Worcestershire
County Council

Renewable Energy Research Paper

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Contents

1. Executive Summary

1.1. Renewable energy of the right scale and in the right location offers multiple benefits to Worcestershire's businesses and communities. It can provide:

- ✓ More jobs
- ✓ Reduced energy bills
- ✓ Sustainable income streams
- ✓ Increased energy security
- ✓ Resilience to uncertain energy prices

1.2. This research paper sets out the valuable contribution that renewable energy can make to Worcestershire's green economy, and explores the social and environmental benefits of increasing provision. It identifies the challenges that can slow the growth of renewables, and explores possible ways of overcoming these whilst ensuring our communities' views are heard.

1.3. Policy and financial support at national and local levels are driving the growth in renewable energy, and this paper recognises the need for strong frameworks to be in place if Worcestershire is to play its part in meeting the global energy challenge.

1.4. Renewable energy is just one component of an energy hierarchy that. If this hierarchy is put into practice, Worcestershire's contribution to climate change can be reduced and our homes and businesses can be better protected from rising energy prices and uncertain security of supply.

2. Introduction

"Businesses generating their own energy can create new revenue streams, reduce exposure to price uncertainty, benefit from government incentives and help ensure long-term revenue structures." [1]

2.1. Renewable energy is expected to continue to be *"the fastest growing class of energy"*[2] and could help Worcestershire realise its aspirations to become a leading green economy. From the County Council to individual householders, Worcestershire's renewable energy resources are already helping to drive down bills, increase income, and support local employment.

2.2. Alongside environmental gains, renewables can lead to increased energy security, cost savings, investment opportunities, job creation, and business diversification.

2.3. Worcestershire is dependent on centralised power generation to meet its electricity needs, but as older plant closes down, there is an increasing need for additional supplies. The National Grid[3] recognises that *"electricity margins are tighter than they have been for a number of years"*. The need for more energy from more sources is urgent, and an increase in distributed generation must be part of a package of measures to increase our energy security. Appropriate dispersed generation can help to stabilise the balance between supply and demand.

2.4. This research paper identifies the benefits of renewable energy in Worcestershire, as well as some of the potential risks. It provides guidance for all those involved in the planning and delivery of renewable energy at the larger than domestic scale, and may also be of interest to communities and individuals seeking to develop their own projects, respond to the plans of others, or simply find out what renewables development could mean for their local area. It is non-statutory and is not part of any Development Plan. As with other relevant issues, it may be a material consideration in planning decisions, depending on circumstances.

2.5. Renewable energy - as with other types of development - can be controversial; people have legitimate concerns over development scale and detrimental impacts on their environment, health and amenity. But most renewable energy projects have both positive and negative impacts, and this research paper considers how appropriate renewable energy development can be encouraged, whilst recognising that planning decisions must take all relevant issues into account. It provides guidance to inform policy/decision-makers, focused on the planning system.

[1] Edie newsroom (22 January 2013) Businesses to profit from growing renewable generation market
[2] BP (January 2014) Energy Outlook 2035
[3] National Grid (October 2014) Winter Outlook 2014/15

3. Background

3.1. Worcestershire generates relatively small amounts of renewable heat and electricity. By relying on fossil fuels from outside the county, the local economy misses out on the jobs and revenues that can come from generating and supplying energy. Conventional large-scale generation and transmission can provide economies of scale, but can be wasteful, and greatest efficiency is often achieved through harnessing local resources for local use. Infrastructure required for both conventional and renewable generation will have impacts on surrounding areas.

3.2. Used wisely, Worcestershire's assets can not only make money for the county, but can also support our thriving environment and communities. With careful planning, we can begin to realise the benefits of local energy, using resources intelligently and saving us money. This means energy generation closer to where it's needed and infrastructure sized, located and designed to match users' needs.

3.3. Some renewables projects are philanthropic or environmentally-driven, but the main objective for most is an attractive financial return. Reduced expenditure on energy, together with the income from energy production, are obvious incentives, but the full range of financial benefits extends to direct, indirect and induced multipliers in the local economy (discussed further in Section 6).

Scope

3.4. This research paper considers the impacts of decentralised and 'larger-scale' renewable energy (referring here to any scheme more than merely domestic in nature). Larger-scale projects generate the greatest controversy and provide the greatest challenge to local planning authorities.

3.5. The paper does not address energy efficiency or micro-generation, which are covered in national/local policy. However, it is recognised that these are key elements of the energy hierarchy. Indeed, the importance of micro-generation can be seen in the level of growth in Worcestershire – especially of roof-mounted solar PV panels - under a very favourable financial framework. Solar costs are anticipated to continue to fall[4], but payments for energy generated are also being reduced as the government seeks to ensure that Feed in Tariff and Renewable Heat Incentive funds are spread widely and not consumed by larger projects.

3.6. This research paper considers hydro-power, wind turbines, biomass[5] and solar photovoltaic panels. It also includes deep geothermal energy, but this is a relatively unknown technology in Worcestershire, and is rare across the UK.

[4] Citigroup (July 2014) Energy 2020

[5] Biomass includes virgin wood from forestry, arboricultural activities or from wood processing; energy crops; agricultural residues; food waste; and industrial waste and co-products from manufacturing and industrial processes (although waste is excluded from this research paper – see section 3.7). Source: www.biomassenergycentre.org.uk.

Reports[6,7] identify an area including much of Worcestershire as a potential source of viable geothermal extraction for low-temperature heating applications; research into this potential will continue to be monitored. This research paper does not consider energy for transport (e.g. biofuels), because renewable transport presents a range of specific challenges that are best addressed through dedicated guidance.

3.7. While waste can make a valuable contribution to renewable energy, it is excluded here. Policy and guidance on waste is covered elsewhere (e.g. *Joint Municipal Waste Management Strategy* and *Waste Core Strategy*) and including waste issues in this research paper would risk duplication.

3.8. This research paper does not discuss the specific characteristics of each respective technology in detail, as this information is available elsewhere (including through government sources and industry bodies). Generic planning impacts associated with renewables are included in the national Planning Practice Guidance[8], and more specific local issues may be provided through district-level Local Plans and associated documents.

3.9. Any approach to renewables should recognise the energy hierarchy (see Figure 1 below). The biggest benefit of reducing emissions and saving money comes from reducing energy use and improving efficiency, through measures such as intelligent controls and insulation. These measures are not within the remit of this research paper, but are vital elements of the green economy and are being progressed through a range of WCC and partnership approaches across Worcestershire.

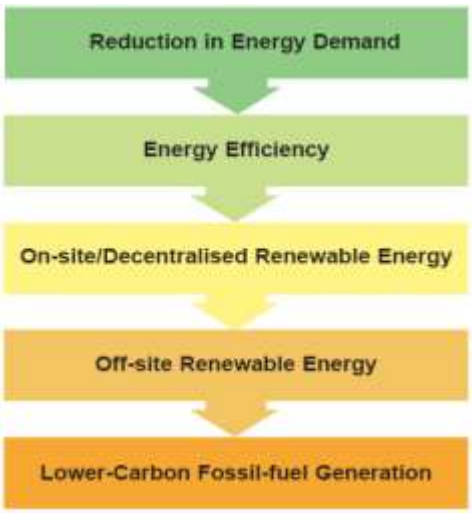


Figure 1: The energy hierarchy

[6] Keith Rollin, BGS Low-temperature geothermal energy: Modelling the potential resource in the UK.
[7] Sinclair Knight Merz in association with the Renewable Energy Association (May 2012) Geothermal Energy Potential: Great Britain and Northern Ireland.
[8] http://planningguidance.planningportal.gov.uk/

4. Why Worcestershire?

4.1. Worcestershire's landlocked position and relatively limited resources mean it is unlikely to be a leading producer of renewable energy in the national context. But this is no reason not to pursue viable schemes; appropriate local development can make a big difference through helping to meet local needs, responding to local circumstances, and improving local lives and livelihoods.

4.2. As of October 2015, there was around 115MW of installed or consented 'larger-scale' (0.5MW or greater) renewable energy capacity in the county, mainly derived from solar photovoltaic panels. There was also a further 40MW of capacity awaiting a planning decision.

4.3. This research paper considers how deployment might be increased, and how to guide and respond to future projects and ensure the people of Worcestershire are well-informed.

Opportunities

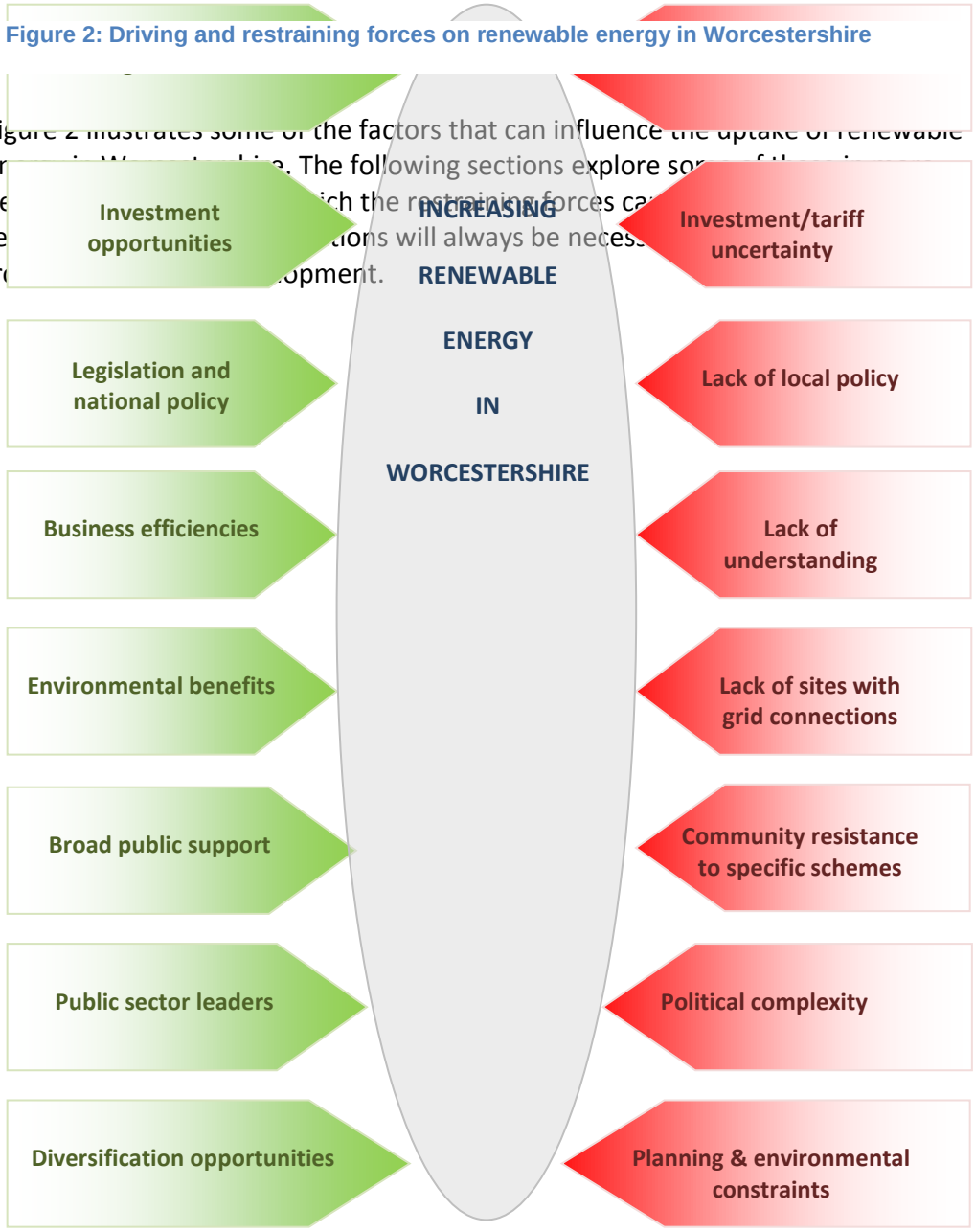
4.4. An assessment of how much renewable energy could be generated within Worcestershire, and where, found that 3.5% of Worcestershire's energy consumption could theoretically be met by major schemes by 2026[9]. The assessment also identified broad locations where renewables might be capable of being developed. Both the targets and locations remain consultant's technical evidence, and are not endorsed by Worcestershire's county or district councils.

4.5. There is sufficient resource in Worcestershire to develop renewables at the larger scale, but the viability of any opportunity will depend on site-specific conditions, including available capacity to connect to distribution networks, and the investment landscape at that point in time (including any financial incentives, which can vary in scale and duration according to what type of project is brought forward, where, and when). Whilst a range of planning and economic drivers are in place to make this happen, the gap between rhetoric and actual delivery remains wide. This research paper outlines the reasons for low take-up of renewables, and sets out how these might be better understood and overcome.

[9] IT Power (November 2008) Worcestershire County Council Renewable Energy Study, Final Report. The assessment's target date of 2026 was based on the end date of the former West Midlands Regional Strategy.

Figure 2: Driving and restraining forces on renewable energy in Worcestershire

4.7 Figure 2 illustrates some of the factors that can influence the uptake of renewable en… in Worcestershire. The following sections explore so… of the… de… which the restraining forces ca… re… …ions will always be neces… fr… …opment.



5. Policy context

5.1. Growth of renewable energy is strongly supported at the international, national and local level through legislation, policy and guidance.

- **Directive 2009/28/EC on the promotion of the use of energy from renewable sources** establishes a common framework for producing and promoting renewable energy. It sets a UK target of 15% for the share of energy from renewable sources in gross final energy consumption, by 2020.

- The **Climate Change Act 2008** sets a legally-binding target to reduce UK greenhouse gas emissions by at least 80% (from a 1990 baseline) by 2050.

- The **UK Renewable Energy Roadmap 2011** and **Update 2013** confirm the government's goal of ensuring *"that 15% of our energy demand is met from renewable sources by 2020 in the most cost effective way"*. The Roadmap includes actions to provide long term certainty for investors in onshore wind; to deliver biomass electricity through measures to support long-term waste fuel supplies including through possible landfill restrictions on waste wood; to support biomass heat and biomethane injection into the grid through tariff/payment schemes; and to reduce regulatory burdens on anaerobic digestion plant.

- The **UK Bioenergy Strategy** *"defines a set of low-risk energy deployment pathways … to develop a bioenergy sector that contributes towards our longer term decarbonisation targets as well as 2020 renewable objectives"*. The strategy includes provision for using waste (end-of-life materials) where it maximises carbon and cost effectiveness, and where consistent with the waste hierarchy; biomass to heat buildings and industry (process heating), through either biomass boilers or biomethane; and use of sustainable biomass for electricity as a transitional fuel. In addition, combined heat and power generation offers more efficient use of biomass resources.

- The **UK Solar PV Strategy Part 1** sets out four guiding principles for solar PV support: allow cost-effective projects to proceed and to make a cost-effective contribution to emission objectives; deliver genuine carbon reductions that help meet UK renewables targets; ensure proposals are appropriately sited, give proper weight to environmental considerations and local amenity, and provide opportunities for local communities to influence decisions that affect them; and assess and respond to the impacts of deployment on: grid systems balancing; grid connectivity; and financial incentives. **Part 2** focuses on the government's ambition for key market segments, *"particularly opening up deployment on the roofs of commercial, industrial and larger public buildings"*.

- The **Community Energy Strategy** makes clear that community-led action *"can often tackle challenges more effectively than government alone, developing solutions to meet local needs, and involving local people. Putting communities in control of the energy they use can have wider benefits such as building stronger communities, creating local jobs, improving health and supporting local economic growth"*.

- The Worcestershire Partnership's **Climate Change Strategy 2012-20** sets out how the Partnership will *"work with communities, businesses and the public sector to make the transition to a low carbon economy"* including through *"helping to realise the county's potential to harness the power of renewable energy, recognising the importance of public perception"*. The Strategy includes the target to *"Treble the amount of energy generated in the county from renewables, including energy from waste, by 2020 (from 2012 levels)"*.

- The Worcestershire **Local Enterprise Partnership's Strategic Economic Plan** recognises 'agri-tech' (including green energy) as one of the county's three growth sectors. Among Worcestershire's key infrastructure issues that need to be addressed, it identifies an over-reliance on energy supplies from outside the county and an over-reliance on energy from non-sustainable sources. As part of the SEP's aspirations to create a world-class business location, it recognises that *"renewable energy generation has the potential to relieve pressures on the existing energy infrastructure, as well as providing potential employment opportunities and cost reductions"*.

- Taking a longer-term look at the county's future, **Worcestershire's Next Generation Plan**[10] recognises the need to *"invest in our environment and use our resources wisely"*. The Plan's priorities, including 'Environment' and 'Prosperity', support renewable energy; the Plan envisages *"a radically different and varied economy"* in Worcestershire, where green technology and green businesses are encouraged in order to grow economic prosperity. The Plan recognises young people's concerns about our use of energy, and that they want to see alternative, renewable sources and green technologies becoming the norm, with Worcestershire becoming famous for green technology. Specific *Next Generation Plan* commitments include:

    - **Commitment 18 – Dramatically reduce carbon emissions**
      We will seek other forms of green energy and support the development of solar, wind and hydro-electric energy where this supports this objective.

    - **Commitment 21 – Reduce the creation of waste**
      We will actively incentivise recycling and reduction of waste including where appropriate use of new technologies. We will explore energy extraction from waste material.

[10] Worcestershire's *Next Generation Plan* has been produced by the Shenstone Group (leaders from Worcestershire's businesses, voluntary, community, and public sector organisations). It seeks to develop a picture of what Worcestershire could look like in the future, and sets out a series of commitments to help achieve common aspirations for Worcestershire in 2040.

- **Commitment 24 – Encourage green technology and green businesses in order to grow our economic prosperity**
  We will ensure that Worcestershire benefits from renewable and environmental technologies.

5.2. Planning applications are determined in accordance with the 'development plan' (comprising county and district-level Core Strategies/Local Plans, and any 'saved' policies from older plans, as well as parish-level Neighbourhood Plans) and any other material considerations. These material considerations will vary on a case-by-case basis but will include the National Planning Policy Framework and Planning Practice Guidance.

- The **National Planning Policy Framework** sets out government policy on planning for renewables. It strongly supports sustainable development and calls upon local planning authorities to *"recognise the responsibility on all communities to contribute to energy generation from renewable or low-carbon sources"*[11].
- **Planning Practice Guidance** web-based resource includes specific guidance on developing a strategy for renewable and low carbon energy and particular planning considerations for hydropower, active solar technology, solar farms and wind turbines.
- At the local level, the county council and each of Worcestershire's city, district and borough councils produces (individually or in partnership with adjoining authorities) a **Core Strategy/Local Plan** which sets out the overall approach to planning for renewable energy in their respective areas. This may be supplemented by further policy and/or guidance within accompanying documents.
- **Neighbourhood Plans** are prepared by parish or town councils (or neighbourhood forums where there is no parish or town council) and may reflect the local community's aspirations for renewable energy through allocations or other policies.

5.3. A cohesive approach to renewables needs cross-sector support, and can only be fully effective across the county if it responds to the needs of the county and district councils, the wider public sector, developers, businesses and communities. This research paper is therefore informed by a wide range of policy, including district-level initiatives such as Wychavon's *Intelligently Green* programme[12], which has a number of actions specific to Wychavon district, including:

- Working with Worcestershire County Council to market Wychavon as an attractive location for renewable energy generation and green businesses, and ensuring that policies are in place to assist in the delivery of appropriate schemes; and
- Exploring the potential and demand for increasing the number of anaerobic digesters within Wychavon by working with local growers, interested community groups, Worcestershire County Council and others.

[11] Department for Communities and Local Government (2012), National Planning Policy Framework, paragraph 97
[12] Wychavon District Council (July 2012) Intelligently Green Plan

6. Supporting the green economy

6.1 Job creation

6.1.1. Increasing renewable energy creates jobs through manufacturing components, planning/installing/servicing plant, managing/operating supply chains, etc. Some of these jobs may be based outside the county - or even outside the country - but some local employment is likely to be supported. It can also generate induced economic multiplier effects by re-circulating income in the local area.

6.1.2. Biomass can be especially benefit to local employment. Increasing biomass energy can stimulate local forestry operations and encourage under-managed woodland into active management. The potential resource in Worcestershire is significant, with about 10% of the county covered by woodland. However, only around 50% of this woodland is actively managed[13] (producing wood); the remaining 50% is under-managed or unmanaged (producing much less than its potential, or not producing any wood at all). Only 5% of Worcestershire's woodland is managed (owned or leased) by the Forestry Commission. Effective management can increase forestry-related jobs, and increase business for hauliers and installers. An industry study[14] found that by 2020, the GVA per MW of installed capacity of woodfuel in England could be £200,000, with 2.9 jobs created per MW. A study for the Marches[15] suggests that bringing woodland in that area into management for energy could provide 96 FTE jobs.

6.1.3. Use of timber from existing woodland can play an important role in sustaining rural communities, providing employment opportunities in timber harvesting and transport and supply chains. Greater use of locally-sourced biomass can help to support the forestry sector and offer valuable diversification opportunities for farmers.

6.1.4. 15.9% of workers in Worcestershire are employed in the manufacturing sector[16] - a higher proportion than in the region (13.3%) and in England (9.4%). Local knowledge and anecdotal evidence indicate a large number of environmental technology companies operating in the county (including some very large multi-national employers), many of which manufacture and install low-carbon/renewable technologies. However, there is no comprehensive data on the precise size and nature of the industrial capacity and skills base in the county, and there are no reliable projections of the levels of investment that renewable energy design and manufacture could bring.

[13] Forestry Commission communication
[14] Centre for Economics and Business Research report for the Forestry Commission (June 2010) The economic value of the woodfuel industry to the UK economy by 2020
[15] Martin Glynn (May 2013) Marches Timber Study: Building the Evidence Base for a Woodland Enterprise Zone
[16] Worcestershire County Council (2010) Worcestershire County Economic Assessment 2010-2011

6.1.5. The Worcestershire Economic Strategy[17] identifies *"Low Carbon Industrial and business opportunities"* as a sector with *"potential opportunities for economic and employment growth and where actions can have a real impact* [and in which] *Worcestershire has a significant number of businesses"*. These low carbon opportunities have *"potential for innovation, job creation and growth in the transition to a low carbon, climate-resilient economy"* but this depends on the strategic role of government and *"massive dynamism in the private sector"*.

6.2 Expertise in manufacturing and research and development

6.2.1. Worcestershire innovators/academic institutions could develop expertise in manufacturing and research and development. A skilled workforce to implement a shift to low-carbon energy will be a valuable asset to the county, with demand for such employees and expertise due to increase.

6.3 Increased energy security and reliability of supply

6.3.1. Energy security is crucial, especially in rural areas of the county where industrial expansion could be frustrated by inadequate supplies. Increasing installed energy capacity through distributed generation closer to the point of use can offset the need for conventional energy. Diversifying supplies helps to provide insurance against volatile energy prices or shortages, and localised generation means less power is wasted through transmission.

6.3.2. Local supplies of energy can be driven by increasing fuel costs. As an example, rising heating costs, combined with incentive payments for renewable fuels, has led to a growth in the use of smaller-scale woodfuel heating installations. Although this research document is not directly concerned with the domestic-scale, the cumulative impact of this increased demand is a further driver to develop local supplies.

6.3.3. To benefit from tariff payments for electricity, and to potentially play a role in balancing the wider grid system, renewable energy installations must be connected to the distribution network. This can only be achieved if the infrastructure has the capacity to accommodate the loadings. Certain renewables can require specific upgrades and strengthening works, depending on their characteristics and the network in that location. Ultimately, the distribution network operator may not be able to connect all projects, or the cost of making such connections - which is borne by the developer - may be prohibitive. As such, liaison with the DNO over the potential to connect is crucial.

[17] Worcestershire Partnership (June 2010) An Economic Strategy for Worcestershire 2010 – 2020

6.4 Income for individuals, communities, and councils, not just for 'big business'

6.4.1. Renewable energy does not just benefit big developers. Successful schemes involving local authorities and/or members of the local community can help to create a sense of ownership, and can provide financial and other rewards. For projects developed wholly or partly by communities, this could involve taking a financial stake in the development, and in some cases could involve benefitting from a direct connection to the electricity and/or heat produced.

6.4.2. Local-level projects also *"qualify for funding that is only available to community groups or charities"*[18]. Local authorities could have a role in supporting community schemes through direct development or through providing resources (financial or in-kind) to specific projects. The government's Planning Practice Guidance states that *"Local planning authorities may wish to establish policies which give positive weight to renewable and low carbon energy initiatives which have clear evidence of local community involvement and leadership"*.

Case study: Woolhope Woodheat

Woolhope Woodheat is a community cooperative based in south Herefordshire that installs wood fuel boilers which supply heat at a reduced price over fossil fuel to hard to heat buildings. The boilers are powered with woodchip from local, sustainable woodlands, and the co-op works to bring neglected local woodland back into management.

Further information is available at http://woolhopewoodheat.org.uk/about/

6.4.3. Community buy-in can help to avoid animosity between 'big developers' and local people. One report[19] suggests that *"community-run schemes, or those run as a joint venture with a community organisation, are more likely to win the local*

[18] Department for Energy and Climate Change: Community Energy Online

[19] S Wyler and P Blond, ResPublica and NESTA (Nov 2010) To Buy, to Bid, to Build: Community Rights for an Asset Owning Democracy

community support necessary to get a project off the ground. Community energy…looks set to rapidly become a key area for community asset expansion". Localism - in particular through Neighbourhood Plans – provides opportunities to find out local levels of interest and to take forward local projects. Successful *Transition* groups already operate in the county and are valuable in exploring and increasing community interest. DECC states that an effective approach is *"to mobilise existing community groups and networks to broaden the impact of the council's low carbon and renewable energy programme"* and that whilst the local authority/LSP can act as a community leader, *"it is also important to identify leaders and advocates within the community"*.

6.4.1 Community ownership of land and/or renewables can provide rental income and/or tariff payments. Income from renewable energy projects can be used to maintain local assets such as village halls. Procurement of renewables by local community groups should be linked to a broader programme of energy efficiency, which could see local buildings insulated and upgraded with improved energy management systems. Grants may be available to support such work, and the savings on energy costs can help to ensure the viability of local buildings as ongoing community resources.

6.4.2 It is not just through ownership of projects that communities can benefit. Payments by developers to communities that host private developments can also make a valued contribution to local infrastructure.

6.4.3 Where large-scale renewables are developed by private companies, payments are often made by developers into a community fund, allowing local people to share in the benefits of development in their area. The payments do not influence planning decisions (the Localism Act's provision for *"local finance considerations"* to be taken into account in decision-making does not apply here). Guidance[20] makes clear that community benefit negotiations should be kept separate from the planning process, stating that *"Planning legislation prevents local planning authorities from specifically seeking developer contributions where they are not considered necessary to make the development acceptable in planning terms. Within this context, community benefits are not seen as relevant to deciding whether a development is granted planning permission"*. There is no standard or guaranteed formula dictating how much funding a given project should contribute, but for wind turbines the renewables trade body RenewableUK has responded to the government in committing to an established formula[21]. The protocol states that *"Signatories to the Protocol agree to provide community benefit schemes in connection with eligible onshore wind schemes, of no less than £5,000 per MW per year or benefits-in-kind to an equivalent value. The annual contribution (or equivalent) will be indexed for the operational lifetime of the project. The Protocol applies to onshore wind projects of 5MW or above in England only"*.

6.4.4. Different renewable energy investors will have different expectations and requirements. Business interests will require a competitive return on their

[20] DECC (October 2014) Community Benefits from Onshore Wind Developments: Best Practice Guidance for England
[21] RenewableUK (October 2013) Onshore Wind: Our Community Commitment

investment, whereas domestic users and community groups may simply be looking for a saving on their energy bills. Local authorities, too, may have different expectations, and councils' ability to sell electricity and heat makes energy generation on council land and buildings a viable proposition in some cases. It has been stated that *"public sector organisations, on account of having access to cheaper capital and typically taking a longer term view of investments, may accept an investment at 2-3% lower IRR than the private sector average"*[22].

6.4.5. Feed-in Tariffs (FiT) incentivise renewables by guaranteeing payments for electricity exported to the grid. Research[23] suggests that FiTs make most small-medium scale renewables attractive investments, but it is noted that this will depend on the level and duration of FiT available at a given time. The research cautions that *"many applications are only attractive investments in the right context"* and that *"the variation of the cost of grid connection of a large community wind turbine or the civil engineering costs of a small river hydro-scheme can turn an otherwise strong scheme with a good return into one which is marginal or unattractive"*. The long-term certainty sought by many developers can be compromised by tariff reviews, and at the time of writing the Feed-in Tariff rates may be severely reduced from January 2016, which could lead to many projects no longer being viable.

6.4.6. Alongside the feed-in tariff for electricity, the Renewable Heat Incentive (RHI) provides a similar payment arrangement for renewable heat energy, such as that generated from biomass.

6.5 Reduced fuel poverty

6.5.1 Worcestershire's total annual household energy bill is up to £313 million[24], and based on past trends, these costs may well increase. Some price rises are due to financial support schemes for renewables (feed-in tariff payments, for example, are indirectly met through customers' bills). One way to reduce expenditure on energy is to take energy efficiency measures, but increases can also be offset through the financial benefits of installing renewable energy. Where there is no access to conventional fuels (such as off-grid properties), renewables can reduce fuel costs, especially once capital costs are paid for.

6.5.2 In some circumstances, specific users may be served by 'private wire' heat and/or power networks. These are closed networks that do not connect to the national grid, and are usually found in more isolated areas. Some users who depend upon an uninterrupted supply may be connected to the grid while also having a private backup in case of grid outages. While private networks can bypass the need to purchase energy from utility companies, a grid connection is

[22] Arup/Friends of the Earth (October 2010) Small Scale Renewable Energy Study, FIT for the Future: Case studies of potential applications of the UK feed-in tariff for small scale renewable electricity
[23] Ibid
[24] Calculated from the provisional average 2014 UK domestic bills across all payment types for electricity (£592) and gas (£753), multiplied by the latest available (2006-based) household projection figures for Worcestershire (233,000 households). DECC/National Statistics: Quarterly Energy Prices (December 2014)

needed to benefit from some incentives (such as the feed-in tariff) and, as such, the absence of such a connection could make many schemes unviable.

6.6 Putting Worcestershire's green economy on the map

6.6.1 A forward-looking approach to renewables could help to promote Worcestershire as an environmentally-conscious county where green business is embraced and green technologies can prosper. While Worcestershire was not among the early adopters of renewables prior to the feed-in tariff, there are examples of energy innovation from further back in history; a combined steam and water-powered electricity generating station was built in Worcester in 1894 and was among the first of its kind. In more recent years, there has once again been significant investment in generating energy within the county. Three years ago, there was around 10MW of installed or consented larger-scale renewable energy capacity in Worcestershire; this figure now stands at around 116MW.

6.6.2 The Worcestershire Local Enterprise Partnership's Strategic Economic Plan[25] recognises 'agri-tech' (which includes green energy) as one of the county's three growth sectors. Among opportunities for Worcestershire businesses it identifies *"cross-sector efficiency in renewable energy/energy"*, while the increasing cost of energy is seen as a business threat. Among the key infrastructure issues to address within Worcestershire, the SEP identifies an over-reliance on energy supplies from outside the LEP area, and an over-reliance on energy from non-sustainable sources. As part of the SEP's aspirations to create a world-class business location, it recognises that *"renewable energy generation has the potential to relieve pressures on the existing energy infrastructure, as well as providing potential employment opportunities and cost reductions"*.

6.6.3 This high level of support for renewable energy demonstrates Worcestershire's commitment to an ambitious approach, and as the cost of conventional energy continues to increase, the economic case for investing in renewables may continue to strengthen.

[25] Worcestershire Local Enterprise Partnership (March 2014) Strategic Economic Plan

Case study: Hydropower scheme on the River Avon

A hydro-power scheme has been developed on the River Avon just outside Pershore. The project, which has involved many partners, links to the local leisure centre.

Wychavon District Council invested £300,000 in the scheme. In return for a share of the risks, this will generate up to 10% return for the council, some of which will go towards local community initiatives. The electricity generated goes into running Pershore leisure centre and should result in annual savings of £11,000 a year on the leisure centre's energy bills. The work around the scheme will help to reduce flooding and create new wildlife habitats.

6.7 Increased income for landowners

6.7.1 Renewable energy can provide income for landowners, through profits from energy sales and/or through rental of land. Any money going to local recipients could be re-circulated in the local community, increasing the multiplier effect.

6.8 Farm diversification/revitalisation of rural economies.

6.8.1 Renewable energy can provide additional/alternative sources of income and employment in the rural economy. Many farms are installing solar PV, wind turbines, and biomass plants. The NFU estimates that *"in 2012, one in five NFU members produced clean electricity from the sun and wind"*[26]. Farm diversification includes production of energy crops to supply biomass schemes.

6.8.2 The growth of large-scale solar farms has led the government to re-emphasise its desire to see solar PV developed on commercial rooftops where possible[27]. This is partly to prevent solar farms taking up too high a proportion of available tariff payments, and partly in response to concerns regarding loss of agricultural land. The government has confirmed[28] that since January 2015, *"farmers who choose to use fields for solar panels will not be eligible for any farm subsidy payments available through the Common Agricultural Policy for that land"*.

6.8.3 Faced with increasing costs, the agricultural/horticultural sector could improve business resilience and competitiveness by installing renewables. A 2011 study[29] found that *"energy costs and pesticide regulation/approval are unsurprisingly perceived to be the main threats to growers' businesses as they represent a large cost and have a major influence on business performance"*. Industries well-placed to provide fuel stocks, and/or who have heat/electricity/CO_2 demands matching the technologies' outputs, can help to offset rising energy costs.

6.8.4 Anaerobic digestion (AD) plants are particularly suited to on-farm uses, as feedstock is often available on-site. Larger, 'centralised' AD installations can gather feedstock from a number of farms (or other sources) in the wider area. The gas produced by AD can be used in a variety of ways: it can be burned on-site for heating, it can be used to generate electricity, or it can be cleaned and injected into the gas grid.

[26] NFU (26 Feb 2013) Renewables lifeline for struggling farmers
[27] Department of Energy & Climate Change (April 2014) UK Solar PV Strategy Part 2: Delivering a Brighter Future
[28] Rt Hon Elizabeth Truss MP (19 October 2014) Subsidies for solar farms to be cut to help safeguard farmland
[29] European Food and Farming Partnership (2011) Getting to the heart of Horticulture: Opportunities and challenges for the horticulture and potato sectors in the West Midlands

Case study: Anaerobic Digester in the Vale of Evesham

Evesham Vale Growers have reduced costs and improved efficiency through installing an anaerobic digester at their Fladbury tomato glasshouses in the Vale of Evesham.

The digester uses green waste and energy crops to generate low-carbon gas and 0.5MW of electricity, providing heat and light for the glasshouses, and allowing surplus energy to be exported to the grid. To further join up the process, CO2 produced by the plant is used on site to improve tomato production.

Worcestershire's Local Enterprise Partnership recognises the economic importance of horticulture in the Vale, and has supported the anaerobic digester and other renewable/low-carbon projects in the area. These developments support local businesses and help to put Worcestershire's green economy on the map.

7 Environmental benefits

7.1 Reducing carbon emissions

7.1.1 The environmental benefits of renewable energy schemes may be felt locally, as well as contributing to national and international carbon emissions targets. In the long term, a reduction in carbon emissions is required to contribute to a deceleration in the rate of global climate change. Generating a greater proportion of energy from renewable sources can make a valuable contribution towards reducing Worcestershire's CO_2 emissions. Tables 1 and 2 below show the latest recorded levels of CO_2 emissions and electricity consumption in the county.

Table 1 Total CO_2 emissions (thousands of tonnes) 2006-2012[30]

	2006	2007	2008	2009	2010	2011	2012
Bromsgrove	928	917	885	825	845	785	812
Malvern Hills	734	733	703	659	683	636	635
Redditch	553	537	515	447	469	427	441
Worcester	590	567	543	497	520	487	493
Wychavon	1,433	1,394	1,359	1,284	1,327	1,221	1,239
Wyre Forest	680	667	636	569	603	567	581
Worcestershire	**4,918**	**4,815**	**4,640**	**4,282**	**4,447**	**4,123**	**4,200**

Table 2 Total Final Electricity Consumption (GWh) 2007-2013[31]

	2007	2008	2009	2010	2011	2012	2013
Bromsgrove	345	337	325	329	322	320	320
Malvern Hills	324	311	291	291	291	289	296
Redditch	409	409	366	374	368	362	361
Worcester	465	427	428	428	445	429	435
Wychavon	670	684	657	657	614	614	615
Wyre Forest	449	417	366	372	395	378	382
Worcestershire	**2,661**	**2,585**	**2,432**	**2,450**	**2,436**	**2,392**	**2,410**

7.1.2 The figures presented in Tables 1 and 2 demonstrate an overall downward trajectory in carbon dioxide emissions between 2006 and 2012, despite a net population increase of some 15,000 over the same period[32]. This suggests improvements in energy efficiency and generation are having a positive impact, and renewable energy will continue to play a key role as part of a wider package of climate change mitigation.

[30] Department of Energy & Climate Change (2014) UK local authority and regional carbon dioxide emissions national statistics: 2005-2012
[31] Department of Energy & Climate Change (2015) Total final energy consumption at regional and local authority level
[32] Worcestershire County Council, Mid-2012 Worcestershire County and Districts Population Estimates and Comparison of ONS Mid-Year Estimates, 2001-11 for Worcestershire County by 5-year Age Group.

7.1.3 Biomass is unique among renewable technologies in requiring a continuous supply of feedstock. Carbon emitted by burning biomass or biofuels is balanced overall by the carbon removed from the atmosphere by the crops as they grow. However, the carbon and environmental costs of growing, harvesting, transport and processing, need to be taken into account. To help to ensure that bioenergy delivers genuine carbon savings whilst minimising environmental impacts, it should be subject to appropriate certification where available. The UK Woodland Assurance Standard and Forest Stewardship Council certification, for example, applies to woody biomass.

7.2 Creating new environments

7.2.1 Renewable energy schemes should be carefully designed and sited to avoid or minimise risk to habitats. Poorly planned and maintained developments could have a negative impact on wildlife, but appropriate projects can have beneficial ecological effects through creating or maintaining habitats. This could be achieved through, for example, the expansion of biomass or energy crops (although this needs careful consideration to minimise negative impacts from monocultures), or by providing species-rich habitat within the secure and relatively undisturbed confines of a solar park. Financial benefits arising from renewables, which can include community payments, may also offer additional opportunities to improve local natural and built environments.

7.3 Managing existing environments

7.3.1 In land use terms, a decentralised pattern of energy generation would avoid the vast land-take of conventional power stations, although the footprint of larger biomass plants can be substantial. Wind turbines, large-scale solar farms, and hydro-power installations can all be designed to work with the natural environment; wind turbines, though often covering large areas overall, have relatively small footprints, allowing land to remain largely untouched and available for agriculture. Because solar farms are raised off the ground, grazing can still occur around and underneath the panels (which can also provide valuable shading). Hydro-power installations can be designed to ensure that fish are safely routed away from turbines.

7.3.2 Any large-scale project is likely to have some degree of impact on the surrounding environment, and there are a number of issues which would need to be considered either through the formal Environmental Impact Assessment process (if required), and/or through the development control process. Biomass includes such issues as the impact on water quality and resources. Biomass plants, like other power stations, may need a reliable supply of water, and this could impact on the aquatic environment. There may also be permitting requirements separate to the planning system which must be satisfied, including, inter-alia, water abstraction and emissions control regimes.

7.3.3 Demand for renewable biomass can lead to changes in woodland management or agriculture practice to meet demand. The government recognises that *"More effective management of our woodlands will also make a long-term contribution to our challenging climate change targets, through reducing reliance on fossil fuels and energy intensive materials"*[33]. Some schemes may result in more intensive management to supply feedstock to a biomass plant. This may foster biodiversity, creating more attractive breeding or feeding habitats for certain species. Sensitive harvesting methods must be employed to respect the biodiversity, scale and cultural importance of the site, especially with ancient woodlands. It is vital that management of ancient woodland, long-established plantations and coppice woodland for the production of wood fuel should be grounded in high standards of management for protection and enhancement of biodiversity. In ancient woodland it is important that plenty of dead wood remains, that veteran trees are protected and that coppicing is only undertaken after expert advice. Adherence to certification standards under the Forest Stewardship Scheme or UK Woodland Assurance Scheme would help to prevent inappropriate harvesting operations. This should be regulated through the Woodland Grant Scheme and the felling licence system to ensure that these woods are restored and managed in a sensitive way.

7.4 Reducing flooding and/or flood risk

7.4.1 Hydropower schemes can help to regulate river flows and minimise flooding. Projects are subject to stringent controls over their effect on watercourses, and the Environment Agency will seek to check that ecological and flooding safeguards are in place. Successful management of biomass can also help to slow run-off through the binding of soils, which can in turn reduce the potential for flooding.

7.5 Air quality improvements

7.5.1 Renewable energy schemes may have indirect benefits in this regard, through the contribution to reduced fossil fuel emissions. Where renewable energy offsets conventional generation, the emissions that would otherwise have been produced as a by-product (excluding any necessary back-up generation) are also offset. This is the case for most renewables. The burning of biomass generates emissions that need to be carefully managed and monitored.

[33] DEFRA (January 2013) Forestry Policy Statement on the recommendations of the Independent Forestry Panel

8 Social benefits

8.1 Community pride

8.1.1 Renewable energy schemes have the potential to foster community pride, especially where the community invests directly in a scheme. On a small scale, this has been seen in recent years by local people helping to increase the sustainability of village halls and community buildings by installing solar panels. Community pride could also be engendered at a larger scale through involvement in bigger projects.

8.1.2 The government recognises that developing renewable energy projects can help to increase social cohesion, *"fostering common cause and empowering communities to take action on issues that matter to them"*[34].

8.2 Expansion of community capacity

8.2.1 Expansion of community capacity to participate in planning (e.g. through involvement in preparation of development briefs, or in negotiations relating to individual planning applications) could increase individuals' skills and knowledge. Neighbourhood Plans offer one mechanism through which people can help to plan for renewable energy in their local area.

8.3 Ground rent and community funding

8.3.1 Local community ownership of land and/or a renewable energy installation can provide rental income and/or tariff payments for energy generated. Where large-scale renewables are brought forward by external developers, payments are often made by the developers into a fund for local community use. As stated in section 6.4.3, trade body RenewableUK has a protocol[35] which seeks to provide onshore wind community benefit schemes *"of no less than £5,000 per MW per year or benefits-in-kind to an equivalent value"*.

8.4 Improved viability of community assets (e.g. village halls)

8.4.1 Income from renewable energy projects can be used to maintain local assets such as village halls. Procuring renewables should be linked to a broader programme of energy efficiency, which could see local buildings being insulated and upgraded with improved energy management systems. Grants may be

[34] Department of Energy and Climate Change (2014) Community Energy Strategy: Full Report
[35] RenewableUK (2013) Onshore Wind: Our Community Commitment

available to support such work, and the savings on energy costs can help to ensuring the viability of local buildings as ongoing community resources.

8.5 Educational opportunities

8.5.1 Renewables can provide an educational resource for all ages, increasing awareness of the benefits and business opportunities that schemes can bring, and fostering an increased sense of environmental stewardship. This in turn could help to encourage a new generation of skilled workers in the green economy. Renewables schemes in schools can provide a learning resource, especially where connected to real-time energy monitors.

8.6 Longer-term health and quality of life benefits

8.6.1 Renewable energy has the potential to reduce fuel poverty, and can therefore help to secure longer-term health and quality of life benefits. At the macro level, renewable energy can lead to a reduction in the need for conventional/nuclear power generation with its associated risks and pollution. It remains crucial, however, to ensure that renewables development is progressed in accordance with all relevant regulations to ensure a safe environment.

9 Tackling the barriers

9.1 Lack of capacity in the local distribution network

9.1.1 Renewable electricity generation tends to be connected to the local distribution network in order to benefit from feed-in tariff payments. If the installation provides electricity to a building, a network connection allows surplus energy to be used elsewhere when generation exceeds demand. The electricity network, however, was designed to convey centrally-generated energy to end users, rather than taking lots of distributed sources in the other direction.

9.1.2 The network is constrained by the capacity of the various assets of which it is comprised, which must only be operated under safe conditions. Where the capacity of the local primary substation would be exceeded, renewable energy projects either cannot connect, or can only be connected under restricted operation (such as having the connection switched off at certain times). Upgrading the distribution network can cost many millions and can take years to complete. If the upgrading is not part of the distribution network operator's planned growth, then the renewable energy developer may need to fund the capacity increases, which could cost more than the value of the project.

9.1.3 Maintaining effective dialogue with the district network operator (in Worcestershire, this is Western Power Distribution) and using their new connections assessment process is important, as this can help to identify whether or not capacity exists, and the cost of any upgrade works required.

9.1.4 As energy storage develops, the need for grid connections may change, as energy generated from renewables could be used at times other than when it is generated (the electricity generated by solar panels, for example, could be available in the evenings, once the sun has gone down, and when domestic demand may be higher). This is part of a smarter approach to demand management and offers exciting opportunities to change the way energy is used – potentially linking the energy systems of cars with those of buildings.

9.1.5 It is possible for renewable energy to be directly connected to energy users through 'private wire' networks. This means that the energy user is independent of the grid (or the private wire may be an additional network, so that either the private wire or the grid can act as a back-up supply when required).

9.1.6 As with electricity, gas generated from renewable sources can be used on-site (for example for space or process heating) and/or can be connected to the gas distribution network. If biogas is being injected into the grid, it must first be upgraded to biomethane.

9.2 Lack of evidence

9.2.1 Most renewable energy projects are determined through the planning system by district planning authorities[36], although where in force, permission is automatically granted for relevant schemes under Neighbourhood Development Orders and Community Right to Build Orders (large schemes, however, are unlikely to fall under these provisions). Each district council has, or is producing, a Local Plan/Core Strategy and associated documents which include policies on renewable energy, in accordance with national planning policy. National and local policies are supportive of renewable energy, subject to appropriate environmental and other safeguards.

9.2.2 Delivery of renewable energy is dependent on supportive policy. A comprehensive and up-to-date evidence base can help to inform policy-makers, and a variety of evidence is available to draw upon (including regional heat mapping, decentralised energy studies, and separate regional and county reports into potential renewables capacity). Much of this evidence, however, is strategic; more detailed evidence may be needed for local issues and site-specific energy plans, including any allocation of areas for renewable energy through the plan-making process[37].

9.2.3 Capacity to undertake local assessments will vary by local planning authority, and a co-ordinated approach at county or larger-than-local level could offer efficiencies.

9.3 Lack of clear criteria

9.3.1 As with other developments, certainty is valued by those looking to build renewables and those who may oppose them. There are certain national standards, such as noise limits for wind turbines, which must be met, but developing clear and unambiguous criteria at the local level is not always possible or desirable. The government's Planning Practice Guidance[38] states that "*Other than when dealing with set back distances for safety, distance of itself does not necessarily determine whether the impact of a proposal is unacceptable*".

9.3.2 There may always be an element of subjectivity around landscape and visual impact where large-scale schemes are proposed. One way of reducing this is to

[36] The county planning authority determines waste developments, which could include an element of renewable energy-from-waste. It also determines its own development on its own land. Very large developments (over 50MW capacity) are currently determined nationally by the National Infrastructure Directorate within the Planning Inspectorate, with the local planning authority being a statutory consultee. However, the government has signalled its intention, in the Queen's Speech 2015, that the forthcoming Energy Bill will set out changes to this regime, such that consenting powers for onshore wind applications over 50MW will be transferred to local planning authorities (see *House of Commons Written Statement on Local Planning* by the Secretary of State for Communities and Local Government on 18 Jun 2015).

[37] Paragraph 97 of the National Planning Policy Framework includes a requirement for local planning authorities to *"consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure the development of such sources."*

[38] Planning Practice Guidance (Revision date: 06 March 2014) Developing a strategy for renewable and low carbon energy (Paragraph 008, Reference ID 5-008-20140306)

identify areas more or less capable of accommodating development. Some local planning authorities, including Rugby[39] and several South Pennines councils[40], have commissioned studies to provide such evidence in relation to potential wind turbine locations. From 18 June 2015, however, suitable areas for wind energy development need to have been allocated clearly in a Local or Neighbourhood Plan[41], thereby providing greater certainty to communities over where wind development may or may not happen in their local area.

9.4 Lack of familiarity with renewables

9.4.1 To date, there have been very few major renewable energy schemes in Worcestershire. This means the impacts of proposals are often unfamiliar, and can present a challenge to the planning officers and committee members who determine the schemes. The scale and nature of some proposals can be alienating to host communities. These challenges generate additional work for local planning authorities; processing applications requires resources, and specialist support may be required, resulting in delays and cost increases.

9.4.2 Site visits can be a valuable engagement tool, and officers and members likely to be determining schemes should take advantage of opportunities to see equivalent projects. Developers could also make provision for post-development site visits to allow others to see their finished projects.

9.5 Community concerns

9.5.1 Renewables applications - as with many other types of built development – can be controversial. In general, some people will be supportive, with others wholly opposed. People may have legitimate concerns over a development's scale and whether it will have a detrimental impact on their environment, health and amenity. Those with valid concerns cannot be dismissed as 'NIMBYs'; the need for renewables does not diminish the need for proper assessment of proposals through the planning system, including full consideration of the environmental and health impacts. Because polarised views can lead to a reactive and adversarial approach, there is a need for constructive dialogue, and a greater focus on education and engagement.

9.5.2 Most renewable energy projects have both positive and negative impacts. When dealing with contentious developments, there is a need for objectivity and evidence-based projections to enable informed decision-making.

9.5.3 The nature of the development process means that people can tend to react to proposals, rather than proactively seeking to engage with and influence schemes from the outset. But there are opportunities for people to give their views on

[39] White Consultants for Rugby Borough Council (March 2011) Landscape Capacity Study for Wind Energy Developments
[40] Julie Martin Associates with Alison Farmer Associates and Countryscape for South Pennines authorities (January 2010) Landscape Capacity Study for Wind Energy Developments in the South Pennines
[41] House of Commons (18 June 2015) Written Statement on Local Planning by the Secretary of State for Communities and Local Government.

how they want their areas to develop. This includes getting involved in Local Plan preparation and, increasingly, developing Neighbourhood Plans, in which local people can set out their aspirations for development, including renewable energy, in their area. Once adopted, a Neighbourhood Plan becomes part of the development plan for that locality. Consulting people at the pre-application stage can help to identify concerns and issues before the statutory publication period.

9.5.4 Decisions must weigh local and wider impacts against the need to increase renewable energy. For major projects Environmental Impact Assessment (EIA) is required. EIA guidance[42] states that "*The general public's interest in a major project is often expressed as concern about the possibility of unknown or unforeseen effects. By providing a full analysis of a project's effects, an environmental statement can help to allay fears created by lack of information*".

9.5.5 The planning system exists to regulate development in the public interest, and it is essential that legitimate concerns are taken into account in a transparent process. This does not mean, however, that every objection will lead to refusal of permission; a balance must be struck between the benefits of a scheme and its impacts, and decision-makers are bound by national policy and guidance to adopt a "*presumption in favour of sustainable development*"[43].

9.5.6 The planning system "*does not exist to protect the private interests of one person against the activities of another, although private interests may coincide with the public interest in some cases*"[44]. While specific individual impacts are important to those directly concerned, they may not be valid reasons for refusing schemes. Some commonly-cited reasons for opposing developments include impacts on property prices and rights to a view, which are not generally valid planning considerations[45]. However, distinguishing what is and is not a 'material consideration' will not necessarily overcome concerns; better understanding those concerns allows for an exploration of how they might be reduced or mitigated.

9.5.7 A range of ways to find out people's views can be used, including public surveys and specific targeted consultation letters. Mechanisms within the planning process ensure that all but the smallest schemes are subject to consultation, and people can freely assess plans and make their feelings known when proposals come forward. It may not be possible to reach unanimity among all interested parties, but presenting the issues clearly can increase understanding, and show that there are positive reasons for the right renewables in the right places.

9.5.8 Local research[46] shows strong public support for renewable energy in a general sense, but people have specific concerns over each technology. A survey of

[42] ODPM (now DCLG) (January 2000) Environmental Impact Assessment: guide to procedures
[43] DCLG (2012) The National Planning Policy Framework, Paragraph 14
[44] ODPM (now DCLG) (2005) The Planning System: General Principles states that *"The basic question is not whether owners and occupiers of neighbouring properties would experience financial or other loss from a particular development, but whether the proposal would unacceptably affect amenities and the existing use of land and buildings which ought to be protected in the public interest"*.
[45] Ibid.
[46] Worcestershire County Council (November 2010) Worcestershire Viewpoint Survey

public attitudes on the development of renewable energy in Worcestershire suggested that support for renewables is strongest at the 'abstract' level, with most people generally supportive of the broad principle, with support falling steadily as locations become more focussed on their local area.

9.5.9 The research into public attitudes also revealed specific concerns over impacts such as smell, noise, visual intrusion, etc[47]. This demonstrates that information on both the positive and negative impact of proposals must be accurate to allow informed debate. Large-scale renewable energy schemes can generate considerable interest and often receive widespread coverage in the local media. Coverage which presents a balanced picture of the true nature of renewables can help to dispel fears and improve people's understanding.

9.5.10 Whilst some degree of impact from renewable energy may be inevitable, there are commonly-held fears over renewable energy that may not be borne out in reality, and communicating the likely benefits and impacts can help to avoid misunderstanding. Engaging communities before an application is made can provide an opportunity for developers to share their ideas and to hear local people's views. A pro-active approach by developers, local authorities and communities can help to increase understanding and build consensus. A variety of guidance can be called upon to help plan the most appropriate approach to engagement. The RTPI[48] states that, at pre-application stage, developers should "*research the area and communities, understand what else is happening, what will motivate people, what rumours or fears exist*".

9.5.11 The right consultation at the right time provides opportunities to help shape proposals by those likely to be affected. Communities can be engaged at various stages, but consultation should be undertaken whilst there is time to genuinely influence the development; leaving consultation until the point of submission is often too late. Because the size and impact of schemes varies significantly, there is no definitive process appropriate to all circumstances (although there are statutory requirements for pre-application consultation for 'nationally-significant' developments above 50MW[49] and wind development of at least 2 turbines or where any single turbine has a hub height of 15m or more[50]). A good practice guide[51] provides a comprehensive list of suitable engagement methods.

9.5.12 Guidance[52] cautions that engagement can easily be "*dominated by those who hold strong views*", and that avoiding this requires "*positive planning to...ensure that less vocal members of the community have opportunities to express their opinions and concerns*". Planning Aid seeks to provide free planning support to those who cannot afford professional costs, and may be able to offer assistance.

[47] Worcestershire County Council (March 2011) Worcestershire Viewpoint Survey November 2010: Analysis of Results
[48] Planning Aid England/RTPI (2012) Good Practice Guide to Public Engagement in Development Schemes
[49] In accordance with the Planning Act 2008. Although for wind turbines, the Energy Bill will make provision for decision-making on all on-shore schemes, of any scale, the responsibility of local authorities.
[50] The Town and Country Planning (Development Management Procedure and Section 62A Applications) (England) (Amendment) Order 2013.
[51] DCLG/Planning Aid/RTPI (2010) Good Practice Guide to Public Engagement in Development Schemes
[52] Renewables Advisory Board & DTI (May 2007) Protocol for Public Engagement with Proposed Wind Energy Developments in England

9.5.13 The onus of consultation is not wholly on the developer; effective consultation involves a two-way dialogue. Local planning authorities, statutory agencies, other consultees and local communities all have a responsibility to engage. The Planning Advisory Service's '10 commitments for effective pre-application engagement'[53] seeks to bring together all parties involved in or impacted by a development to ensure that issues of conflict can be resolved before an application is submitted.

9.5.14 Specific local requirements for consultation are set out in each local planning authority's validation checklist and Statement of Community Involvement (SCI). SCIs also provide indicative lists of potential local consultees (although such lists should be reviewed to ensure they are up-to-date, and should be supplemented by any additional consultees identified). A government-sponsored protocol for wind energy engagement[54] makes clear that SCIs are a key consideration when undertaking consultation, and that it is "*important in any particular case to show how the Engagement Plan relates to what is in each LPA's SCI and neither conflicts with it nor duplicates it*".

[53] Local Government Association (January 2014), 10 commitments for effective pre-application engagement

[54] Renewables Advisory Board and DTI (May 2007) The Protocol for Public Engagement with Proposed Wind Energy Developments in England

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county council