



Renewable and Low Carbon Energy Supplementary Planning Document

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A. INTRODUCTION

1. Supplementary Planning Documents (SPDs) were introduced by the Planning and Compulsory Purchase Act 2004 as part of the reforms to the planning system. Although not forming part of the statutory development plan, one of the functions of an SPD is to provide further detail on policies and proposals within the Local Plan. SPDs must be consistent with national planning policies as well as the policies set out in the Local Plan.
2. This SPD has been prepared in accordance with the Town and Country Planning (Local Planning) Regulations 2012 and the National Planning Policy Framework (The Framework), conforming and responding to all relevant local and national policies and is based on a robust and up-to-date evidence base. The SPD does not contain policies nor does it seek to allocate land but is to be considered alongside policies in the Central Lancashire Core Strategy and Local Plan. The guidance should therefore be taken into consideration from the earliest stages of the development process of any site.
3. The purpose of this SPD is to provide further guidance on Core Strategy Policies 27: Sustainable Resources and New Developments and 28: Renewable and Low Carbon Energy Schemes. It sets out the various renewable and low carbon energy technologies, their requirements and the planning issues associated with each technology that will need to be addressed as part of any planning application.
4. Once adopted, this document should be afforded significant weight as a material consideration in determining planning applications.

B. PLANNING POLICY

National Planning Policy Framework

5. Guidance on planning policy is issued by central Government in the form of the Framework. Local Planning Authorities have to take the contents of the Framework into account as a material consideration when determining planning applications and when preparing their Local Plans.
6. The requirements of the Framework in relation to climate change and renewable and low carbon energy are set out in Section 10: Meeting the Challenge of Climate Change, Flooding and Coastal Change. These are as follows:
 - Support the move to a low carbon future by planning for new development in locations and ways which reduce greenhouse gas emissions and setting local requirements for building's sustainability.
 - Increase the use and supply of renewable and low carbon energy by designing policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily.

Central Lancashire Core Strategy

7. The adopted Central Lancashire Core Strategy is the key policy document as it sets the overarching vision for the area. It is underpinned by the Local Plan which allocates land for development whilst protecting other areas from inappropriate development.
8. The Central Lancashire Core Strategy was adopted in July 2012. Of particular relevance to this SPD is Core Strategy Policy 28: Renewable and Low Carbon Energy Schemes. This policy sets out requirements for renewable and low carbon energy schemes, of which this SPD seeks to provide additional guidance.

9. Other Core Strategy policies relevant to this SPD include:

- Policy 16: Heritage Assets
- Policy 21: Landscape Character Areas
- Policy 22: Biodiversity and Geodiversity
- Policy 27: Sustainable Resources and New Development

Chorley Local Plan 2012-2026

10. Chapter 9 of the Local Plan deals with tackling climate change. It does not contain any further policies on tackling climate change than those contained in the Core Strategy. There are however a number of policies within the Local Plan that will need to be taken into consideration when determining planning applications for renewable and low carbon energy schemes. These include:

- BNE1: Design Criteria for New Development
- BNE8: Protection and Enhancement of Heritage Assets
- BNE9: Biodiversity and Nature Conservation
- BNE11: Species Protection

C. THE IMPORTANCE OF RENEWABLE AND LOW CARBON ENERGY

11. Climate change is a key Government priority.

12. The 2008 Climate Change Act established the world's first legally binding climate change target. The Government aims to reduce the UK's greenhouse gas emissions by at least 80% by 2050 compared to 1990 levels. To help achieve this, the 2009 Renewable Energy Directive set a target for the UK to achieve 15% of its energy consumption from renewable sources by 2020 compared to 1990 levels.

13. Most of the UK's energy currently comes from fossil fuels such as coal, oil and gas which are a finite resource and release greenhouse gases. Renewable energy technologies produce energy from natural resources and include wind turbines, solar power and hydropower. In addition there are a range of low or zero carbon technologies which are not completely renewable as they may require a small amount of electricity to operate but the carbon emissions are very low or in some cases zero. Such technologies include biomass, Ground Source Heat Pumps and Combined Heat and Power. The next section provides detailed guidance on each of these technologies.

14. Increasing the amount of energy produced from renewable and low carbon technologies will reduce the dependence on fossil fuels which are becoming more expensive and difficult to find. It will also help to make sure the UK has a secure energy supply and reduce greenhouse gas emissions which will slow down climate change.

15. In 2012 4.1% of the UK's energy consumption came from renewable sources, which was an increase of 0.3% from 2011. It is vital that the energy consumption from renewable sources continues to increase so that the UK achieves its 15% renewable target.

16. Planning plays an important role in the delivery of new renewable and low carbon energy schemes and in accordance with national planning policy, such schemes will be encouraged in the Borough provided they do not have any unacceptable impacts.

D. GUIDELINES FOR RENEWABLE AND LOW CARBON ENERGY SCHEMES

17. Core Strategy Policy 28 (see Appendix 1) sets out the requirements for renewable and low carbon energy schemes in the Borough. This section identifies the various technologies and provides further guidance on how planning applications for such schemes will be assessed and what information will be required as part of the planning application.
18. Early discussions with the Council's Development Control Team are encouraged for all renewable and low carbon energy schemes prior to submitting a planning application. Open and constructive discussions about schemes before they are formally submitted as a planning application can help steer proposals into a form that are more likely to be acceptable to the Council whilst leading to the reworking or withdrawal of proposals that appear to be fundamentally unacceptable. This can be achieved by entering into pre-application discussions which will help save time and avoid unnecessary expense. There is a charge for this pre-application service which the Council will determine on a case by case basis. Further information on pre-application advice is available at www.chorley.gov.uk/planning

(i) Wind Turbines

Introduction

19. Wind power is a technically proven energy technology for which there is great potential in the UK due to it benefitting from some of the highest wind speeds in Europe. Wind energy is produced by turbines operated by winds. When the wind is blowing the blades are pushed around and each circulation powers a turbine which then generates electricity.
20. Due to the initial relatively easy setup, low maintenance requirements and high levels of energy produced, wind energy is one of the most cost effective renewable fuels available. The faster the wind the more energy the wind turbine will produce, if the wind is very strong the turbines will stop for safety reasons. One wind turbine as part of a wind farm can produce enough energy to supply 1,000 homes over a year.
21. Wind turbines vary considerably in size. Small-scale (microgeneration) wind turbines have a power output less than 50kW and are generally intended to supply electricity to a household. They can be building mounted or stand alone. Building mounted wind turbines have a blade diameter less than 2 metres. Stand-alone small-scale wind turbines typically have a blade diameter less than 15 metres and are usually no more than 30 metres tall.
22. Medium scale wind turbines have a power output between 50kW and 500kW and can range from a single turbine to small groups of turbines. They are most commonly installed to supply electricity to businesses. Medium size wind turbines typically have a blade diameter between 15 and 30 meters and are usually no more than 80 metres tall.
23. Large scale wind turbines have a power output between 500kW and 5MW and are used for producing electricity which feeds directly into the national grid. They are usually grouped together to form a wind farm. Large wind turbines can have a blade diameter over 100 metres and are over 80 metres in height with some exceeding 150 metres in height.

Planning application procedure

24. Chorley Council will deal with planning applications for wind turbine developments of 50MW or less installed capacity. Larger installations of more than 50MW capacity are subject to separate procedures and will be considered by the Secretary of State for Energy and the Council will be a statutory consultee.

25. Pre-application consultation must be carried out for developments of more than 2 wind turbines or where the hub height of any turbine exceeds 15 metres in accordance with the Town and Country Planning (Development Management Procedure and Section 62A Applications) (England) (Amendments) Order 2013.

Permitted development

26. In some cases domestic wind turbines can be installed without the need for planning permission if specified limits and conditions are met. These are set out in Appendix 2.
27. Domestic wind turbines not meeting these conditions and all non-domestic wind turbines will require planning permission.

Environmental Impact Assessment

28. Wind turbines are listed under Schedule 2 of the Environmental Impact Assessment (EIA) Regulations 2011 as projects that may require EIA if any of the following apply:
- More than 2 turbines are proposed;
 - The hub height of any turbine exceeds 15 metres;
 - The proposal lies within a sensitive area (SSSIs).
29. If any of these conditions apply the Council must provide a Screening Opinion advising the applicant whether or not EIA is required. An applicant can also request a Screening Opinion to be provided.
30. EIA is an assessment of the possible impacts that a proposed project may have on the environment including the environmental, social and economic impacts.
31. Where EIA is required the planning application will need to be accompanied by an Environmental Statement that assesses the impact the project is likely to have on the local environment.
32. Where a proposal does not require a full EIA the Council may still require that certain relevant issues are addressed, such as the cumulative impacts of the proposal or the impact of the proposal on a SSSI if it is adjacent to it but not within it, in an Environmental Statement which must accompany a planning application.

Identifying suitable locations

33. Wind speed is an important factor in identifying a suitable location for a wind turbine. Small scale wind turbines start generating electricity at 4 metres per second. There is an average wind speed of over 4 metres per second across the whole Borough therefore there is potential for wind turbines to be installed across the Borough. Large turbines require a higher wind speed. Parts of the Borough have wind speeds over 6 metres per second (see Appendix 3), these areas could be more suitable for medium and large scale wind turbines. The flow of wind to the turbine should be free of obstructions such as trees and buildings.
34. When looking for a suitable site, access to the National Grid is required. Discussions with the appropriate electricity company should take place to identify if there are likely to be any issues connecting the turbine to the grid and to assess whether it is cost effective. Evidence of this consultation should be included with the planning application.
35. Site access is also important. Adequate access is required for both the initial construction of the wind turbines and for subsequent maintenance of them. The existing road network serving a site needs to be assessed to identify whether it is suitable. If any amendments to the road network are required to gain access to a site for construction and maintenance then they should be detailed in the planning application.

36. Wind turbines do not fall within the specified categories of acceptable uses in the Green Belt, therefore planning permission for proposals located in the Green Belt will only be granted in very special circumstances. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources. Planning permission will only be granted if these very special circumstances outweigh any harm identified when the proposal is assessed against the planning issues identified in the next section.

Planning issues and requirements

37. Although wind energy has many environmental, social and economic benefits, wind turbines can also have negative impacts as they can give rise to noise issues, be visually intrusive and impact upon ecology, aviation and telecommunications.
38. The planning issues associated with wind turbines are set out below and must be addressed in all planning applications to ensure that any potential negative effects are mitigated.

Landscape and visual impact

39. Wind turbines are large structures and along with associated infrastructure they will inevitably have an impact on the landscape and visual environment. Effects will vary depending on the size and number of turbines in a scheme, its location, the landscape characteristics and the sensitivity of viewpoints or visual receptors.
40. Landscape impacts are the effects of a wind turbine on the fabric, character and quality of the landscape and the degree to which it will become a significant or defining characteristic of the landscape.
41. Visual impacts concern the degree to which the wind turbine will become a feature in particular views and the impact this has upon the people experiencing those views.
42. A Landscape and Visual Impact Assessment must be submitted with all planning applications for wind turbines to assess the likely landscape and visual impacts of the proposal. This should be prepared in accordance with the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, April 2013 (Landscape Institute and Institute of Environmental Management and Assessment).

Sites with statutory protection

43. In the Borough there are a number of national and local environmental designations. Wind turbines and ancillary infrastructure can have a significant impact on the setting of these designations and the designation itself.
44. Chorley Borough has an extensive network of sites important for biodiversity. These include Sites of Special Scientific Interest (SSSIs) which are statutory sites of national conservation value. There are two SSSIs in the Borough at White Coppice and Charnock Richard, these are identified on the Local Plan Policies Map.
45. If a proposal for a wind turbine lies within or is considered to have an impact upon a SSSI an Environmental Impact Assessment (EIA) may be required. The Council will provide a Screening Opinion advising the applicant whether or not EIA is required.
46. There are also sites at the County and local level that make a significant contribution to the natural diversity of the Borough and a number of buildings, monuments, sites, areas or landscapes that have heritage significance. Careful consideration needs to be given to the impact of wind turbines on these heritage assets. Such heritage assets in the Borough are identified on the Local Plan Policies Map and include:

- Biological Heritage Sites
 - Geological Heritage Sites
 - Conservation Areas
 - Listed Buildings
 - Scheduled Ancient Monuments
 - Historic Parks and Gardens
 - Locally important Areas and Buildings
47. The impact of a proposal on ecological networks in the Borough must also be taken into consideration.
48. If a wind turbine is proposed within the setting of, or near to the setting of, one of the above types of heritage asset, an assessment of its impact on the asset must be undertaken and submitted with the planning application along with details of how any identified negative impacts have been mitigated.

Noise

49. It is perceived that noise from wind turbines will have an adverse impact on local amenity, however noise levels from modern turbines are generally low. Improvements in technology have significantly reduced the level of mechanical noise produced. If located a sufficient distance from noise sensitive developments, increases in noise levels will be acceptable.
50. When considering a proposal, developers should identify any noise sensitive developments such as residential dwellings and carry out a noise assessment produced in accordance with 'The Assessment and Rating of Noise from Wind Farms' (ETSU-R-97). This document sets noise limits at the nearest noise sensitive properties at 5dB(A) above background noise and sets an absolute limit within the range of 35-40dB(A) in low noise environments during the day and 43dB(A) at night time.
51. A noise assessment must be submitted with all planning applications for wind turbines. Good practice guidance on noise assessments of wind turbines has been prepared by the Institute of Acoustics to supplement ETSU-R-97.

Safety

52. Safety may be an issue with wind turbine developments. However, this can often be mitigated through appropriate siting.
53. Wind turbines must be located a safe separation distance away from buildings, public footpaths and bridleways. A safe separation distance is defined as the fall over distance of the turbine, which is the height of the turbine to the tip of the blade, plus 10%.
54. The Highways Agency seeks a minimum setback distance from the boundary of a highway of the height of the turbine plus 10% for small wind turbines with a power output up to 50kW. The minimum setback distance for wind turbines with a power output over 50kW is the height of the wind turbine plus 50 metres.
55. An appropriate separation distance between wind turbines and power lines is also required. National Grid should be consulted on all wind turbine applications and will advise on the required standards for wind turbines being separated from existing overhead power lines. Evidence of consultation with the National Grid must be submitted with the planning application. If any issues with connection are identified, details of how these issues have been addressed must also be submitted.

Ecology

56. There is a risk of collision between moving wind turbine blades and birds and bats. The risk is relatively low however the impacts on birds and bats and other protected species should be assessed for all wind turbine applications.
57. Developers should consult with Natural England regarding the presence of important habitats used by birds, bats or other protected species in and around the proposed development site.
58. An ecological survey must be submitted with all planning applications for wind turbine schemes assessing any potential impacts and identifying appropriate mitigation measures.

Air traffic and radar

59. Wind turbines may represent a risk of collision with low flying aircraft and may interfere with the proper operation of radar by limiting the capacity to handle air traffic and aircraft instrument landing systems.
60. The National Air Traffic Services (NATS) provides air traffic control in the UK and safeguards all radars, navigation aids and communication stations from interference or disturbance. NATS is a statutory consultee for all wind turbine planning applications in the UK. The Council will consult with NATS during the planning process, however applicants for wind turbines are encouraged to consult them to ascertain whether their application is likely to be objected to in advance of submitting a planning application.
61. Wind turbines can also adversely affect a number of Ministry of Defence (MOD) operations including aerodromes, radar facilities and communication facilities. Developers should consult with the MOD if a proposed turbine is 11 metres to blade tip or taller and/or has a rotor diameter of 2 metres or more. If the MOD has concerns about a proposal they will work with the developer to look for ways to mitigate them.
62. Evidence of consultation with NATS and the MOD must be submitted with the planning application along with details of how any concerns have been mitigated.

Electromagnetic interference

63. Wind turbines may interfere with electromagnetic transmissions such as television, radio and phone signals. The Office of Communications (OFCOM) has information on systems that might be affected by a proposal and will identify specific consultees relevant to a site. OFCOM should be consulted prior to submitting a planning application as well as any specific consultees they identify. Operators may impose a clearance zone around their systems or require re-routing to prevent interference. There is often scope for the design and layout of a scheme to be amended to mitigate any adverse effects that may be identified.
64. Evidence of consultation with OFCOM and any other relevant consultees must be submitted with the planning application along with details of how any identified adverse effects have been mitigated.

Shadow flicker

65. Under certain circumstances, the sun may pass behind the rotors of a wind turbine and create a shadow over neighbouring properties (see Figure 1). When the blades rotate, the shadow flicks on and off, an effect known as 'shadow flicker'. Problems caused by shadow flicker are rare and only properties within 130 degrees either side of north, relative to the turbines (see Figure 2) can be affected in the UK and the likelihood of it occurring will depend on a range of factors including direction, distance, turbine height, time of year and prevailing wind direction. It can only occur within ten rotor diameters of a turbine.

66. If a wind turbine is proposed within 10 rotor diameters of a building, an analysis of the effect of shadow flicker must be undertaken and submitted with the planning application. Where a proposal could give rise to shadow flicker, the analysis must quantify the impact and propose mitigation measures to eliminate the effects. Modern wind turbines can be controlled so as to avoid shadow flicker and mitigation can also be secured through the use of a planning condition requiring the provision and operation of a system to stop the turbine(s) rotating when shadow flicker occurs.

Figure 1: Shadow Flicker – Representation of impact

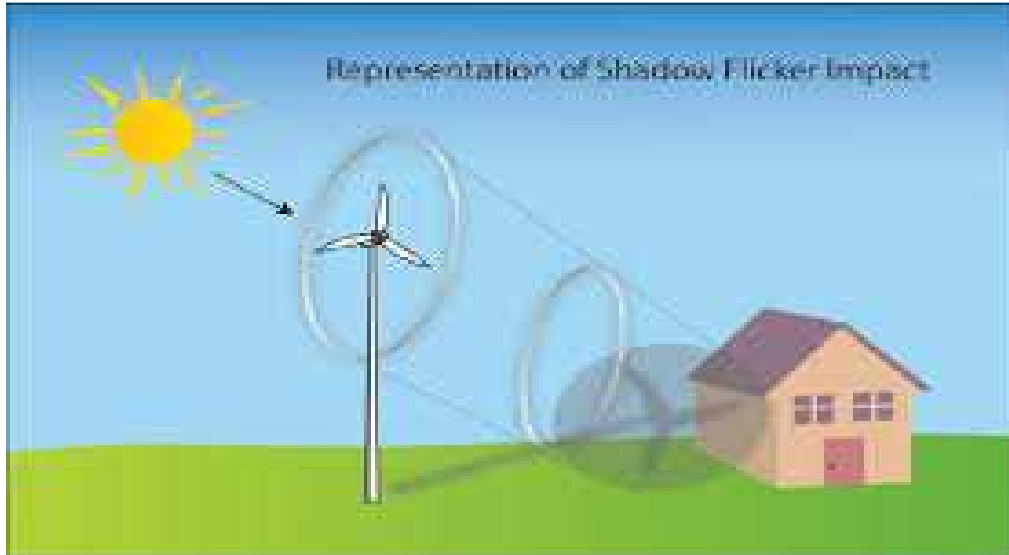
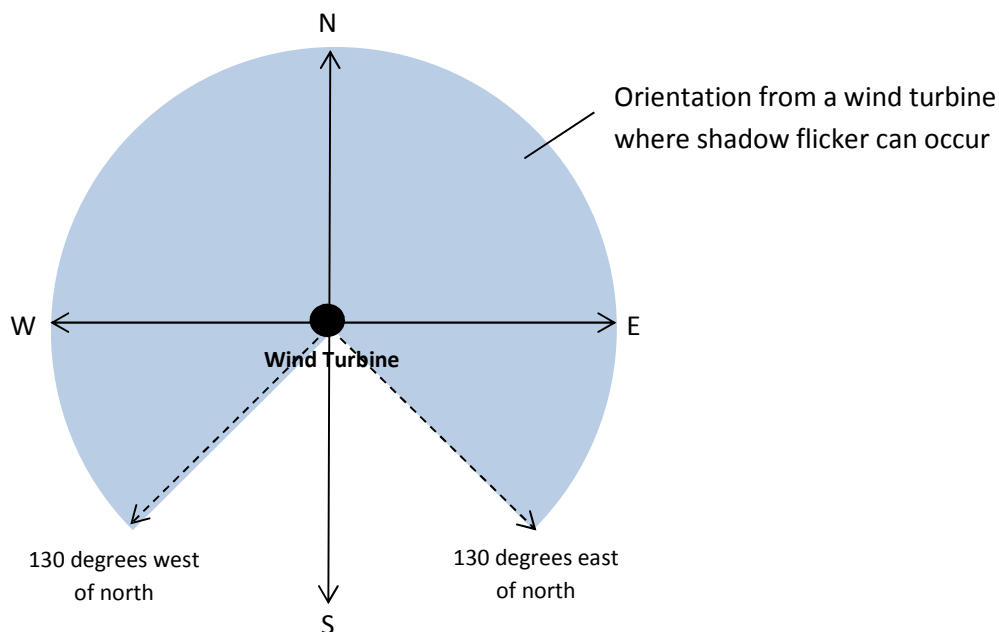


Figure 2: Shadow Flicker – Locations where shadow flicker can occur



Summary of requirements

Planning Issue	Requirements	Relevant Criterion of Core Strategy Policy 28
Landscape and visual impact	<ul style="list-style-type: none"> ▪ A landscape and visual impact assessment must be submitted with the planning application to assess the likely landscape and visual impacts of the proposal. 	A
Sites with statutory protection	<ul style="list-style-type: none"> ▪ If a wind turbine is proposed within or near to a SSSI an Environmental Impact Assessment may be required if significant effects are likely. ▪ If a wind turbine is proposed within or near to the setting of a heritage asset (as set out in para 46), an assessment of its impact on the asset must be undertaken and submitted with the planning application. 	B
Noise	<ul style="list-style-type: none"> ▪ A noise assessment must be submitted (produced in compliance with The Assessment and Rating of Noise from Wind Farms [ETSU-R-97]) demonstrating noise from wind turbines will not exceed 5dB(A) above background noise and limited to an absolute limit within the range of 35-40dB(A) in low noise environments during the day. The limit for night time is 43dB(A). 	C
Safety	<ul style="list-style-type: none"> ▪ Wind turbines must be located a safe separation distance away from buildings, public footpaths and bridleways. This is at least the height of the turbine to the tip of the blade (the fall over distance of the turbine) plus 10%. ▪ Wind turbines with a power output of up to 50kW must be set back from the boundary of a highway by a distance equal to their height plus 10%. Wind turbines with a power output over 50kW must be set back from the boundary of a highway by a distance equal to their height plus 50 metres. ▪ Consult National Grid on required separation distance between the turbine and power lines. Evidence of this will need to be submitted with the planning application. 	C
Ecology	<ul style="list-style-type: none"> ▪ Consult Natural England regarding the presence of important habitats used by birds, bats or other protected species in and around the proposed development site. Details of this must be submitted with the planning application. ▪ An ecological survey must be submitted with the planning application assessing any potential impacts and identifying appropriate mitigation measures. 	C
Air traffic and radar	<ul style="list-style-type: none"> ▪ Consult NATS on all wind turbine planning applications and also the Ministry of Defence if a proposed turbine is 11 metres to blade tip or taller and/or has a rotor diameter of 2 metres or more. Evidence of this consultation and any mitigation measures proposed will need to be submitted with a planning application. 	C
Electromagnetic interference	<ul style="list-style-type: none"> ▪ Consult OfCom prior to submitting a planning application to identify specific consultees relevant to a site and establish what systems might be affected by the proposal. Evidence of this consultation and any mitigation measures proposed must be submitted with the planning application. 	C
Shadow flicker	<ul style="list-style-type: none"> ▪ If a wind turbine is proposed within ten rotor diameters of a building, an analysis of the effect of shadow flicker must be submitted with the planning application. If shadow flicker is likely to occur, mitigation measures will need to be proposed to eliminate the effects. 	C

(ii) Solar Power

Introduction

67. Light and heat from the sun can be utilised to generate electricity using photovoltaic (PV) systems or to heat water using solar water heating systems.
68. Photovoltaic (PV) systems convert solar radiation into electricity using semi-conductors within photovoltaic cells. Individual PV cells are most commonly interconnected to form solar panels and can be mounted on roofs or free standing support structures on the ground. PV can also be integrated onto the roof of a building through the use of PV tiles. They are an important and relatively inexpensive source of electrical energy.
69. Solar water heating systems are designed to capture the heat of the sun and use it to directly heat water. They employ a similar technology to PV systems and use solar panels, called collectors, fitted to a roof. These collect heat from the sun and use it to heat up water which is stored in a hot water cylinder. There are two types of solar water heating panels; evacuated tubes and flat plate collectors, which can be fixed on the roof structure or integrated into the roof.

Planning application procedure

70. All proposals for non-domestic solar power systems such as solar farms will need to apply for planning permission. Some domestic systems will also require planning permission, further details are provided below.

Permitted Development

71. Most domestic roof mounted PV and solar hot water systems do not require planning permission, as long as the panels do not protrude above the highest part of the roof (excluding the chimney) or more than 200mm beyond the roof or wall on which they are installed. If the system is on a flat roof, planning permission will not be required unless the system is more than 1 metre in height above the highest part of the roof (excluding the chimney).
72. However, if the building is in a Conservation Area, planning permission will be required if the panels are fitted to a roof slope or wall that fronts a highway. Planning permission will also be required for solar panels if on a listed building, on a building within the curtilage of a listed building or on a site designated as a Scheduled Ancient Monument.
73. Domestic free standing systems do not require planning permission unless:
 - Any part of the installation is higher than four metres.
 - The installation is less than 5m from the boundary of the property.
 - The size of the array is more than 9 square metres or 3m wide by 3m deep.
 - They are installed within the boundary of a listed building or a scheduled monument.
 - The property is in a Conservation Area and part of the solar installation is nearer to any highway bounding the house than the part of the house that is nearest to that highway.
74. Only the first free standing solar installation will be permitted development. Further installations will require planning permission.

Environmental Impact Assessment

75. Solar power schemes are not specifically listed under Schedule 2 of the Environmental Impact Assessment (EIA) Regulations 2011 as projects that may require EIA. However, Section 3a) of Schedule 2 specifies that any industrial energy installation producing electricity, steam and hot water which exceeds 0.5 hectares may require EIA. If the proposal lies within a sensitive area (SSSI) it may require EIA even if it is under 0.5 hectares.

76. Any industrial solar power schemes over 0.5 hectares or within a SSSI may therefore require EIA. For such schemes the Council must provide a Screening Opinion advising the applicant whether or not EIA is required. An applicant can also request a Screening Opinion to be provided.
77. EIA is an assessment of the possible impacts that a proposed project may have on the environment including the environmental, social and economic impacts.
78. Where EIA is required the planning application will need to be accompanied by an Environmental Statement that assesses the impact the project is likely to have on the local environment.
79. Where a proposal does not require a full EIA the Council may still require that certain relevant issues are addressed, such as the cumulative impacts of the proposal or the impact of the proposal on a SSSI if it is adjacent to it but not within it, in an Environmental Statement which must accompany a planning application.

Identifying suitable locations

80. The ideal location for roof mounted solar power systems is on south facing roofs at a pitched angle of around 30° as this gives the best overall annual performance. Installations at any pitch and facing anywhere to the south of due east and due west are also feasible, although output will be reduced. Installation is not recommended on roofs facing north. Free standing systems should be orientated at the same angle and orientation for the best performance.
81. To ensure maximum efficiency is achieved, systems should be clear from shading. All the modules within a system are connected, so any shading on a single module will affect the performance of the whole array. A system can tolerate some shading early or late in the day without much reduction of overall output but it should not be shaded between 10am and 4pm. Nearby buildings, trees, chimneys, TV aerials and vent pipes are all common causes of shading and should be accounted for before any installation. Allowance should also be made for the future growth of trees and vegetation.
82. Solar electricity doesn't necessarily require direct sunlight and can still generate electricity on cloudy days. As much as a third of the energy generated on a sunny day can be generated on a cloudy day at the same time of year.
83. In the case of free standing systems and solar farms, careful consideration needs to be given to site selection in order to ensure they do not have a negative impact on the environment. Preference should be given to the re-use of previously developed land before the use of greenfield agricultural land. If agricultural land is selected, the proposal should allow for continued agricultural use of the land. Further guidance on this is provided in the next section.
84. When looking for a suitable site, access to the National Grid is required. Discussions with the appropriate electricity company should take place to identify if there are likely to be any issues connecting to the grid and to assess whether it is cost effective. Evidence of this consultation should be included with the planning application.
85. Site access is also important. Adequate access is required for both the initial construction of the solar power system and for its subsequent maintenance. The existing road network serving a site needs to be assessed to identify whether it is suitable. If any amendments to the road network or public footpaths are required to gain access to a site for construction and maintenance then they should be detailed in the planning application.
86. Solar power systems do not fall within the specified categories of acceptable uses in the Green Belt, therefore planning permission for proposals located in the Green Belt will only be granted in very special circumstances. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.

Planning permission will only be granted if these very special circumstances outweigh any harm identified when the proposal is assessed against the planning issues identified in the next section.

Planning issues and requirements

87. Whilst solar power systems have many environmental, social and economic benefits, they can also have negative impacts on the landscape if they are not sited appropriately, particularly large scale solar farms.
88. The planning issues associated with solar power systems are set out below and must be addressed in all planning applications to ensure that any potential negative effects are mitigated. These issues relate mainly to non-domestic stand-alone systems and solar farms but may also need to be taken into consideration for smaller scale domestic solar power developments requiring planning permission.

Landscape and visual impact

89. The development of a solar power system has the potential to result in significant impacts upon the character and quality of the landscape. All proposals should aim to complement the character of the local landscape.
90. Solar power systems can also have visual impacts. To avoid the systems becoming a dominant feature within the local landscape and having an adverse visual impact, they should be sited on relatively level ground to reduce their visual profile. Where possible, sites should be screened from view, either by the existing landscape or by planted hedges or mature vegetation.
91. Solar power developments will need to be adequately secured. Preference should be given to using natural features such as vegetation planting to assist in site security. However, in some cases security fencing will be required. Where required, the fencing should be screened and the height should be minimised and a suitable material used to avoid an unacceptable landscape and visual impact.
92. A Landscape and Visual Impact Assessment must be submitted with all planning applications for solar power schemes to assess the likely landscape and visual impacts of the proposal. This should be prepared in accordance with the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, April 2013 (Landscape Institute and Institute of Environmental Management and Assessment).

Sites with statutory protection

93. In the Borough there are a number of national and local environmental designations. Solar power schemes can have a significant impact on the setting of these designations.
94. Chorley Borough has an extensive network of sites important for biodiversity. These include Sites of Special Scientific Interest (SSSIs) which are statutory sites of national conservation value. There are two SSSIs in the Borough at White Coppice and Charnock Richard, these are identified on the Local Plan Policies Map.
95. If a proposal for a solar power scheme lies within or is considered to have an impact upon a SSSI an Environmental Impact Assessment (EIA) may be required. The Council will provide a Screening Opinion advising the applicant whether or not EIA is required.
96. There are also sites at the County and local level that make a significant contribution to the natural diversity of the Borough and a number of buildings, monuments, sites, areas or landscapes that have heritage significance. Careful consideration needs to be given to the impact of solar power schemes on these heritage assets. Such heritage assets in the Borough are identified on the Local Plan Policies Map and include:

- Biological Heritage Sites
- Geological Heritage Sites
- Conservation Areas
- Listed Buildings
- Scheduled Ancient Monuments
- Historic Parks and Gardens
- Locally important Areas and Buildings

97. The impact of a proposal on ecological networks in the Borough must also be taken into consideration.
98. If a solar power scheme is proposed within the setting of, or near to the setting of, one of the above types of heritage asset, an assessment of its impact on the asset must be undertaken and submitted with the planning application along with details of how any identified negative impacts have been mitigated.

Agricultural Land

99. Solar farms often cover large areas of land and are therefore usually developed in rural locations. When selecting suitable locations, preference should be given to previously developed non-agricultural land or land which is of lower agricultural quality in order to safeguard the long term potential of the best and most versatile agricultural land. Even small scale solar energy developments can impact on the agricultural use of the land.
100. Core Strategy Policy 31 protects Grade 1, 2 and 3a agricultural land from development. Planning applications for solar farms on land designated within these grades must be accompanied by the following:
- An explanation of why the development needs to be located on this land and not on land of a lesser agricultural classification.
 - Clear justification of the benefits the development would have that would outweigh the land being taken out of full agricultural use.
 - Information on the impact of the proposed development on the local area's supply of farming land within the same classification.
101. Where possible, the proposal should allow for the continued agricultural use of the land.

Ecology

102. Solar power schemes can have implications for habitat loss, fragmentation and displacement of species. The nature of the impact is dependent on the ecological characteristics and features of the site and its sensitivity to the proposed change.
103. To minimise the ecological impact, hedges should be retained and any fencing to secure the site must allow species such as badgers to continue to access the site. Security lighting can also have an impact on species such as bats. It is advised that lighting is not used unless absolutely necessary. If it is necessary it must be minimised and directed away from hedges and woodland.
104. Developers should consult with Natural England regarding the presence of important habitats or protected species in and around the proposed development site.
105. An ecological survey must be submitted with all planning applications assessing any potential impacts and identifying appropriate mitigation measures.

Flood risk

106. The development of a solar farm does not usually increase flood risk and surface water run-off should not be any greater. However, a change in the composition of the ground surface which affects the way the surface water is channelled, or building solar farms in areas at risk of flooding could increase the risk.
107. A flood risk assessment must be submitted with all planning applications for solar power unless they are in Flood Zone 1 and are less than 1 hectare.
108. The flood risk assessment should identify and assess the risk on all forms of flooding to and from the development and demonstrate how these flood risks will be managed or mitigated so that the development remains safe throughout its lifetime.

Light reflection

109. Photovoltaic panels are designed to absorb light and not reflect it, and only reflect a small amount of the sunlight that falls on them. These reflections are significantly less than direct sunlight. However, concerns have been expressed about the potential for solar panels to cause glint and glare which could be a nuisance or hazard to residents and drivers.
110. Glint may be produced as a direct reflection of the sun in the surface of the solar panel. Glare is a continuous source of brightness and is not a direct reflection of the sun, but rather a reflection of the bright sky around the sun. Glint and glare may be more of an issue if tracking panels are proposed, which follow the daily movement of the sun.
111. All planning applications for solar power systems should be accompanied by a glint and glare assessment that considers the likely reflective capacity of all the materials used in the construction of the scheme and the potential impacts on residents.

Summary of requirements

Planning Issue	Requirements	Relevant Criterion of Core Strategy Policy 28
Landscape and visual impact	<ul style="list-style-type: none">A landscape and visual impact assessment must be submitted with the planning application to assess the likely landscape and visual impacts of the proposal.	A
Sites with statutory protection	<ul style="list-style-type: none">If a solar power scheme is proposed within or near to a SSSI an Environmental Impact Assessment may be required if significant effects are likely.If a solar power scheme is proposed within or near to the setting of a heritage asset (as set out in para 96), an assessment of its impact on the asset must be undertaken and submitted with the planning application.	B
Agricultural land	<ul style="list-style-type: none">If the proposal is on Grade 1, 2 or 3a agricultural land, justification must be provided with the planning application as to why the development needs to be located on this land.	C
Ecology	<ul style="list-style-type: none">Consult Natural England regarding the presence of important habitats or other protected species in and around the proposed development site. Details of this must be submitted with the planning application.An ecological survey must be submitted with the planning application assessing any potential impacts and identifying appropriate mitigation measures.	C
Flood risk	<ul style="list-style-type: none">A flood risk assessment must be submitted with the planning application unless it is in Flood Zone 1 and is less than 1 hectare. It should include details of any mitigation measures.	C
Light reflection	<ul style="list-style-type: none">A glint and glare assessment must be submitted with the planning application, that considers the likely reflective capacity of all the materials used in the construction of the scheme and the potential impacts on residents. It should include details of any mitigation measures.	C

(iii) Hydropower

Introduction

112. Hydropower is the use of flowing water to generate electricity which is known as hydroelectricity. In the UK there are three main methods for generating hydroelectricity:
- Storage schemes – where a dam collects water in a reservoir, then releases it to drive turbines, producing electricity.
 - Pumped storage schemes – where water is pumped to a higher reservoir, usually during times of low-priced electricity (at night), then released to a lower reservoir, again driving a turbine, usually when the electricity price is higher.
 - Run-of-river schemes – where the natural flow of a river or stream is used to drive a turbine.
113. Hydropower is reliable and predictable and if installed correctly can produce electricity all year round as it is only reliant on water flow. Over time, it is one of the most efficient forms of renewable energy.
114. The cost of installing a hydropower scheme can be high compared to other renewable and low carbon technologies, however maintenance requirements and costs are usually relatively low.
115. There is potential for small scale hydroelectric schemes in the Borough.

Planning application procedure

116. Planning permission is required for all hydroelectric schemes, including domestic and non-domestic installations. In addition to planning permission, permission is also required from the Environment Agency. Applicants must apply to the Environment Agency for an environmental permit to ensure that the scheme does not harm the environment. This permit will include a variety of licences, approvals or consents.
117. Before submitting a planning application developers should contact the Environment Agency to discuss the proposed scheme and begin the application for an environmental permit.

Environmental Impact Assessment

118. Installations for hydroelectric energy production are listed under Schedule 2 of the Environmental Impact Assessment (EIA) Regulations 2011 as projects that may require EIA if the installation is designed to produce more than 0.5MW. If the proposal lies within a sensitive area (SSSI) it may require EIA even if it is under 0.5 hectares.
119. If any of these conditions apply the Council must provide a Screening Opinion advising the applicant whether or not EIA is required. An applicant can also request a Screening Opinion to be provided.
120. EIA is an assessment of the possible impacts that a proposed project may have on the environment including the environmental, social and economic impacts.
121. Where EIA is required the planning application will need to be accompanied by an Environmental Statement that assesses the impact the project is likely to have on the local environment.
122. Where a proposal does not require a full EIA the Council may still require that certain relevant issues are addressed, such as the cumulative impacts of the proposal or the impact of the proposal on a SSSI if it is adjacent to it but not within it, in an Environmental Statement which must accompany a planning application.

Identifying suitable locations

123. Hydropower is very site specific and is entirely reliant on having a suitable watercourse. The suitability of a watercourse is determined by the average flow rate and the vertical fall of the water. Without having a suitable watercourse it is unlikely that a hydropower scheme would be viable, and as such there are only a limited number of sites that are suitable within the Borough.
124. When looking for a suitable site, access to the National Grid is required. Discussions with the appropriate electricity company should take place to identify if there are likely to be any issues connecting to the grid and to assess whether it is cost effective. Evidence of this consultation should be included with the planning application.
125. Site access is also important. Adequate access is required for both the initial construction of the hydropower system and for its subsequent maintenance. The existing road network serving a site needs to be assessed to identify whether it is suitable. If any amendments to the road network are required to gain access to a site for construction and maintenance then they should be detailed in the planning application.
126. Hydropower systems do not fall within the specified categories of acceptable uses in the Green Belt, therefore planning permission for proposals located in the Green Belt will only be granted in very special circumstances. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources. Planning permission will only be granted if these very special circumstances outweigh any harm identified when the proposal is assessed against the planning issues identified in the next section.

Planning issues and requirements

127. The planning issues associated with hydropower schemes are set out below and must be addressed in all planning applications to ensure that any negative effects are mitigated.

Landscape and Visual Impact

128. Small-scale hydropower schemes consist of the installation of a turbine, associated buildings and ancillary equipment. The visual impact of these can be harmful to the landscape if not appropriately sited.
129. Such schemes should be sensitively sited and designed so that they integrate into the landscape through the careful use of landform, materials, vegetation and tree cover. Where possible existing buildings should be used to house machinery.
130. A Landscape and Visual Impact Assessment must be submitted with all planning applications for hydropower schemes to assess the likely landscape and visual impacts of the proposal. This should be prepared in accordance with the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, April 2013 (Landscape Institute and Institute of Environmental Management and Assessment).

Sites with statutory protection

131. In the Borough there are a number of national and local environmental designations. Hydropower schemes can have a significant impact on the setting of these designations.
132. Chorley Borough has an extensive network of sites important for biodiversity. These include Sites of Special Scientific Interest (SSSIs) which are statutory sites of national conservation value. There are two SSSIs in the Borough at White Coppice and Charnock Richard, these are identified on the Local Plan Policies Map.

133. If a proposal for a hydropower scheme lies within or near to a SSSI an Environmental Impact Assessment (EIA) may be required. The Council will provide a Screening Opinion advising the applicant whether or not EIA is required.
134. There are also sites at the County and local level that make a significant contribution to the natural diversity of the Borough and a number of buildings, monuments, sites, areas or landscapes that have heritage significance. Careful consideration needs to be given to the impact of hydropower schemes on these heritage assets. Such heritage assets in the Borough are identified on the Local Plan Policies Map and include:
- Biological Heritage Sites
 - Geological Heritage Sites
 - Conservation Areas
 - Listed Buildings
 - Scheduled Ancient Monuments
 - Historic Parks and Gardens
 - Locally important Areas and Buildings
135. The impact of a proposal on ecological networks in the Borough must also be taken into consideration.
136. If a hydropower scheme is proposed within the setting of, or near to the setting of, one of the above types of heritage asset, an assessment of its impact on the asset must be undertaken and submitted with the planning application along with details of how any identified negative impacts have been mitigated.

Noise

137. The noise emitted from a hydroelectric turbine is likely to be contained by the turbine house and is unlikely to be heard more than a few metres away. Where residential properties are located in close proximity to a hydropower scheme the Council may require a noise assessment to be submitted with the planning application, demonstrating that the scheme will not have a negative impact on local amenity. Noise limits can also be imposed if necessary as a condition on the planning permission.

Ecology

138. Hydropower schemes can have significant impacts on wildlife, particularly fish as they can be harmed if they pass through a turbine. As part of the application to the Environment Agency for an environmental permit, the Environment Agency will advise whether the scheme should include structures such as fish passes to protect fish and other freshwater animals from the turbines.
139. Developers should also consult with Natural England regarding the presence of important habitats or protected species in and around the proposed scheme.
140. An ecological survey must be submitted with all planning applications assessing any potential impacts and identifying appropriate mitigation measures.

Flood risk

141. Some hydropower schemes can lead to reduced flows in rivers which can increase flood risk or affect land drainage.
142. A flood risk assessment must be submitted with all planning applications for hydropower. The flood risk assessment should identify and assess the risk on all forms of flooding to and from the development and demonstrate how these flood risks will be managed or mitigated so that the development remains safe throughout its lifetime.

Summary of requirements

Planning Issue	Requirements	Relevant Criterion of Core Strategy Policy 28
Landscape and visual impact	<ul style="list-style-type: none"> ▪ A landscape and visual impact assessment must be submitted with the planning application to assess the likely landscape and visual impacts of the proposal. 	A
Sites with statutory protection	<ul style="list-style-type: none"> ▪ If a hydropower scheme is proposed within or near to a SSSI an Environmental Impact Assessment may be required if significant effects are likely. ▪ If a hydropower scheme is proposed within or near to the setting of a heritage asset (as set out in para 134), an assessment of its impact on the asset must be undertaken and submitted with the planning application. 	B
Noise	<ul style="list-style-type: none"> ▪ If a hydropower scheme is in close proximity to residential properties a noise assessment may be required demonstrating that the scheme will not have a negative impact on local amenity. 	C
Ecology	<ul style="list-style-type: none"> ▪ Consult the Environment Agency before submitting a planning application and apply for an environmental permit. ▪ Consult Natural England regarding the presence of important habitats or other protected species in and around the proposed development site. Details of this must be submitted with the planning application. ▪ An ecological survey must be submitted with the planning application assessing any potential impacts and identifying appropriate mitigation measures. 	C
Flood risk	<ul style="list-style-type: none"> ▪ A flood risk assessment must be submitted with the planning application. It should include details of any mitigation measures. 	C

(iv) Biomass

Introduction

143. Biomass involves the burning of fuel to produce heat and electricity, the most common being wood. Other fuels that can be used include energy crops and animal waste.
144. Biomass heating from the burning of wood is considered a low carbon source of energy, as only the carbon that has been absorbed by the wood is released. If the trees used are replanted, the use of wood as a fuel is almost carbon neutral as the new trees will absorb the equivalent amount of carbon released.
145. At a domestic scale biomass heating usually comes from the burning of wood in one (or a combination) of the following forms:
 - An open fire.
 - A wood burning stove.
 - A wood fuel boiler.
146. The cost of wood burning stoves and boilers are relatively low, biomass therefore has one of the lowest capital costs of all the low carbon technologies.
147. In addition to homes biomass systems can be used in many other sectors such as schools, offices and industrial premises.
148. On a larger scale, wood and other biomass fuels can also be used for the production of electricity. The main method of producing electricity from wood is a combustion plant where the fuel is burned to produce steam.

Planning application procedure

Permitted development

149. Planning permission is not normally needed when installing a biomass system in a house if the work is all internal. If the installation requires a flue outside, planning permission will not be required unless:
 - The flue is on the rear or side elevation of the building and is more than one metre above the highest part of the roof.
 - The building is listed or in a designated area.
 - The proposal is in a Conservation Area and the flue is fitted on the principal or side elevation and would be visible from a highway.
150. If the project also requires an outside building to store fuel or related equipment the same rules apply to that building as for other extensions and garden outbuildings.
151. Large biomass systems used to heat commercial premises or large buildings will require planning permission if the boiler is to be sited outside the building, or in a new building or extension. Planning permission will also be required if a new building is needed as a fuel store.

Identifying suitable locations

152. Domestic scale biomass heating is suitable for many properties. An open fire will require a working chimney. If a property does not have a working chimney one can be constructed but planning permission and Building Regulations may be required.

153. Wood burning stoves require a flue which can be routed up existing chimneys. The stove should be correctly sized for the room it will serve as too large a stove may make a room too hot and waste fuel whereas too small a stove may not provide enough heat. It can be an attractive feature in a room.
154. Wood fuelled boilers take up more space and before considering installing one it is important to ensure that there is enough space to house the boiler and store the required fuel.

Planning issues and requirements

155. There are relatively few planning issues when installing biomass systems, and the issues mainly relate to large non-domestic biomass systems. These issues are identified below and must be addressed in all planning applications to ensure that any negative effects are mitigated.

Landscape and visual impact

156. Domestic biomass systems will not have any landscape or visual impact unless external flues are required. If required they should be designed and sited to have the minimum effect on the appearance of the building.
157. If new buildings are required to house the boiler or store fuel, they should be located close to the existing building and be designed sensitively to complement the adjacent buildings and surrounding area.
158. Larger biomass plants should be located within existing industrial areas so that the landscape and visual impact is minimised.

Sites with statutory protection

159. The installation of a biomass system in a Listed Building will require planning permission if the installation requires a flue outside. The flue should be designed to have minimal effect on the appearance of the Listed Building otherwise planning permission will not be granted.
160. The same applies if the building is located in a Conservation Area.

Noise

161. The operation of larger biomass systems and associated activities such as fuel deliveries may create noise. Planning applications for non-domestic biomass systems should be accompanied by a noise assessment demonstrating that the noise will not cause an unacceptable degree of disturbance to surrounding amenities.

Odour

162. The burning of the fuel in biomass systems can create odour, particularly in larger systems. The impacts of odour from a proposed biomass system and methods for controlling it must be detailed in the planning application so that it does not unduly harm residential amenity.

Transport

163. The environmental impact of transporting biofuels can outweigh the positive benefits of biomass systems. Sufficient fuel storage should be provided so that fewer fuel deliveries will be needed to help minimise the environmental impact.

164. Larger biomass systems should be located in close proximity to a fuel source if possible and surrounding roads should have adequate existing capacity to serve the plant and ensure that delivery vehicles can access the site.

Summary of requirements

Planning Issue	Requirements	Relevant Criterion of Core Strategy Policy 28
Landscape and visual impact	<ul style="list-style-type: none"> ▪ If an external flue is required it should be designed and sited to have the minimum effect on the appearance of the building. ▪ If new buildings are required to house the boiler or store fuel, they should be located close to the existing building and be designed sensitively to complement the adjacent buildings and surrounding area. 	A
Sites with statutory protection	<ul style="list-style-type: none"> ▪ If an external flue is required for a biomass system in a Listed Building or in a building in a Conservation Area, the flue should be designed to have minimal effect on the appearance of the Listed Building/Conservation Area otherwise planning permission will not be granted. 	B
Noise	<ul style="list-style-type: none"> ▪ Planning applications for non-domestic biomass systems should be accompanied by a noise assessment demonstrating that the noise will not cause an unacceptable degree of disturbance to surrounding amenities. 	C
Odour	<ul style="list-style-type: none"> ▪ The impacts of odour from a proposed biomass system and methods for controlling it must be detailed in the planning application so that it does not unduly harm residential amenity. 	C
Transport	<ul style="list-style-type: none"> ▪ Sufficient fuel storage should be provided so that fewer fuel deliveries are required. ▪ Larger systems should be located in close proximity to a fuel source where possible and have adequate access for deliveries. 	C

(vi) Heat Pumps

Introduction

165. Heat pumps work by transferring heat from one place to another rather than using fuel to produce heat. The heat source can be the air, ground or water and the heat pump transfers heat to a building. They can also be used in reverse to cool a building in the summer. There are three main types of heat pumps, ground, water and air.
166. Ground source heat pumps transfer the heat from the ground into a building to provide space heating. They can also be used to pre-heat domestic water. Heat is drawn from the ground using a ground loop which is a closed circuit of piping buried in the ground in either a borehole or a trench. These pipes are normally filled with a refrigerant or brine that is pumped around the pipes and absorbs heat from the surrounding ground. The heat pump boosts this heat to the temperature needed in the home. There is a power requirement for the pump itself.
167. Water source heat pumps work in the same way as ground source heat pumps but the pipes are sunken in a water source instead of the ground. They can also work by pumping natural water through a heat pump.
168. Air source heat pumps usually work by transferring heat from the outside air to heat water for building heating. They can also be used for cooling in much the same way as an air conditioner. They are cheaper to install than a ground or water source heat pump but are not usually as efficient. This is because they draw the heat from the surrounding air, which in Britain is substantially colder in the winter months when the heating is needed, than in summer.

Planning application procedure

Permitted development

169. The installation of a ground or water source heat pump is classed as an engineering operation. For domestic installations planning permission will not be required if it is within the curtilage of a dwelling and the following conditions are met. If the building is listed or in a Conservation Area planning permission may be required.
 - Development is permitted only if the air source heat pump installation complies with the Microgeneration Certification Scheme Planning Standards or equivalent standards.
 - The volume of the air source heat pump's outdoor compressor unit (including housing) must not exceed 0.6 cubic metres.
 - Only the first installation of an air source heat pump would be permitted development, and only if there is no existing wind turbine on a building or within the curtilage of that property. Additional wind turbines or air source heat pumps at the same property requires an application for planning permission.
 - All parts of the air source heat pump must be at least one metre from the property boundary.
 - Installations on pitched roofs are not permitted development. If installed on a flat roof all parts of the air source heat pump must be at least one metre from the external edge of that roof.
 - Permitted development rights do not apply for installations within the curtilage of a Listed Building or within a site designated as a Scheduled Monument.
 - On land within a Conservation Area the air source heat pump must not be installed on a wall or roof which fronts a highway or be nearer to any highway which bounds the property than any part of the building.
 - On land that is not within a Conservation Area, the air source heat pump must not be installed on a wall if that wall fronts a highway and any part of that wall is above the level of the ground storey.

170. In addition, the following conditions must also be met. The air source heat pump must be:
- Used solely for heating purposes.
 - Removed as soon as reasonably practicable when it is no longer used for microgeneration.
 - Sited, so far as is practicable, to minimise its effect on the external appearance of the building and its effect on the amenity of the area.
171. Installations for commercial premises will require planning permission.

Identifying suitable locations

172. Ground source heat pumps have very few locational constraints and can be installed almost anywhere but may not be suitable for every building.
173. Water source heat pumps can only be installed where there is a suitable water source and are therefore only suitable in limited locations. The water body will need to be deep enough not to totally freeze in winter, be of sufficient size to accommodate the pipe work and be in close proximity and at a similar level to the building to be heated. If the water source is a river, the Environment Agency should be contacted prior to submitting a planning application.
174. Accommodating the pump itself should also be factored in. These can vary in size but are often comparable to a domestic fridge freezer. For ground and water source heat pumps the pump is usually housed within the building that it is heating to increase efficiency, therefore sufficient space is required.
175. Air source heat pumps need to be fitted to a wall or placed on the ground outside the building and needs plenty of space around it to get a good flow of air.
176. All heat pumps do not work well with traditional central heating systems that use standard radiators as they will not heat the water to a high enough temperature for the radiators to provide enough heat so a new system may be required. They are most suitable for use with underfloor heating systems as they require lower water temperatures.

Planning issues and requirements

177. There are few planning issues associated with heat pumps as they are unlikely to be visually intrusive and often the main components are located underground or within buildings. The main issues are associated with air source heat pumps and excavations for trenches for ground and water heat pumps that involve sizable locations. These issues are set out below and must be addressed in all planning applications to ensure that any negative effects are mitigated.

Landscape and visual impact

178. Air Source Heat Pumps are located on the outside of the building and can therefore affect the appearance of the building. They should be sited so that they have minimal impact on the appearance of the building.
179. Ground and water source heat pumps require the installation of underground pipes. During construction there may be landscape and visual impacts. The ground must be restored following installation so that there is no continued landscape and visual impact.

Sites with statutory protection

180. A planning application for an air source heat pump on a Listed Building will be assessed against the extent to which it would interfere with the appearance, structure, design or character of the Listed Building. When this would have a negative effect on a Listed Building's special interest, a

proposal would not be allowed. The same approach will be taken for proposals in Conservation Areas.

181. When digging trenches or boreholes for ground and water source heat pumps outside of the curtilage of a dwelling, consideration needs to be given to possible archaeological interests in the land. Before any work takes place it needs to be established whether there are any archaeological remains on the site and if this has implications for the work involved. Lancashire County Council Archaeological Service can provide information and advice to applicants.

Noise

182. Although air source heat pumps are relatively small, the external fan units can generate a considerable level of noise, this can be exacerbated if the pump is not sited correctly e.g. where noise echoes or can vibrate against a wall or fitted close to a bedroom window. As such, any application for an air source heat pump will be required to demonstrate that noise will not be an issue.

Ecology

183. Drilling through contaminated land or soil when digging trenches for ground or water source heat pumps poses significant risk of pollution to groundwater. Before submitting a planning application, the site must be assessed in order to establish whether there is any contamination. Boreholes will need to be designed so that groundwater is not polluted.
184. Any proposed ground disturbance has the potential to cause habitat damage. Consideration should be given to the extent of this damage, and whether the site is of ecological value. Such sites should be avoided. The use of heat exchangers in water bodies, such as ponds and lakes, could lead to ecological impacts and should be carefully considered.

Summary of requirements

Planning Issue	Requirements	Relevant Criterion of Core Strategy Policy 28
Landscape and visual impact	<ul style="list-style-type: none"> ▪ Air source heat pumps should be sited so that they have minimal impact on the appearance of the building. ▪ Land should be restored following the installation of ground and water source heat pumps. 	A
Sites with statutory protection	<ul style="list-style-type: none"> ▪ Proposals for air source heat pumps on Listed Buildings must not have a negative effect on the appearance, structure, design or character of the Listed Building. ▪ When digging trenches or boreholes for ground and water source heat pumps outside of the curtilage of a dwelling, consideration needs to be given to possible archaeological interests in the land. Lancashire County Council Archaeological Service should be consulted prior to submitting a planning application and evidence of this consultation must be submitted with the planning application. 	B
Noise	<ul style="list-style-type: none"> ▪ Any planning application for an air source heat pump must demonstrate that noise will not be an issue. 	C
Ecology	<ul style="list-style-type: none"> ▪ Before submitting a planning application for a ground or water source heat pump, the site must be assessed to establish whether there is any contamination. Evidence of this must be submitted with the planning application. 	C

(vii) Combined Heat and Power

Introduction

185. Combined Heat and Power (CHP) systems provide both heat and electrical power. They recover the heat that is a by-product of electricity generation and distribute it alongside electricity in the form of hot water for space heating. CHP systems are located at the point of consumption meaning there is very little loss of energy through transmission and distribution.
186. CHP plants can be adaptable to different fuels. Conventionally natural gas is used but fuels such as biomass and hydrogen can also be used. Further efficiency savings can be made with the addition of an absorption chiller which allows the CHP system to provide cooling, potentially for air conditioning and refrigeration.
187. CHP can be used for a variety of scales. The main markets for CHP tend to be those with high heat requirements, for example flats, high density housing, supermarkets, leisure centres, hospitals and industrial sites which will require larger scale CHP units.
188. However, CHP can also be used to provide space and water heating in residential or commercial buildings using micro CHP units which are similar to conventional boilers.

Planning application procedure

Permitted development

189. CHP systems used in the home do not require planning permission for any internal components of the system. If the installation requires a flue outside planning permission will not be required if the following conditions are met:
 - The flue is less than one metre above the highest part of the roof (excluding any existing chimneys).
 - If the building is in a Conservation Area the flue should not be fitted on a wall or roof slope that fronts a highway.
190. In other buildings, if the installation requires a flue outside planning permission will not be required if the following conditions are met:
 - The capacity of the system that the flue would serve is less than 45kW.
 - The height of the flue is less than one metre above the highest part of the roof or no higher than an existing flue that is being replaced.
 - There would be no more than one flue on the building.
 - If the building is in a Conservation Area, the flue should not be fitted on a wall or roof slope that fronts a highway.
191. Planning permission will be required if the flue is to be installed on a Listed Building.
192. If the development also requires an outside building to store the CHP unit, related equipment or fuel the same rules apply to that building as for other extensions and garden outbuildings.
193. Larger commercial scale CHP plants will require planning permission and may also require authorisation from the Environment Agency regarding emissions and wastes.

Identifying suitable locations

194. CHP can be considered at any site where there is sufficient heat (or cooling) demand, particularly if that demand is for extended periods. The heat demand and availability of space determines the scale of the scheme required.
195. Micro CHP units can be used in domestic and small commercial developments. They can easily be accommodated as they are the size and shape of a conventional boiler and are designed to replace them. The only difference to a standard boiler is that they are able to generate electricity while they are heating water.
196. Small scale CHP units can be used at small industrial sites, commercial buildings and community heating schemes. The system is factory assembled and consists of an engine, generator and heat recovery equipment along with all the associated pipework, valves and controls that are packaged together into a CHP unit that can be connected to the heating and electricity systems of the building. Sufficient space is required for this system.
197. Large scale CHP is predominantly used for large developments such as hospitals and universities where the plant is custom built. The plant generally consists of large and complex systems installed on site therefore a significant amount of space is required. It is unlikely that CHP plants of this scale will be developed in the Borough.

Planning issues and requirements

198. There are few planning issues in relation to micro and small scale CHP systems as these are usually located within the building. Issues only arise if an external flue is required and there can also be issues with noise. There are many issues associated with large scale CHP plants, however given that it is unlikely that CHP units of this scale will be developed in the Borough, this section concentrates on the issues associated with micro and small scale CHP units. These issues are identified below and must be addressed in all planning applications to ensure that any negative effects are mitigated.

Landscape and visual impact

199. Micro and small scale CHP units will not have any landscape or visual impact unless external flues are required. If required they should be designed and sited to have the minimum effect on the appearance of the building.
200. If new buildings are required to house the CHP unit, related equipment or fuel they should be located close to the existing building and be designed sensitively to complement the adjacent buildings and surrounding area.

Sites with statutory protection

201. The installation of a CHP unit in a Listed Building will require planning permission if the installation requires a flue outside. The flue should be designed to have minimal effect on the appearance of the Listed Building otherwise planning permission will not be granted.
202. The same applies if the building is located in a Conservation Area.

Noise

203. Small scale CHP units will generate some noise. Although most CHP engines and gas turbines are supplied with acoustic enclosures, noise is still produced by the unit and its auxiliary equipment. Since the unit may operate almost continuously, where possible it should be located so that the impact of the noise will be minimised and not have an impact on any neighbouring buildings or land uses. A noise assessment will be required for larger schemes.

Summary of requirements

Planning Issue	Requirements	Relevant Criterion of Core Strategy Policy 28
Landscape and visual impact	<ul style="list-style-type: none"> ▪ If an external flue is required it should be designed and sited to have the minimum effect on the appearance of the building. ▪ If new buildings are required to house the CHP unit, related equipment or store fuel, they should be located close to the existing building and be designed sensitively to complement the adjacent buildings and surrounding area. 	A
Sites with statutory protection	<ul style="list-style-type: none"> ▪ If an external flue is required for a CHP unit in a Listed Building or in a building in a Conservation Area, the flue should be designed to have minimal effect on the appearance of the Listed Building/Conservation Area otherwise planning permission will not be granted. 	B
Noise	<ul style="list-style-type: none"> ▪ CHP units should be located so that the impact of noise will be minimised. For larger schemes a noise assessment will be required. 	C

E. SUSTAINABILITY APPRAISAL AND HABITATS REGULATIONS ASSESSMENT

205. Given the relationship between this SPD, the Core Strategy and the Chorley Local Plan 2012-26 and the level of Sustainability Appraisal (SA) that these documents have undergone together with the anticipated absence of any significant environmental effects arising from this proposal, an independent SA of this SPD is not required as initial screening shows it is not necessary due to the nature of the document and the wider SA of the Core Strategy and Local Plan.
206. A SA and Strategic Environmental Assessment (SEA) Screening Document has been prepared for this SPD to establish whether there are any impacts arising from the SPD that have not been covered in higher level SA/SEAs. The Screening Document concluded that it is unlikely that there will be any significant negative impacts arising from the SPD that were not covered in the SA of the Core Strategy and the SA of the Local Plan.
207. In addition, a Habitats Regulations Screening Assessment was undertaken for the Core Strategy to determine the likely significant effects of the plan on sites of international nature conservation value. Given the SPD is in conformity with the policies contained within the Core Strategy, a full Screening Assessment of this SPD is not required.

F. MONITORING AND REVIEW

208. The Council will monitor the effectiveness of this guidance including Core Strategy and Local Plan key indicators and review as appropriate in the light of its performance and future changes in planning law and policy guidance.

G. FURTHER INFORMATION

209. The SPD will primarily be implemented through the development management process and the determination of planning applications. Charges may apply for pre-application consultations, please see the website for details www.chorley.gov.uk/planning. Planning Officers will be pleased to provide advice and guidance on planning matters regarding renewable and low carbon energy.

H. REFERENCES

210. The following documents form the evidence base for this SPD:
- Central Lancashire Core Strategy, July 2012
 - Chorley Local Plan 2012-2026
 - Planning Practice Guidance for Renewable and Low Carbon Energy, DCLG, July 2013

CORE STRATEGY POLICY 28

Policy 28: Renewable and Low Carbon Energy Schemes

Proposals for renewable and low carbon energy schemes will be supported and planning permission granted where the following criteria are met:

- (a) The proposal would not have an unacceptable impact on landscape character and visual appearance of the local area, including the urban environment;
- (b) The reason for the designation of a site with statutory protection would not be compromised by the development;
- (c) Any noise, odour, traffic or other impact of development is mitigated so as not to cause unacceptable detriment to local amenity;
- (d) Any significant adverse effects of the proposal are considered against the wider environmental, social and economic benefits, including scope for appropriate mitigation, adaptation and/or compensatory provisions.

PERMITTED DEVELOPMENT RIGHTS FOR WIND TURBINES

Wind turbine: building mounted

The installation, alteration or replacement of a building mounted wind turbine can be considered to be permitted development, not needing an application for planning permission, provided ALL the limits and conditions listed below are met:

Limits to be met:

- Permitted development rights for building mounted wind turbines apply only to installations on detached houses (not blocks of flats) and other detached buildings within the boundaries of a house or block of flats. A block of flats must consist wholly of flats (e.g. should not also contain commercial premises).
- Development is permitted only if the building mounted wind turbine installation complies with the Microgeneration Certification Scheme Planning Standards or equivalent standards. The installation must not be sited on safeguarded land. An Aviation Safeguarding Tool can be used to check whether the installation will be on safeguarded land.
- Only the first installation of any wind turbine would be permitted development, and only if there is no existing air source heat pump at the property. Additional wind turbines or air source heat pumps at the same property requires an application for planning permission.
- No part (including blades) of the building mounted wind turbine should protrude more than three metres above the highest part of the roof (excluding the chimney) or exceed an overall height (including building, hub and blade) of 15 metres, whichever is the lesser.
- The distance between ground level and the lowest part of any wind turbine blade must not be less than five metres.
- No part of the building mounted wind turbine (including blades) must be within five metres of any boundary.
- The swept area of any building mounted wind turbine blade must be no more than 3.8 square metres.
- In Conservation Areas, an installation is not permitted if the building mounted wind turbine would be on a wall or roof slope which fronts a highway.
- Permitted development rights do not apply to a turbine within the curtilage of a Listed Building or within a site designated as a Scheduled Monument.

In addition, the following conditions must also be met. The wind turbine must :

- use non-reflective materials on blades.
- be removed as soon as reasonably practicable when no longer needed for microgeneration.
- be sited, so far as practicable, to minimise its effect on the external appearance of the building and its effect on the amenity of the area.

Wind turbine: stand alone

The installation, alteration or replacement of a stand alone (not building mounted) wind turbine within the boundaries of a house or block of flats can be considered to be permitted development, not needing an application for planning permission, provided ALL the limits and conditions listed below are met.

A block of flats must consist wholly of flats (e.g. should not also contain commercial premises).

Limits to be met:

- Development is permitted only if the stand alone wind turbine installation complies with the Microgeneration Certification Scheme Planning Standards or equivalent standards.
- The installation must not be sited on safeguarded land. The Aviation Safeguarding Tool can be used to check whether the installation will be on safeguarded land.
- Only the first installation of any wind turbine would be permitted development, and only if there is no existing air source heat pump at the property. Additional wind turbines or air source heat pumps at the same property requires an application for planning permission.
- The highest part of the stand alone wind turbine must not exceed 11.1 metres.
- The distance between ground level and the lowest part of any wind turbine blade must not be less than five metres.
- An installation is not permitted if any part of the stand alone wind turbine (including blades) would be in a position which is less than a distance equivalent to the overall height of the turbine (including blades) plus 10 per cent of its height when measured from any point along the property boundary.
- The swept area of any stand alone wind turbine blade must be no more than 3.8 square metres.
- In Conservation Areas, development would not be permitted if the stand alone wind turbine would be installed so that it is nearer to any highway which bounds the curtilage (garden or grounds) of the house or block of flats than the part of the house or block of flats which is nearest to that highway.
- Permitted development rights do not apply to a turbine within the curtilage of a Listed Building or within a site designated as a Scheduled Monument.

In addition, the following conditions must also be met. The wind turbine must:

- use non-reflective materials on blades.
- be removed as soon as reasonably practicable when no longer needed for microgeneration.
- be sited, so far as is practicable, to minimise its effect on the external appearance of the building and its effect on the amenity of the area.

WIND SPEED MAP

Chorley Council

Ordnance Survey

