

Neighbourhood Planning Guidance Note 25

Renewable energy

April 2013 - Revised July 2015



Your Neighbourhood Development Plan could provide scope for deciding which, if any, local renewable energy technologies could be integrated into existing and future developments.

This would aid Herefordshires' commitment to becoming a low carbon county, all the while establishing zero carbon, secure and financially beneficial sources of energy for both present and future generations.

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What is renewable energy?

Renewable energy is generated from natural sources; such as sunlight; wind; water (hydro) or biomass, or natural processes; such as tidal power, deep geothermal heat or decomposition (composting or digesting). Because of their origins they are infinitely renewable so are considered the most sustainable way to create energy.

The Carbon Cycle and the need for Renewables

Carbon exists across the surface of the world and is in a constant state of movement between its different forms. It exists as a gas in the air we breathe in and in solid form in the bodies of every organism on earth. While those organisms are alive the carbon is stored or fixed in that solid state. After death it gets cycled back into the atmosphere to be picked up and used by other organisms to grow. If organisms such as trees and energy crops are used to provide fuel the carbon they release in doing so does not add to the overall amount that is in cycle around the surface of the earth. They are therefore considered 'carbon neutral'.

However over millennia vast deposits of this carbon have been removed from this active cycle and have been locked away in the form of fossil fuels. When these are burnt the carbon they release is extra to that which is already in circulation. It is this extra carbon from the burning of fossil fuels that is driving the climate change that the earth is currently experiencing.

No one weather event can be attributed to climate change however considered over time the patterns and frequency of unusual or severe weather events is increasing and Herefordshire is due to continue experiencing more extreme and unseasonable weather for the foreseeable future.

The drivers of renewable energy

UK Legislation

The UK Government has binding long-term plans to reduce CO² and other greenhouse gas emissions. The Climate Change Act 2008 includes legally binding targets, including an 80 percent cut in greenhouse gases by 2050. Renewable energy contributes little or no net

carbon dioxide, therefore it plays a central role in meeting these targets.

Technology development

Over the past two decades we have seen substantial advances in all renewable energy technologies. Wind turbines have increased in efficiency by a factor of two and have achieved a substantial improvement in reliability to the point where 99% availability is the norm. Automatic wood heating systems (using wood chips or wood pellet fuel) have increased from a typical 55% efficiency in 1980 to now over 90% for most systems. We have also seen new materials being used for small-scale hydropower turbines to bring down costs and research into photovoltaics (solar electricity production) continues to increase the efficiency at which sunlight can be directly converted to electricity.

The potential role of renewable energy

Renewable energy has the potential to supply the whole of the UK's energy needs. It could do this with very low or zero net carbon dioxide emissions and this would enable the UK to be self-reliant in energy, with energy sources being locally derived and locally owned.

Renewable energy technologies are now beginning to compete economically with fossil fuels and there are a number of grant programmes available to help establish and expand the emerging renewable energy industries.

Financial benefits

While the capital costs may appear higher, renewable energy systems tend to have very low running costs, good reliability, a long lifetime for the equipment and low or zero annual fuel costs. Since it uses renewable sources of fuel, once a system is installed it is likely to continue operating, with maintenance, for as long as 20 to 25 years because the fuel source will always be there. Where fuel costs are applicable, such as with wood where the fuel needs to be bought in, wood fuel remains very competitively priced compared to fossil fuels.

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Environmental benefits

Renewable energy schemes have important environmental benefits. Using renewable energy instead of fossil fuels will reduce your community's carbon dioxide emissions, which in turn can help to mitigate the impacts of climate change. This is important not just for your local environment, but for the planet as a whole.

Community energy projects

In the past many rural communities used to have their own small scale energy plants, particularly hydro schemes. Community-scale energy projects enable proactive citizens and groups to make the biggest possible difference – much more than they could just by focusing on their own lifestyle. It can unlock community investment and help to bring communities together, whilst supporting security of energy supply, creating a source of income for the community and helping the country to reduce its carbon footprint. Many community projects are extremely cost efficient. Local people may contribute their time for free and local (and historical) knowledge can ensure the most suitable measures are encouraged and implemented in the right places.

Incentives

There are a number of incentives that are available to help promote the development of renewable energy schemes. Examples of these are as follows

Feed-in Tariffs scheme (FiTs)

Certified small scale renewable technologies are supported by the UK Government's Feed-in Tariffs scheme (FiTs). The FiTs are paid for both the electricity generated, even if you use it yourself, and any surplus electricity exported to the grid. You'll also save money on your electricity bill as you use the electricity you have generated instead of buying electricity from the grid.

Feed-in Tariffs were introduced on 1 April 2010 and replaced UK government grants as the main financial incentive to encourage uptake of smaller-scale renewable electricity-generating technologies. Most domestic technologies qualify for the scheme, including:

- solar electricity (PV) (roof mounted or stand alone)
- wind turbines (building mounted or free standing)
- hydroelectricity
- anaerobic digesters
- micro combined heat and power (CHP).

To qualify for FiTs (except hydro and anaerobic digestion), the installer and the products used must both be certified under the Microgeneration Certification Scheme (MCS). The tariffs can vary depending on the property's Energy Performance Certificate (EPC) rating. To be eligible for the higher rate FiTs the property needs to have an Energy Performance Certificate (EPC) of band D or better. Properties banded E or lower can claim the lower rate FiT however this is less financially attractive and often improving the efficiency of the property first is preferable to installing renewables until the EPC is brought up to band D or higher.

For community projects the rules are slightly different. Community groups that have received public money as a grant to set up their project are not eligible for feed-in tariff payments as they can only receive one incentive. It would be worth working out the sums to see which would be more beneficial, the grant or the FiT. If the latter then you would need to raise initial funds by some other means such as public subscription or share offers. Community projects have to be run by: a community interest company (CIC); a co-operative society; or a community benefit society with no more than 50 employees. Charities are included as they can set up the above 'vehicles' for the purposes of the project. Solar energy projects can have their FiT rate fixed for a year to give them more time to set their project up in recognition of the extra time groups need, and projects are exempt from the energy efficiency requirements for solar PV on non-domestic buildings. They still need to get a EPC certificate but its rating doesn't affect their level of FiT payments. More details can be found on the Ofgem website.

Green Deal

The Green Deal is a Government-backed scheme to help you make cost-effective energy saving

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improvements. Instead of paying for the full cost of the improvements up front, you pay over time through a charge added to your electricity bill. It was launched in January 2013 and applies to both the domestic and non-domestic sector.

Community groups have been set up to encourage warmer homes and reduced energy bills in their neighbourhoods. They have built consumer interest and demand for the scheme and low carbon refurbishment, particularly for more low income households. More ambitious groups have set up social enterprises to train and employ local people to fulfil Green Deal functions, such as assessors or contractors. More details on how to set up a community run energy efficiency project can be found on the Green Deal website.

Renewable Heat Incentive (RHI)

The Government's Renewable Heat Incentive (RHI) for householders is designed to drive forward uptake of renewable heat technologies in homes across Great Britain to cut carbon, help meet renewables targets and save money on bills. The scheme supports air source heat pumps, biomass systems, ground source heat pumps and solar thermal technologies in a similar manner that the FiTs support renewables such as solar PV and wind.

Community Energy Groups

Over the last 5 years at least 5000 community energy groups have been set up across the UK. These are involved in a wide range of activities, including:

- community owned renewable energy installations such as solar PV, wind turbines or hydroelectric generation;
- collective switching to a renewable heat source such as heat pumps or biomass boilers;
- piloting smart technologies with distribution operators;
- collective purchasing of fuels for off gas-grid communities,
- collective switching of energy suppliers.

DECC will be looking at how they can continue to support community energy schemes by the end

of 2015. For case studies and more detailed information and guidance for community groups interested in setting up a community energy group visit the Community Energy website.

Technologies and planning

There are many different types of renewable energy technologies available, detailed in this section are the main technologies used within Herefordshire.

Hydroelectricity (small scale)

Herefordshire has plenty of opportunity for hydroelectric schemes. This allows your parish to maintain a renewable and secure energy source for present and future generations. Furthermore, once the scheme has been established, it is easy to operate and manage. Your neighbourhood can also benefit financially, directly and throughout the long term with the Government's FITs.

Case Study: Ty Glyn, Near Hay-on-Wye (New Leaf, 2010)

- Installed and successfully generating electricity since November 2009;
- Works more throughout the year than a solar or wind installation of comparable power;
- To avoid flooding, the powerhouse, which houses the generator, turbine and control gear, was built significantly above the natural water level;
- The generator has a 5kW capability and averages at about 2kW.

Solar photovoltaics (PV)

The most abundant of installed renewable energy technologies in Herefordshire, solar photovoltaics (PV) generates electricity from sunlight, which is free, so after installation costs the electricity generated will be free. Furthermore, PV is financially beneficial due to the current FITs, which on a standard rate pays between 9.21 and 12.92 pence per kWh generated for a roof-mounted array, depending on the size of the installation, and has an export tariff of 4.85 pence per kWh for surplus electricity fed back into the Grid. However, stand-alone PV has a fixed rate of 4.44 pence per kWh. Being a renewable form of

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energy, solar PV can make a significant contribution to both Herefordshire's and the national carbon reduction targets, with no adverse effects to the environment. A typical household array could save around a ton of CO² per year. PV panels are an established technology that are silent and clean, they require no regular maintenance over their typical lifetime of 20 to 25 years. They can also be enlarged or made portable. However, careful disposal is required to avoid leaching of arsenic or cadmium (used in some cases in production) into soils.

Case Study: Cradley Primary School, Herefordshire (roof-mounted)

- 10kWp solar PV system;
- Has produced 29,230 kWh since its installation in 2008.

Case Study: "The Witches" near Hoarwithy (Stand-alone)

- 10 hectares of pasture;
- 5MW output;
- 60,000 tonnes of carbon saved per annum;
- Continued use of farm – sheep grazing.

Anaerobic digestion

Highly suited to Herefordshire's agricultural economy, anaerobic digestion (AD) is the natural process in which micro-organisms break down organic matter, such as slurry or chicken waste, into biogas and digestate in the absence of oxygen. Biogas is a mixture of carbon dioxide (CO²) and methane (CH⁴), the digestate is a nitrogen-rich fertiliser suitable for fertilisation and soil conditioning.

AD can have an important role in Herefordshire as a means of dealing with organic waste due to its efficient capture and treatment. The methane burnt in the biogas is turned into water and CO₂. CO₂ has a smaller greenhouse gas factor than the methane has, so AD creates less damaging greenhouse gases than landfilling the organic matter would. AD has the ability to recover energy which can be used directly as a biogas to generate heat and electricity (Combined Heat and Power, or CHP), or converted into biofuels

for vehicles. Otherwise, it can be cleaned and used as an alternative to natural gas or liquid petroleum gas (LPG) for vehicles.

Case Study: Great Ynys Farm, Hereford

- Processes 700 tonnes of chicken litter into renewable heat and electricity;
- Produces 250kW of electricity, enough to power 450 homes, and 200kW of heat;
- Electricity generated used on farm itself, but surplus 90% fed back into grid;
- Heats chicken houses;
- Neighbouring dairy farms provide Ynys Farm with their slurry.

Ground-source and air-source heat pumps

Both ground-source heat pumps (GSHP) and air-source heat pumps (ASHP) involve heat being absorbed from either the ground or the air and stored in liquid, where it is then passed through a compressor to raise it to a higher temperature, so it can heat water to provide heating and heat hot water circuits in a house. Modern systems are very efficient. For each kilowatt of electricity used to run the heat pump, up to five kilowatts of heat can be delivered to the building. The efficiency of a GSHP installation is very dependent on the quality of the design and installation.

Wind

Wind turbines generate renewable energy, and reduce reliance on the Grid, increasing energy security. They deliver direct and tangible long-term financial benefits to the host community and wider economic benefits through the current feed-in tariffs and savings made from avoiding using electricity from the Grid, in addition to the long-term environmental benefits. Generating electricity from wind-power will benefit from the feed-in tariff of a standard rate of between 4.9 and 35.8 pence per kilowatt hour (kWh), depending on the size of the installation, and an export rate of 4.5 pence per kWh of excess electricity fed back into the Grid.

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Wind Power and New Planning Conditions

A Ministerial announcement made in June 2015 stated that from June 18th 2015 any planning applications for wind energy development involving one or more wind turbines would need to satisfy two conditions:

- The development site is in an area that is clearly identified as suitable for wind energy development in a Local or Neighbourhood Plan; and
- Following consultation, it can be demonstrated that the planning impacts identified by any affected local communities have been fully addressed and therefore the proposal has their backing.

Planning

Renewable energy domestic schemes may be covered by Classes A, B, C, D, E, F, G, H and I of Part 40 of the General Permitted Development Order (GPDO) (further details on the GPDO can be found in guidance note 15. Planning and other legislation) and therefore, subject to certain conditions and limits, planning permission may not always be needed. For up to date information on the conditions and limits check the Planning Portal website or contact a member of the Neighbourhood Planning team.

Non-domestic renewable energy schemes are also covered within the GPDO, under Part 43, Classes A, B, C, D, E and F. For further information on the non-domestic schemes contact a member of the Neighbourhood Planning team.

Permitted development rights resources

There are two resources that are associated with The Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2011 which you may wish to note:

The Microgeneration Certification Scheme (MCS) Planning Standards - Contains the requirements, including noise prediction methodologies, that wind turbines and air source heat pumps must comply with in order to be permitted development under Class G, H and I of the new Part 40.

The domestic wind turbines safeguarded land tool - An online checking tool hosted by the Planning Portal that can be used to check if a wind turbine will be on 'safeguarded land' for the purposes of Class H and I of the new Part 40.

There is still some sensitivity surrounding renewable energy projects, in particular large scale projects, therefore all proposals that you may wish to include within your Neighbourhood Development Plan would need careful consultation with your community to allow for full understanding of the project proposed

Useful Links

Microgeneration Certificate Scheme:
<http://www.microgenerationcertification.org/>

Renewable Heat Incentive:
<http://www.energysavingtrust.org.uk/renewable-heat-incentive>

Information, help and guidance on reducing home energy use and costs:
<http://www.cse.org.uk/advice/advice-and-support>
<http://www.cse.org.uk/advice/energy-saving-tips/tip-house>

Energy Saving Trust Home Page:
<http://www.energysavingtrust.org.uk/>

Energy Saving Trust FITs:
<http://www.energysavingtrust.org.uk/scotland/domestic/improving-my-home/feed-in-tariffs>

ECO Grants:
<https://www.gov.uk/energy-company-obligation>

Ofgem Guidance on Feed-in Tariff for Renewable Installations (v6)
<https://www.ofgem.gov.uk/ofgem-publications/84194/fitgeneratorguidanceversion-67nov2013.pdf>

Ofgem Guidance on Feed-in Tariff for Community Energy and School Installations (v1)
<https://www.ofgem.gov.uk/ofgem-publications/58937/fit-community-and-school-guidance.pdf>

Green Deal: Helping communities make the most of the Green Deal
<http://www.cse.org.uk/projects/view/1187>

Community Energy. UK Government Guide for local groups interested in setting up a community energy project:
<https://www.gov.uk/community-energy>

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Neighbourhood Planning guidance notes available:

Deciding to produce a Neighbourhood Development Plan

1. Which is the right tool for your parish
2. What is a Neighbourhood Development Plan
3. Getting started
4. A guide to procedures
5. Funding

Plan Production

6. Developing a Vision and Objectives
7. Generating options
8. Writing planning policies
9. Environmental Assessment
10. Evidence base and information requirements
11. Implementation and Monitoring
12. Best practice community engagement techniques
13. Statutory consultees
14. Writing a consultation statement
15. Planning and other legislation
16. Web enabling your plan
17. Using OS based mapping
18. Glossary of planning terms

Topics

19. Sustainable Water Management in Herefordshire
20. Guide to settlement boundaries
21. Guide to site assessment and choosing allocation sites
22. Meeting your housing requirements
23. Conservation issues
24. Recreational areas
25. Renewable energy
26. Transport issues
27. Community Infrastructure Levy

Additional Guidance

28. Setting up a steering group
29. Creating a questionnaire
30. Community facilities
31. Conformity with the Local Plan (Core Strategy)
32. Examinations of Neighbourhood Development Plans
33. Guide to Neighbourhood Development Plan Referendums
34. Tourism
35. Basic Conditions
36. Your plan - Contributing to sustainable development