The countryside charity
Derbyshire

Transition Crich
Together for a Greener Community

The future of renewable energy in Crich, Fritchley and Whatstandwell

A community vision

Sponsored by Keele University Participatory Research Fund

Keele University

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.

More frequent and heavier storms impact on buildings, energy infrastructure and people alike. 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 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 in steep decline. 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 widespread landscape impacts, as well as new income streams, arising from the energy transition.

The economics of many renewable energy technologies and energy saving schemes are now very favourable, especially for community schemes where profits can be ploughed back to local people, either as cheaper energy or funding other community-wide benefits.

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 such developments on landscapes and allow for a just transition to net-zero.

That is why CPRE has created the community energy visioning process –

to empower the people of parishes like Crich to set out where and under what circumstances they believe that new renewable energy could be sited within their local landscape.

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 proactive vision for the future, the residents of Crich, Fritchley and Whatstandwell are sending a clear message about the importance of their landscape and what renewables done well would look like locally.

The Community Visioning process

The process used to create this vision was developed by CPRE, building upon previous and parallel work with the Centre for Sustainable Energy.[i] The community vision is based on a series of three workshops in which interested residents of Crich met 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 the Crich area and the countryside around it. Attendees 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 the Parish'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 and heat the residents of Crich, Fritchley and Whatstandwell need. This discussion began with attendees talking about their awareness and opinions of pylons, wires and other types of energy infrastructure (including renewables) in the countryside around them. We then considered how this might change as we use more electricity and heat generated renewably in order to reduce carbon emissions.

Using a spreadsheet (the Community Energy Savings and Renewables tool, CESAR) developed by the Centre for Sustainable Energy, attendees were able to explore how much renewable electricity would need to be generated in the Crich 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 workshop we used maps of the local landscape to pinpoint locations where the new renewables and related infrastructure could be sited. Issues around who would own and profit from new renewable energy schemes in the Crich 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.

Subsequently, a consultation event was held to present the draft vision document back to the residents' group and to identify next steps. The technology options were agreed and the likely locations for new generation narrowed down, based on the community's knowledge of their patch and known planning constraints (e.g. the World Heritage Site). Next steps for promoting buy in to the project and involving wider stakeholders were discussed and agreed.

The Crich landscape and renewable energy

In the workshops that created this vision it was clear that the residents of Crich have a very strong connection to the villages and local landscapes that make up the Parish. In part this was informed by many attendees being very active users of the local countryside, often via its extensive footpath network. The beauty, tranquility and biodiversity of the surrounding countryside is a clear source of pride for local residents as is the landscape history with its farming roots and mining heritage. It is a lesser known area of Derbyshire (compared with the Peak District), with a sense of difference. The unusual geological feature of the Crich 'inlier'[ii] with the iconic Crich Stand memorial tower is a unique focal point of the Parish and surrounding landscapes, being seen from far and wide. Adjacent to the Stand is the Crich Tramway Village that attracts large numbers of visitors to the area, who are welcomed.

'We're very lucky to live here'

'the Stand is a beacon for the area'

'a sense of space as high up'

The benefits of the local countryside were widely appreciated, especially for wellbeing and visitor income and interaction:

'The tramway museum puts us on the map'

'peaceful, tranquil but vibrant when you want it to be'

There is a good network of paths for exploring the local countryside. These give access to nature, which was strongly valued, especially the extensive woodlands on the steep slopes of the Derwent valley. Farmed areas were seen as less good for wildlife:

'Great doorstep countryside, can be out walking all day'

'very green but not biodiverse'

There were, however, concerns around parking, congestion and safety at the Market Place and vehicles speeding on Crich Common (the main road between Crich and Fritchley). Loss of open fields, especially those currently separating Critch and Fritchley, highlighted concerns around over-development, mostly for new housing. However, the diversity of ages and community spirit in general were seen as very positive features of the area.

'The village has become a town'

'great community mix'

'Crich has all the functions we need'

The discussions revealed a strong understanding of and connection to the area and its countryside. Transport links with local services to the surrounding area (buses and the Matlock-Derby rail line) were especially valued although the decline in bus services was a concern.

Although threats from new development in the Parish were generally limited to new housing, other threats to the countryside were raised. There was much concern regarding recent proposals to create a large 'water park' leisure development in Crich (Cliff) Quarry, although planning permission was refused in 2024. Elsewhere, whilst loss of dairy farming was regretted, modern farming was also felt to be damaging some landscape and wildlife features.

Throughout the visioning process, there was a strong appreciation of the urgent need for a holistic transition to a low carbon future, encompassing both new forms of electricity generation and the need to address broader energy usage. No one doubted the need for local generation although local grid capacity and resilience were seen as issues that also needed addressing. There were some mixed views as to whether wind turbines would be acceptable in the local landscape and, if so, at what scale. However, it was generally accepted that the need to deal with climate change meant accepting new infrastructure at a scale appropriate with the landscape and local villages' built environments.

Commercial scale wind turbines were evident in nearby landscapes, notably near Alderwasley and further afield at Carsington, Ryder Point (Hopton) and Longcliffe.

Energy infrastructure, such as electricity wires, poles and substations, was a minor issue to most residents. Despite there being some reasonably prominent high voltage overhead lines (e.g. north of Wheatcroft Lane; and from Fritchley to Park Head), most people did not notice them or object to them.

Solar panels were seen as the best low carbon technology, especially if well designed and located (e.g. in keeping with the Conservation Area policies). It was suggested that all new houses should have solar panels; currently, only some new builds have rooftop solar installed. A number of public buildings were suggested as suitable for retrofitting solar panels to (e.g. the Baptist Church, Junior School and Comrades Club) as well as farm buildings with large roof areas. Ground mounted solar was also seen as a key option but with a preference for deployment on brownfield sites first.

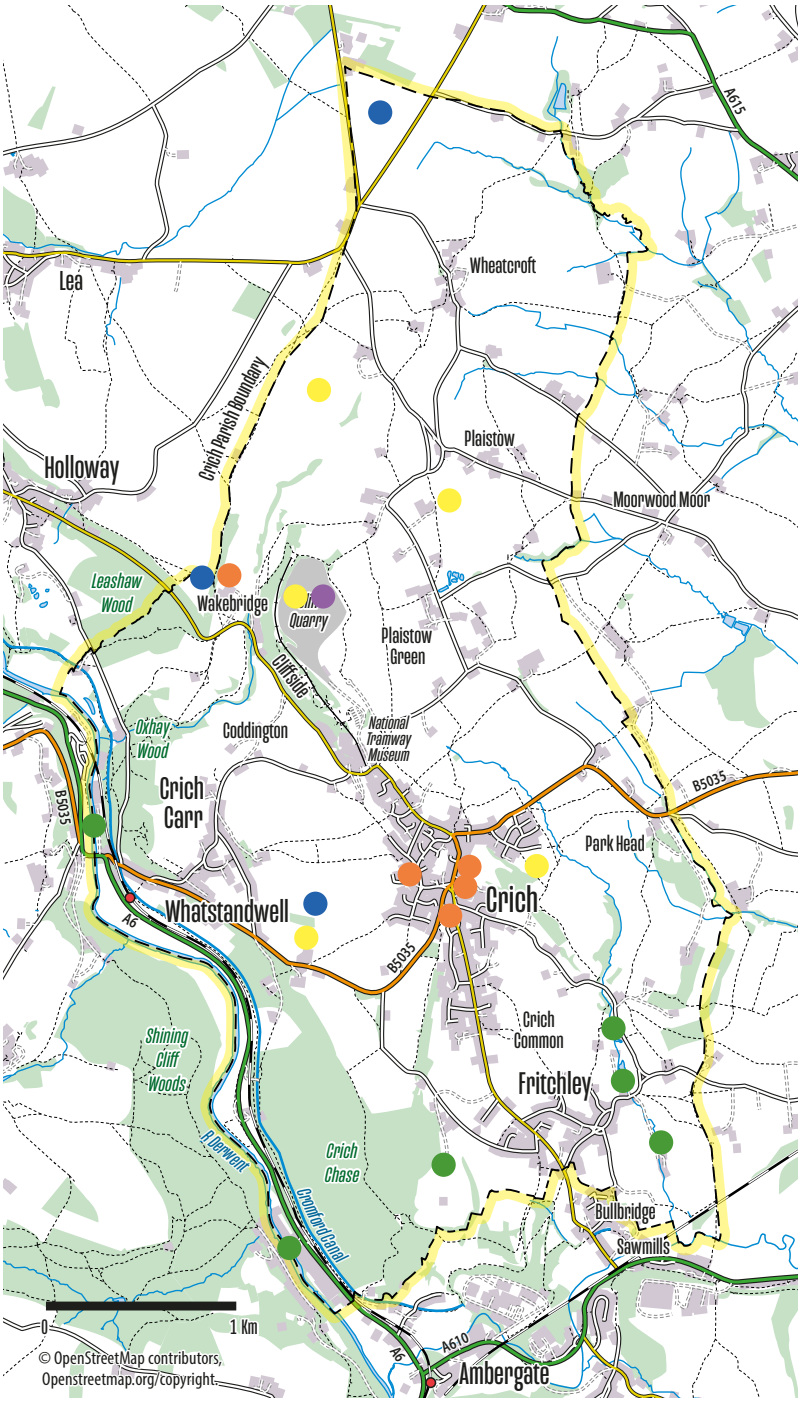
There was also interest in using the River Derwent and feeder tributaries in the Parish for hydro-electric power, if feasible.

There was strong support for the need to use less energy by improving insulation (most of the housing stock is old) and replacing gas heating (sometimes supplemented by wood burners) with heat pumps. There was also interest in a communal/district ground source heat pump system for any new estates, possibly based on local geothermal resources.

Map of proposed installations

In total the workshop attendees proposed a vision for the future of renewable energy in the Crich, Fritchley and Whatstandwell area which includes:

- Medium-sized wind turbines next to Dewy Lane (N of Parish); west of Wakebridge Farm; and between Crich and Benthill (Crich Carr), either just N or SW of the covered reservoir (3 in total)
- Up to 35 acres of ground mounted solar, in a mixture of brownfield sites (Roes Lane landfill; Crich Quarry), well-screened fields (adjacent Chasecliff Farm, Causeway Farm and Wakebridge Farm) and possibly on covered reservoir sites
- Rooftop solar installed on up to 25% of homes, community and agricultural buildings across the Parish (an estimate of around 300 buildings) – for completion by 2030
- Widespread adoption (up to 50% of households) of air source heat pumps, combined with batteries plus energy conservation measures to make homes cosier
- Battery energy storage systems (BESS) to store spare renewable energy output and help balance grid supply; co-located with solar and wind subject to landscape impacts
- A district/community heat pump (possibly using thermal waters at depth) supplying 100 houses, probably as part of any larger, future new build estates
- A range of hydro power options, either on the River Derwent or small old mill sites within the Parish area; an innovative scheme at Severn Trent's Ambergate reservoir, utilizing the inflow water, was also suggested



Map data © OpenStreetMap contributors, *Openstreetmap.org/copyright*
Cartography by Richard Ross, Active Maps Ltd.

Wind turbine

Ground mounted solar PV

Roof mounted solar PV (non-domestic)

Battery energy storage system

Hydro/micro-hydro installation

Wind power

Attendees were clear that wind turbines were an appropriate option in the Crich area, with fewer larger turbines being more efficient and acceptable than many smaller turbines. The best site (in terms of wind resource), Crich Stand, was inappropriate given the presence of the memorial tower and the likely visual impact on the surrounding area.

In landscape terms, Crich falls within the Derbyshire Peak Fringe and Lower Derwent national character area (NCA50). In Crich there are two main landscape character types (LCTs): Wooded Slopes and Valleys (covering the majority of the Parish) and Enclosed Moor and Heaths to the north of the village. A local landscape sensitivity study[iii] identifies both the north and south areas of Crich to be of high landscape sensitivity, stating '*owing to the rising topography the visual prominence of land to the north, north-west and north-east of Crich is high. Additionally, development in this area, including the north and north-east of Crich would be likely to affect the setting of the World Heritage Site (as it is located within the WHS Buffer Zone)*'. This clearly needs to be taken into account when considering the location of tall, vertical structures such as wind turbines.

Figure 1
A medium turbine situated west of Crich village, seen from the 'phone mast field'/ footpath to Benthill (Whatstandwell).

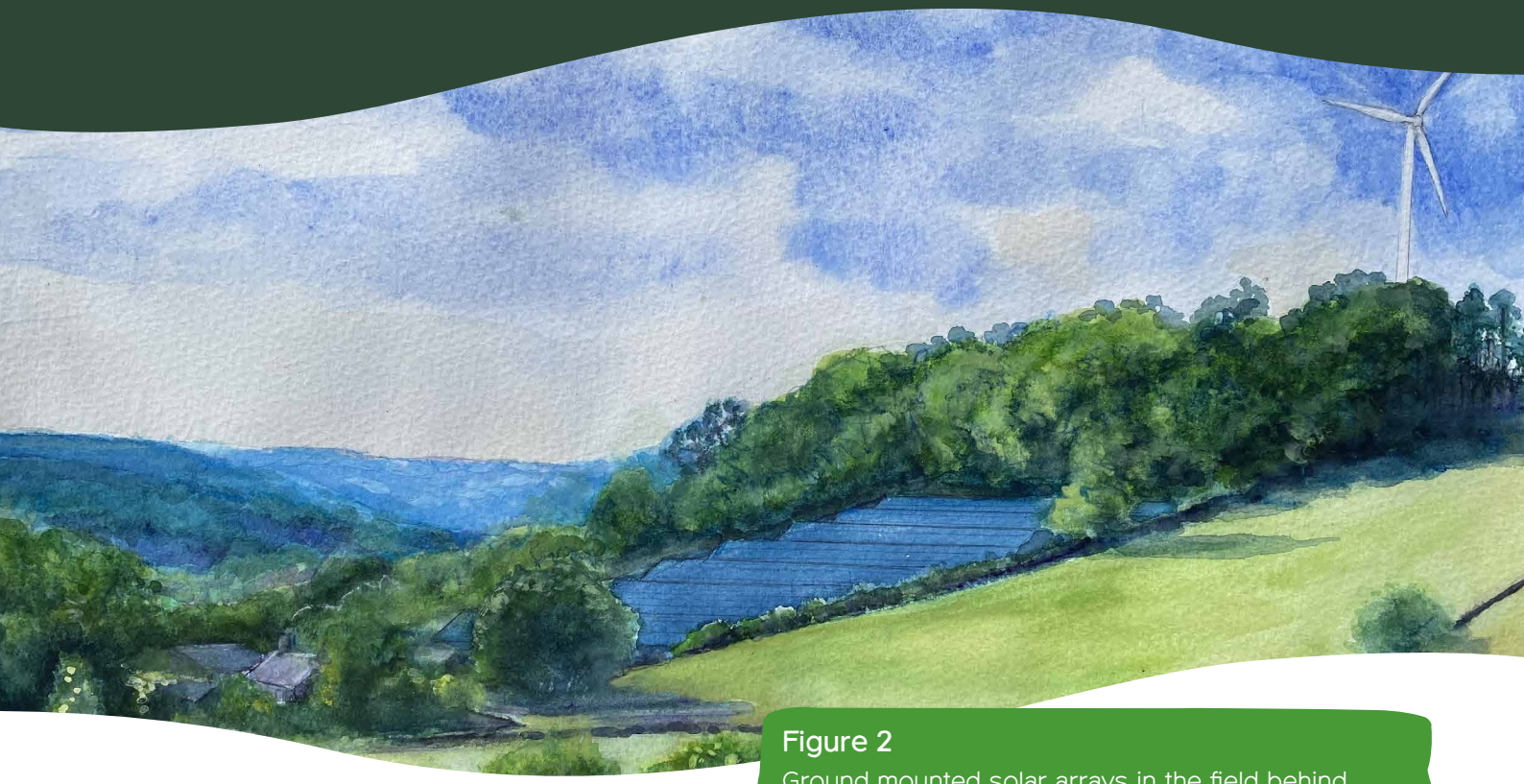


Figure 2
Ground mounted solar arrays in the field behind Chasecliff Farm with a medium wind turbine on the ridge behind (same as seen in Figure 1, but now from the south).

In terms of the best places for wind turbines within the Parish, there were a number of suggested sites, later refined by a consideration of landscape impacts and planning concerns. The most ambitious (and prominent) would be a medium turbine (800kW, 73m/240' hub height, 100m/325' to tip) just north of the footpath to the 'phone mast field', which would skyline prominently in views from Dowie Lane to the west of St Mary's, probably affecting the setting of both the church and Crich Stand. An alternative site, further to the south west (see Figure 1 and Figure 2) would be more acceptable in landscape terms but would fall within the buffer zone of the Derwent Valley Mills World Heritage Site.

Two further locations were proposed for medium turbines: in a triangle of land in the 'northern plateau' area, between Canada Farm, High Lane and Dewy Lane; and above and to the west of Wakebridge Farm on the open ridge overlooking Leashaw Wood (see Figure 4). The latter site also falls with the WHS buffer zone.

Rooftop solar

Installing more solar photovoltaics was seen as the main first step, with an aim to retrofit rooftop solar onto approximately 25% of existing domestic housing stock (c.300 houses) in the Parish, subject to grants being available to encourage uptake. Rooftop installation would need to be done sympathetically, also bearing in mind the Conservation Area. There are already good examples of sensitively mounted panels on valued vernacular buildings locally (see Figure 3). Rooftop solar on community buildings and on large sheds at farms was also a key feature of the vision. This is illustrated in Figure 4 showing roof arrays on large agricultural buildings at Wakebridge Farm with a proposed medium wind turbine behind. Figure 5 shows Crich Junior School with solar panels (where four heat pumps have recently been installed) and there was also an aspiration to add rooftop solar to a range of other community buildings, possibly including the Methodist chapel, the Comrades Club and the Glebe community centre.

There was also a desire that rooftop solar be combined, where possible, with air source heat pumps and batteries to maximise energy storage and flexibility and help improve local grid resilience.

Figure 3
Solar panels sensitively arranged on a recently renovated older house.

Figure 4
A solar array on agricultural buildings at Wakebridge Farm with a medium turbine beyond (as seen from the footpath by Cliff Farm).

Ground mounted solar

Old quarry sites such as Crich (Cliff) Quarry and Roes Lane landfill were seen as the most suitable sites for ground mounted solar and possibly related energy infrastructure, such as battery energy storage systems (BESS). Both sites are well screened from most viewpoints and have suitable orientation and topography. Crich Quarry still has planning permission for more extraction but clearly the site is 'mothballed' and the owners are looking to redevelop the site in other ways. With appropriate restoration (to maximise biodiversity and amenity) to new landforms (see Figure 6), it could be the site of a substantial low carbon energy park, subject to a suitable grid connection being available. The former waste site at Roes Lane already appears to generate electricity via burning off methane captured from the decomposing rubbish. Clearly any solar scheme on the site would have to be integrated with that existing use.

Figure 5
Solar PV panels on the roof of Crich Junior School.

Figure 6
Solar panels in Crich (Cliff) Quarry with a battery energy storage system (on right).

Other options for further investigation

There was some interest in local hydropower opportunities. Weirs on the River Derwent were identified north of Whatstandwell Bridge and also at Ambergate Wireworks & Forge. The latter site was the focus of a proposed 185 kW community hydro scheme[iv] which sadly proved uneconomic when the subsidy regime (feed in tariffs) was withdrawn; the scheme may still be taken forward in the future but as a commercial proposition. The weir at Whatstandwell is also an Environment Agency gauging station (with a fish pass) so may not be deemed suitable for a hydro installation. Two other options were identified: micro hydro schemes at a number of old mill sites in the Parish (e.g. the Bobbin and Brook Mills in Fritchley); and utilizing the significant inflow of aqueducted water from the Upper Derwent catchment where it enters Severn Trent Water's Ambergate reservoir.[v]

There was also interest in warm water (at depth) being used in ground source heat pumps (possibly via a communal facility serving new housing developments). There is thermal water locally that may be useable in mines and soughs – underground drainage channels – underlying Crich Quarry and Wakebridge. Community heat pumps are starting to be developed in the UK, for example the local authority supported scheme at Swaffham Prior, Cambridgeshire, which is powered by a local solar array.[vi]

As stated earlier, and in addition to any ground water schemes, the community was keen to maximise uptake of home air source heat pumps and also wanted to maximise insulation and other energy efficiency measures in respect of the numerous older homes and premises in the village and wider Parish.

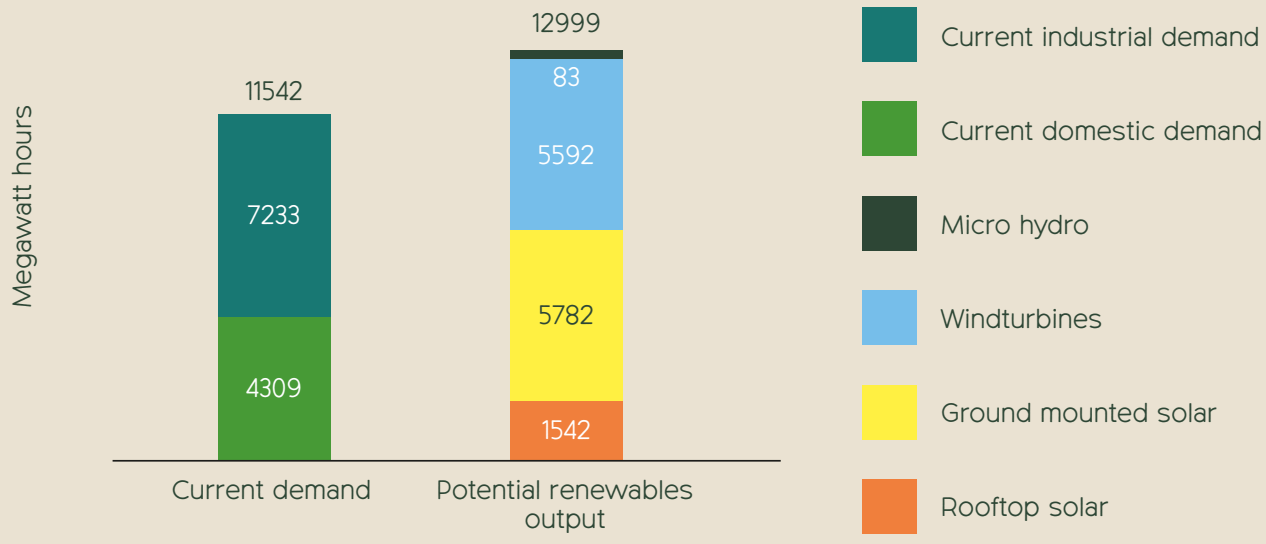
The benefits to Crich, Fritchley and Whatstandwell of a low carbon future

Throughout the workshops Crich area 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.

There was a strong push towards making the most appropriate use of the countryside whilst recognising both local landscape sensitivity and the setting of the Derwent Valley Mills World Heritage Site as key constraints. In policy terms, the development of renewable energy is dealt with in the Crich Neighbourhood Plan (Policy NP17). In the Amber Valley Borough draft Local Plan Policies EN1, EN2, EN4 and EN7 are most pertinent, covering (respectively) climate change, renewable energy, heritage and landscape character. Any new low carbon development must accord with these policies to gain planning permission.

The main focus was on solar energy, predominantly in well screened quarry sites in the Parish. There was also a desire to use suitable rooftops within the area, via retrofitting on existing homes, community and agricultural buildings plus mandatory solar PV on new builds. In relation to wind power, and after scoping sites for landscape sensitivity, three medium turbine locations were modelled. Figure 7 shows the overall outputs of the different generation options. The electricity that could be generated by this plan (totalling nearly 13000 MWh a year, including the solar and wind options plus micro hydro) would exceed Crich's current overall needs (domestic and industrial demand).

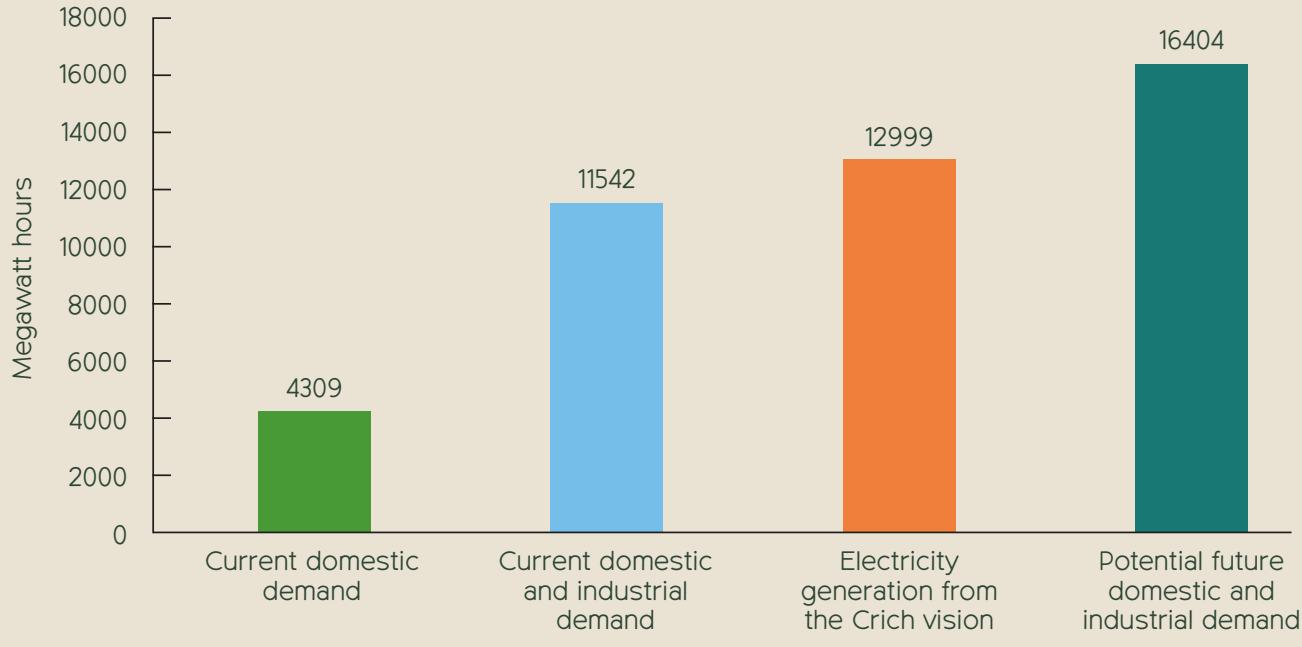
Figure 7. Crich electricity demand and potential renewable energy supply



However, Figure 8 also shows that electricity demand would increase strongly (by c.4862 MWh per year, see column on right) 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. Some of this extra demand would be offset by the proposed energy efficiency/retrofit measures applied to a housing stock of predominantly older buildings (and this programme could be enlarged to include the larger community buildings such as schools and churchs/chapels etc). Energy efficiency measures and local heat generation (via heat pumps), together with taking up all the renewable energy supply options, would halve (reduce by c.49%) current CO2 emissions. This is because gas for heating is displaced by electric heat pumps and a much greater proportion of electricity supply is low carbon.

The addition of the three medium wind turbines (as illustrated in Figures 1, 2 and 4, with an output of c.5592 MWh) would undoubtedly help meet the likely extra future electricity demand but it was recognized that capital costs would be difficult to find for a community-led scheme.

Figure 8. Crich electricity demand and potential supply



Next steps

This vision marks the start of a conversation. The vision for the future of renewable energy in the Crich area will no doubt adapt over time and as more stakeholders engage with the project. Nevertheless, by setting out an initial 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.

In summary, this community vision shows that many residents in Crich, Fritchley and Whatstandwell 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 the current needs of Crich, Fritchley and Whatstandwell. Crich 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 landscapes that they and visitors value. There is a clear appetite for renewable energy schemes that represent a suitable use of land, especially through the re-use of quarry sites.

This vision can now be used to 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 Crich, with residents coming together to design and own their own renewable energy development, with profits flowing back to the local community or seed-funding further positive energy initiatives.

CPRE Derbyshire and Transition Crich will continue to support the residents of Crich as they take this community vision forward.

There are many steps the residents of Crich 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 Amber Valley Borough Council and neighbouring parishes to see this vision incorporated into local or neighbourhood plans. The vision could also be used to update the Crich Neighbourhood Plan which is formal supplementary planning guidance. National Grid Electricity Distribution (NGED), the local distribution network operator (DNO), will also be an important partner, to ensure that Crich has the right infrastructure to support the renewable energy residents want to see.

For any readers outside of Crich, 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 Derbyshire
https://www.cprederbyshire.org.uk/

Crich Parish Council
https://www.crich-pc.gov.uk/

Amber Valley Borough Council
https://www.ambervalley.gov.uk/

National Grid Electricity Distribution (NGED)
https://www.nationalgrid.co.uk/customers-and-community/community-energy/communities-strategy

Centre for Sustainable Energy
https://www.cse.org.uk/

Community Energy England
https://communityenergyengland.org/

References

[i] CPRE and CSE have worked closely since 2016 to facilitate bottom-up community engagement around clean energy. See https://www.cpre.org.uk/what-we-care-about/climate-change-and-energy/renewable-energy/community-energy-visioning-showcasing-renewables-done-well/ and https://www.cse.org.uk/my-community/future-energy-landscapes/

[ii] An older geological formation surrounded by younger rocks.

[iii] Amber Valley Borough Council & Wardell Armstrong (2016) *Amber Valley Borough Council Landscape Sensitivity Study*, pp.114.

[iv] See https://www.transitionbelper.org/project/amber-and-derwent-valley-community-energy/

[v] CPRE Derbyshire and Transition Crich are especially grateful to Dr Ian Jackson, a local hydropower expert, for sharing his research on hydro opportunities in the Derwent Valley.

[vi] See https://www.cambridgeshire.gov.uk/residents/climate-change-energy-and-environment/climate-change-action/low-carbon-energy/community-heating/swaffham-prior-heat-network

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 Derbyshire and Transition Crich

CPRE Derbyshire and Transition Crich were delighted to deliver this innovative joint project as both organisations are strongly committed to local sustainability and taking positive action to address climate change. It is too easy for local communities to have new planning proposals dropped on them, before they have the chance to consider what they want. The local community knows their 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 businesses that support local livelihoods. The vision that follows documents a consensual, community-led vision for clean power in the Crich area.

About Crich, Fritchley and Whatstandwell

The Civil Parish of Crich is the northernmost ward of Amber Valley Borough and adjoins Dethick, Alderwasley, South Wingfield, Pentrich and Ripley Parishes. The western boundary of the Parish is the densely wooded Derwent valley which is also a major road (A6) and rail corridor. The landscape is varied but is dominated by Crich Stand (286m), an unusual limestone 'inlier'. Land use is dominated by farming and in the past mining for coal, lead, and fluorspar was commonplace. There are extensive areas set aside for nature conservation (e.g. Crich Chase meadows) and a large part of the western area of the Parish (including Whatstandwell) lies within the Derwent Valley Mills World Heritage Site buffer zone. In 2021, the Parish population was 2653 residents. The Parish comprises 2938 acres (1189 hectares). During the workshops that informed this document, we spoke to Crich, Fritchley and Whatstandwell residents with a wide range of backgrounds, including parish councillors, and working and retired residents from many walks of life. In total, 28 people attended the workshops and the final consultation event.

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 address the role of our countryside in tackling the climate and nature emergencies, including seeking ways to increase biodiversity, climate resilience and reduce impacts on affected communities. CPRE supports a rapid transition to a clean energy system with community consent and minimal impact on the countryside and landscapes.

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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 what change might look like in the local landscape and to foster further discussion of the need for and acceptability of such changes.

Keele University

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