investigation

There was strong interest in utilising the very large water flow in the adjacent River Ouse. However, as noted above, the lack of any current weirs or other structures that would allow the 'head' (fall/height) of the river to be captured for power is a major limit to future development, especially as the river is navigable. The only option would therefore be to utilize the nearby Naburn Lock location which would involve a joint approach with Naburn Parish. The illustration below shows a possible Archimedean screw turbine though a crossflow turbine may also be suitable. A rough estimate of power using mean flow data from Skelton, 13km upstream of Naburnⁱⁱⁱ and a head of 1-1.5m suggests c.280-430kW potential capacity.

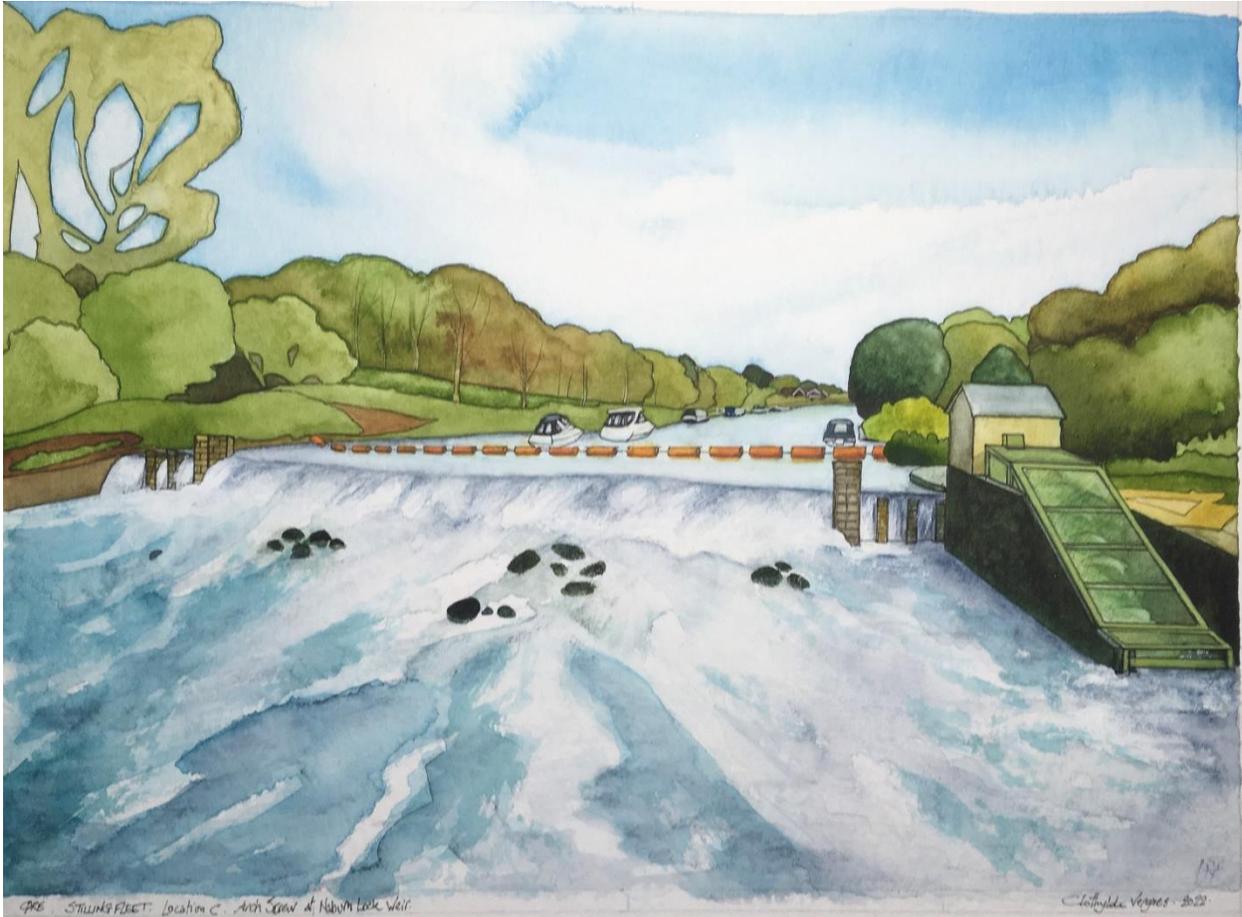


Figure 5. Looking upstream to Naburn Lock on the River Ouse, showing an Archimedes screw turbine on the island adjacent to the weir.

The benefits to Stillingfleet of a low carbon future

Throughout the workshops Stillingfleet residents showed a real willingness to consider all options that might generate low carbon energy locally, alongside a determination to find solutions that make the best use of the opportunities available in the Parish.

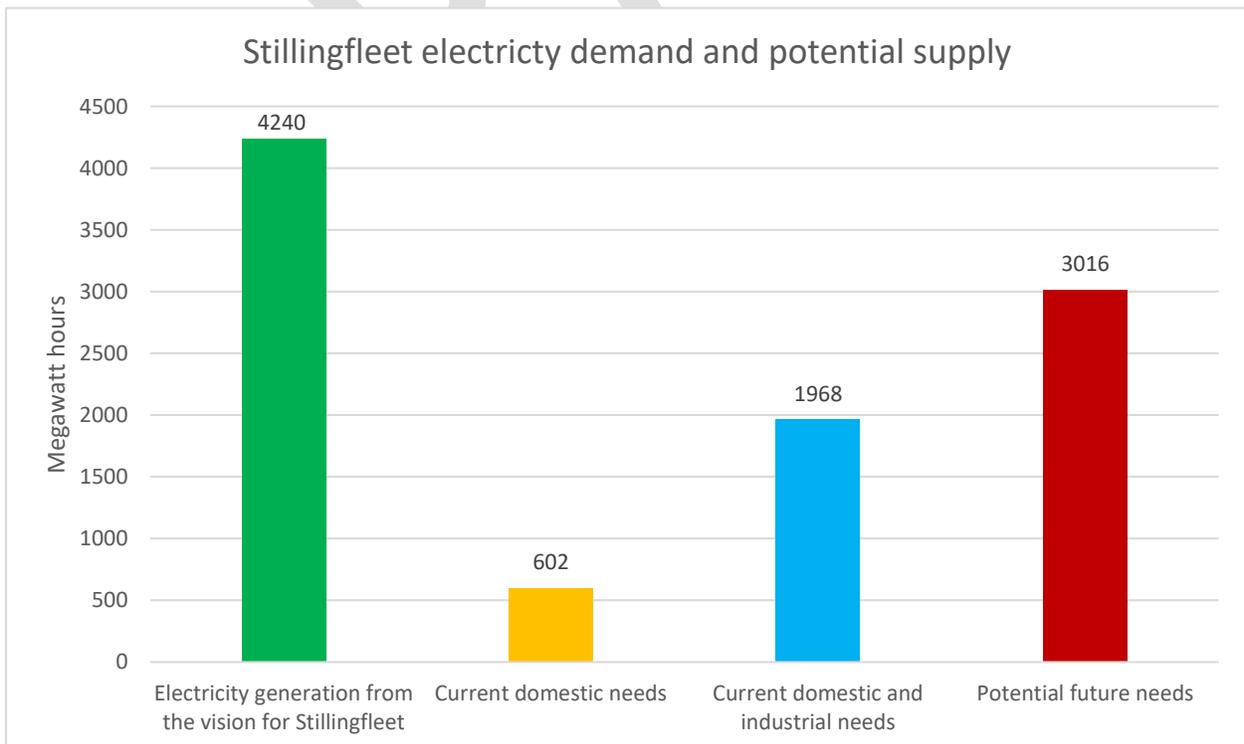
In this context, the focus of the discussions returned again and again to the possibility of converting the site of the old Stillingfleet mine into a renewable energy park. Attendees felt that this option offered a number of big benefits to the local community. As well as having south facing fields suitable for solar panels, using the mine site for renewable energy generation would make positive use of a stranded asset in the local area, building upon Stillingfleet's heritage to deliver a low carbon future.

Many attendees remarked upon the potential pride and symbolism that a renewable energy park on the mine site would deliver for the Stillingfleet community. It was also repeatedly noted that using the mine site for renewable energy generation would secure the area from potentially inappropriate developments that had been mooted in the past. Moreover, by utilising Stillingfleet’s main brownfield site to host a significant renewable energy development, the use of the mine would also ensure that the local community would need to see minimal loss of valued agricultural land or intrusion into the wider countryside in order to meet their energy needs.

Leaving aside the possibility of small wind turbines near to existing buildings in the Stillingfleet countryside, and the potential for a hydro scheme at Naburn lock, using the available land at the Stillingfleet mine site for ground mounted solar panels, in addition to solar panels on 25% of roofs in the parish would generate around 4240 megawatt hours (MWh) per year. As the graph below shows, attendees this would provide seven times more than the current domestic needs of local residents and more than twice the current electricity demand of domestic and industrial needs.

A hydro scheme at Naburn lock could add approximately a further 999 MWh to the generation potential of this vision, while the installation of four small wind turbines at appropriate the sites would increase the potential supply by another 932 MWh.

Furthermore, the energy that could be generated by this plan would still be more than enough to meet all of Stillingfleet’s needs in a future in which half of the cars in the Parish are electric and half of the homes are heated by electric powered air source heat pumps too.



Residents also discussed how this plan for renewable energy generation in Stillingfleet Parish could bring valuable investment in biodiversity improvements to the local landscape such as wildflower meadows, local hedge planting and woodland restoration, which could provide wildlife corridors as well as helpful screening. Furthermore, if the proposed schemes in this vision provided revenue for the Parish, residents looked forward to the potential of investing in better broadband connections, a local playground and even the possibility of a community shop or pub to provide a new focal point for local social life.

Next steps

This document marks the beginning of a conversation. The vision for the future of renewable energy in Stillingfleet's landscape will no doubt adapt over time and as more residents engage with the project. Nevertheless, by setting out a clear plan for where, how and on what conditions more renewable energy could be generated in their local area, this community vision gives the residents of Stillingfleet a powerful tool to take the future of their countryside into their own hands.

Too often the shift to low carbon energy across England has become divisive and confrontational when rural communities have been presented with a proposed scheme in their landscape which they have had little input on and must either accept or reject. By developing this pro-active vision for the future, the residents of Stillingfleet have sent a clear message about the importance of their landscape and what renewables done well would look like in their local context.

In summary, this community vision shows that the residents of Stillingfleet are prepared to play a significant role in the effort to avert the climate emergency. This vision would generate enough low carbon electricity to power all of the needs of the Parish of Stillingfleet and contribute towards the energy used in larger communities where residents go for services and facilities. Stillingfleet residents have shown that they are in favour of renewable energy not just in principle, but would also support hosting new installations in their countryside as long as these developments are sited sensitively to protect the countryside they and visitors value. There is a clear appetite for renewable energy schemes that represent a suitable use of land, especially the re-development of the former Stillingfleet mine.

There are many steps the residents of Stillingfleet can now take to make their community vision for the future of renewable energy in their landscape a reality. There are discussions to be had with the local council (Selby District Council, though local government structures are changing), to see this vision incorporated into local or neighbourhood plans. The vision could also be used to update the Village Design Statement^{iv} (dating from 2009) which is formal supplementary planning guidance. Northern Powergrid, the local distribution network operator, will also be an important partner, to ensure that Stillingfleet has the right infrastructure to support the renewable energy residents want to see.

This vision could be used to pro-actively seek out landowners, farmers and/or renewable energy developers who would be interested in bringing forward one or more of the schemes residents have shown support for. In addition, this document could be used as a plan for establishing a community energy scheme in Stillingfleet, with residents coming together to design and own their own renewable energy development, with the profits flowing back to the local community.

CPRE will continue to support the residents of Stillingfleet as they take this community vision forward. For any readers outside of Stillingfleet, CPRE has a network of local groups across the whole of England who could partner with you to develop your own community vision for the future of renewable energy in your local landscape. If you would like to find out more about this project and explore the opportunities for running the community visioning process in your local area please contact us at info@cpre.org.uk

Useful links and key stakeholders

CPRE North Yorkshire

<https://www.cprenorthyorkshire.co.uk/>

MCS Charitable Foundation

<https://www.mcscharitablefoundation.org/>

Stillingfleet Parish Council

<https://www.stillingfleetparishcouncil.org/>

Selby District Council

<https://www.selby.gov.uk/planning>

Northern Powergrid

<https://www.northernpowergrid.com/>

<https://www.northernpowergrid.com/community-energy>

Centre for Sustainable Energy

<https://www.cse.org.uk/>

Community Energy England

<https://communityenergyengland.org/>

References

ⁱ <https://www.cse.org.uk/projects/view/1315>

ⁱⁱ <https://www.selby.gov.uk/sites/default/files/Selby%20LSA%20Appendix%204%20Wind%20energy.pdf>

ⁱⁱⁱ <https://nrfa.ceh.ac.uk/data/station/info/27009>

^{iv} Version available here: <https://www.stillingfleetparishcouncil.org/planning-applications/>

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