

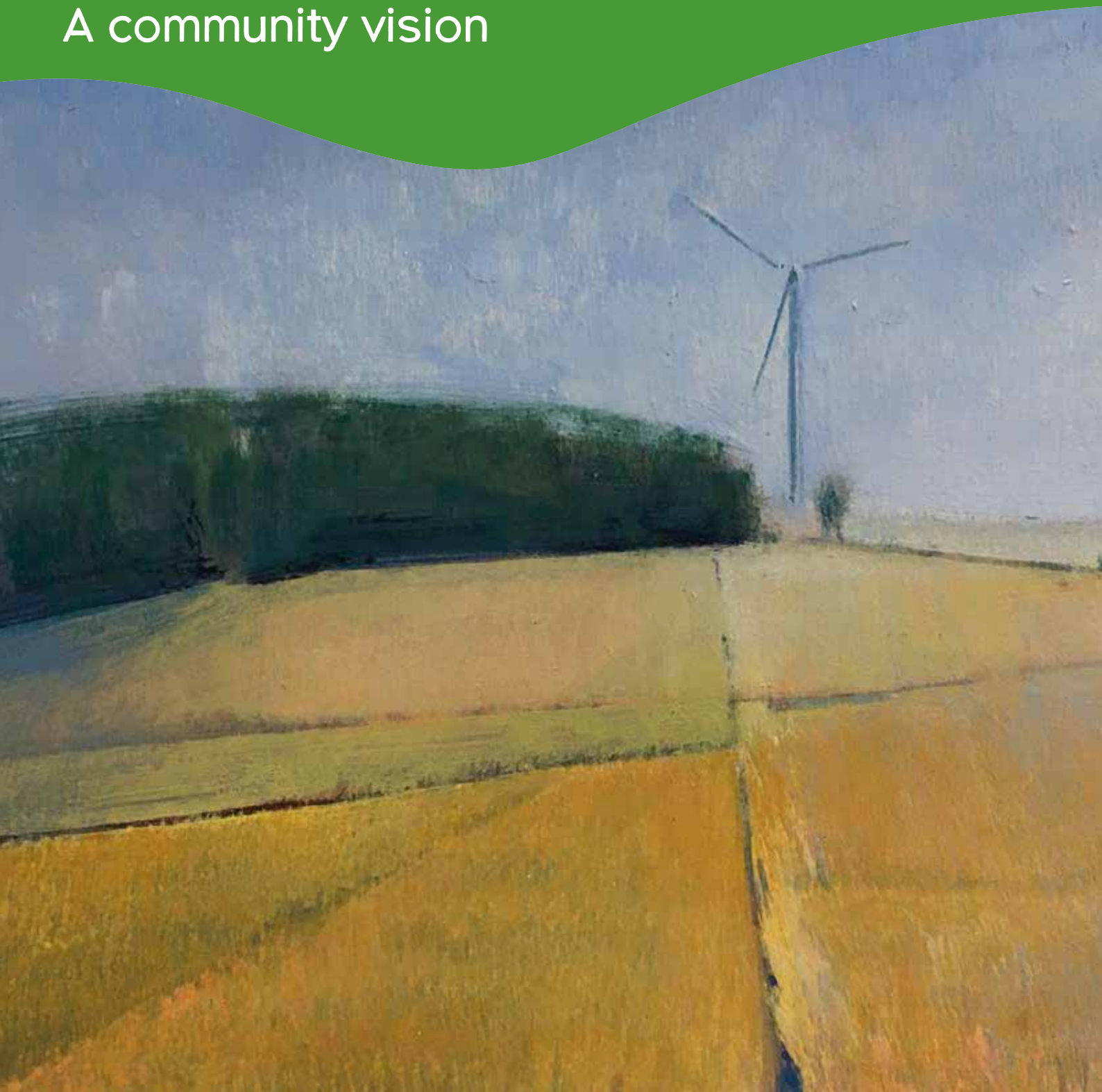


The
countryside
charity



The future of renewable energy in Woodsetts

A community vision



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.

CPRE Peak District & South Yorkshire

CPRE PDSY was delighted to support this innovative project as we 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.

About Woodsetts

Woodsetts Civil Parish (CP) lies between Dinnington and Worksop, on the south eastern boundary of Rotherham Borough. It is comprised of predominantly low lying farm land (c.60m above sea level) interspersed with small areas of woodland (some ancient). To the south and west of the village is a ridge of higher land formed of Magnesian Limestone. Most of the farmland is very productive with crops including potatoes, peas, sugar beet, rapeseed, wheat and barley. Pockets of thinner soils are used for pasture (sheep) or are used as 'set aside' for enhancing biodiversity.

The village is a small rural community that dates back to at least the 13th century. Farming was the mainstay of those living there until the mid-20th century.

Between 1971 and 1991 the population trebled with much new private housing, reflecting the village's popularity as a dormitory village. In 2011, the parish population was 1746 residents. The parish is relatively small at around 880 acres (355 ha).

During the workshops that informed this document, we spoke to Woodsetts residents with a wide range of backgrounds, including parish councillors, plus working and retired residents from many walks of life, including farming. Many were very concerned about climate change and energy issues, as the community had actively (and successfully) campaigned against plans for drilling for shale gas on the outskirts of the village.

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.

MCS Charitable Foundation

“MCS Charitable Foundation are pleased to support this project which is demonstrating how to engage and involve people from across Woodsetts 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.”

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 Woodsetts 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 Energy¹. It involved a series of three workshops in which residents of Woodsetts came together to discuss how they felt renewable energy could be appropriately integrated within their local landscape.

First workshop

In the first workshop attendees discussed their connection to Woodsetts 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 and village that were important to them but had been lost due to landscape or other changes. The discussion ranged over parts of Woodsetts'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.

Second workshop

The second workshop focused on issues to do with energy infrastructure and how much electricity Woodsetts 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 Woodsetts landscape in order to meet future needs, and how much different types of technology, like solar panels or wind turbines, could contribute towards this.

Third workshop

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 local renewable energy schemes 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 Woodsetts landscape and renewable energy

In the workshops that created this vision it was clear that the residents of Woodsetts have a very strong connection to their local landscape. In part this was based on an understanding of the way in which farming had shaped the local countryside and the recent threat from fracking which had united the community. The beauty, tranquillity and biodiversity of the surrounding countryside is a clear source of pride for local residents.

‘Lovely countryside with amazing wildlife’ ‘I like the silence and solitude’

‘Whichever way you come, it’s really beautiful’ ‘A little bit of an oasis’

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

‘Never seems to be crowded’ ‘Very good for my headspace’

‘Great footpaths - all accessible from your door’

There is a good network of rights of way across the parish that are well used for dog walking, running and to access nearby amenities and nature (e.g. Lindrick Common and the Chesterfield Canal to the south)

Concerns relating to road use, including the busy A57 to the south, were relatively minor and residents felt they had good, fast access – by car and rail – to local towns. Although the closure of the village pub was a major problem, the remaining village facilities, such as shops, hairdressers, health centre, pharmacy, school were all valued.

The scale of new development in the parish is generally limited and, bar fracking, wider scale threats to local countryside were not an issue. However, it was felt that a limit had been reached in terms of new housing.

Throughout the visioning process, there was support for the need for a transition to a low carbon future but some concerns were raised as to the cradle-to-grave impacts of some technologies, including battery storage.

There was general support for wind turbines, although some were concerned about noise (loss of tranquillity) and impacts on birds. Many attendees had changed their view on turbines, in part because large turbines (at Worksop, Harthill and Ulley) were seen in many local views and were preferred to views of power stations.

‘I’d rather look at turbines than at West Burton power station!’

There is little in the way of renewable generation locally, bar a number of domestic properties having installed roof solar PV.

Some of the PV installations also use battery storage banks; early adopters (who had secured feed-in-tariffs) have had quite rapid payback (c.9 years). At least one ground source heat pump had been installed. Woodburners were common, either used as a supplement or baseload for space heating.

Energy infrastructure, such as electricity wires, poles and substations (three in the village), was a minor issue to most residents, being largely unobtrusive and accepted in a pragmatic way:

“not a lot to bother us”

Solar energy was seen as the most acceptable and attractive low carbon energy generation option with a preference for installation on domestic properties, public/community buildings (village hall, church, primary school, GP surgery) and commercial and farm buildings. However, part of the village is a conservation area, limiting change. In addition, the use in the village of ‘Rosemary’/Old English roof tiles (a plain red clay pantile) was noted as a characteristic and valued part of the local roofscape.

There was a strong desire to reduce energy consumption by increasing household energy efficiency, mainly via deep retrofits. The need for EV charging provision was also identified, possibly linked with solar installations on community buildings (e.g. the village hall).


Finally, there was some interest in whether former local coal mines could provide some form of geothermal energy, possibly linked to heat pumps. However, it was unclear as to where the mined zones are (relative to the parish area) and the feasibility of accessing them. Mine shafts were also mentioned as an option for the ‘Gravitricity’ energy storage system² but there do not appear to be suitable locations in the parish.


Map of proposed installations

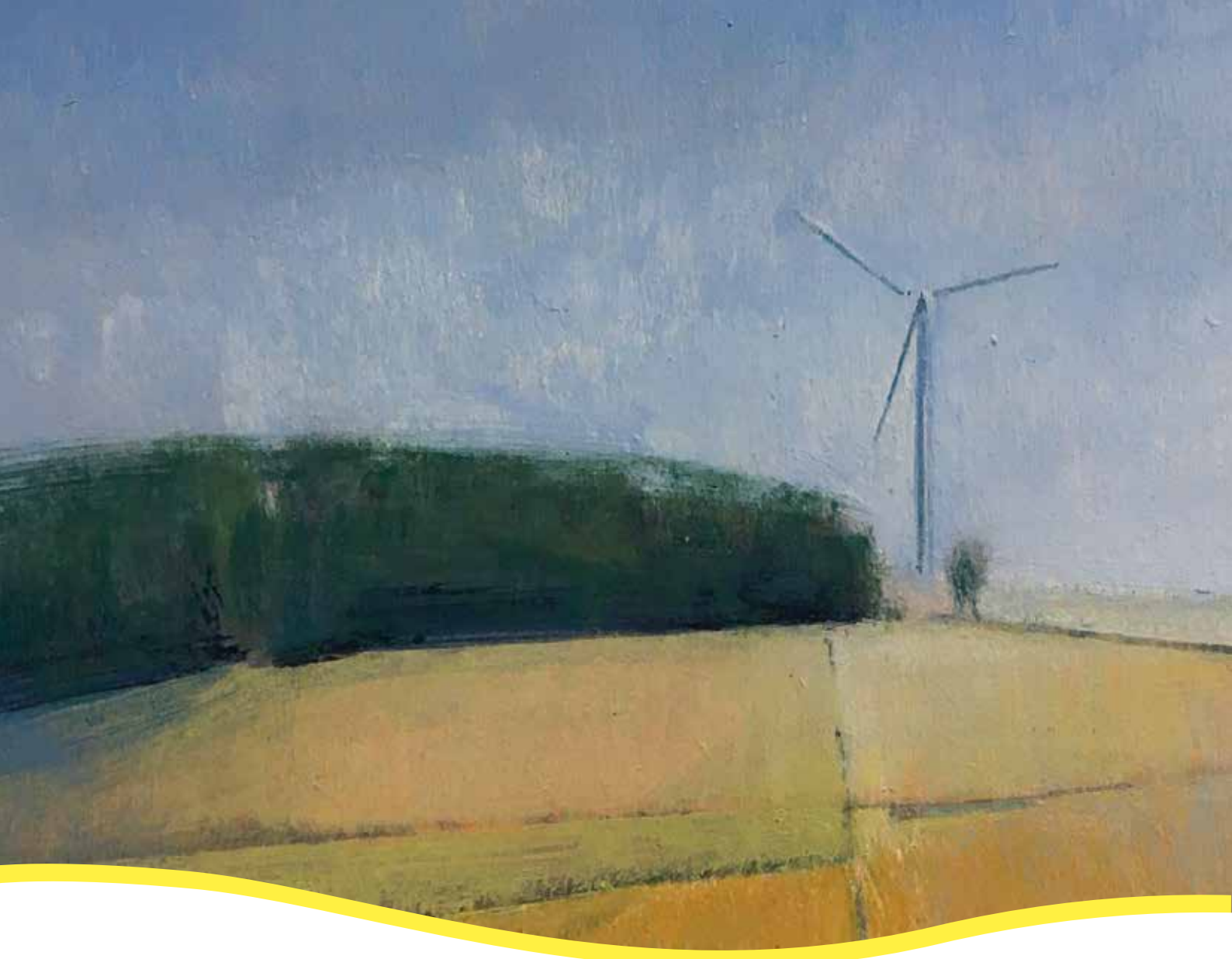
In total the workshop attendees proposed a vision for the future of renewable energy in the Woodsetts landscape which includes:

- A small or medium turbine on high ground west of Dewidales Wood
- Up to 10 acres of ground mounted solar panels adjacent to Piggy (Cross) Lane
- Supplemented by solar panels installed on up to 20% of the houses and agricultural buildings across the parish (an estimate of c.160 properties with rooftop solar)
- Deep retrofits of much of the mid-century (1930-1990) housing stock in the village



 Area adjacent to Piggy (Cross) Lane for up to 10 acres of ground mounted solar photovoltaic arrays

 Medium wind turbine to west of Dewidales Wood, outside of Woodsetts CP area



Wind power

There was some ambivalence among attendees as to whether wind turbines were the right option in Woodsett's countryside. However, there was relative consensus that the ridge of higher land between Dewidales Wood and Rackford Lane was the only feasible location, although this was just outside the parish boundary.

A 2011 study for Rotherham Council³ suggests a 'moderate' sensitivity to wind turbines in the landscape character types (LCTs) that comprise the parish (East Rotherham Limestone Plateau to the west; Sandbeck Parkland Fringes to the north; and the Ryton Farmlands LCT to the south and east). Additional resource maps – showing areas viable for large and medium scale wind turbines – were developed as part of the RMBC study. This was based on technical feasibility (wind resource) and avoidance of landscape designations. No area was identified within the Woodsetts parish boundary although areas to the north near Gildingwells were shown to be viable.

Given the assessment of moderate sensitivity across Woodsetts' landscapes (LCTs), it seems likely that (insufficient) wind speed may have been the determining factor in not including areas within the parish as having practical viable wind resource. Nonetheless, advances in turbine technology and monitored (rather than modelled) wind data may show the proposed site to be viable. There was divided opinion as to whether a medium or small turbine was most appropriate in landscape terms. For this reason, the artist's impressions show both options and from a variety of viewpoints. Figure 1 shows a medium turbine

Figure 1

A medium turbine to the west of Dewidales Wood, as seen from Dinnington Rd on the west edge of Woodsetts village.



Figure 2

A small turbine seen from the bridleway (Rackford Lane), looking north-east towards Dewidales Wood (on the horizon) and Woodsetts.

(800 kW capacity; 60m/200 feet high) seen from the Dinnington Road, looking just south of east. Figure 2 shows a small turbine (100 kW capacity; 26m/85 feet high) in the same locations but seen from the bridleway to the south (Rackford Lane), with Dewidales Wood to the east. Lastly the medium turbine is illustrated again in a view east from the footpath linking Rackford Lane (close to Rackford Farm) and Dewidales (Figure 3).

Figure 3

A medium turbine to the west of Dewidales, as seen from the footpath linking Rackford Lane and Dewidales Wood.

There was a preference for a medium turbine, given the exponentially higher power output. A turbine of this size would also be preferable if the wind resource is sub-optimal. A single medium turbine was therefore used as the option choice in the CESAR spreadsheet exercise.



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 20% of existing domestic housing stock in the parish, subject to the amount of financial incentives available to encourage uptake. There was also a desire to ensure that community buildings (e.g. the primary school, Woodsetts Village Hall) be retrofitted, together with options for PV on commercial and agricultural building roofs to be considered. As noted above, consideration of the village's Conservation Area, and especially the need to conserve the typical pantile roofs, would be a factor that could constrain uptake.

Ground mounted solar

The group were in agreement that land adjacent to 'Piggy' (Cross) Lane (also a popular public right of way) appeared to be most suitable for a reasonably sized solar array. The land was less productive in agricultural terms and well screened visually from the village, although closer views would be had by users of the lane/bridleway, as shown by Figure 4. Indeed, as this illustration shows, the panels, without further screening, would be prominent and overbearing.

Further options were investigated to the north and south of Piggy Lane, including wetter/poorer farm land just west of Ownds Wood Dike and land between Piggy Lane and the sewage works. Both of these would be better screened (especially for bridleway users) and provide larger installation areas, thus maximising returns. The area adjacent to the sewage works is illustrated in Figure 5. This site may also be preferable in terms of a better grid connection via the sewage works power supply. If developed, there was a preference for hedgerow conservation and enhancement to screen the panels and deliver biodiversity gains.

Figure 4

Solar panels immediately adjacent to the Piggy Lane bridleway to the east of Woodsetts. This option would require mitigation in the form of enhanced screening.

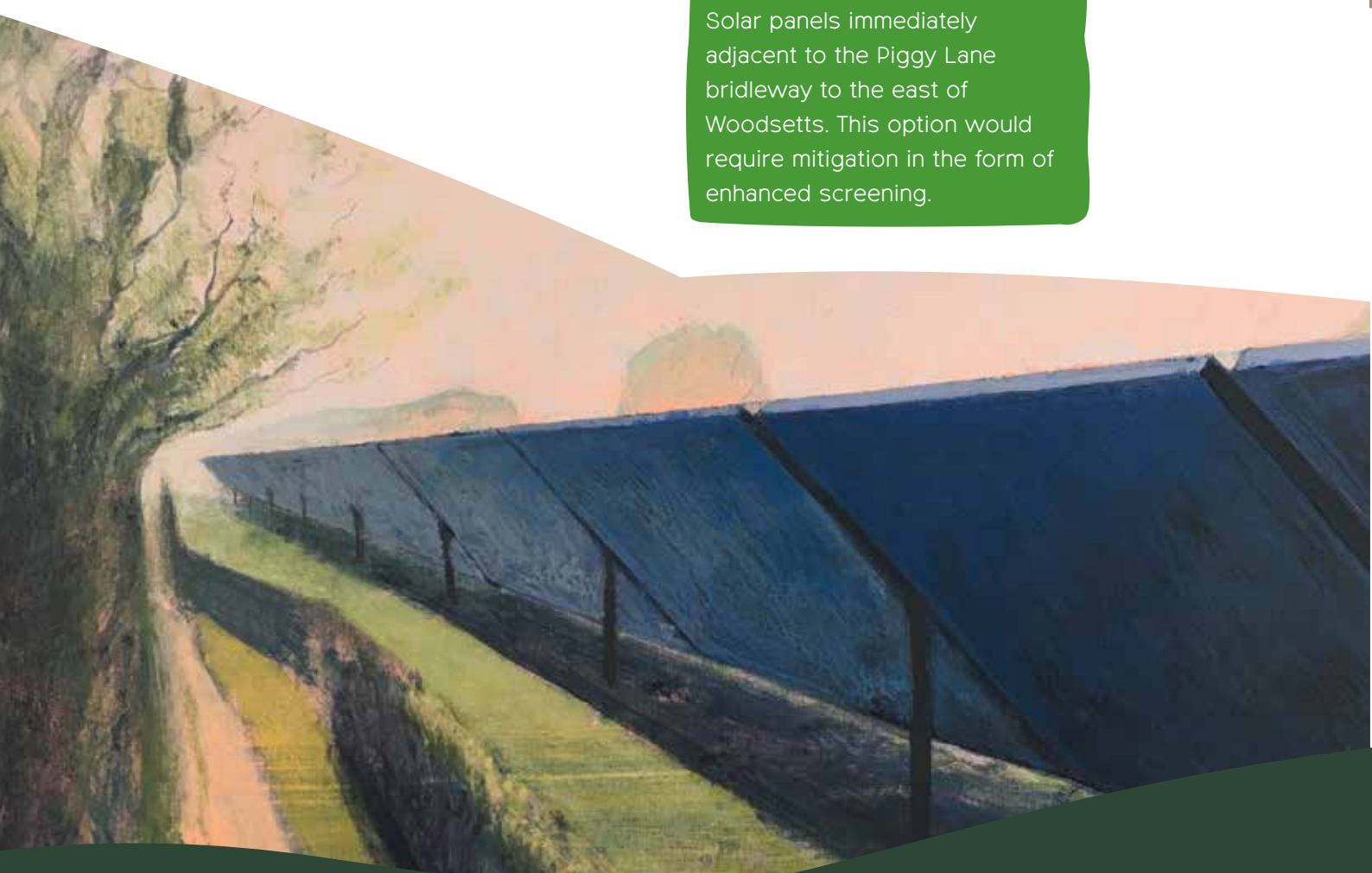




Figure 5
Solar panels on the fields south of Piggy Lane, as seen from the lane (bridleway) running east from Woodsetts.

Other options for further investigation

Given the desire of the group to also reduce domestic energy use, the effectiveness of a ‘deep’ (high cost) retrofit aimed predominantly at twentieth century properties (built 1930-1990) was scoped using the CESAR model. The results are reported on in the next section. There was some additional interest in a community heat pump scheme but, in the absence of further information, this was not modelled.

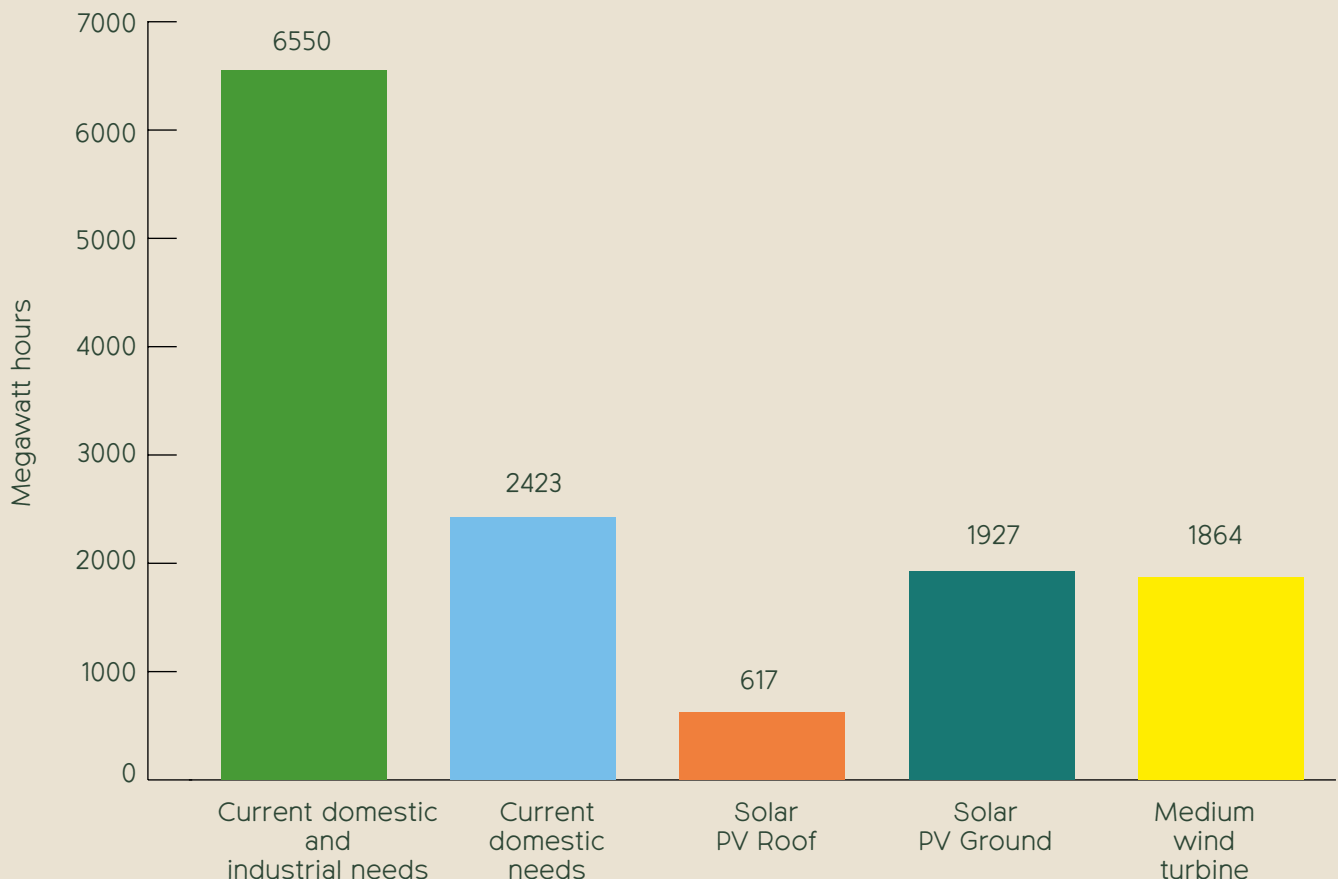
The benefits to Woodsetts of a low carbon future

Throughout the workshops Woodsetts 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.

However, the limited size of the parish and its high proportion of productive farmland meant that generation options were relatively constrained. However, options to save energy through domestic retrofits were also investigated.

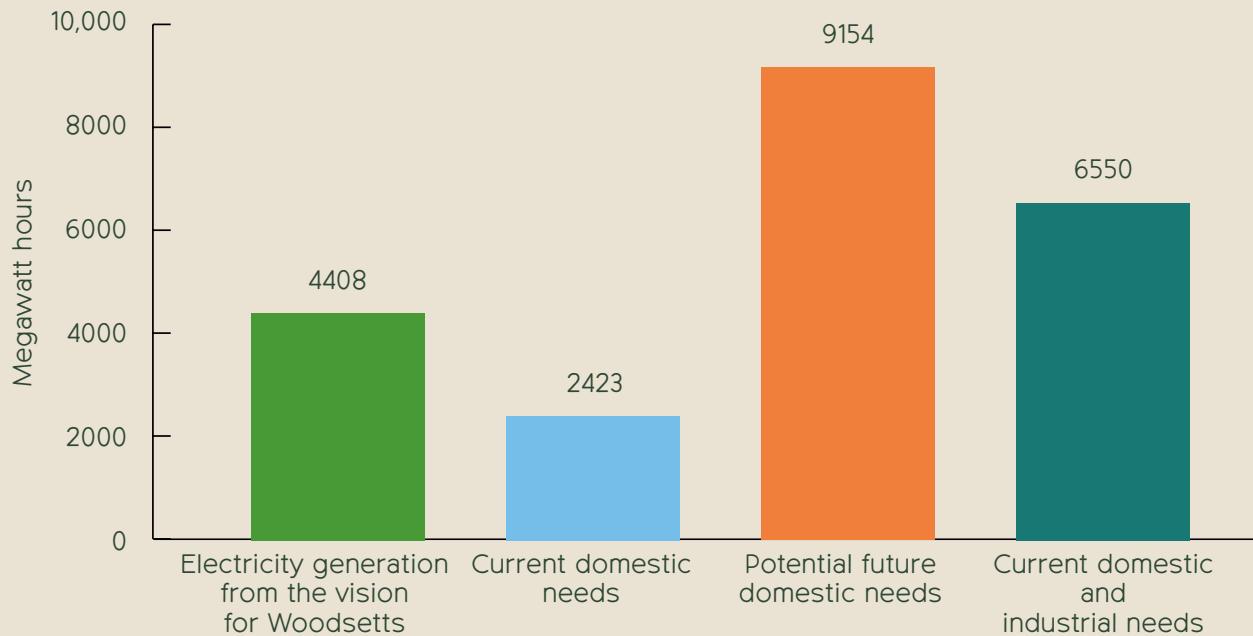
Using up to 10 acres of land in the vicinity of Piggy (Cross) Lane for ground mounted solar panels, in addition to solar panels on 20% of roofs in the parish would generate just over 2500 megawatt hours (MWh) per year. As the graph below shows, this would provide enough to meet the current domestic needs of local residents. The installation of one medium turbine near Dewidales would increase the potential supply by another 1864 MWh (see Figure 6).

Figure 6. Woodsetts electricity demand and future renewable energy supply



However, the total local electricity that could be generated by this plan would only meet two thirds of all the parish’s estimated current electricity needs (domestic and industrial), although questions have been raised as to the validity of the CSE estimates for industrial (non-domestic) useage. This is still unresolved. We also modelled future electricity needs 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. In this scenario, the local energy generation could meet just under half of predicted electricity demand (see Figure 7).

Figure 7. Woodsetts future electricity demand and supply



To address energy used for heating, the chosen (deep) retrofit programme was modelled on high-cost measures applied to 500 homes, predominantly aimed at those built between 1930-1990. This resulted in energy savings of 15% (as measured in MWh). The overall CO2 savings of both the new energy generation and the energy reduction (retrofit) programme was 22%.

Residents also discussed how the plan for renewable energy generation in Woodsetts, if the proposed schemes in this vision provided revenue for the parish, could provide further benefits. There were two main proposals: a stimulus for further low carbon upgrades to the village hall (possibly including EV chargers to provide income); and to provide a seed fund to enable the proposed deep retrofit programme for domestic housing stock. A community ‘vehicle’ for the latter ambition would be the existing Tenants and Residents Association (TARA). As mentioned above, it was also hoped biodiversity gains could also be achieved by hedge planting associated with mitigative screening for the proposed Piggy Lane ground mounted solar scheme.

Next steps

This document marks the beginning of a conversation. The vision for the future of renewable energy in the landscape around Woodsetts will no doubt adapt over time and as more residents engage with the project. It will also be necessary to engage with neighbouring parishes, especially in relation to the proposal of a wind turbine (near Dewidales) on land within North and South Anston CP. Nevertheless, by setting out a clear plan for where, how and on what conditions more renewable energy could be generated in the parish, this community vision gives residents 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, Woodsetts residents have sent a clear message about the importance of their landscape and what renewables done well would look like locally.

In summary, this community vision shows that the residents of Woodsetts 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 two-thirds of the needs of Woodsetts CP and, by also addressing domestic energy use with a local buildings retrofit programme, help cut CO2 emissions by over a fifth. Woodsetts 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 whilst respecting local agricultural production.

There are many steps the residents of Woodsetts 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 Rotherham Council to see this vision incorporated into local or neighbourhood plans. Northern Powergrid, the local distribution network operator, will also be an important partner, to ensure that Woodsetts has the right infrastructure, with timely connection, to support the renewable energy residents want to see.

This vision could be used to pro-actively seek out landowners, farmers 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 Woodsetts, with residents coming together to shape and own their own renewable energy development, with profits flowing back to the local community.

CPRE will continue to support the residents of Woodsetts as they take this community vision forward.

For any readers outside of Woodsetts, 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 and community energy visioning

<https://www.cpre.org.uk/what-we-care-about/climate-change-and-energy/renewable-energy/community-energy-visioning-showcasing-renewables-done-well/>

CPRE Peak District and South Yorkshire

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

MCS Charitable Foundation

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

Woodsetts Parish Council

<http://www.woodsettsparishcouncil.gov.uk/>

Rotherham Metropolitan Borough Council

<https://www.rotherham.gov.uk/planning-development>

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

¹ <https://www.cse.org.uk/projects/view/1315>

² <https://gravitricity.com/technology/>

³ <https://www.rotherham.gov.uk/downloads/file/674/rotherham-low-carbon-and-renewable-energy-study-2011->

Contact us:



The countryside charity
Peak District and
South Yorkshire

CPRE Peak District & South Yorkshire
Victoria Hall, 37 Stafford Rd
Sheffield, S Yorks, S2 2SF
Telephone: 0114 312 2002
Email: planning@cprepdsy.org.uk

 @cprepdsy

 @cprepdsy

 @cpre_pdsy

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