

Renewable and Low Carbon Energy Generation in North Somerset: Solar Photovoltaic (PV) Arrays



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Supplementary Planning Document

Please note:

The guidance within this Supplementary Planning Document is for **free-standing solar photovoltaic (PV) systems falling outside permitted development rights**, currently defined as having an area larger than 9 square metres.

This guidance **does not apply to domestic installations** of solar photovoltaic (PV) panels. The majority of roof mounted and domestic free-standing systems are permitted development. This means that these systems will not require planning permission. Details of the criteria can be found in the [Introduction](#) section, which sets out when planning permission is required.

Consultation process

The first opportunity to comment on this planning guidance was between 14 June and 12 July 2013. We received comments from 55 people on this first draft guidance. The second consultation from 1 to 29 August received 26 comments and this is the document version following changes made in response to all comments received.

If you have any comments on this guidance, please respond where possible using the online consultation system, if you would like to provide comments by email, please send these to planning.policy@n-somerset.gov.uk

Feedback will be given on all further comments received (with discussions entered into as necessary) so that everyone knows how their comments have been addressed and how they will influence decision-making. We will endeavour to ensure that everyone who has commented on this is kept informed on how the relevant policy is being developed.

Our consultation procedure is set out in our [Statement of Community Involvement](#).

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Section 1 - Background

Renewable energy policy

- 1.1 The EU Renewable Energy Directive suggests that if the UK is to meet its renewable energy target of 15% from renewable sources by 2020, all local authorities need to engage in identifying and approving appropriate renewable energy development.
- 1.2 The Government is committed to increasing the proportion of energy we use from renewable sources and development of renewable energy resources on a commercial scale is a crucial element in meeting the Government's commitments on reducing emissions and combating climate change. The Climate Change Act is the UK's legally binding commitment to reduce carbon dioxide emissions by 80% by 2050, from a 1990 baseline. The Government expects each authority to contribute to meeting the targets and reducing overall demand for energy.
- 1.3 The National Planning Policy Framework (NPPF) sets out policy to support the development of renewable and low carbon energy, by stating that local planning authorities should recognise the responsibility on all communities to contribute to energy generation from these sources. It states that local authorities should:
- *have a positive strategy to promote energy from renewable and low carbon sources;*
 - *design policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts;*
 - *consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure the development of such sources;*
 - *support community-led initiatives for renewable and low carbon energy, including developments outside such areas being taken forward through neighbourhood planning; and identify opportunities where development can draw its energy supply from decentralised supply systems and for co-locating potential heat customers and suppliers.*
- 1.4 The Department for Communities and Local Government published 'Planning practice guidance for renewable and low carbon energy' in July 2013. This provides advice on planning issues associated with the development of renewable and low carbon energy and supports policy set out in the NPPF. This guidance can be a material consideration in planning decisions and should generally be followed unless there are clear reasons not to. The guidance states that '*planning has an important role in the delivery of new renewable and low carbon energy infrastructure in locations where the local environmental impact is acceptable.*' The guidance also states the '*Renewable energy developments should be acceptable for their proposed location.*'

Specific detail on planning considerations relating to large scale ground-mounted solar photovoltaic farms is provided in paragraphs 26 to 28.

26. the deployment of large-scale solar farms can have a negative impact on the rural environment, particularly in very undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively.

27. Particular factors a local planning authority will need to consider include:

- *Encouraging the effective use of previously developed land, and if a proposal does involve greenfield land, that it allows for continued agricultural use and/or encourages biodiversity improvements around arrays.*
- *That solar farms are normally temporary structures and planning conditions can be used to ensure that the installations are removed when no longer in use and the land is restored to its previous use.*
- *The effect on landscape of glint and glare (see guidance on landscape assessment at paragraphs 39-40) and on neighbouring uses and aircraft safety.*
- *The extent to which there may be additional impacts if solar arrays follow the daily movement of the sun.*
- *The need for, and impact of, security measures such as lights and fencing.*
- *Great care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting. As the significance of a heritage asset derives not only from its physical presence, but also from its setting, careful consideration should be given to the impact of large scale solar farms on such assets. Depending on their scale, design and prominence, a large scale solar farm within the setting of a heritage asset may cause substantial harm to the significance of the asset.*
- *The potential to mitigate landscape and visual impacts through, for example, screening with native hedges.*
- *The energy generating potential, which can vary for a number of reasons including, latitude and aspect.*

28. The approach to assessing cumulative landscape and visual impact of large scale solar farms is likely to be the same as assessing the impact of wind turbines. However, in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography the area of a zone of visual influence could be zero.

1.5 A full copy of this guidance can be viewed on the [Gov.uk](https://www.gov.uk) website.

- 1.6 The Department for Energy and Climate Change (DECC) released a [UK solar PV roadmap](#) on 10 October 2013. This recognises that solar PV is not only important because of its energy generation potential, but also its contribution to UK economic growth. The roadmap sets out four guiding principles:
1. Support for solar PV should allow cost-effective projects to proceed and to make a cost-effective contribution to UK carbon emission objectives in the context of overall energy goals – ensuring that solar PV has a role alongside other energy generation technologies in delivering carbon reductions, energy security and affordability for consumers.
 2. Support for solar PV should deliver genuine carbon reductions that help meet the UK's target of 15 per cent renewable energy from final consumption by 2020 and in supporting the decarbonisation of our economy in the longer term – ensuring that all the carbon impacts of solar PV deployment are fully understood.
 3. Support for solar PV should ensure proposals are appropriately sited, give proper weight to environmental considerations such as landscape and visual impact, heritage and local amenity, and provide opportunities for local communities to influence decisions that affect them.
 4. Support for solar PV should assess and respond to the impacts of deployment on: grid systems balancing; grid connectivity; and financial incentives – ensuring that we address the challenges of deploying high volumes of solar PV.
- 1.7 The minister for Energy and Climate Change, Gregory Barker, wrote to all local authorities on 14th October 2013. This letter included his intention that:
- 'I want the focus of growth to be firmly on domestic and commercial roof space and brownfield sites and 'Inappropriately sited solar PV especially in the countryside is something that I take extremely seriously and am determined to crack down on.'*
- 1.8 Greg Barker also announced that a full solar strategy will be released in spring 2014.
- 1.9 The [Solar Trade Association have produced 10 commitments](#) that solar developers should comply with and we expect developers to comply with those commitments.
- 1.10 North Somerset Council is committed to reducing carbon emissions and supporting renewable and low carbon forms of energy generation. The council is responsible for determining applications for onshore renewable energy schemes up to 50MW generation capacity. The Planning

Inspectorate will determine applications for installations with a generation capacity greater than the 50MW threshold. To appreciate the potential scale involved, a 5MW solar PV array if located on open land would require between 10 and 15ha of land to ground-mount the panels.¹ The latest data on solar PV installations within North Somerset (RegenSW, March 2013) reports that there are 4039 projects within the district with an installed generation capacity of 13.616MWe; this includes both domestic and non-domestic installations at all scales.

- 1.11 This Solar Photovoltaic (PV) Array: Supplementary Planning Document (SPD) guidance is for both developers proposing an installation, and North Somerset Council in determining application received relating to solar PV array developments. Once adopted, this SPD will have statutory weight and be a material consideration in the determination of planning applications.
- 1.12 This SPD provides more detailed guidance to support [North Somerset Core Strategy](#) policies: *CS1: Addressing climate change and carbon reduction* and *Policy CS2: Delivering sustainable design and construction*. The overall aim of this guidance is to provide policy to facilitate renewable and low carbon energy development, while ensuring that adverse impacts are addressed satisfactorily. The high level considerations we require to be taken into consideration are set out in the emerging [Sites and Policies DPD: Policy DM2: Renewable and Low Carbon Energy Generation](#).
- 1.13 It is recognised that any renewable and low carbon energy development must be appropriately sited in North Somerset, and this SPD provides information to help applicants select and design proposals that can be appropriately sited in the locality, as per other policies in the North Somerset Local Plan.

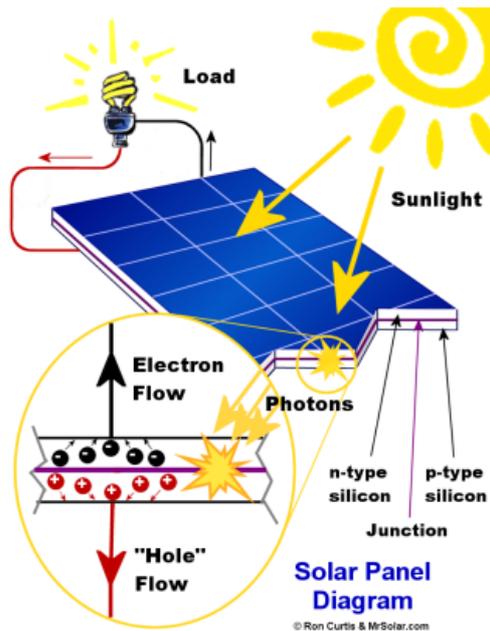


¹ It should be noted however, that this will vary with the type of panel selected.

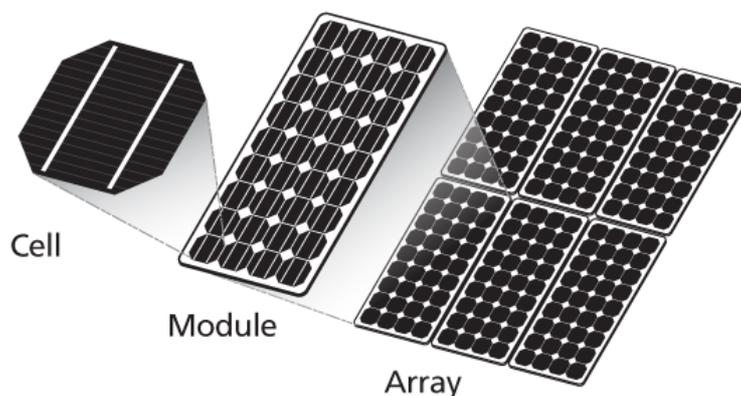
Section 2 - Introduction

What is solar photovoltaic (PV) technology?

- 2.1 Photovoltaic cells consist of layers of semi-conducting material, usually silicon and work by converting solar radiation (daylight) into direct current electricity. When sunlight shines on the cell, it creates an electric field across the layers.



- 2.2 Solar cells are grouped together to form solar panels (or modules) and in turn, a number of solar panels are grouped together to form solar PV arrays. To maximise the solar radiation reaching each cell, they need to be orientated as close to south facing as possible at an angle of between approximately 15 - 40 degrees from horizontal and need to be clear of overshadowing from buildings or trees. The more solar radiation that reaches the panels the more electricity is produced.



- 2.3 Solar PV arrays are normally installed in rows, with spaces between rows of at least twice the height of the panels to avoid panels over-shading

each other. The arrays are typically mounted on frames or 'tables' that are anchored to the ground. The optimum angle of the panels for electricity generation is dependant upon the orientation of the array. Solar PV tracking systems are available; these are arrays that are mounted on a moving framework, which move to maintain optimum alignment towards the sun. These systems are more expensive to install, but do allow increased power to be generated over a reduced area of land.

Is planning permission required?

2.4 Solar PV systems are permitted development (will not require planning permission) *unless* they:

- Protrude more than 200 mm beyond the plane of the wall or roof slope.
- Are on a flat roof, any panel must be less than 1 metre in height above the highest part of the roof excluding any chimneys.
- On or within the curtilage of listed buildings or upon a site designated as a scheduled ancient monument.
- Are within the AONB or Conservation Area in which case, must not be on a roof slope or wall fronting the highway.

Free-standing solar PV systems are permitted development *unless* they are:

- More than 4 metres in height.
- Installed less than 5 metres away from any boundary.
- More than 9 metres square.
- Within the curtilage of listed buildings or upon a site designated as a scheduled ancient monument.
- If within a Conservation Area, must not be located on a wall fronting a highway or be nearer to the highway than the dwelling house or block of flats and no more than one free-standing solar panel within the curtilage will be permitted.

2.5 Thereby all arrays which fall within the above criteria will need to seek planning permission from the council.

Why do we need this guidance?

2.6 North Somerset has received and expects to receive further development proposals for Solar Photovoltaic (PV) arrays. This is due both to the relatively high levels of solar energy potential in the south west of England compared with other regions in the UK (see [Figure 1](#)), coupled with the existence of the Government's [Feed-in-Tariff](#) (FiT) subsidy for the installation of renewable generation facilities of up to 5MW output

and [Renewables Obligation Certificates](#) (ROC), which Ofgem issue to electricity generators for eligible generation of renewable electricity.²

- 2.7** Whilst we are in principle supportive of the installation of renewable and low carbon energy generation technologies, we recognise that installations at the scale covered in this guidance are relatively new and due to their scale, potential developments can have a variety of impacts. We therefore need to display appropriate control in their application and are setting out clear parameters for the development of solar PV arrays within this document. This will ensure conformity to policy DM2, ‘renewable and low carbon energy’ in the emerging [Sites and Policies Development Plan Document](#).

² As part of the Government's [Electricity Market Reform](#) a new support mechanism for low carbon electricity generation ‘Contracts for Difference’ (CfD) will be introduced from 2014. The current ROC Scheme will run in parallel with CfD from 2014/15 until 2017. During that period developers of new generating capacity will be able to choose whether to apply for a CfD or the Renewables Obligation. On 31 March 2017 the Renewables Obligation will close to new generating capacity.

Section 3 - Site selection

- 3.1** The expectation is that where possible solar PV arrays are located on previously developed and/or contaminated and industrial land and its margins, and should avoid areas that are undeveloped. A preference is given to solar PV arrays mounted on top of existing roofs, or integrated into new roofs and buildings. This can include structures above car parks, park and ride sites, retail and industrial units or at railway stations. If the proposal does involve greenfield land, it should avoid using the best and most versatile agricultural land (grades 1 and 2), be closely related to other built development such as farm buildings or hardstandings, and allow for continued agricultural use and/or encourage biodiversity improvements around the arrays. Agricultural uses such as sheep grazing, keeping chickens etc are likely to be the most sustainable and effective measure. Solar PV arrays should avoid landscapes designated for their natural beauty or historic interest and sites of recognised ecological and archaeological importance. The reflectiveness of panels needs to be taken into consideration and there will need to be stated in a glint and glare statement. Where safety can be an issue, the applicant will need to produce a full glint and glare assessment.



- 3.2** Assessing potential cumulative impacts is important as the impact from a single development may not be significant on its own, but when combined with other impacts from similar developments could become significant. Cumulative impact is likely to occur where permission has already been granted in adjacent locations. The potential for cumulative impact of solar PV sites arising from consents given in any one area should therefore be avoided.

3.3 Key significant impacts of solar PV development on the environment are generally considered to include the effects on the following receptors:

- Agricultural land/Green Belt.
- Landscape and visual impacts.
- Biodiversity.
- The historic environment.
- Flood risk.

Agricultural land

3.4 In accordance with the [National Planning Policy Framework](#) (NPPF), where there is significant development of agricultural land, this should seek to use poorer quality land in preference to that of higher quality (safeguarding the long term potential of the best and most versatile agricultural land and conserving soil resources). More detail on Agricultural Land Classification is contained within the [Natural England TIN049 'Agricultural Land Classification 'protecting the best and most versatile agricultural land.'](#) The grading system is applied to indicate that land graded 1 as excellent and land graded 5 as very poor for agricultural uses. We are not likely to support applications on the highest graded agricultural land (grades 1 or 2) and strongly encourage prospective developments towards the lowest graded land.

3.5 It is noted however, that paragraph 112 of the NPPF guides planning authorities to take account of the economic and other benefits of the best and most versatile agricultural land and recognition is given to the need to support diversification of agricultural land use that helps to sustain an agricultural enterprise. Therefore, while development on lower grade land is preferred, we will consider the merits of the proposed development in the context of wider sustainability criteria. The grading of land in North Somerset can be viewed on the [Agricultural Land Classification](#) map.

Green Belt

3.6 Proposals for free standing solar arrays in the North Somerset Green Belt will almost certainly be refused on the grounds that they comprise inappropriate development by virtue of their impact on openness and on the purposes of Green Belt designation. Paragraph 88 of the NPPF states that when considering planning applications, *'local planning authorities should ensure that substantial weight is given to any harm to the Green Belt'* and that very special circumstances will not exist unless the potential harm to the Green Belt *'is clearly outweighed by other considerations'*. While the NPPF acknowledges that in principle very special circumstances may be put forward, in practice it is extremely unlikely that any such circumstances would outweigh the harm to the Green Belt.

3.7 Paragraph 91 of the NPPF states:

- 3.8** *‘When located in the Green Belt, elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.’*

Landscape and visual considerations

- 3.9** The development of solar PV arrays within North Somerset has the potential to result in significant impacts upon the landscape. Any solar PV proposal should aim to complement the character of the local landscape, particularly its scale and pattern and should be located within land areas that equate to typical field sizes, and are suited to the uniformity of a solar PV array. Ideally, the array should be set within well-hedged field boundaries, or other landscape features that provide containment.
- 3.10** The planning application should be accompanied by a landscape and visual impact assessment, to be consistent with the current guidelines issued by the Landscape Institute and the Institute of Environmental Management and Assessment. This should include detail of the potential for solar PV panels, frames and supports to have a combined reflective quality, through providing a glint and glare statement. Where deemed necessary, a full assessment of glint and glare will need to be completed.
- 3.11** To avoid adverse visual impact, arrays should be sited on relatively level ground and avoid sloping hillside locations, to reduce their visual profile. Sites should be screened from view where possible, either by the existing landscape or by planting hedges or vegetation. Where landscape and visual impact assessments are undertaken, the visual impact on residential properties will need to be assessed. Where the installation is generally low in visual impact but there are sensitive local views into the site, planning may be granted with a condition relating to the planting or management of hedgerow trees to block that particular view. It should not be possible to obtain extensive views of selected sites from sensitive public vantage points, including views from footpaths and locations where the array would be seen as a dominant element within the local landscape.
- 3.12** Where any nationally protected landscape is concerned, landscape and visual impacts are likely to be the most significant environmental effects of a solar PV development. The character and quality, along with views to and from the Mendip Hills Area of Outstanding Natural Beauty (AONB) will be of particular relevance in North Somerset.
- 3.13** It is as much for the views offered within the AONB as the views out from the Mendip Hills that the area is valued. Unsympathetic, incongruous development in these landscapes can act as a visual detractor; having an adverse impact on the character of the AONB. These factors should

therefore be taken into consideration with any proposed development. Applications within the AONB designation will be subject to rigorous examination and will need to demonstrate that the objectives of the designation will not be compromised by the development.

- 3.14** Any development **must be temporary** and enable full restoration of the site to its original state once the installation is decommissioned. Any removal of existing vegetative field boundaries, including mature trees within these will not be permitted. This will be a condition of any planning permission granted. More detail on the requirements of decommissioning can be found in the [planning application](#) section.
- 3.15** The '[North Somerset Landscape Character Assessment Supplementary Planning Document](#)' provides detailed information on landscape designations. Applications should demonstrate that landscape impacts have been considered and mitigated.

Biodiversity considerations

- 3.16** The predominantly rural aspect throughout North Somerset with its varying geology and topography has resulted in a landscape of great nature conservation value which is important in both a national and international context. The development of solar PV arrays could have implications for habitat loss or fragmentation and for displacement of species, dependent upon the ecological character of the site, and its sensitivity to change. Developers are advised to avoid areas of ecological importance, especially those areas with local, national or international designations.
- 3.17** In North Somerset there are four areas of Special Areas of Conservation (SACs); two National Nature Reserves; the Mendip Hills Area of Outstanding Natural Beauty (AONB), 38 Sites of Special Scientific Interest (SSSI), two hundred Local Wildlife Sites and over eighty Local Geological Sites and local nature reserves. You can view these site designations on a North Somerset [interactive map](#) by selecting the environment and cultural heritage legend.
- 3.18** Developers will be expected to maximise the ecological potential offered by their site, whilst ensuring there is no adverse impact on protected species. An appropriate ecological impact survey, assessing the potential effects of the development of habitat and species, should be submitted with all planning applications. The survey should identify local biodiversity networks to avoid restricting access and movement of native wildlife, and include suggestions to mitigate habitat impact and impact on species.
- 3.19** Solar PV developments can offer a range of opportunities to encourage and enhance biological diversity, these can include:
- Establishment and management of wildflower strips between panels and around field headlands.

- Taking advantage of the 'edge effect', whereby the borders of particular habitats have greater biodiversity; the intermittent shade of a solar array offers opportunities for marginal, shade-loving and endangered species.
- Habitat enhancement, for example by adapting built structures to encourage use by nesting, roosting and foraging for birds and invertebrates or hibernating species such as bats.
- Creating ponds where appropriate.
- Planting wild bird seed mixtures for birds and nectar and pollen rich margins for bees and butterflies.
- Management for grass ley/crops between the rows of panels.
- Creating habitats rich in wildflowers with apiculture as part of the permanent management plan (to increase bee numbers to the benefit of surrounding farmlands).

3.20 Such enhancements should be considered with any potential development.

3.21 There is some evidence that solar farms can act as an "ecological trap" for certain types of insect that are attracted to polarised light. This could, for example affect aquatic insects who may lay their eggs on panels. Where this is a possibility, it may be appropriate to instigate mitigation measures, such as placing ponds strategically around the site.



3.22 More information on biodiversity in North Somerset can be found in the [Biodiversity and Trees Supplementary Planning Document](#). Further general advice on the assessment of sites for solar parks can be found in the technical information note produced by [Natural England guidance TIN101 'solar parks: maximising environmental benefits'](#). The guidance offers advice on integrating a range of environmental benefits into solar PV development.

The historic environment

3.23 Historic, cultural and landscape sensitive assets should be avoided. These include conservation areas, listed buildings, scheduled

monuments, areas of archaeological importance, registered and other historic parks and gardens. You can view these site designations on a North Somerset [interactive map](#) by selecting the environment and cultural heritage legend.

- 3.24** Below ground archaeology must not be compromised by solar PV installation and where potential archaeological interest is identified, the impact of the development on the site must be evaluated.
- 3.25** Heritage assets could be affected by a solar PV development, either by causing direct physical change or by a change in their setting and therefore altering people's experience of it. Any proposed development will need to assess the nature; extent and importance of a heritage asset and the contribution of its setting will need to be taken into consideration. Where relevant to an application, proposals should not have an unacceptable impact on heritage assets or their setting.

Flood Risk Assessment

- 3.26** Due to the size of solar PV arrays, the impact of a site on flood risk and on drainage should be detailed within a flood risk assessment as part of the Environmental Statement for all applications. The surface water treatment needs to be considered carefully, given the development of infrastructure associated with sites, including inverter housings, access tracks and hard standing, which may affect surface water run-off rates and volumes. Any concentration of run-off could lead to localised flood risk, especially where underlying soils are not naturally free draining. To overcome this, sustainable drainage techniques (SuDS) should be adopted, such as small swales and infiltration trenches.
- 3.27** Where sites are of **one hectare or more** and are in Flood Zone 1 and in the case of **all sites** located within Flood Zone 2 or 3 (classified as having a medium or high probability of flooding), then the flood risk assessment should also include the following:
- Details of how surface water run-off will be stored and disposed of in a sustainable way must be included. The objective will be to prevent any increase in surface water flow from leaving the site or causing localised undersigned flooding on site. Calculations and a drainage layout proposal will be required.
 - Provision for compensatory flood storage should be provided for any loss of fluvial floodplain volume.
 - Details of the measures to be taken to ensure the safety of a solar PV site in the event of flooding. These will include raising electrical equipment off the ground and raising floor levels of any buildings and any electrical controls within them above the flood level. Other infrastructure should be made resilient to flooding.

- 3.28** The increased surface water flow to be contained and the flood level to be protected against should be established by reference to the effects of a 1 in 100 year plus climate change storm.
- 3.29** Given the temporary nature of these developments, solar PV sites should be configured or selected to avoid the need to impact on existing drainage systems and watercourses. Access should avoid the need to culvert existing watercourses. Where culverting is required, it should be demonstrated that no reasonable alternatives exist, and where possible this should only be temporary for the construction period.

Water mains/public sewers

- 3.30** All proposed developments will need to check whether any public sewers or water mains are affected by proposals. Where these are affected, both Bristol and Wessex Water must be notified.

Section 4 - Site detail

- 4.1** It is important that solar PV developments are sympathetic to the existing environment and there must be minimal disruption during the construction and operational phases of any development. Intrusive groundworks, such as trenching and foundations, should be minimised and the use of concrete avoided where possible. In windy areas and localised areas of unstable land resulting from past mining activities the stability of the installation will need to be considered.
- 4.2** We expect all developments to include at least a five metre buffer strip between hedges and solar panels to be provided, for access, hedge management and consideration to biodiversity impacts.

Panel details

- 4.3** The scale and specification of the solar PV panels will be required when assessing applications. The extent of the array and its angle of repose should be specified, along with a maximum height and the parameters of any 'tracking' element (for those panels that change angle to follow the path of the sun), including its range of height variation.
- 4.4** Solar panels are designed to absorb, not reflect solar radiation. However, the sensitivities associated with glint and glare, including the landscape/visual impact and the potential impact on aircraft, road and rail safety, should not be underestimated. Particular consideration should be given to the glint and glare impact on properties that are higher up a slope than the solar development, as the angles involved mean that these are most likely to experience any glint and glare effects created. Therefore the potential for the solar PV panels, frames and supports to have a combined reflective quality, should be evaluated through providing a glint and glare statement, and where deemed necessary, a full glint and glare assessment will need to be completed. This assessment needs to consider the likely reflective capacity of all of the materials used in the construction of the solar array, with particular reference to the face of the solar PV panel, and the likely lines of reflection relative to the sun's trajectory.

Ground works and anchoring

- 4.5** Site levelling and groundworks should be kept to a minimum. Any site levelling works necessary to facilitate the development of a solar PV array should be discussed at the pre-application stage, and detailed within any planning application. Contractors should consider the noise impact at an early stage and implement measures to minimise instances of significant residential disturbance. Actions to be implemented will include avoidance of weekend working, provision of reliable information on the commencement of noisy development and avoidance of early morning disturbance.

- 4.6** Solar PV facilities that are developed on agricultural ground must be 'reversible' allowing the site to be easily restored to agriculture. Hence intrusive groundworks, such as trenching and foundations should be minimised and the use of concrete avoided where possible. Frames should be pile driven or screw anchored and not concrete-based, and capable of easy removal, allowing the ground to be fully restored. In windy areas the stability of the installation will need to be considered.

Security and fencing

- 4.7** Security at each site should be considered as site specific depending on the scale of the site. Access should be restricted to one vehicular entrance and exit and suitable defence put in place to protect it from unauthorised vehicle entry.
- 4.8** It is accepted that fencing is likely to be required and applicants are advised to minimise the use and height, ensuring it has minimal visual impact in terms of colouration, utilising a 'see-through' capacity. Security fencing such as weld meshes fencing and perimeter intruder detection system (PIDS) may be appropriate.
- 4.9** Fencing must not obstruct public rights of way, nor restrict wildlife corridors. Wildlife access crossing points should be included wherever possible. Existing features such as copses, hedges and other natural landscape features should be retained to screen security fencing, supplemented by additional native planting.
- 4.10** Whilst under construction, it is recommended that valuable assets and equipment should be stored in a secure yard protected by CCTV. Where pole-mounted CCTV facilities are proposed, their location should be carefully considered to minimise visual/landscape impact. The use of security lighting should be kept to an absolute minimum, and should utilise a passive infra-red (PIR) technology, designed and installed in a manner that minimises glare and light pollution.
- 4.11** Planning applications should contain full details and specifications of all security and lighting installations in order to allow an accurate landscape and visual assessment of the proposal to be made.

Access and inverter housing

- 4.12** Access details should be submitted and should aim to utilise existing tracks where a hard surfaced access is necessary. Hard surfaced access tracks will not be acceptable between rows of solar panels. The installation of additional access tracks should be kept to an absolute minimum and where they need to be provided, permeable tracks should be used, and localised sustainable drainage methods (SuDS) should be used to control any run-off. Generally, service vehicles should be capable of servicing these facilities without the need to construct access tracks.

- 4.13** Inverter buildings, and any other associated building proposals, should be unobtrusively sited within the site, with material tones and colours designed to reflect landscape context. A statement to justify any building and its size will be required, especially in the most sensitive landscape areas.

Grounds and site maintenance

- 4.14** In most instances the ground beneath solar panels is capable of remaining in agricultural use. Existing pasture cover should be maintained, whilst if the land is currently arable, applicants are advised to grass-seed the site. The land will require management, and the preferred option is that sheep grazing or similar should be enabled. If the grass is to be mown, then the potential for habitat gain, through wildflower-seeding, should be considered.

Grid connection

- 4.15** Development proposals should provide a broad indication of the route of connectivity to the electrical grid. The nature and extent of that connection should be indicated on the site plan. Such connectivity should avoid areas of high landscape, ecological or archaeological sensitivity, and not be extensive or visually intrusive. Connection to the grid may cause an accumulation of overhead wiring, if this occurs in sensitive areas, the cumulative impact will need to be assessed.
- 4.16** The capacity of the grid may be a consideration in an application; we recommend you contact Western Power Distribution to discuss your proposal at an early stage.

Aviation considerations

- 4.17** Due to the potential impact solar PV arrays may have on aviation safety, developers are advised to consult with all aerodrome operators (including Bristol Airport) at an early stage in the development process. PV systems should be designed to avoid adverse effects from reflected light and thus conform to the Air Navigation Order 2009, specifically Articles 137, 221 and 222.
- *Article 137 – Endangering safety of an aircraft.*
 - *Article 221 – Lights liable to endanger.*
 - *Article 222 – Lights which dazzle or distract.*
- 4.18** Consideration of the impacts from installed lighting and the potential for glint and glare associated with the development will need to be taken into consideration. For developments close to the airport, access for rescue services in the event of an emergency may also need to be considered.
- 4.19** The Civil Aviation Authority is currently developing policy on the installation of solar photovoltaic systems and their potential impact to

aviation. Whilst this is in progress, developers should refer to the published [interim guidance](#).

Rail considerations

- 4.20** Network Rail will be consulted on any planning applications for solar PV developments as standard and we encourage developers to consult with them at locations in proximity to the national rail network, at an early stage in the development process.
- 4.21** Any proposed installation of solar panels adjacent to the railway should not interfere with the line of sight of train drivers and the potential for glint and glare from the panels that may impact upon signalling must be eliminated at design stage, to eliminate any risk to railway operations. Developers must contact Network Rail if a proposed development includes the installation of cables under the railway, as this would necessitate works that could damage or undermine the safety, operation and integrity of the railway. Any proposal that necessitated any cabling/high tension lines over the railway also would require consultation with Network Rail.

Section 5 - Consultation/ Community Engagement

- 5.1** The council is keen to ensure that all types of community-led group are able to make their views known effectively and good opportunities are provided for this. As a matter of good practice the community should be engaged before a planning application is submitted.
- 5.2** Effective dialogue about solar PV proposals between developers, the local authority, stakeholders, local communities, interest groups and statutory consultees is essential to explore issues of concern and discuss options for mitigation and provision of any benefits to the local area. The scale of public engagement required will vary according to the scale of the proposal and the potential controversy this is likely to generate. Prospective developers of commercial scale schemes need to be aware of the time required for effective engagement and allow sufficient time in their project planning to allow for responses.
- 5.3** The council can guide developers on appropriate methods for how best to engage with the local community on request.

Community Schemes

- 5.4** There is an opportunity for communities to bring forward their own renewable and low carbon energy generating proposals. Indeed there are many community-led initiatives which are developing to bring forward such schemes. Community supported generation can extend the benefits of renewable energy to households in the form of cheaper energy, revenue streams and employment with the additional benefit of profits generated by the investment being retained within the local community. Many community groups are already working on energy related activities, pursuing behaviour change, demand reduction and energy efficiency measures in addition to promoting renewable energy.
- 5.5** North Somerset Council is keen to assist community renewable energy and demand reduction schemes and will consider favourably those applications that have a community ownership model as an integral aspect within the development, subject to these meeting all other criteria as set out in this guidance. This is in line with the National Planning Policy Framework (NPPF) guidelines, which recommends 'support for community-led initiatives for renewable and low carbon energy.'

Community Ownership Models

a) Co-operative Share Offers

- 5.6** A developer offers the project for co-operative investment at the construction stage. The offer could be for the entire project, a share of the entire project, or for one or more panels in a larger project. Investors receive a rate of return over the project's life, plus the return of their

capital at the end of the project. This model only benefits those able to invest.

b) Social Enterprise Models

- 5.7** The project is community initiated and the community are involved in the development process. If it is a small project it may be owned and managed by the community. A larger project is likely to be managed and owned by a specialist social enterprise company for the benefit of the community. Profits must be allocated to a stated social cause such as carbon reduction and sustainability initiatives. The project can be funded by grants, co-operative share offer, commercial loans or a combination of these.

Section 6 - The Planning application

Pre-application discussions

- 6.1** Potential developers are encouraged to engage in dialogue with North Somerset Council before submitting detailed proposals. We also advise that you engage with the local community at an early stage through the appropriate town or parish council. Pre-application enquiries should indicate the potential solar PV array sites in plan form, and outline the likely scale of development, its height, size, method of enclosure and any accompanying structures. The authority undertakes to provide an initial response to specific site enquiries, to indicate any sensitivity associated with the site and, if requested, to provide an opinion on whether an environmental screening report is required. Details of this can be found on our [website](#).

Planning Performance Agreement (PPA)

- 6.2** A Planning Performance Agreement (PPA) is an agreement between a developer and local planning authority that will identify key milestones and timescales for the delivery of a planning decision. It provides greater certainty and transparency to the development of scheme proposals, the planning application assessment and decision making. An applicant can request a PPA with us if this is felt necessary for a development proposal.

Environmental Impact Assessment (EIA)

- 6.3** An Environmental Impact Assessment (EIA) is a systematic process used to identify, predict and evaluate the environmental effects of a proposed project. In the context of solar PV developments, it is a formal process that aims to protect land and semi-natural areas from permanent damage, and to guard against possible negative environmental effects from solar PV development.
- 6.4** Solar PV arrays are not listed as schedule 1 developments in the 2011 EIA Regulations; therefore do not automatically require an EIA. However, Schedule 2; Section 3 of the regulations under the energy industry heading specifies that any industrial energy installation producing electricity, steam and hot water, which exceeds 0.5 hectares³ could potentially be EIA development. As such, development could potentially have a significant effect on the environment; developers are advised to seek a **Screening Opinion** (to inform whether an EIA is required) from us at the initial stage of the planning process.
- 6.5** The proposal will be assessed against the selection criteria in Schedule 3 of the EIA Regulations to enable a screening opinion to be issued. This will include the potential impact on environmental receptors including local ecology, archaeology, water resources, landscape character and

³ (which is around 5000m² of development and depending on panel type and layout would be equivalent to 500kW and consist of around 60 panels)

visual impacts. The potential for cumulative effects with any existing or approved development (both other solar PV schemes and other types of development) will also be considered. Generally, an EIA is likely to be needed for Schedule 2 developments, if the solar PV development is in a particularly environmentally sensitive or vulnerable location and is likely to be required for larger scale developments.

- 6.6 If the council considers the proposal to fall under Schedule 2 of the 2011 EIA Regulations, an **Environmental Statement** (ES) needs to be prepared so that it can be considered with a planning application. The level of detail required within the ES is provided in the [Appendix](#).

Submitting a Planning Application

- 6.7 Sufficiently detailed information should accompany the planning application to allow us to fully assess any potential impact to the site and its surroundings during construction, operation and decommissioning of a solar development.
- 6.8 Planning applications for all renewable technology developments should give details of the energy generation potential, stated as:
- The installed capacity (in MW or kW).
 - The estimated annual production (MWh p.a.).

It is accepted that the above will be dependant on weather conditions, principally solar radiation levels.

- 6.9 It would be helpful to provide an indication of the number of residential properties electricity equivalent that will be provided by the development, to allow non-experts to understand the potential impact of the scheme. Such a statement should be indicative only. The assumptions used to calculate this figure should be included.
- 6.10 Solar PV development should be regarded as a temporary use of land, and as such the development shall not exceed 25 years from the date that electricity is first generated. No development shall be commenced until a decommissioning method statement has been submitted and approved in writing by the Council. The Statement shall include the timing for decommissioning of all, or part of the solar farm if it ceases to be operational (or upon expiry of the time period of the permission), along with the measures, and a timetable for their completion, to secure the removal of panels, plant, fencing and equipment, and restoration of the site, including how resources will be secured for decommissioning and restoration at a future date.
- 6.11 Any planning permission will therefore be subject to the following (or similar) condition:

No development shall be commenced until a decommissioning method statement has been submitted to and approved in writing by the Local Planning Authority. Within 25 years of the

commencement of electricity generation, or within six months of the cessation of electricity generation by the solar PV facility, whichever is the sooner, the solar PV panels, frames, foundations, inverter housings and all associated structures and fencing approved shall be dismantled and removed from the site, and the site restored to its former condition in accordance with the approved decommissioning method statement.

- 6.12** It should be noted that from 2014, solar PV panels will be included in the scope of Waste Electronic and Electrical Equipment (WEEE) Regulations 2006. This means that the solar PV provider is required to register with the scheme to ensure that constituents of panels are reused, recycled and recovered after their operational lifetime. The purpose of this is to reduce the quantity of material that is sent to landfill and to ensure that what gets separately collected is dealt with properly. More details on the [WEEE Directive](#) can be found on the Environment Agency website.
- 6.13** Any waste generated on site during construction must be disposed of in accordance with the Waste (England and Wales) Regulations 2011.
- 6.14** The information we require to be submitted with any application is explained in more detail on our [website](#). Supporting information should include but not be limited to those items listed in the [Appendix](#) below.

Section 7 - Monitoring and Review

- 7.1** As a Local Planning Authority, we are required to publish an Annual Monitoring Report (AMR) to assess the effectiveness of policies and guidance that forms part of the local development plan. We will monitor the provision and delivery of renewable energy technologies as part of the AMR process and report accordingly. This guidance will be reviewed as and when necessary in light of all material information.

Appendix

Planning application and EIA submission requirements

Irrespective of whether the development falls within EIA regulations or not, North Somerset Council considers the following items to be necessary for submission with either a planning application or as part of an Environmental Statement:

a) Design and layout:

Plan – Site Area (ha) to include extent of array, inverter buildings, fence line, etc

- Location plan – surrounding features, field boundaries, including trees and hedgerows and topographical information.
- Specification of panels, details of mounting structure including frame height, materials and base size.
- Programme of site preparation, construction, operation and restoration.
- Access proposals for construction, maintenance and decommissioning.
- Presence of any existing utilities, underground cables, pylons etc and impact during construction.
- Specification and design of any associated roads, hard standing or storage buildings, temporary and permanent.
- Specification of any inverter buildings, sub-stations, control facilities and grid connection.
- Specification of any additional security and lighting features.

b) Assessments and mitigation

- Justification of location.
- Assessment of agricultural land.
- [Landscape/Visual Impact Assessment](#)
- Landscape enhancement and mitigation proposal, including a 25 year site-management plan.
- Assessment of Cumulative Impact.
- Ecological survey and assessment, and biodiversity enhancement proposals. A short biodiversity survey and plan is recommended.
- Transport Assessment to include construction, operation and maintenance and decommission schedule and predicted vehicle movements during all stages of the proposal.
- Flood Risk Assessment – the surface water treatment needs to be considered carefully given the potential for proposed buildings and hard standing to be provided within the site.
- Investigation into the potential presence of features of archaeological interest or cultural heritage.
- The extent of survey and assessment material should reflect the extent and sensitivity of the site.

c) Additional Requirements

- Predicted annual generation capacity.
- Maintenance and Inspection Schedule.
- Decommissioning Schedule.
- Details of Electricity Generating Capacity.
- Details of Grid Connection.
- Confirmation from the Distribution Network Operator that the required capacity is available at the selected site and identification of point of connection.
- A statement of community engagement and the identification of any proposed wider community gains.

Environmental Impact Assessment (EIA)

The **Environmental Statement** needs to cover the requirements above as well as the following:

1. Description of the development incorporating

- The proposed development.
- The purpose of the development.
- Relevant plans showing the site location and area involved with the development.
- Survey, analysis and design of the proposed buildings/structure with floor plans and elevations.
- Solar panel design and specification, method of construction/ installation.
- Reasonable estimates of quantity and type of traffic, which will be generated through construction and operation.

2. Site Description

- Description of the main reasons for the site selection and any alternatives in site design or layout which have been considered.
- The area of proposed land which the panels will occupy clearly described and indicated on a map or diagram.
- An illustrated description of the land use of the surrounding area.
- Description of the policies, plans and designations which are relevant to the proposal.

3. Impacts and their significance

The environmental statement must assess the impact of the proposal and the significance of this impact. This will include short, medium and long-term effects, permanent and temporary effects and positive as well as negative effects. The following factors should all be considered within the Environmental Statement:

- Fauna
- Flora
- Soil
- Water
- Air
- Climatic factors
- Material assets e.g. architectural and archaeological heritage
- Landscape
- Population
- Inter-relationship between all the above

Some of these factors will not be impacted on by the development; if this is the case then a short explanation of why it is not relevant is required.

4. Mitigation Measures

Mitigation of the effects that have been identified must be covered within the Environmental Statement. The most suitable format may be to focus on one issue at a time, discussing the effect; its significance and its mitigation. For example, a wildlife survey will identify what the impacts of the development are on wildlife, then go on to discuss the significance of the impact and then propose mitigation measures, finishing with a conclusion. This should be done for each issue.

5. Conclusion of Impacts

This can be included with each report/assessment of the area under examination.

6. Alternatives

- Demonstrate that other sites have been considered and provide reasons why other sites have been dismissed and why the proposed site is considered to be the most appropriate.
- Report on any alternatives within the scheme that have been considered and dismissed, for example: different accesses and location of buildings within the site etc.

7. Methods

How the development will be implemented, including site preparation, drainage, maintenance, timescale for implementation and the phasing of work.

8. Difficulties

An indication of any difficulties encountered through technical deficiencies or lack of expertise encountered in compiling the information required in the Environmental Statement.

9. Summary

An Environmental Statement needs to be accompanied by a non-technical summary of the information provided above. The non-technical summary needs to contain:

- Purpose and nature of the project.
- An area summary.
- A brief description of information presented in the Environmental Statement, detailing key issues relating to environmental elements and the final determination of impact significance.
- Conclusions.

For further guidance the formal requirements on the content of environmental statements are set out in Schedule 4 of the 2011 EIA Regulations.

Figure 1. Solar irradiation in Great Britain showing solar electricity potential

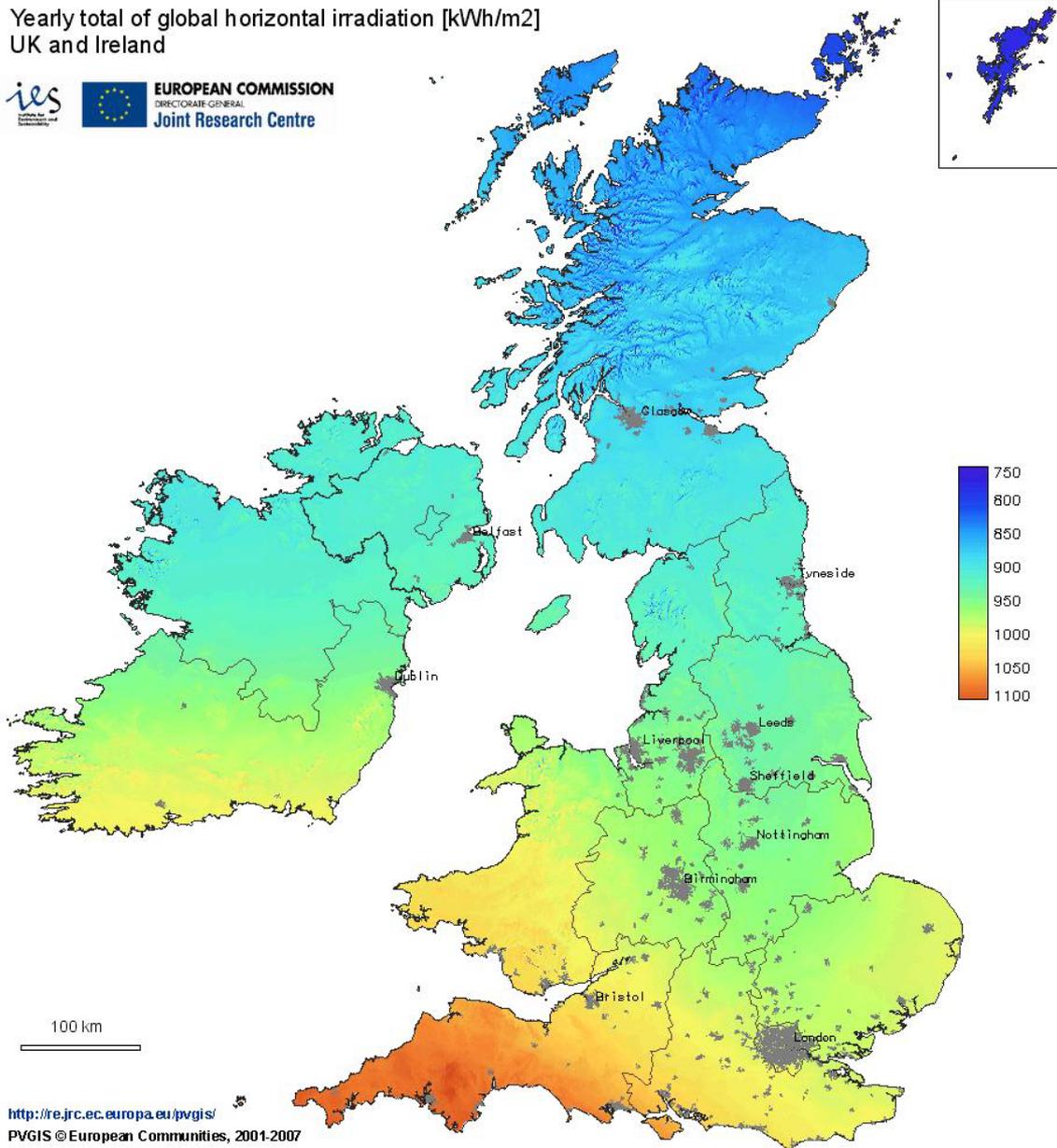
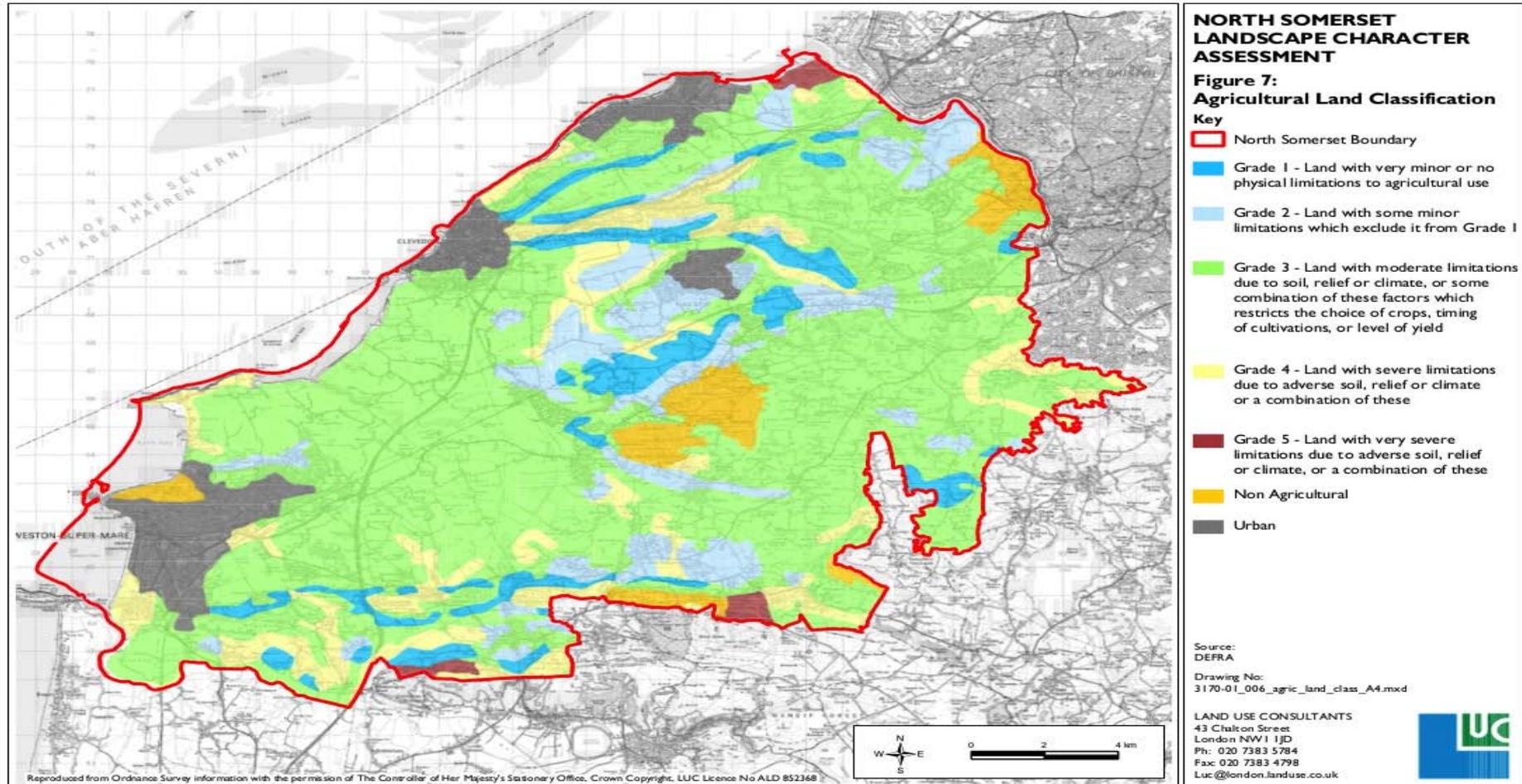


Figure 2. Agricultural Land Classification Map for North Somerset



Sources of further information:

Solar Trade Association 10 commitments: <http://www.solar-trade.org.uk//media/STA%2010%20commitments%20v%2010.pdf>

The North Somerset Core Strategy:
www.n-somerset.gov.uk/corestrategy

North Somerset Council Consultation Draft Sites and Policies Development Plan Document: www.n-somerset.gov.uk/sitesandpolicies

North Somerset Council proposals map:
<http://map.n-somerset.gov.uk/LocalPlan.html>

Biodiversity and Trees Supplementary Planning Document (listed under supplementary planning guidance): www.n-somerset.gov.uk/spds

North Somerset Landscape Character Assessment Supplementary Planning Document: (listed under supplementary planning guidance):
www.n-somerset.gov.uk/spds

North Somerset Council Statement of community involvement:
[http://www.n-somerset.gov.uk/Environment/Planning_policy_and_research/localplanning/Documents/Statement%20of%20community%20involvement/statement%20of%20community%20involvement%20\(pdf\).pdf](http://www.n-somerset.gov.uk/Environment/Planning_policy_and_research/localplanning/Documents/Statement%20of%20community%20involvement/statement%20of%20community%20involvement%20(pdf).pdf)

Natural England: TIN 101 'solar parks: maximising environmental benefits':
http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CDkQFjAA&url=http%3A%2F%2Fpublications.naturalengland.org.uk%2Ffile%2F102004&ei=ZAYSUafcHZCGhQfnvYH4AQ&usq=AFQjCNHkOWiLuwaTfTqBUeOI4_7qkGQqJg&sig2=x0E4laSV7kNHKOnLTF7uCQ

Natural England TIN049 'Agricultural Land Classification 'protecting the best and most versatile agricultural land':
<http://publications.naturalengland.org.uk/publication/35012?category=9001>

North Somerset Council development management information:
http://www.n-somerset.gov.uk/Environment/Planning_and_development_management/Pages/Planning-and-development-management.aspx

Feed in Tariff (Gov.uk website): <https://www.gov.uk/feed-in-tariffs/overview>

Interim Civil Aviation Authority Guidance - Solar Photovoltaic Systems:
http://www.caa.co.uk/docs/697/srg_asd_solarphotovoltaicsystguidance.pdf

Renewables Obligation Certificates (Gov.uk website):
<https://www.gov.uk/government/policies/increasing-the-use-of-low-carbon-technologies/supporting-pages/the-renewables-obligation-ro>

Guidelines for Landscape and Visual Impact Assessment (3rd edition 2013) are available from the Landscape Institute and Institute of Environmental Assessment:

<http://www.landscapeinstitute.org/PDF/Contribute/GLVIAedition3pressrelease.pdf>

Guidelines for Landscape and Visual Impact Assessment (2nd Edition)

<http://www.persona.uk.com/a5dunstable/deposit-docs/DD051-DD075/DD-061.pdf>

Environment Agency guide to the WEEE directive:

<http://www.environment-agency.gov.uk/business/topics/waste/139283.aspx>

Electricity Market Reform:

<https://www.gov.uk/government/policies/maintaining-uk-energy-security--2/supporting-pages/electricity-market-reform>

National Planning Policy Framework:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

Planning practice guidance for renewable and low carbon energy:

<https://www.gov.uk/government/publications/planning-practice-guidance-for-renewable-energy>

