

‘RENEWABLE ENERGY FOR SETTLE?’

- COMMUNITY CONSULTATION



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## 1. Summary

Government statistics show that in 2020 Settle, Giggleswick and Langcliffe between them consumed just over 12.25 million kilo-watt hours of electricity and in 2019, 29 million kilo-watt hours of gas, at a combined cost to the community of almost £3.5 million. This money was lost to the district.

Recent increases in electricity and gas prices of around 80%, make the picture worse! There is therefore the potential to generate local energy to power our homes and keep revenue within our communities.

In addition, the climate and ecological emergencies that we are now in require us to move swiftly away from our reliance on fossil fuels as our sources of power and to replace them with 'clean', low carbon renewable energy technologies such as solar, wind and hydro.

The report that follows shows the process that a workshop facilitated by Action on Climate Emergency Settle and Area followed in looking at ways to respond to these crises. The workshop participants concluded that there is the potential for the area to produce a majority of its electrical requirements locally. This would be achieved by developing renewable energy projects, chiefly a combination of solar and wind power, that workshop participants felt could be appropriate, given the natural resources and landscape in which we live.

## 2. Consultation

We would now like to involve you and to find out what you think about the outcomes of the workshop.

Please let us have your feedback:

- Face to face: at ACE Settle Green Cafes to be held 10.30-12 Noon on 11<sup>th</sup> June at Settle Parish Church, 9<sup>th</sup> July and 13<sup>th</sup> August at Settle Victoria Hall's Refreshment Gardens
- Through organisations you are involved with who we will send this report to
- By contacting us directly by email: [consultation@acesettleandarea.org](mailto:consultation@acesettleandarea.org)

**The consultation will run until: 15<sup>th</sup> August 2022.**

**What next:** workshop participants will reconvene in September, together with those of you who would like to get involved, to look at your feedback and to draw up a draft Local Area Energy Plan for Settle, Langcliffe and Giggleswick and beyond, as appropriate.

### 3. Introduction

Action on Climate Emergency (ACE) Settle and Area was set up in March 2019 to campaign against the effects of the climate and ecological emergencies and to campaign for a more sustainable environment. Local energy provision is a key way of achieving this objective.

This report reflects the responses and thinking of participants who attended the 'Renewable Energy for Settle?' workshop. Participants were drawn from across the community. The focus was on renewable energy production in relation to the present electricity usage of the area. In order to keep things manageable, the equally large topics of reduced usage through greater efficiency and potential future changes in electricity usage were not considered.

A 'Future Energy Landscape' model was used to run the workshop. This has been created by 'CPRE – The Countryside Charity' and 'Centre for Sustainable Energy (CSE)' and is being used by a range of communities around the UK to help with looking at the local landscape, available renewable energy technologies and combining the two in a draft Local Area Energy Plan.



This work also builds upon and updates a report - 'Settle – The Sustainable Town', produced by CO2 Sense in 2012 commissioned by the then 'Settle Area Regeneration Team (StART)' to develop a 10 year low carbon action plan, from 2012 to 2022. StART was set up by a group of motivated local people, supported by local

agencies, after the outbreak of foot and mouth disease, to provide a platform through which people could 'kick start' their sustainable ideas into realisable projects.

#### 4. How and Why We Feel Connected to the Local Area

Participants fed back the following views:

- Most friendly place of anywhere lived
- Through work, volunteering, friendships, social events
- Contained community
- Well placed to get to other places
- Nature facilitates so much
- Responsive and self reliant community that gets things done, for example:
  - Community response groups set-up during Covid
  - Community-run swimming pool
  - Settle Cricket Club – new clubhouse
  - Keeping the library open
  - Welcoming and resettling refugees.

#### 5. What Electrical and Other Infrastructure Already Exists

As technology has developed, improved and the demand for energy has changed, and different ways of living have evolved, they have all had an impact on the local landscape.

The following, by way of example, have all been installed or sited over the last 200 years:

- Electricity sub stations
- Electricity poles and overhead cables
- Radio and mobile masts
- Settle Hydro
- Wind turbines visible from Settle, Giggleswick and Langcliffe
- Electric charging points
- Railway infrastructure
- Petrol stations
- A65
- Caravan sites

## 6. Mapping Exercise

### a. Our Responses to the Local Landscape

What do we think about our neighbourhoods, the areas we use on a day-to-day basis and feel connected to:

- Our 'positive' places e.g. scenic views, walking, wildlife
- Places that we fear, avoid or dislike e.g. where dogs are not under control, industrial estate, old middle school, noise from motorbikes on Sundays in particular, A65 for cycling
- Important places that no longer exist but which are still important e.g. closed shops, vacant pub
- Our thoughts about the countryside and landscape in our local area, along with activities that we associate with the landscape e.g. farming, hill walking, picnics, industrial areas, quarrying
- How we feel when we are out in the local countryside e.g. walking, local geology, fascinating wildlife, sitting and reading, footpath network, bike ride, energising, freedom



The large scale map above and the post-its gave us a sense of what we value about the landscape & the impact of our past, present and future potential activities upon it.

## b. Renewable Energy Options

Having heard about a range of technologies including: solar photovoltaic panels (solar pv), solar thermal, wind, hydro, air and ground source heat pumps we went on to consider what we thought about them and how acceptable the idea of landscape change to incorporate more renewable energy might be, ie how the community could be more self-sufficient in terms of meeting its own energy demand.

We also used a planning tool (Cesar – more information here:

<https://www.cse.org.uk/downloads/file/future-energy-landscapes-design-and-rationale.pdf>)

to show the amount of energy generation possible for each technology, their costs and the amount of carbon emissions each could save.

The larger the scale of a single installation, the more cost effective it is. Solar farms are competitive with large wind turbines, and these two sources are, by quite a long way, the largest potential producers of energy for this area. However, both these are subject to finding suitable sites that are acceptable to planners and the community, while also having good electrical grid connectivity. Neither solar nor wind are continuous sources of supply for this area, although they are complementary (solar tends to be low when wind is high and vice versa). Wind has the advantage of being good in winter when heating requirements are higher. Solar farms have the advantage that they may be built up gradually rather than as a single large investment. A single site with combined solar and wind installations may be a good solution for the area.

Without these larger installations, according to the planning tool, we are very unlikely to meet more than about a quarter of our electricity requirements from renewable resources. After the large-scale installations, greatest benefits are expected to be obtained by utilising the larger buildings and spaces, both public and commercial. At the other end of the scale, residential installations can only provide a relatively small proportion of local electricity requirements for our area but they have the advantage of being practical to achieve while providing robustness at the local level.

We thought the following could be possible:

### Solar panels

The popularity of solar has driven down prices of panels, whilst improvements in performance make the panels effective on most non-north facing roofs while energy price rises make rooftop solar viable without subsidy.

Improved battery technology has enabled innovative ways of storing excess generation, balancing domestic demand and reducing bills.



## Local projects

Domestic properties: increase the number of solar pv being installed on domestic roofs. Groups of neighbours could bulk buy and share electricity generation and purchase.



Solar panels are often fitted onto a roof, as the image on the left shows but can also be ground mounted.

Public buildings:

- Churches: Settle Methodist Church, Giggleswick Parish Church St Alkelda's (Grade 1 listed and in a conservation area) and St Mary's and St Michael's Catholic Church all have solar panels on their roofs, with the potential for more on the latter, similar to the example shown below from Selkirk.





- Settle Area Swimming Pool is installing 75 panels on its roof as part of the pool refit.
- There are a number of large roofs on which similar numbers of panels could be fitted e.g. local schools

Whilst there has been no approach to private site owners so far, the following buildings also have large roofs:

- Limestone View
- The Wickets
- Sports club pavilions
- Booths
- Watershed Mill
- John Roberts Paper Mill
- Sowarth Industrial Estate businesses
- Anley Crag development for commercial and domestic properties
- Farm buildings (need 3 phase transformer) e.g. farm at Wigglesworth
- Solar farm - there is also the potential to have a solar farm, appropriately sited

## Wind

Wind generates more in winter than in summer and therefore can balance the predominance of solar installations. At an appropriate scale, local community turbines have been accepted by planners, where landscapes are not compromised. The government's 'Energy Security Strategy', published on 7th April, 2022 allows for communities that are agreed on a wind power project, to go ahead.

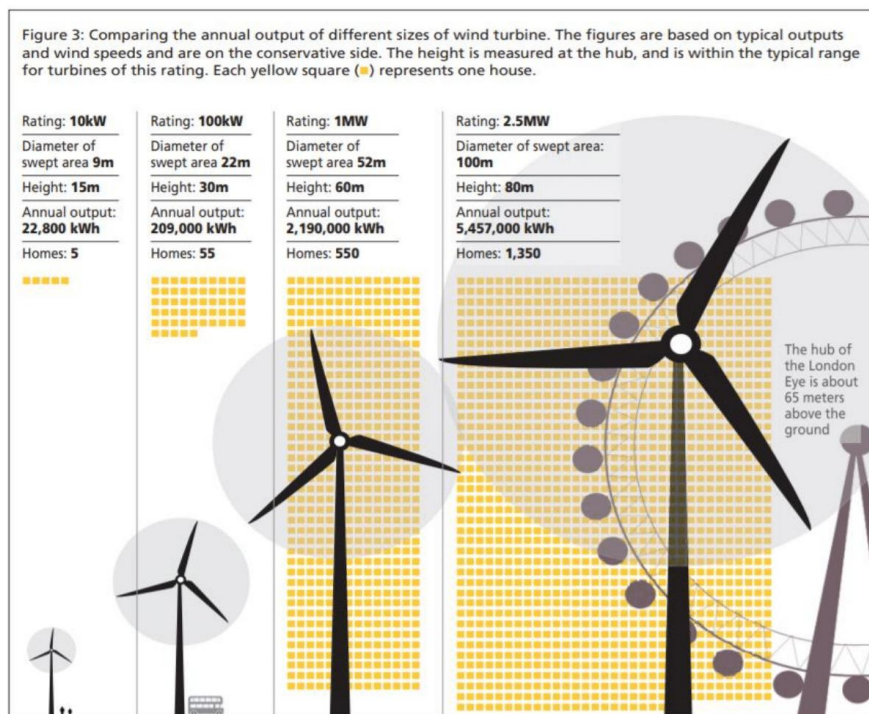
### Local projects

There are currently a number of small scale turbines (1kw or less) sited locally e.g. at Giggleswick School land below and on some local farms or small isolated communities for example, in Malhamdale, of 10km.



The turbine on Giggleswick School land: the image on the left looking up to the hill above the main school buildings and the cricket pavilion, with the image on the right showing the turbine within the landscape - with Giggleswick Scar and the former quarry in the background.

A smaller number of larger turbines are much more productive than having many smaller ones. Appropriately sited, a turbine of 1MW capacity and 60m hub height would power 550 homes, a 100kW, 30m hub height turbine, would generate enough electricity to power 55 homes, while a 10kW turbine, 15m hub height, would generate the annual output of only 5 homes. So, even just one of the 60m turbines, although an expensive investment, could make a big dent in the electricity requirements for the area. We have not considered larger turbines than these on the grounds that they would be visually intrusive in an area of high landscape value.



When it comes to wind turbines, size matters. Smaller turbines obviously have less visual impact, but taller turbines with longer blades can supply many more homes with power, so in many cases it may be better to put up a single big turbine than several small ones, provided this carries community support.

Taller turbines can pick up the faster winds that blow at greater heights; if you double the wind speed you generate 8 times as much power. The power output is also proportional to the swept area of the blade. If the length of the blades is doubled, power output is quadrupled. So a 15 meter 10kW turbine will typically generate enough electricity to power the lights and appliances of 5 average houses over the course of a year while an 80 meter 2.5MW turbine supplies enough for around 1,350. So a turbine five times the height generates about 270 times as much electricity.

## Water (Hydro)

In pre-industrial Craven, hydropower drove the local woollen industry, with mills being powered by the waters of the Ribble.

### Local projects

We already have Settle Hydro, below, a 45kw capacity community owned archimedes screw turbine at Bridge End Weir, Settle.



NB trials have taken place with the Environment Agency and CEFAS, supported by the Hydro, to determine potential impact of the Hydro on the passage of fish, including damage to any fish that pass through the archimedes screw. No deleterious effect on fish migration has been detected.



There is also the potential for some micro turbines on the smaller tributaries feeding the Ribble e.g. part of a farm installation or small community or at other locations such as the one below.



### Anaerobic digester (AD)

Digestors work by microorganisms breaking down biodegradable material in the absence of oxygen. Any organic matter can be used which means that they can be suitable for industrial or domestic purposes to manage waste and what might otherwise go to landfill. Waste that can be used includes that from the dairy industry, cafes, garden waste and sewage.

Micro digesters are increasingly being taken up by renewable energy groups as they produce biogas which can be used for generating electricity or for local heating.

At the end of the digestion process a digestant is left, which is nutrient rich and can be used as a fertiliser.

Anaerobic digesters have the advantage of providing a more continuous source of fuel than the other renewable sources, although the total energy production potential is much less than that of wind or solar.

### Local projects

Arla - a feasibility study is to be undertaken to consider basing a digester at Arla for both Arla and community use.

Farms and sewage works also have the potential for AD developments.



## 7. Planning

Participants felt strongly that given the urgent need to create additional energy generation capacity and for it to be based locally, that these considerations should influence and be reflected in future planning decisions.

With regard to the National Park Authority, it was noted that policy changes and decision making have taken place over the years e.g. installation of solar panels and extensions to quarry extraction and that further change should be embraced, provided it occurs sympathetically.

## 8. Timescales and funding models

Participants recognised that there would need to be a timetable drawn-up for installing a balanced suite of technologies to give an even generation of energy throughout the year and that these would need to be consistent with the plans of the Direct Network Operators (DNO). ACE already has contacts with the two DNO's operating locally - Electricity North West and Northern Powergen Group.

There are various funding models that are being used for schemes both locally and throughout the UK e.g. Settle Hydro is a social enterprise owned by shareholders, Settle Area Swimming Pool is Crowdfunding for its 75 solar panels and elsewhere there are energy co-ops, commercial/community owned turbines and bulk buying at neighbourhood level.

The draft Local Area Energy Plan will need to reflect these and to be successful will need to be supported by the local community and planning authorities.

## 9. Conclusions, Getting Involved and What Next

Thank you for reading this report and we hope that you will provide us with your feedback, in the ways mentioned at the beginning.

This is only the start of exploring the potential for developing renewable energy options for our local area. The energy and climate crises are so urgent that we felt it important to start taking steps now to address these in whatever way you and the community as a whole are prepared to support.

Current increases in energy prices make small-scale projects not only financially viable, but essential. Community ownership means that the money we spend running our homes will be kept within the local economy, encouraging job opportunities, and providing resilience to future energy shocks.

The workshop also touched on reducing our energy demand through increasing insulation and using off-peak energy more effectively with the use of batteries.

Energy saving measures were not explored, as there is extensive advice already available from a range of sources but these could form the subject of another session, if the community was supportive of this.

**After the consultation period has ended, on the 15<sup>th</sup> August, workshop participants will look at the feedback at a further meeting on 6<sup>th</sup> September (7-9pm) at St Mary's and St Michael's Catholic Church. We would welcome your attendance, if you could let us know when you provide your comments.**

If responses have been favourable a draft Local Area Energy Plan will then be drawn-up, as a **community document** - to be used in discussions with: site owners where projects could be based, the Direct Network Operators of the electricity grid (Energy North West and Northern Powergen Group), the York and North Yorkshire Local Enterprise Partnership, planning authorities, a range of other stakeholders and a start made on looking at funding models and timescales that might make these projects happen.

**Look out for further information about the 'What Next' in the Autumn - through the Craven Herald, Settle Community News, Social Media, individuals and organisations who have responded to the consultation and on notice boards.**

**If you would like to get involved, you would be very welcome - please get in touch.**

## 10. Participants

The workshop was facilitated by ACE Settle's Energy Group – our thanks go to the following local people who were able to participate on the day:

Hazel Richardson (Chair of Trustees - Settle Community Library)

James Annan (climate scientist)

Robert Bellfield

Anthony Bradley

Jill Buckler (Clapham Sustainability Group)

Peter Cox

Jane Cotton (councillor on Settle Town Council and Craven Community Land Trust)

Julia Hargreaves (Director, Blue Skies Research Ltd)

Ian Orton (Settle Area Swimming Pool and U16's Football)

Kevin McSherry

Andrew Murday (North Yorkshire County Councillor for Pateley Bridge and Nidderdale – representing himself)

Vanessa Shaw (QEHS Manager at Arla)

Barbara Thompson

ACE Settle Energy Group members:

Sandy Tod (Energy Group Lead)

Paul Kelly

Keith Waterson

Richard Boothman (ACE Settle Steering Group member)

Sarah Wiltshire (ACE Settle Co-ordinator)

**ACE Settle Energy Group members**

**May 2022**