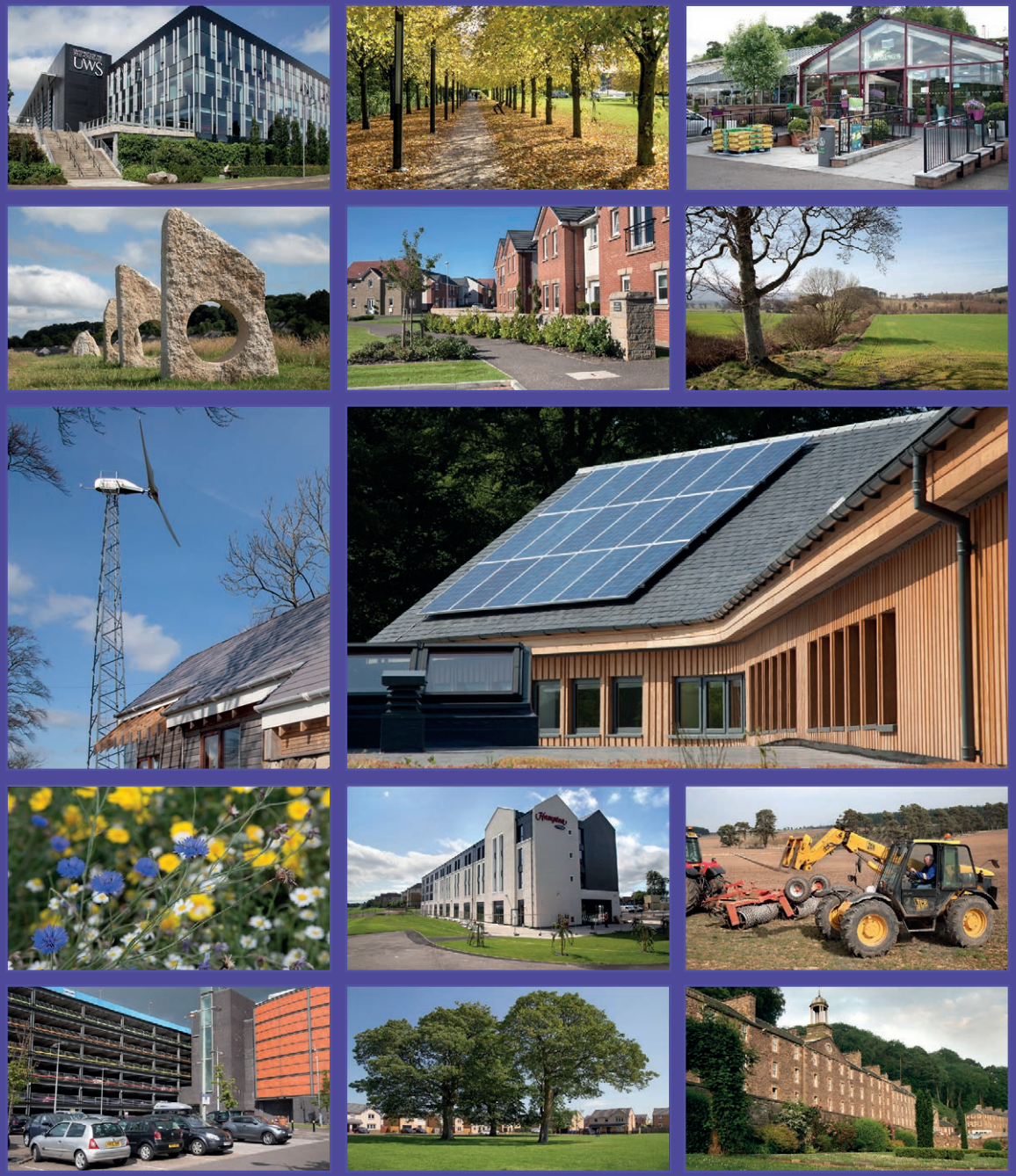

South Lanarkshire

Planning and Economic Development

Local Development Plan 2

Supporting planning guidance

Renewable energy

January 2021

Community and Enterprise Resources

Contents

1.0 Introduction

1.1 This supporting planning guidance (SPG) supplements the renewable energy policies in South Lanarkshire Local Development Plan 2 (LDP2), by providing more detailed advice and technical requirements for wind energy and other renewable energy developments. Policy 18 in Volume 1 of LDP2 sets out the general policy relating to renewable energy, including the Spatial Framework for Wind Energy, as required by Scottish Planning Policy (SPP). Policy RE1 in Volume 2 relates to the assessment of proposals for renewable energy developments.

1.2 In particular, the assessment checklist for renewable energy development in Appendix 1 of LDP2 Volume 2, which forms part of the development plan, contains criteria which cross refer to the more detailed guidance contained in the relevant sections of this SPG. Together the LDP policies, the assessment checklist, this SPG and the associated technical guidance listed below form the basis for the consideration of proposals for renewable energy developments.

1.3 Energy generating developments with a capacity of up to 50 megawatts (MW) are determined under planning legislation. Larger developments over 50 MW are determined under Section 36 of the Electricity Act 1989, and the Council as planning authority is a statutory consultee. This SPG informs the Council's consideration of both categories of development. Further information on the operation of the Section 36 process can be found at Infrastructure Energy Consents.

1.4 SPP states that where a proposal is acceptable in land use terms, and consent is being granted, local authorities may wish to engage in negotiations to secure community benefit in line with the Scottish Government's Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments (November 2013) and any subsequent Scottish Government update. South Lanarkshire Council has developed an approach for assessing the level of community benefits for renewable energy developments in South Lanarkshire and the collection, administration and management of these funds. Information on this is contained in Appendix 3. The Council will encourage operators of wind turbines/wind farms and other renewable energy infrastructure developments within South Lanarkshire to contribute to the Council's Renewable Energy Fund (REF), employability and other identified local initiatives, or another similar approved mechanism for the management and distribution of community benefit funding.

Technical reports

1.5 The following technical studies informed the development of the LDP2 renewable energy policies and supporting planning guidance and should be referred to when considering renewable energy proposals.

Chapter 1 Introduction

South Lanarkshire local Landscape Character Assessment (LCA)

1.6 This was approved by South Lanarkshire Council and updates the 1999 Glasgow and the Clyde Valley Regional LCA to provide greater detail on the local landscape character. The LCA was used to inform the preparation of the document entitled 'Validating Local Landscape Designations'.

Validating local landscape designations

1.7 This document identifies six Special Landscape Areas (SLAs) in South Lanarkshire. It was approved by South Lanarkshire Council in December 2010 and these designations remain relevant.

Landscape Capacity Study for Wind Energy 2016

1.8 This report provides guidance on the capacity of local landscapes to accommodate wind turbines. Its addendum Tall Wind Turbines: Landscape Capacity, Siting and Design Guidance which was finalised in 2019 provides additional requirements for siting and design for taller turbines of 150-200m in height. Together with 'Validating Local landscape Designations' and 'South Lanarkshire Local Landscape Character Assessment', these documents provide the basis for making a technical assessment of the sensitivity and capacity of the various landscape character types in South Lanarkshire to accommodate windfarm and turbine development.

How to use this document

1.9 The guidance is structured as follows:

- **Chapter 2** Context - provides information on current wind energy developments and proposals in South Lanarkshire, and sets out the overall approach to assessing wind energy developments.
- **Chapter 3** Spatial Framework for Wind Energy - provides more detail on the spatial framework for wind energy referred to in LDP Policy 18 and discusses the areas of significant protection in South Lanarkshire. This applies to turbines of 15m and higher.
- **Chapter 4** Renewable Energy Developments – provides information on renewable energy technologies, other than wind energy.
- **Chapter 5** Development Management Considerations - sets out the considerations to be used in the assessment of all scales and types of renewable energy proposals. It includes the matters listed in paragraph 169 of SPP and other relevant considerations. The Renewable Energy Assessment Checklist in Volume 2 of LDP2 contains cross references to the more detailed guidance in this chapter.
- **Mapping** - Two Renewable Energy maps form part of LDP2 and should be used along with this guidance. Map 1 shows the Spatial Framework Group 2 areas of significant protection and Map 2 shows the development management considerations for renewable energy developments.
- **Key statements** throughout the SPG are highlighted in text boxes.

1.10 This guidance will be kept under review to ensure that it remains relevant and up to date. The development of renewable energy generation facilities and the framework that supports it continually evolves and reacts to changing circumstances in technology and national energy policy. The Council will therefore keep under review:

- national legislative and policy developments,
- changes to renewable energy technologies,
- the scale and nature of wind energy developments in South Lanarkshire and adjoining areas.

1.11 The SPG makes various references to policy and guidance from the Scottish Government and other statutory agencies. As this may change during the lifetime of the SPG, developers are advised that they must comply with the version that is current at the time of their application.

Wind energy context

2.0 Wind energy

Wind farms of four or more turbines

2.1 South Lanarkshire has proved to be an attractive location for wind energy developments with 17 operational wind farms plus a further 13 consented schemes, which in total could deliver an output of over 1,600 MW (as at September 2019). In addition, there are a number of undetermined applications within the area, some of which are amendments to consented schemes to increase turbine height. Table 2.1 gives details of these schemes. Updated information can be obtained from Planning and Building Standards (see contact details in Appendix 5). The operating and consented schemes alone could potentially meet the electricity needs of around 400,000 homes, approximately three times the number of households in South Lanarkshire. There are also a number of other proposals at the pre-application or scoping stage, indicating the continued interest in South Lanarkshire as a location for onshore wind developments.

2.2 The existing and emerging pattern of medium to large scale wind farm development reflects the attraction of upland locations. The wind farm clusters in South Lanarkshire largely correspond with the potential areas of search identified in earlier development plans and with the areas of greatest underlying landscape capacity identified in the landscape capacity study. However, the study recognised that gaps and spacing between large clusters is required to prevent coalescence of wind farm developments impacting adversely on the landscape.

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Wind energy context

Table 2.1 South Lanarkshire wind energy developments (September 2019)

Existing and consented wind energy developments (4 or more turbines) in South Lanarkshire September 2019				
Name	**Location**	**Status**	**Number of turbines in South Lanarkshire**	**Output in MW (South Lanarkshire)**
Hagshaw Hill	West of Douglas	Operating	26	16
Hagshaw Extension	West of Douglas	Operating	20	26
Black Law	West of Forth	Operating	48	111
Whitelee	West of Strathaven	Operating	42	97
Muirhall/Muirhall extension	Auchengray/Tarbrax	Operating	11	34.4
Clyde	South East of Abington	Operating	152	350
Dungavel	South West of Strathaven	Operating	13	30
Bankend Rig	South West of Strathaven	Operating	11	14
Nutberry	West of Coalburn	Operating	6	18
Calder Water	West of Strathaven	Operating	13	39
West Browncastle	West of Strathaven	Operating	12	36
Andershaw	South of Douglas	Operating	11	35
Galawhistle	West of Douglas	Operating	20	55
Penbreck	South West of Douglas	Consented	6	18
Kype Muir	South of Strathaven	Operating	26	88
Clyde Extension	North East of Clyde wind farm	Operating	51	162
Crookedstane	Near Elvanfoot	Consented	4	11.5
Auchrobert	West of Lesmahagow	Operating	12	48
Middle Muir	South of Douglas	Operating	15	68
Dalquandy	Near Coalburn, North East of Douglas	Consented	15	45

Wind energy context

Kennoxhead	South of Glespin	Section 36 application consented	19	60
Lion Hill	Near Elvanfoot	Consented	4	9.2
Kype Muir Extension	South of Strathaven	Section 36 Application consented	18	72
Douglas West	North West of Douglas	Consented	13	49
Priestgill	North east of Abington	Granted on appeal	7	22.4
Heathland	Near Forth	Consented by Scottish Government	17	68
Dalquandy (amendment)	Near Coalburn	Consented subject to legal agreement	15	49.9
Bankend Rig ext	S/W of Strathaven	Consented subject to legal agreement	3	10.2
Broken Cross	Near Rigside, North of Douglas	Consented subject to legal agreement	7	21
Cumberhead	North West of Douglas	Consented subject to legal agreement	11	33
Total Output			**628**	**1696.6**
Undetermined applications for wind energy developments (4 or more turbines) in South Lanarkshire September 2019				
Glentaggart	South West of Douglas	Planning Application	5	17
Harryburn	Near Elvanfoot/Leadhills	Section 36 Application	17	69.7
Hagshaw Hill (repowering)	Near Douglas	Section 36 Application	14	84
Cumberhead	North West of Douglas	Planning application (amendment)	14	49.9
Douglas West Extension	West of Douglas	Section 36 Application	13	78
Kype Muir Extension	South of Strathaven	Section 36 Application (variation)	15	75
Total Output			**78**	**373.6**

Single and small scale turbine developments

2.3 Following the introduction of the Feed in Tariffs (FiT) scheme in April 2010, South Lanarkshire became increasingly attractive as a location for single and small scale wind turbine developments. This includes proposals related to domestic, farm and industrial premises using turbines ranging in size from 15m to over 100m in height to tip. Table 2.2 indicates the number of turbines 15m and higher currently consented and proposed in South Lanarkshire at September 2019. It is important to note that when referring to small scale wind energy development, it is in relation to turbine numbers (3 or less) rather than their height which can be a range from small to large turbines (for example 15m turbines to turbines over 120m). Changes to the feed in tariff since 2015/16 have

Chapter 2
Wind energy context

resulted in a considerable reduction in applications for single and small scale turbine developments, and a number of previous consents have not been implemented and have now lapsed.

Table 2.2

Single and small scale/FiT/ wind energy developments (turbines 15m and higher) September 2019	
Status	**No of Turbines**
Operating/consented	293
Undetermined	0

2.4 The single and small scale wind turbine applications tend to be concentrated in three main areas:

- The M74 Corridor Larkhall to Douglas.
- The Avon Valley area south west of Strathaven.
- North east of Lanark/Forth.

2.5 The height of these operating or consented turbines is shown in Table 2.3.

Table 2.3

Single and small scale operating or consented turbines September 2019	
Height to blade tip	**No of Turbines**
15m - < 30m	108
30m - <50m	83
50m-<80m	69
6980m - >120m	32
120m or more	1

Context for wind energy developments

2.6 Since 2010 the Council has prepared various policy and guidance documents relating to wind energy developments. These have evolved over time to take account of changes to government policy and trends in the wind energy sector. They have been subject to public consultation and Council approval through the development plan process. Supplementary Planning Guidance on Wind Energy was first produced in 2010, followed by statutory Supplementary Guidance on Renewable Energy in 2015 as part of LDP1. LDP2 takes a different approach with the policies for renewable energy being contained in both volumes of LDP2 and more detailed advice in supporting planning guidance.

2.7 The Council's policy must accord with Clydeplan, the Strategic Development Plan (SDP) for the Glasgow and the Clyde Valley Area. Diagram 6 in the SDP (2017) shows the onshore wind spatial framework

Wind energy context

for the area and is supported by Background Report 10 Low and Zero Carbon Generating Technologies which considers strategic capacity in accordance with SPP.

2.8 The LDP planning policy and supporting planning guidance documents have been informed by detailed technical studies, which have also been subject to public consultation and formal approval. The Landscape Character Assessment and the Landscape Designations review were approved in 2010 and remain valid. The Landscape Capacity Study for Wind Energy has been updated several times to take account of the evolving scale and pattern of development. A further updated Landscape Capacity for Wind Energy Study was prepared in 2016, and Tall Wind Turbines: Landscape Capacity Siting and Design Guidance was finalised in 2019. This baseline information informs the development of LDP2 policy.

2.9 The approach directs large scale wind energy developments to upland locations where the turbines can operate efficiently, which are away from settlements and residential properties, and where the landscape can accommodate the scale of development and any significant issues have the potential to be mitigated. In addition, the approach taken is based on clusters and gaps and includes setting out guidance on the capacity of different components of the South Lanarkshire landscape to accommodate wind turbine developments. The Tall Turbines Guidance 2019 confirms that there is very limited capacity for turbines over 150m in South Lanarkshire, with these being confined to the uplands on the periphery of the area.

2.10 There are a high number of turbine developments within South Lanarkshire and it is recognised through this guidance and the associated landscape capacity study that there are areas where likely cumulative impacts may limit the capacity for further wind turbine development. Due to the number of large scale wind farm developments in South Lanarkshire which are operational, under construction and consented, the interest from developers is turning to extensions of the existing/consented developments, repowering of existing wind farms and also to small turbine developments adjacent to these existing/consented schemes. Furthermore, the high number of single and small scale turbine developments contributes to the cumulative landscape and visual picture in South Lanarkshire. Cumulative impacts of all aspects of a proposed wind energy development require to be fully assessed and further guidance on cumulative impacts can be found in paragraph 5.45 - 5.58.

2.11 The drive for renewable energy from the Scottish Government continues. This is demonstrated through SPP 2014 and the Energy Strategy (2017) and Onshore Wind Policy Statement (OWPS) (2017). Whilst the OWPS emphasises that onshore wind plays a vital role in meeting Scotland's energy needs and its contribution must continue to grow, it is clear that this should not be at the expense of environmental protection. It refers to the important role of renewable energy and energy infrastructure, in the right places and with appropriate protection for the environment.

2.12 Scottish Government support is also given to shared ownership projects and community energy. The current Scottish target is 1GW generated by community and locally-owned renewable energy projects by 2020 and 2GW by 2030. In September 2015, the Scottish Government published its Community Energy Policy Statement. This sets out the Government's commitment to helping local communities to benefit from renewable energy, and provides details of the existing support schemes available. Shared ownership projects, where the community is involved as a partner of the development rather than a passive recipient of community benefit funds, can result in mutual benefits for both communities and developers. The Scottish Government's 'Good Practice Principles for Shared Ownership of Onshore Renewable Energy Developments' was published in March 2015, with an updated version published in May 2019. This advice encourages developers as good practice to make an offer of shared ownership on all renewable energy projects. The OWPS includes an ambition that by 2020 at least half of newly consented renewable energy projects will have an element of shared ownership.

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Wind energy context

2.13 The financing mechanisms for onshore wind have changed considerably due to the ending of subsidies in 2015/16. This means that any new projects have to be economically viable without assistance. This has resulted in a significant reduction of single and small scale developments. Larger new developments are continuing to come forward but are focused on taller turbines (130 - 150+m) to improve efficiency and output.

2.14 In terms of wind energy developments, South Lanarkshire accommodates a substantial number of wind energy developments and is making a significant contribution to meeting Scottish Government targets. This has resulted in the area's remaining capacity for wind energy developments reducing significantly. The Council recognises that opportunities for other renewable energy technologies may come to the forefront in the coming years.

2.15 Repowering of existing wind farms is likely to become more significant as developments near the end of their consented operational lives and technology continues to evolve. In some cases operators may seek simply to extend the operational life of the existing turbines on the site for a longer period. However, generally applicants will seek to install larger turbines when repowering an existing site. Repowering can offer opportunities to improve the pattern and design of a wind farm, however in some instances repositioning and installing larger turbines may have additional environmental impacts. To date there has been minimal developer interest in repowering single and small scale turbines with taller models, however this may come forward in future. All extensions to consents and/or repowering proposals will be subject to a new planning or Section 36 application and should accord with LDP2 policies, and the guidance and requirements in this document. It is noted that the Scottish Government's Onshore Wind Policy Statement 2017 confirms that applications for repowering shall be considered on a case by case basis in accordance with established process and principles.

Spatial framework for wind energy

3.0 Spatial framework for wind energy

3.1 SPP requires that planning authorities should set out in the development plan a spatial framework identifying those areas that are likely to be most appropriate for onshore wind farms as a guide for developers and communities. This is set out in policy 18 in LDP2 Volume 1. LDP2 does not use the term 'wind farms' unless directly referring to SPP, instead the term 'wind energy developments' is used.

3.2 This section provides more detailed information on the spatial framework for onshore wind energy developments and the requirements for developers.

3.3 SPP states that development plans should indicate the minimum scale of onshore wind development that their spatial framework will apply to. For South Lanarkshire, it is considered that it should be for all turbine developments 15m or greater in height.

3.4 The scale of development is a major factor in assessing its impact and although all turbines developments 15m or greater in height are to accord with the spatial framework, the varying scales of turbines and size of developments is taken into consideration.

Table 3.1 Spatial framework (from SPP)

Group 1: Areas where wind farms will not be acceptable:
National Parks and National Scenic Areas.

Group 2: Areas of significant protection:
Recognising the need for significant protection, in these areas wind farms may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.

National and international designations:

- World Heritage Sites.
- Natura 2000 and Ramsar sites.
- Sites of Special Scientific Interest.
- National Nature Reserves.
- Sites identified in the Inventory of Gardens and Designed Landscapes.
- Sites identified in the Inventory of Historic Battlefields.

Other nationally important mapped environmental interests:

- Areas of wild land as shown on the 2014 NatureScot map of wild land areas.
- Carbon rich soils, deep peat and priority peatland habitat.

Community separation for consideration of visual impact:

- An area not exceeding 2km around cities, towns and villages identified on the local development plan with an identified settlement envelope or edge. The extent of the area will be determined by the planning authority based on landform and other features which restrict views out from the settlement.

Group 3: Areas with potential for wind farm development:
Beyond groups 1 and 2, wind farms are likely to be acceptable, subject to detailed consideration against identified policy criteria.

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Spatial framework for wind energy

3.5 Table 4.1 replicates Table 1 in SPP and sets out three groupings in relation to wind energy development. These are as follows:

- Group 1: Areas where wind farms will not be acceptable.
- Group 2: Areas of significant protection.
- Group 3: Areas with potential for wind farm development.

Group 1: Areas where wind farms will not be acceptable:

3.6 This group comprises National Parks and National Scenic Areas (NSA). The closest National Park to South Lanarkshire is Loch Lomond and the Trossachs, located approximately 48km to the north west. The western edge of Upper Tweeddale NSA in the Scottish Borders is within 5km of the eastern boundary of South Lanarkshire. There are no locations within South Lanarkshire covered by these designations.

Group 2: Areas of significant protection

3.7 SPP recognises the need for significant protection of particular areas which include:

- National and international designations.
- Other nationally important mapped environmental interests.
- Community separation for consideration of visual impact.

3.8 In these areas wind energy may be appropriate in some circumstances. Proposals will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation. There are a number of designations and areas of protection that fall into Group 2. These are considered in more detail below and shown on Renewable Energy Map 1.

National and international designations:

- World Heritage Sites.
- Natura 2000 and Ramsar sites.
- Sites of Special Scientific Interest.
- National Nature Reserves.
- Sites identified in the Inventory of Gardens and Designed Landscapes.
- Sites identified in the Inventory of Historic Battlefields.

3.9 Further information and detailed policy guidance for these designations is contained in LDP2 Volume 2. Full consideration of the effects the development may have on these designations is required. Developers are required to assess possible effects and demonstrate that any significant effects on the qualities of these national and international designations can be substantially overcome by siting, design or other mitigation. Where there is a likely significant effect on a Natura site, an appropriate assessment must demonstrate that there is no adverse effect on site integrity for consent to be granted.

3.10 Criterion 1 in the Renewable Energy Assessment Checklist relates to international and national environmental designations identified in Spatial Framework as Areas of Significant Protection.

Other nationally important mapped environmental interests:

- Areas of wild land as shown on the 2014 NatureScot map of wild land areas.
- Carbon rich soils, deep peat and priority peatland habitat.

3.11 There are no areas of designated wild land within South Lanarkshire. The nearest area of wild land is located approximately 5km to the south east within Scottish Borders.

3.12 NatureScot has prepared a consolidated spatial dataset of carbon-rich soil, deep peat and priority peatland habitats in Scotland derived from existing soil and vegetation data. The map is a predictive tool which provides an indication, at a coarse scale, of the likely presence of carbon

Spatial framework for wind energy

rich soils, deep peat and priority peatland habitat on each individually mapped area. Priority peatland habitat is land covered by peat-forming vegetation or vegetation associated with peat formation.

3.13 In summary, areas with a higher rank require the most careful consideration because their combined soil and habitat characteristics indicate a strong likelihood of deep peat and priority peatland habitats. Carbon and Peatland classes 1 and 2 correspond to the nationally important 'carbon-rich soils, deep peat and priority peatland habitat' identified in Table 1 of SPP. The finalised mapping was published in 2016 and can be viewed on NatureScot website.

3.14 There is a limited amount of Class 1 and 2 carbon rich soils, deep peat and priority peatland habitat (CPP) in South Lanarkshire mainly in the west and south west of the area. Wind energy developments in class 1 and 2 CPP areas may still be possible, however, effects on carbon rich soils/peatland must be assessed and clearly demonstrated that all significant effects on the qualities of these areas can be substantially overcome through siting, design or other mitigation. The location of a proposal in the mapped area does not, in itself, mean that the proposal is unacceptable, or that carbon rich soils, deep peat and priority peatland habitat will be adversely affected. The quality of peatland tends to be highly variable across an application site and a detailed assessment is required to identify the actual effects of the proposal.

3.15 Further consideration of developments affecting peatland and soils is covered in Chapter 5 of this SPG (paragraphs 5.77 - 5.82). Criterion 2 in the Assessment Checklist relates to priority peatland habitats and criterion 11 relates to impact on carbon rich soils and peatlands.

Community separation for consideration of visual impact

3.16 This is defined by SPP as 'an area not exceeding 2km around cities, towns and villages identified on the local development plan with an identified settlement envelope or edge. The extent of the area will be determined by the planning authority based on landform and other features which restrict views out from the settlement'.

3.17 South Lanarkshire covers an area of 1,772 km^2, from Rutherglen and Cambuslang, on the boundary with Glasgow, to the Southern Uplands at Leadhills, east to Forth and Dolphinton and west to Thorntonhall and Drumclog. It is an extensive and diverse local authority with a mix of urban and rural areas. The LDP2 contains 93 settlements ranging in size from major towns such as East Kilbride and Hamilton to rural hamlets in the Clydesdale area (see Appendix 4). LDP2 includes an additional four settlements at Blaircross, Devonburn, Kaimend and Limekilnburn. All of these settlements sit within a wide range of landscape character types and landforms which have differing sensitivity to and capacity for new development.

3.18 As already noted, the Spatial Framework for South Lanarkshire applies to all turbine developments of 15 metres and greater. This covers single turbines of 15m in height up to large wind farms with multiple turbines of heights which can exceed 150m.

3.19 There are many variations of proposed wind energy developments that could be submitted within the 2km area around each of the settlements in South Lanarkshire. In addition in much of South Lanarkshire the close proximity of settlements gives rise to considerable overlap between the 2km areas between settlements. It is, therefore, considered impractical to undertake a visual impact analysis to cover the multiple scenarios that could arise and apply a 'one size fits all' approach to turbine developments around each of these settlements.

Chapter 3
Spatial framework for wind energy

3.20 The 2km buffer zone around settlements has therefore been identified as an indicative area in which potential developers will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation. The separation is not a ban on wind energy development in the identified area. The character of some settlements can in part be defined through their relationship with their surroundings. In some settlements this relationship is more important than in others. The separation distance allows for the important vistas out from a settlement that could be harmed by an insensitively sited or designed wind energy development to be identified. It is likely that larger wind farms and taller turbines will have greater impact than fewer and smaller turbine proposals. However, it is noted that there may be instances when a single turbine can have an unacceptable visual impact. The Council will, therefore, assess proposals on a case by case basis and will be guided by the following principles for consideration:

- local topography,
- landscape character of settlement as defined by its surroundings – (refer to section 6 of the SLC Landscape Capacity Assessment 2016 and its addendum Tall Wind Turbines : Landscape Capacity, Siting and Design Guidance 2019),
- layout and built form of settlements,
- key views.

3.21 The areas most likely to be seen from settlements are located in the north western part of South Lanarkshire including the Glasgow conurbation, East Kilbride and Hamilton and around the Middle and Lower Clyde Valley. Criterion 3 in the Assessment Checklist relates to community separation for consideration of visual impact.

Group 3: Areas with potential for wind farm development

3.22 SPP states that beyond Groups 1 and 2, wind farms are likely to be acceptable, subject to detailed consideration against identified policy criteria. Section 169 of the SPP sets out a series of considerations which should be taken into account in the assessment of renewable energy proposals. These criteria are covered in detail in Chapter 5.

Spatial Framework map

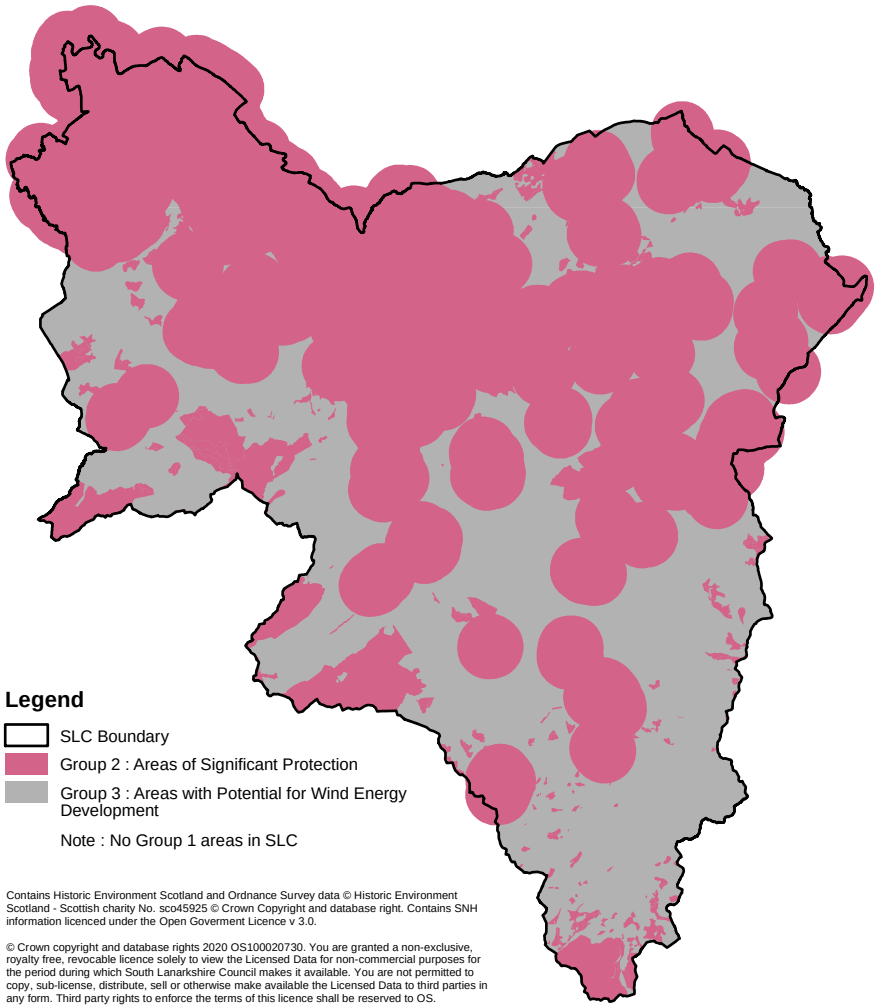
3.23 Figure 3.1 shows the Spatial Framework for South Lanarkshire. This shows spatial framework Group 2 areas of significant protection in blue. As noted above, these comprise:

- National and international designations.
- Other nationally important mapped environmental interests.
- Community separation for consideration of visual impact.

3.24 More details on each of the individual designations within Group 2, areas of significant protection category are shown on Renewable Energy Map 1. The remainder of South Lanarkshire falls within the group 3: areas with potential for wind farm development category and is shown in green on figure 3.1, and in more detail on Renewable Energy Map 2.

Spatial framework for wind energy

Figure 3.1 Spatial framework for wind energy



4.0 Renewable energy developments

4.1 To date, onshore wind has been the focus for renewable energy development in South Lanarkshire, with a small number of proposals for other types of renewable development. This section describes the main types of renewable energy development other than onshore wind, which may be developed in South Lanarkshire and outlines the planning considerations which will apply to these types of developments.

4.2 SPP sets out a number of considerations which should be taken into account when assessing renewable energy proposals. The relevant assessment criteria are set out in Appendix 1 of LDP 2 Volume 2 Assessment Checklist for Renewable Energy Developments. Not all considerations and criteria will be relevant to different technologies, therefore the Assessment Checklist highlights the criteria that are likely to be relevant for each technology. Technologies may have specific criteria that are unique to that technology and require to be addressed in the assessment of a proposal. Further guidance on these matters is set out below.

Solar

4.3 There is an operational solar farm in South Lanarkshire located at the Loch Coulter Water Treatment Works. It is owned by Scottish Water and contributes to them reducing their carbon emissions and reducing energy imported from the grid.

4.4 There was some initial interest in solar energy developments in South Lanarkshire with a number of Environmental Impact Assessment (EIA) screening requests and pre-application discussions regarding proposed solar farms taking place and one proposal progressing to planning application stage. However cuts to the subsidy levels in 2016 caused developer interest in this sector to stall. Recent advances in the technology relating to energy storage systems may in future improve the financial viability of solar schemes. This is likely to involve hybrid sites where solar PV arrays are linked to on site battery storage systems.

4.5 The guidance within this SPG is for free-standing solar photovoltaic (PV) systems falling outside permitted development rights. It is noted that Scottish Government undertook consultation in summer 2015 on proposals for expanding the range of situations in which non-domestic solar panels can be installed without first requiring planning permission to be applied for. Developers are advised to check with the Planning Authority to ascertain the current position regarding the permitted development right for non-domestic solar panels.

4.6 Solar PV arrays are normally installed in rows, with spaces between rows of at least twice the height of the panels to avoid them 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 dependent upon the orientation of the array. Solar PV tracking systems are available. These allow arrays to be

Renewable energy developments

mounted on a framework, which moves to maintain optimum alignment towards the sun. These systems are more expensive to install, but allow increased power to be generated over a reduced area of land.

4.7 Where possible solar PV arrays should be located on previously developed and/or contaminated and industrial land in urban and rural areas and preference is given to solar PV arrays mounted on top of existing roofs, or integrated into new roofs and buildings. Where development is proposed in the countryside and rural areas it should avoid using prime agricultural land and allow where possible for continued agricultural use and/or encourage biodiversity and landscape enhancement around the arrays. The landscape and visual impact of proposals will require careful consideration particularly in undulating landscapes. Glint and glare from the arrays could have impacts on residential properties, road traffic and aviation. The infrastructure associated with solar farms such as high security fencing could also raise amenity, landscape and visual impact issues. This also applies to any proposed structures associated with electricity storage.

4.8 The development management considerations set out in Chapter 5 of this guidance of particular relevance to solar arrays are:

- Impacts on communities and individual dwellings, including visual impact, residential amenity, glint and glare (paragraphs 5.59 - 5.66 and criterion 10 in Assessment Checklist).
- Landscape and visual impacts; (paragraphs 5.26 - 5.44 and criterion 8 in Assessment Checklist).
- Effects on the natural heritage, including birds; (paragraphs 5.7 - 5.25 and criterion 7 in Assessment Checklist).
- Impacts on the historic environment, including scheduled monuments, listed buildings and their settings; (paragraphs 5.87 - 5.91 and criterion 13 in Assessment Checklist).
- Effects on hydrology, the water environment and flood risk. (paragraphs 5.116 - 5.125 and criterion 18 in Assessment Checklist).
- Impacts on aviation and defence interests (paragraphs 5.105 - 5.106 and criterion 15 in Assessment Checklist).
- Impacts on road traffic (paragraphs 5.111 - 5.115 and criterion 17 in Assessment Checklist).

4.9 Other development management requirements specific to solar farms will include:

- Panel details: The scale and specification of the PV panels will be required. 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, including its range of height variation. The potential impact of glint and glare on residential amenity and transport safety should be considered and in some cases a glint and glare assessment may be required as part of a planning application. This assessment needs to consider the likely reflective capacity of all the materials used in the construction of the solar farm, with particular reference to the face of the PV panel, and the likely lines of reflection relative to the sun's trajectory.

- Ground works and anchoring: Site levelling and ground works 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. Frames should be pile driven or screw anchored and not concrete-based, and capable of easy removal, allowing the ground to be fully restored. Solar PV facilities that are developed on agricultural ground should 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. In windy areas the stability of the installation will need to be considered. A structural survey may be required.

- Security and fencing: Fencing may be a requirement of solar array proposals, primarily to enable the developer to secure the site. Fencing must not obstruct public rights of way, nor protected species' migration routes. Applicants are advised, wherever possible, to minimise the use and height of security fencing and 'standard' security fencing solutions should be avoided. Fencing that has minimal visual impact in terms of colouration and 'see-through' capacity should be utilised. Existing features such as copses, hedges and other natural landscape features, should be retained to screen security fencing, and be supplemented by additional native planting where gaps occur. Details of security lighting should be provided and consideration given to glare and light pollution. Planning applications should contain full details and specifications of all security and lighting installations, in order to allow an accurate landscape/visual assessment of the proposal to be made.

4.10 Other sources of guidance for developers include: Scottish Government online guidance for large photovoltaic arrays. NatureScot considerations for solar photovoltaic installations Version 3 (2017), Building Research Establishment (BRE) Planning Guidance for the development of large scale ground mounted PV systems.

Hydro

4.11 There is a small hydro electric scheme on the Clyde at Lanark dating from the 1920's. This consists of two power stations, Stonebyres 3km west of Lanark and Bonnington, 1km south of New Lanark, which together generate 16 MW of power. A smaller scheme at Blantyre created in 1995 has an output of 0.57 MW. There is also a small hydro scheme on the River Mouse near Cleghorn Bridge, with an output of 280kW. There have been a small number of recent applications for micro hydro schemes. These include two schemes by Scottish Water at Camps Reservoir and Udston Service Reservoir, as well as private schemes at Coulter, near Biggar and Waterfoot near East Kilbride. The total output of these proposals is around 230 KW.

4.12 The majority of hydro schemes in South Lanarkshire are likely to be 'run-of-the river' where water is taken from a river from behind a low weir, with no facilities for water storage and returned to the same water course after passing through the turbine. These would be primarily for domestic/individual landowner use with an output of under 100kW.

4.13 Such developments will require to be located in areas where there is a suitable watercourse. This specific locational need will be taken in account in the consideration of proposals. However, it will be balanced against the need to protect the environment and communities from adverse effects.

Renewable energy developments

4.14 The main environmental effects associated with hydro developments will be on the water environment, including disruption of water flows, flood risk, and disturbance of aquatic species, in particular migratory fish. There could also be impacts on riparian habitats. The construction of hydro schemes could also result in adverse landscape and visual impacts particularly on steeply sloping sites.

4.15 The development management considerations set out in Chapter 5 of this guidance of particular relevance to hydro schemes will be:

- Landscape and visual impacts; (paragraphs 5.26 - 5.44 and criterion 8 in Assessment Checklist).
- Effects on the natural heritage, including birds; (paragraphs 5.7 - 5.25 and criterion 7 in Assessment Checklist).
- Effects on hydrology, the water environment and flood risk. (paragraphs 5.116 - 5.125 and criterion 18 in Assessment Checklist).

4.16 Other sources of guidance for developers include: NatureScot– Hydroelectric schemes and the natural heritage SEPA – Guidance Note 18 Planning guidance on hydropower developments and Scottish Government online guidance for hydro developments.

Biomass

4.17 Biomass is the general term for natural or organic fuel source. Biomass is produced from organic materials derived from recently living plant organisms or from metabolic by-products such as organic or food waste products. Biomass installations can range in size from very small boilers of a few kilowatts for heating domestic properties to large scale commercial operations.

4.18 Biomass developments in South Lanarkshire to date have mainly involved small scale installation of boilers to provide a heating source for domestic residences and public and commercial buildings. The Council's policy approach to biomass developments is set out in Policy RE2 in LDP2 Volume 2.

Anaerobic digestion

4.19 Anaerobic digestion (AD) is a natural process in which micro-organisms break down the organic matter found in wet biomass waste (such as sewage sludge, animal manure and slurry and waste food) in the absence of oxygen, to produce biogas (mainly a mixture of around 60% methane and 40% carbon dioxide) and digestate (a nitrogen rich fertiliser).

4.20 The biogas can be burned directly in a gas boiler to produce heat or it can be burned in a combined heat and power (CHP) unit to produce heat and electricity. Alternatively, the biogas can be cleaned to remove the carbon dioxide and other substances, to produce biomethane. This can be injected into the national gas grid to be used in the same way as natural gas, or used as a vehicle fuel.

4.21 Anaerobic digestion is referred to in Scottish Government guidance as a method of waste treatment. The plant associated with such developments is industrial in nature and the planning considerations will be similar to those for other energy from waste facilities. Proposals for anaerobic digestion developments will therefore be assessed against policy 17 Waste in LDP2 Volume 1 and Policy SDCC5 Waste Management Facilities and Buffer Zones in Volume 2.

Energy from waste

4.22 Energy from waste developments primarily involve the use of thermal processes to convert municipal and commercial waste streams to energy and heat. These types of development come under the Council's planning policies for waste management.

4.23 Proposals for energy from waste developments will be assessed against policy 17 Waste in LDP2 Volume 1 and Policy SDCC5 Waste Management Facilities and Buffer Zones in Volume 2. The Scottish Government published updated online guidance for planning and waste management July 2015

Geothermal

4.24 Geothermal energy is the energy stored in the form of heat beneath the earth's surface. It is a carbon free, renewable, sustainable form of energy that provides a continuous, uninterrupted supply of heat that can be used to heat homes and commercial buildings, and to generate electricity. The main types of geothermal energy development are Deep Geothermal and Heat Pumps and each are discussed in turn below:

Deep geothermal

4.25 Deep geothermal is defined by the Scottish Government as any geothermal source below 100m in depth. This is distinct from ground source heat which provides low temperature heat found at relatively shallow depths within the Earth's crust, derived from solar warming.

4.26 Deep geothermal operations involve tapping into a heat source stored naturally beneath the Earth's surface. This can involve recovering hot water from former mine workings or from water enclosed within permeable rocks, known as hot sedimentary aquifers. There are also enhanced or engineered geothermal systems which involve injecting water into particular types of rock known as 'hot rocks' where it is heated to produce renewable heat or to drive turbines.

4.27 Deep geothermal is more likely to be relevant to large scale development proposals. There is also likely to be interest in feasibility testing to determine suitable locations before any detailed development projects come forward. The greatest potential for deep geothermal in South Lanarkshire is likely to be related to the recovery of heat from former mining areas. The British Geological Survey (BGS) and Natural Environment Research Council (NERC) are investigating the potential for geothermal energy within the Clyde Gateway Area. The initial stage of the project involves venting a series of test boreholes.

4.28 Should any commercial proposals come forward in the future, the following development management considerations set out in Section 5 are of particular relevance:

- impacts on communities and individual dwellings, including visual impact, residential amenity, noise (paragraphs 5.59 - 5.76 and criterion 10 in Assessment Checklist),
- landscape and visual impacts; (paragraph 5.26 - 5.44 and criterion 8 in Assessment Checklist),
- effects on the natural heritage, including birds; (paragraph 5.7 - 5.25 and criterion 7 in Assessment Checklist),
- impacts on the historic environment, including scheduled monuments, listed buildings and their settings; (paragraphs 5.87 - 5.91 and criterion 13 in Assessment Checklist),
- effects on hydrology, the water environment and flood risk. (paragraphs 5.116 - 5.125 and criterion 18 in Assessment Checklist),
- due to the scale and nature of deep geothermal developments they are likely to require EIA (criterion 29 in Assessment Checklist).

Heat pumps

4.29 There are three main types of heat pump technologies:

- Ground source
- Air source
- Water source.

4.30 These technologies utilise heat that is stored in the ground, air or water and transfer this heat for use in buildings.

Renewable energy developments

4.31 Ground source heat pumps normally require the excavation of a trench in which a length of pipe is laid, or the drilling of a relatively shallow borehole. Air source heat pumps do not require excavations and lengths of piping, but do require installation of a heat exchange unit.

4.32 Some domestic scale heat pump systems may be classed as permitted development (PD), but this will depend on the technology and design involved and the characteristics of the building which is the subject of the application. Applicants are advised to contact the Council to determine if a planning application is required. Developments with an output of greater than 45 kilowatts thermal are not classed as PD and a planning application will be required.

4.33 For those developments which do not fall within permitted development the following development management considerations are of particular relevance:

- impacts on communities and individual dwellings, including visual impact, residential amenity, noise (paragraphs 5.59 - 5.76 and criterion 10 in Assessment Checklist),
- landscape and visual impacts; (paragraph 5.26 - 5.44 and criterion 8 in Assessment Checklist),
- effects on the natural heritage, including birds; (paragraph 5.7 - 5.25 and criterion 7 in Assessment Checklist),
- impacts on the historic environment, including scheduled monuments, listed buildings and their settings; (paragraphs 5.87 - 5.91 and criterion 13 in Assessment Checklist),
- effects on hydrology, the water environment and flood risk. (paragraphs 5.116 - 5.125 and criterion 18 in Assessment Checklist),

Micro-renewables

4.34 Micro-renewables are generally defined as installations of less than 50kW (electrical) or less than 45kW (thermal). In some cases micro renewable developments fall into the category of permitted development. However, it is recommended that this should be confirmed with the Council. For applications which affect historic buildings, monuments and sites, reference should be made to Micro-renewables in the Historic Environment.

4.35 Most micro-renewable schemes are unlikely to have significant impacts on nature and landscapes, especially where they are located in urban areas. In some places, however, the installation of micro-renewable devices could have an impact on protected areas and some species which are protected by law. Applicants are advised to refer to current NatureScot guidance on micro-renewables. NatureScot publication Micro renewables and the natural heritage

4.36 For any micro-renewable technologies not addressed elsewhere, developments will primarily be assessed against Policy 5 - Development Management and any other relevant policies in LDP2.

Energy storage systems

4.37 Energy storage is an emerging area of renewable energy technology. The UK Government has identified energy storage as a key technology and seeks to encourage developments in this sector. The Scottish Energy Strategy (2017) also recognises the important role of energy storage. The technology is continuing to advance, but at present the emphasis is on battery storage systems. These can be ancillary to renewable energy generating developments such as wind or solar farms or 'stand alone' facilities, for example, as back-up for the National Grid during periods of stress or fluctuation on the grid. As such they can be located in the countryside alongside wind or solar farms, or in urban areas close to grid supply points. Proposals for energy storage systems will be assessed on their merits against the relevant LDP policies, and any relevant criteria in the renewable energy assessment checklist.

5.0 Development management considerations

5.1 SPP states that development plans should set out the factors to be taken into account in considering proposals for energy developments. The factors will depend on the scale of the proposal and its relationship to the surrounding area. It is likely to include the considerations set out at paragraph 169 of SPP. These factors are listed in Table 5.1 and shown on Renewable Energy Map 2, and require to be taken into account in the assessment of renewable energy developments. Each factor is discussed in more detail in this section and cross referenced to the appropriate criterion in the Renewable Energy Assessment Checklist in LDP2 Volume 2 Appendix 1 where relevant. It should be noted that some of these factors may only be relevant to specific types of renewable energy development. In addition this chapter also refers to other considerations for renewable energy developments that are not specifically listed in SPP paragraph 169. The Council shall seek to ensure that a balanced approach is undertaken when considering these factors in the assessment of applications.

Table 5.1 SPP Considerations

Development management considerations	Assessment Checklist Criteria
Net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.	4
The scale of contribution to renewable energy generation targets.	5
Effect on greenhouse gas emissions.	6
Cumulative impacts - planning authorities should be clear about likely cumulative impacts arising from all of the considerations below, recognising that in some areas the cumulative impact of existing and consented energy development may limit the capacity for further development.	9
Impacts on communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker.	3 and 10
Landscape and visual impacts, including effects on wild land.	8
Effects on the natural heritage, including birds.	1 and 7
Impacts on carbon rich soils, using the carbon calculator.	2 and 11
Public access, including impact on long distance walking and cycling routes and scenic routes identified in the NPF.	12
Impacts on the historic environment, including scheduled monuments, listed buildings and their settings.	1 and 13
Impacts on tourism and recreation.	14
Impacts on aviation and defence interests and seismological recording.	15

Development management considerations

Impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised.	16
Impacts on road traffic.	17
Impacts on adjacent trunk roads.	17
Effects on hydrology, the water environment and flood risk.	18
The need for conditions relating to the decommissioning of developments, including ancillary infrastructure, and site restoration.	19
Opportunities for energy storage.	20
The need for a robust planning obligation to ensure that operators achieve site restoration.	21

Net economic impact

5.2 The Council requires all renewable energy applications, other than for micro-renewables, to provide a statement, proportionate to the scale of the development, of the socio-economic benefits for the surrounding communities and the wider South Lanarkshire area that will arise from the project, including the overall number of jobs and economic activity associated with the procurement, construction, operation of the development and decommissioning. Potential effects require to be assessed and if required, mitigation measures recommended. Investment in the Scottish economy, local investment, employment generated and community benefits should be presented in a socio-economic impact assessment. This should also include an assessment of cumulative effects both negative and positive. The effects may include:

- effects on businesses (local and national)
- direct and indirect employment
- other direct and indirect investment in the local economy.

5.3 Proposals will be assessed on their individual merits, taking into consideration the relevant environmental, economic and social effects of each project. The Scottish Government had developed guidance on assessing net economic benefit as part of the planning process Draft Advice on Net Economic Benefit and Planning (2016). This shall be taken into account by the Council when considering development proposals.

Contribution to renewable energy generation targets

5.4 SPP requires the planning system to support the country's transformation to a low carbon economy and contribute to the Government's targets for meeting electricity and heat demand from renewable sources. The Scottish Government Energy Strategy (2017) sets a target of the equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources by 2030. A development's contribution towards the targets is a material consideration and should be explored in the context of the range of relevant development management considerations to reach a balanced view on the acceptability of a proposal.

5.5 Renewable energy development applications should contain a statement:

- setting out the potential output from the renewable energy development (megawatts/kilowatts)
- the potential contribution of the proposal to renewable energy targets
- the number of households on an annual basis which could be powered by the electricity generated by the proposed scheme.

Effect on greenhouse gas emissions

5.6 Renewable energy developments can contribute towards the reduction of greenhouse gas emissions entering into the Earth's atmosphere. The Scottish Government's Climate Change Plan Third Report on proposals and policies 2018 - 2032 was published in 2018. This sets a target of 66% reduction in emissions over the period of the plan. The key role of

renewable energy technologies in meeting this target is recognised. Applications should contain a statement setting out how the proposal contributes to reducing greenhouse gas emissions.

Effects on the natural heritage, including birds

International and national designations

5.7 International and national designations fall into Group 2: areas of significant protection in the Spatial Framework for wind energy (see Chapter 4). All types of renewable energy development must accord with the specific policies for international and national natural and historic environment designations set out in LDP2 Volume 2.

5.8 Impacts on internationally and nationally designated sites can, in some cases, originate from proposals located outside of them in Group 3 areas. For example, part of the wintering pink-footed goose population that is a qualifying interest of the Westwater Special Protection Area (SPA) feed in areas of South Lanarkshire. While the SPA itself is located approximately 15 km from the South Lanarkshire boundary, impacts on these feeding areas, or on the geese as they fly between them and the SPA, could undermine the SPA's Conservation Objectives and result in an adverse effect on the integrity of the site. The effects of proposals which are within Group 3 areas but which have connectivity to the interests protected within internationally or nationally designated sites must be fully identified and assessed on a case by case basis.

5.9 Guidance on how to assess connectivity with Natura sites is available in NatureScot Assessing Connectivity with Special Protection Areas (SPAs) (June 2016) and Assessing the impact of small-scale wind energy proposals on the natural heritage (March 2016). Specific advice in respect of geese is available in NatureScot Geese and wind farms in Scotland: New information (May 2013) and Assessing the impacts to pink-footed and greylag geese from small-scale wind farms in Scotland (February 2014).

5.10 Development likely to have a significant effect on a Natura site will be subject to an appropriate assessment. The appropriate assessment must demonstrate that there is no adverse effect on site integrity for consent to be granted. Proposals should comply with Policy NHE7 Natura 2000 sites in LDP2 Volume 2.

South Lanarkshire Biodiversity Strategy

5.11 The Biodiversity Strategy for South Lanarkshire was approved in 2018. Developers of renewable energy proposals are encouraged to take account of the Biodiversity Strategy when designing and developing projects. Relevant policies are contained in LDP2 Volume 2. Further guidance on biodiversity and development is contained in Supporting Planning Guidance on the Natural and Historic Environment.

Habitat management plans

5.12 For larger wind farm proposals, and any other wind energy schemes where sensitive species/habitats are affected, applicants will be required to submit a Habitat Management Plan (HMP) setting out the means of land management that will secure biodiversity enhancement. HMPs should provide a focus for landscape scale restoration of large networks of bogs, scrub and/or woodland, heath and other key habitats, benefiting biodiversity and maximising the carbon storage potential of degraded habitats. NatureScot publication Planning for Development: What to consider and include in Habitat Management Plans (March 2016) provides guidance on this matter.

5.13 There is spatial correlation in South Lanarkshire between peatlands, forestry and upland areas with good wind resource. The Scottish Government aims to deliver action to reduce climate change through the use of renewable energy, forestry planting and management and peatland restoration, all of which have a role in the wider climate change agenda. However, there are challenges when the three areas come together on wind farm proposals. Applicants are required to address

these conflicts in their proposal and identify appropriate mitigation measures (on or off site) which can be implemented and delivered over the lifetime of the wind farm development.

5.14 Larger wind farm applications, including extensions and repowering schemes, will be required to include a Habitat Management Plan (HMP) setting out details of measures proposed to:

- mitigate or compensate for the impacts caused by the development
- enhance the natural heritage interest of the area.

5.15 For small-scale wind energy developments and other renewable energy proposals, the need for an HMP will be determined on a case by case basis. Early engagement with the Council's Countryside and Greenspace Service should be sought to ensure HMP proposals are acceptable (see Appendix 5 for contact details). The views of SEPA should also be sought. It should be noted that NatureScot shall only become involved in the development of an HMP where it is required to mitigate significant adverse impacts on designated sites or protected species.

Local nature conservation designations

5.16 Local nature conservation designations which should be considered in the assessment of renewable energy development proposals include local nature reserves, ancient semi natural woodlands and other long established woodlands of high conservation value. Policy guidance on these designations is contained in LDP2 Volume 2. There are other local nature conservation resources, such as Local Nature Conservation Sites (LNCS) but at present these are not comprehensively mapped across South Lanarkshire. Due to the small scale and dispersed nature of local nature conservation resources it is anticipated that any impact on these shall be addressed at the project stage. Where schemes are small-scale and formal EIA is not required, applicants are encouraged to provide information to support their applications in line with that recommended in NatureScot guidance 'Assessing the impact of small-scale wind energy proposals on the natural heritage' (2016). Much of the advice in this document is also relevant to other types of renewable energy development. Local Nature Conservation designations are shown on Renewable Energy Map 2. Further advice and data on resources such as peatland and woodland is available from the Council's Countryside and Greenspace Service.

Bird sensitivity

5.17 The RSPB produce bird sensitivity mapping. This, however, provides only a broad indication of sensitivity and there may be local variations within each category of sensitivity, which will only become apparent after detailed surveys have been undertaken. For proposals not affecting internationally or nationally designated sites, NatureScot Assessing Significance of Impacts from Onshore Windfarms on Birds Outwith Designated Areas (July 2006) provides guidance on the species that are priorities for assessment.

5.18 Individual applications will continue to be assessed on their merits in relation to bird issues and applicants should be guided by NatureScot in respect of the requirements for ornithological surveys. The planning development advice available on NatureScot website contains a number of relevant guidance documents on wind farm impact on birds. In addition, specific guidance for repowering proposals is contained in draft NatureScot guidance, Assessing the Impact of Repowered Wind Farms on Nature (June 2018).

Protected species including bats

5.19 All types of renewable energy development must accord with the specific policy guidance for protected species, set out in LDP2 Volume 2 and supporting planning guidance.

5.20 Evidence suggests that the siting and operation of wind turbines can have an adverse impact on bat populations. Several bat species are found in South Lanarkshire, including Leisler's bats and noctule bats. These two species are identified as being at high risk of impacts from wind farms at both an individual and population level.

5.21 For wind energy developments, the assessment of impacts on bats and identification of appropriate mitigation should be undertaken in accordance with the guidance given in 'Bats and onshore wind turbines – survey, assessment and mitigation' (2019). For non-wind energy renewables development, bat surveys should reflect the guidance given in the latest edition of Bat Surveys for Professional Ecologists: Good Practice Guidelines (BCT 2016) and mitigation should be developed in accordance with the guidance given in English nature's 'Bat Mitigation Guidelines' (2004). In all cases, work should be carried out by persons with the appropriate knowledge of bat ecology and practical experience of bat survey work.

Cumulative impact on natural heritage

5.22 Applicants must demonstrate that consideration has been given to the cumulative impact of their proposal. Where there may be significant cumulative impacts on ecological and/or ornithological interests, a cumulative impact assessment will be required. This should include consideration of all operating and consented schemes and those that are the subject of valid but undetermined applications. For proposals affecting Natura sites, the cumulative assessment must include all plans and projects likely to have a significant effect on the site, not just renewable energy developments. Where connectivity between proposed development sites and any Natura site is identified, applicants should agree the scope of any cumulative impact assessment with the Planning Authority and NatureScot at the pre-application stage. General guidance on undertaking a cumulative assessment is available in NatureScot publication "Assessing the cumulative impact of onshore wind energy developments" (March 2012).

5.23 In particular, cumulative impacts on the qualifying interests of the Muirkirk and North Lowther Uplands SPA may limit the capacity for further wind energy development in areas with connectivity to the SPA qualifying interests.

Terrestrial habitat surveys

5.24 For larger wind farms, NatureScot advise that the whole area likely to be affected by the development and an appropriate buffer (for example, to allow for redesign and micro-siting) should be surveyed to Phase 1 standard. Where habitats consistent with those on Annex 1 of the EC Habitats Directive together with UK Biodiversity Action Plan (UKBAP) Priority Habitats are present, they should be mapped to National Vegetation Classification (NVC) standard and accompanied by supporting quadrat information. For small scale development, including non wind energy renewable development, an initial assessment of the habitats present should be provided to the planning authority at the pre-application stage, to determine whether a more detailed survey would be needed to support the application.

Deer management

5.25 The potential impacts on deer welfare, habitats, neighbouring and wider interests, such as access, recreation and road safety, require to be assessed if wild deer are present on or are likely to use the development site. Where there are significant impacts, a draft deer management statement will be required to address these. Applicants should refer to NatureScot guidance on deer management guidance for advice on the level of detail that is required to be provided.

Landscape and visual impacts

Landscape capacity

5.26 South Lanarkshire Council considers that landscape character and capacity are key considerations in considering the impact of wind farm and wind turbine proposals. The landscape technical studies (see introduction) provide a comprehensive baseline for the assessment of renewable proposals in South Lanarkshire and underpin the Landscape Capacity for Wind Energy study 2016 (LCS) and its addendum Tall Wind Turbines : Landscape Capacity, Siting and Design Guidance (2019). The Tall Wind Turbines document provides additional guidance for siting and

design of taller turbines of 150m - greater than 200m in height. The guidance for specific landscape character types contained in the LCS 2016 and its addendum shall be taken into account in the assessment of wind energy proposals of 15m in height and greater.

Section 6 and Table 6.1 of the Landscape Capacity Study for Wind Turbines 2016 as amended by the Tall Turbines Guidance (2019) assesses each landscape character type in relation to its sensitivity to change and capacity for development and provides guidance on the scale and type of wind energy development, if any, that may be appropriate. The guidance in Table 6.1 of the LCS should be followed in the development and consideration of proposals for all scales of wind energy developments. Where proposals are located in areas of significant cumulative development, the guidance in table 6.2 of the LCS is also relevant.

5.27 Certain landscape types have been assessed as being of lesser sensitivity to the change which would result from wind energy development. It is recognised, however, that existing development within the most suitable landscape types for accommodating wind farm developments (plateau moorland and rolling moorland) will limit their capacity for future development. It is noted that the landscape character types which contain areas considered potentially suitable to accommodate tall turbines of 150 - 200m are parts of the plateau and rolling moorlands and part of the Southern Uplands (refer to Figure 6 of draft Tall Turbines Guidance).

5.28 Currently, the majority of operational wind turbines in and adjacent to South Lanarkshire are located in the moorland areas, including the two very large scale clusters of developments around Whitelee and Black Law and the cluster of developments around Hagshaw Hill/Galawhistle. With the approval of several other wind farms, further concentrations are appearing between Whitelee and Hagshaw Hill and south of Hagshaw Hill. Taking into account operational and consented turbines, much of the moorlands are therefore characterised by wind turbines. The strategic objective for the moorlands is to ensure that further extension of the Wind Turbine Landscape type is limited and that further developments in the Rolling Moorlands landscape character area are sufficiently separated for the type not to exceed a Landscape with Wind Turbines.

The design and location of wind energy developments relative to existing and consented wind farms requires careful consideration so as not to lead to an extension of cumulative effects, blurring landscape character boundaries and leading to areas of Wind Turbine Landscape extending beyond the landscape character type.

Landscape designations

5.29 SPP (paragraph 197) supports the designation of local landscape areas in development plans to:

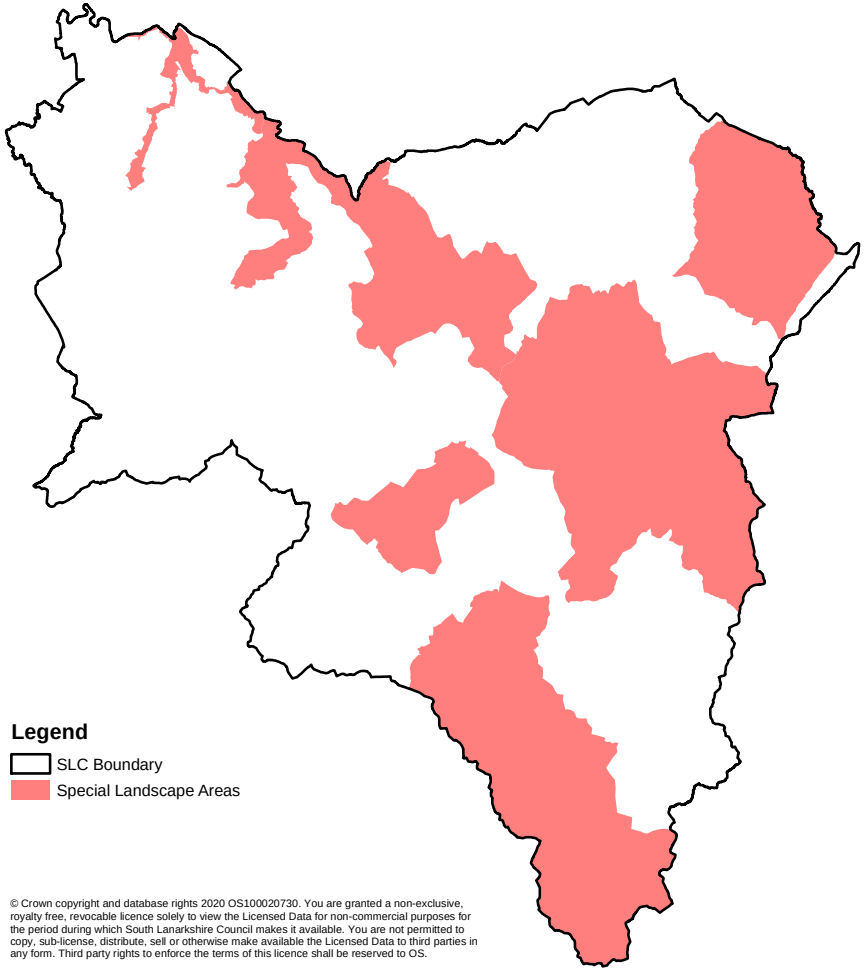
- safeguard and enhance the character and quality of landscapes which are important or particularly valued locally or regionally, or
- promote understanding and awareness of the distinctive character and special qualities of local landscapes, or
- safeguard and promote important local settings for outdoor recreation and tourism locally.

5.30 The Validating Local Landscape Designations Report 2010 identifies those areas of South Lanarkshire covered by local landscape designations. These are shown on Figure 5.1 and in more detail on Renewable Energy Map 2. It is important to note that wind farm and wind turbine development may be compatible with local landscape designations. Some of the SLAs contain landscape character types with capacity to accommodate wind farms. However, it should be recognised at the design stage that the area is more sensitive to wind energy developments and the qualities for which the SLA is designated require to be taken into account.

5.31 Any applications for wind energy development within the SLAs would be judged on their merits, in accordance with LDP2 and any relevant SPGs, with particular consideration given to landscape, visual and cumulative impacts. In addition, the impact of proposals located outwith SLAs should also be considered, where these may affect SLA qualities.

Any applications for wind energy development within or around SLAs should not have a significant adverse effect on the landscape character, scenic interest and special qualities and features for which the area has been recognised, as described in Validating Local Landscape Designations report (2010).

Figure 5.1 Special Landscape Areas



Development management considerations

5.32 Although there is no area of wild land within South Lanarkshire, the Talla-Hart Fell Wild Land Area (WLA) lies within 5km of the council boundary. Development proposals within South Lanarkshire should therefore consider whether the proposal will have significant adverse effects impacts on the quality of the WLA. If there are likely to be significant effects a wild land assessment will be required. Consultation at the earliest opportunity with NatureScot is advised.

Siting and design of wind energy developments

Turbine height

5.33 Turbine height is an important factor when considering the landscape and visual impacts of wind energy developments. This is particularly true for single and small scale turbines in lowland landscapes which are closer to settlements and residential properties. The height categories of wind turbines reflect those used in the LUC Strategic Landscape Capacity study for Glasgow and the Clyde Valley, as updated by the Council's Tall Wind Turbines : Landscape Capacity siting and design guidance 2019

Under 15m
15m - <30m
30m - <50m
50m - <80m
80m - <120m
120m - <150m
150m - 250m

In view of the comparatively limited scale, prominence and visibility of turbines less than 15m to blade tip they are not considered to have the wider cumulative impacts of larger turbines with a blade tip higher than 15m.

5.34 Smaller size turbines are most able to be accommodated in smaller scale landscapes with more complex patterns and smaller scale reference features. Larger turbines are generally restricted to larger scale landscapes with simpler landforms and fewer small scale references. Smaller turbine sizes may also be accommodated in such landscape types, although their proximity to any larger size turbines would need to be carefully controlled and large groups of such turbines would not be appropriate. Further guidance on the landscapes' capability to accommodate turbines based on the height categories above is provided in Landscape Capacity Study for Wind Turbines 2016 – Section 6.2 and Appendix 4, and in Tall Wind Turbines : Landscape Capacity, Siting and Design Guidance 2019.

5.35 Situations may arise when a different height or design of turbine to that proposed should be considered to achieve particular benefits to a proposed development. A reduction in turbine height should be considered where this would result in:

- mitigating significant landscape or visual impacts on a highly valued or sensitive receptor,
- avoiding an adverse scale relationship with a landform or other key landscape element or feature,
- allowing an intervening landform and/or forest to screen views of turbines from certain receptors,
- achieving a significant reduction in overall visibility by virtue of their relationship to surrounding landform and trees.

Design iteration process

5.36 All wind farm applications for four or more turbines require to document the design iteration process which sets out the design objectives. A design statement is a useful way for developers to explain why a proposal has a particular layout. Section 6.2 and Appendix 4 of the Landscape Capacity Study for Wind Turbines 2016 provides guidance with regard to design principles and turbine layout, and this is also addressed in NatureScot publications (see below and Appendix 1).

NatureScot landscape guidance

5.37 The guidance in NatureScot publications requires to be taken into account in any proposal. The documents include guidance on visual representations and assessing small scale energy proposals. A full list and links to NatureScot guidance can be found in Appendix 1. The Council will expect developers to follow this guidance and any new or updated guidance issued by NatureScot in respect to the level of landscape appraisal required for different scales of development. In addition, NatureScot has issued draft guidance addressing the impact of repowered wind farms on nature (consultative draft - June 2018) which should be taken into account when considering repowering proposals.

Forestry and woodland (landscape value)

5.38 The landscape value of trees and woodland is recognised in paragraph 216 of SPP. The Scottish Government's Control of Woodland policy includes a presumption in favour of protecting woodland, as noted in paragraph 218 of SPP. It is therefore important for renewable energy proposals to address the landscape impact on forestry and woodland. Further guidance on the Council's requirements in relation to felling for woodland and compensatory planting is contained in paragraph 5.134 - 5.139.

Borrow pits

5.39 Borrow pits which are proposed within the application site for wind farm developments are an important consideration in relation to their environmental and visual impacts in comparison to the environmental impacts of importing material on to site. Borrow pit locations should consider proximity to residential properties, the visual, noise, and dust impacts and the potential impacts on hydro-morphological and hydrological processes.

5.40 Borrow pits will only be permitted if there are significant environmental or economic benefits compared to obtaining material from local quarries; they are time-limited; tied to a particular project and appropriate reclamation measures are in place (see SPP paragraph 243).

5.41 Borrow pits associated with wind farm development, which are located outwith the application site, will require a separate application and will be assessed against LDP2 policies.

Landscape and visual impact - other renewable energy developments

5.42 Most other (non wind) renewable energy technologies could potentially have landscape and visual impacts. Depending on the scale and location of the proposal a landscape and visual impact appraisal may be required.

5.43 For solar farms the following guidance should be taken into account (see also paragraphs 4.9 - 4.10). To avoid adverse visual impact, solar panel 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. The visual impact on residential properties requires to be assessed. Proposals which can be viewed 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 and where the impact cannot be mitigated may not be supported by the Council.

Landscape and Visual Impact Assessments (LVIA)

5.44 The content of LVIA should meet the requirements set out below.

Requirements for landscape and visual impact assessments

Groups of four or more turbines and all turbines over 50m in height (including extensions and repowering):

Development management considerations

- Applications of four or more turbines must contain a full landscape and visual impact assessment. The study area for potential impacts should be defined in accordance with the guidance given in NatureScot Visual representation of wind farms (February 2017) for the proposed turbine height, unless otherwise agreed wit the planning authority. A range of techniques such as Zones of Visual Influence, wire line diagrams and photomontages should be used where appropriate. A Design Statement which sets out the design objectives and the design process must be provided.
- For wind turbine developments LVIA should take into account turbines, access tracks, apparatus associated with the development, borrow pits and any tree felling proposed.
- Guidance is available in NatureScot publications 'Siting and designing wind farms in the landscape' (Version 3a August 2017) and 'Visual representation of windfarms' (Version 2.2 February 2017) or any updated versions of this guidance. see also Assessing the Impact of Repowered Wind Farms on Nature - consultation draft June 2018.

For all wind turbines 150m or greater in height

- Under CAA regulations structures of 150m or greater require to be lit with visible aviation lighting. Specific requirements are to be agreed with CAA.
- A night-time lighting assessment requires to be undertaken to assess the impact of lighting on landscape character, visual receptors and landscape designations.
- Methodology of night-time assessments is currently developing and requires to be agreed with the Planning Authority and NatureScot.
- Further information on aviation lighting is provided in Tall Wind Turbines: Landscape Capacity, Siting and Design Guidance (2019).

Up to three turbines (up to 50m in height):

- The Council will require applicants to follow guidance 'Assessing the impact of small-scale wind energy proposals on the natural heritage' (2016) and 'Siting and Design of Small Scale Wind Turbines of between 15 and 50 metres in height' (Annex 1 to Siting and designing wind farms in the landscape 2017) or any updated versions of this guidance. This sets out appropriate levels of landscape and visual impact appraisal for small scale projects.

Solar energy developments:

- Planning applications for solar panel arrays should be accompanied by a landscape and visual impact assessment/statement proportionate to the scale of the development and where applicable, to be consistent with the current guidelines issued by the Landscape Institute and the Institute of Environmental Management and Assessment.
- The assessment should include the solar array, and all associated infrastructure, security fencing and lighting.
- The application should include an assessment of the potential for the solar PV panels, frames and supports to cause glint and glare.

Further guidance is contained in NatureScot publication Natural Heritage Considerations for Solar Photovoltaic Installations (2017)

Other renewable energy developments

- Requirement for LVIA to be agreed with planning authority.

Cumulative impacts

5.45 SPP states that planning authorities should be clear about likely cumulative impacts arising from all of the considerations in paragraph 169, recognising that in some areas the cumulative impact of existing and consented energy development may limit the capacity for further development. Key cumulative impacts of wind energy developments include:

- landscape and visual,

- the natural heritage including species and habitats, (See paragraphs 5.22 - 5.23)
- noise. (see paragraphs 5.67 - 5.75)

5.46 South Lanarkshire has become a focus for wind energy investment, (see Table 2.1), with many of the wind farm developments located within the potential areas of search identified in previous development plans. These areas also coincide with the areas of highest underlying capacity for wind farms identified in the Council's landscape capacity study. In addition, there have been an increasing number of single and small scale turbine proposals in the lowland areas of South Lanarkshire and these have tended to concentrate in specific areas. The Council's Landscape Capacity Study for Wind Energy (2016) considers cumulative impact in relation to landscape capacity for all scales of turbine development. The Capacity Study notes that 'critical to the current assessment is the fact that South Lanarkshire already has a large number of operating and consented wind energy developments including several large commercial wind farms and a considerable number of smaller, mainly non commercial developments. This has created extensive areas of cumulative wind turbine development'.

5.47 The Landscape Capacity Study 2016 considers the existing and consented pattern of turbine developments in South Lanarkshire in relation to the local landscape character and sensitivity to change. In line with the guidance contained in SPP, this has enabled the identification in this SPG of areas where the cumulative impact of existing and consented energy development may limit the capacity for further development.

5.48 NatureScot guidance Spatial Planning for Onshore Wind Turbines – natural heritage considerations June 2015 sets out the main natural heritage considerations that should be taken into account when planning for onshore wind turbines as required by SPP. Taking account of the NatureScot guidance, this SG sets out two categories of where the cumulative impact of existing and consented energy development may limit the capacity for further development and each is considered in turn:

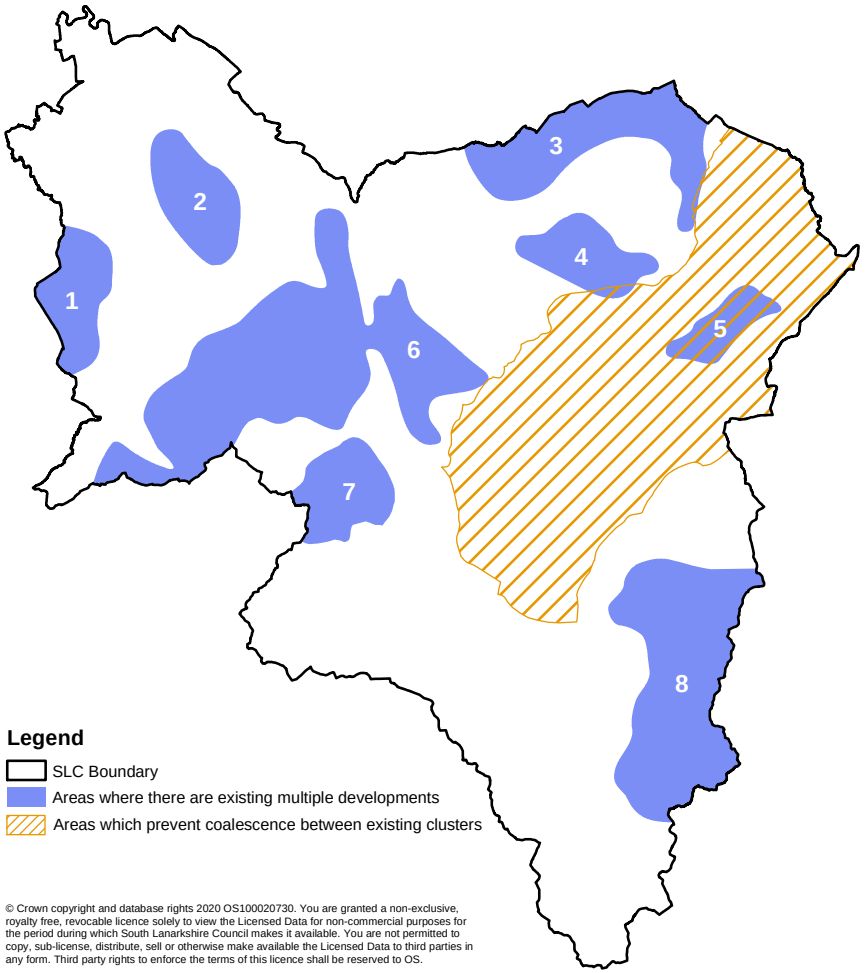
i. Areas where there are already multiple existing and consented wind farm and wind turbine developments and are reaching the underlying landscape capacity.

5.49 The Landscape Capacity Study 2016 identifies 'areas of significant cumulative development' which are areas where there is a significant level of operational or consented development relative to the underlying landscape capacity to accommodate turbine development. The cumulative areas overlap with landscapes with varied underlying capacity for development. The eight areas of significant cumulative development are listed below and shown in Figure 5.2:

1. Plateau Moorland and Plateau Farmland of Whitelee Moor.
2. Urban Fringe Farmland and Plateau Farmland between East Kilbride, Hamilton and Strathaven.
3. Plateau Moorland and Plateau Farmland between Carluke and the Pentland Hills on the northeast border with North Lanarkshire and West Lothian.
4. Plateau Farmland and Rolling Farmland (together with small fragments of Plateau Moorland) surrounding Carstairs and Carnwath.
5. Plateau Farmland north of Biggar, between Black Mount and Biggar Common.
6. Area south of the Avon Valley and either side of the M74 between Larkhall and Rigside.
7. Rolling Moorland and Plateau Farmland between Douglas Water and the Nethan Valley.
8. Southern Uplands and Upland Glens east of the Clyde and Daer and adjacent to Scottish Borders.

Development management considerations

Figure 5.2 Significant cumulative development



5.50 The areas of significant cumulative development vary in landscape character and underlying capacity for development and have different factors influencing their extent. There may be limited opportunities for wind energy developments in these areas, but only if it can be demonstrated that they will not significantly affect the landscape objectives set out in Table 5.2. This table describes the areas and the key criteria for identifying locations for further potential developments and assessing cumulative effects. The areas of significant cumulative development are shown on figure 5.2. It should be noted that the boundaries are indicative. Further details are contained in section 6 of the Landscape Capacity Study (2016). Tables 6.1 and 6.2 of the LCS are complementary. Table 6.2 follows the guidance in table 6.1 in order to determine what level of development should be accommodated in particular landscape areas, before capacity issues arise.

5.51 These areas differ in extent from the cumulative impact areas identified in previous Council guidance on renewable energy. The change takes account of SPP 2014 and also reflects the evolving pattern of wind turbine development in South Lanarkshire.

ii. Areas which prevent coalescence between existing clusters of wind farms and wind turbine developments.

5.52 The second aspect of cumulative impact of wind energy developments relates to the wider pattern of existing wind farm developments. Where there are distinct clusters of wind farm developments it can be desirable to leave gaps between these to prevent a wind farm landscape developing. NatureScot guidance Spatial Planning for Onshore Wind Turbines - natural heritage considerations (June 2015) states that in identifying cumulative issues, planning authorities may find it useful to identify areas where clearly identified, existing cumulative effects limit the capacity for further development (for example, the area between two existing, well defined clusters of wind farms). This would have to be backed up by robust reasons to do so, such as a settlement, or key transport corridor, or where the clusters are in separate landscape character types where the objective may be to maintain the distinction

between those character types. Another factor referred to by NatureScot in identifying cumulative issues is the presence of regional landscape features (such as a firth or distinct hill range), which are important to the distinctive landscape character of the area.

5.53 The Southern Uplands foothills and Pentland Hills (between the M74, A70 and A702) lie between areas of cumulative development 3, 4, 6, 7 and 8 (see Table 6.2), and three of the areas of highest underlying capacity. It also includes the key landmarks of Tinto Hill and Black Mount, the loop of the upper Clyde and the southwestern terminus of the Pentland Hills, which extend in an unbroken chain 30km northeast to the city of Edinburgh. The area currently has no wind farms, although there are over 30 consented turbines, predominantly under 30m tall with 15 concentrated in cumulative area 5 (see Table 5.2).

5.54 The area has a diverse landscape with a mix of landscape character types (LCT) that extend outwith South Lanarkshire. This includes: Foothills, Rolling Farmland, Plateau Farmland, Broad Valley Upland, Prominent Isolated Foothills, Old Red Sandstone Hills, Southern Uplands and Upland Glens. Many of these are of high landscape value and sensitivity and include extensive areas of local landscape designations (Pentland Hills and Black Mount SLA and Upper Clyde Valley and Tinto SLA) with very limited capacity for development.

5.55 The Landscape Capacity Study 2016, section 4, includes analysis of visibility from selected viewpoints and routes within and adjacent to South Lanarkshire. This concluded that the most visible parts of South Lanarkshire in relation to tourism and recreation routes and viewpoints lie in the north east of the area, around Tinto Hill, Biggar and Lanark. In addition, the Clyde Valley national tourist route runs through this area. This emphasises the importance of maintaining the existing landscape and visual resource of the Southern Uplands Foothills and Pentland Hills and protecting its quality. Development should be restricted in this area to maintain separation between surrounding areas with high cumulative change, and help conserve distinctiveness in the South Lanarkshire landscape.

5.56 It is proposed that there should be no significant wind farm development in Southern Uplands Foothills and Pentland Hills area. The reasons for this are:

1. Limited capacity for wind turbine development in key landscape types within the Southern Uplands Foothills and Pentland Hills area.
2. The desire to maintain distinctiveness of landscape character across South Lanarkshire.
3. The importance of maintaining the distinctive regional landscape feature of the 'Pentland Hills' range.
4. The strategic objective of avoiding coalescence of wind energy developments by maintaining a large gap between the most significant areas of cumulative wind energy development.

Taking into account SPP and NatureScot guidance it is considered that the 'Southern Uplands Foothills and Pentland Hills' area is identified as an area which prevents coalescence between existing clusters of wind farms and wind turbine developments.

Development management considerations

Table 5.2 Description and Guidance for Areas of Significant Cumulative Development (see figure 5.2 and Renewable Energy Map 2 for locations)

Cumulative area	Description	Key development guidance/criteria
1	The **Plateau Moorland** and **Plateau Farmland** of Whitelee Moor on the border with East Ayrshire and East Renfrewshire, between East Kilbride and the Avon Water, on which 66 turbines of Whitelee wind farm and associated developments including Calder Water and West Browncastle are located, with many more Whitelee turbines across the boundary to the west. This creates an extensive area of Wind Turbine Landscape, surrounded by a Landscape with Wind Turbines.	1. Avoid extension of a Wind Turbine Landscape into the surrounding **Plateau Farmland** and **Upland River Valley** areas, and avoid significant increase in visual effects on Strathaven and East Kilbride by ensuring that there is sufficient setback/ screening of the main area of turbines, including use of landforms and trees, from these landscape character types and from single turbine developments located within them. 2. Avoid visual coalescence with cumulative areas 2 and 6 by limiting the extent of the main area of cumulative development and by limiting development of single turbine/ small scale developments to retain a Landscape with Occasional Wind Turbines in the intervening areas of **Plateau Farmland**, **Rolling Farmland** and **Upland River Valley.**
2	An area of **Urban Fringe Farmland** and **Plateau Farmland** between East Kilbride, Hamilton and Strathaven in which the six 115m turbines of Blantyre Muir and other single or paired turbines between 15m and 80m tall are located, creating a Landscape with Wind Turbines, separated from area 1 by a Landscape with Occasional Wind Turbines.	1. Maintain separation of turbines to ensure there is no development of areas of Wind Turbine Landscape. 2. Give careful consideration to the position, scale and cumulative effects of developments close to the surrounding settlements including East Kilbride, Hamilton, Chapelton, Glassford and Strathaven. 3. Avoid coalescence with cumulative area 1 by limiting development and maintaining a Landscape with Occasional Wind Turbines in the **Plateau Farmland** and **Urban Fringe Farmland** between the two cumulative areas.
3	The **Plateau Moorland** and **Plateau Farmland** between Carluke and the Pentland Hills on the northeast border with North Lanarkshire and West Lothian, containing most of Black Law wind farm, together with several other consented wind farms and turbines located either within South Lanarkshire or within the other local authorities but close to the boundary (Tormywheel, Pates Hill, Harburnhead, Pearie Law and Muirhall). This is separated from cumulative area 4 by an area of Landscape with Occasional Wind Turbines.	1. Maintain separation between windfarms and turbines within the **Plateau Moorland** to prevent extension of a Wind Turbine Landscape east of Climpy. 2. Maintain setback of main areas of turbines to avoid extension of a Wind Turbine Landscape into the surrounding **Plateau Farmland,** and prevent further significant effects on the settlements of Carluke and Forth. 3. Avoid coalescence with cumulative area 4 by limiting development in the **Plateau Farmland, Rolling Farmland** and **Plateau Moorland** between the two areas to a Landscape with Occasional Wind Turbines. 4. Prevent further extension of the Landscape with Wind Turbines into the Pentland Hills.

Cumulative area	Description	Key development guidance/criteria
4	The **Plateau Farmland** and **Rolling Farmland** (together with small fragments of **Plateau Moorland**) surrounding Carstairs and Carnwath, in which around 30 single or paired turbines of varied height between 15m and 80m are located, creating an area of Landscape with Wind Turbines.	1. Maintain separation of turbines to ensure there is no development of areas of Wind Turbine Landscape. 2. New turbines should relate well to form and height of existing turbines in closest proximity. 3. Avoid coalescence with cumulative area 3 by limiting development to a Landscape with Occasional Wind Turbines in the **Plateau Farmland, Rolling Farmland** and **Plateau Moorland** between the two areas of Landscape with Wind Turbines. 4. Give careful consideration to the position, scale and cumulative effects of developments close to the surrounding settlements including Carstairs, Carstairs Junction and Carnwath.
5	A small area of **Plateau Farmland** north of Biggar, between Black Mount and Biggar Common, in which some 15 turbines under 30m are located. Due to the small size of the turbines, this remains a Landscape with Occasional Wind Turbines.	1. Avoid confused/ cluttered visual images with existing turbines, by limiting turbine size to 30m. 2. Limit development level to a Landscape with Occasional Wind Turbines.
6	A very extensive area south of the Avon Valley and either side of the M74 between Larkhall and Rigside, including including two distinct areas of landscape character and development type: • **Rolling Moorland** with several operational or consented wind farms (Bankend Rig, Dungavel, Kype Muir and Auchrobert); • **Plateau Farmland** and **Rolling Farmland** with numerous single or paired turbines and small wind farms, all with turbine heights varying from between 15m and 120m height. These developments create an extensive area of Landscape with Wind Turbines crossing from upland fringe into upland. This includes an area of Wind Turbine Landscape around Kype Muir and Auchrobert.	1. Maintain separation between wind farms and turbines to avoid creating further areas of Wind Turbine Landscape. 2. Avoid visual coalescence with cumulative area 1, by limiting single turbine/ small scale developments in the intervening area of **Rolling Farmland, Plateau Farmland and Upland River Valley** (Avon Water). 3. Avoid physical or visual coalescence with cumulative area 7, by limiting developments in the intervening areas of **Upland River Valley** (River Nethan) and **Rolling Moorland.** 4. Give careful consideration to the position, scale and cumulative effects of developments close to the surrounding settlements including Larkhall, Stonehouse, Blackwood/Kirkmuirhill and Lesmahagow. 5. Give careful consideration to the setting of Lanark, New Lanark world heritage site and the Falls of Clyde by limiting the eastward extension of the Landscape with Wind Turbines to its current location on the crest of the Rolling Farmland.

Development management considerations

Cumulative area	Description	Key development guidance/criteria
7	An area of **Rolling Moorland** and **Plateau Farmland** between Douglas Water and the Nethan Valley, with over 85 turbines in four wind farms: the operational Hagshaw Hill, Galawhistle and Nutberry wind farms together with the consented Cumberhead, Douglas West and Dalquhandy wind farms. These wind farms create an area of Wind Turbine Landscape.	1. Avoid coalescence with cumulative area 6, by limiting developments in the intervening areas of **Upland River Valley** (River Nethan), **Rolling Moorland**. **Plateau Farmland** and **Plateau Moorland**. 2. Limit further significant extension of the cumulative area into adjacent **Upland River Valley** (Douglas Water) landscape, to the south and southeast 3. Give careful consideration to the position, scale and cumulative effects of developments close to the surrounding settlements, including Coalburn and Douglas.
8	The **Southern Uplands and Upland Glens** east of the Clyde and Daer and adjacent to Scottish Borders, in which the 206 turbines of Clyde wind farm and its extension are located, plus two small consented groups of turbines at Crookedstane and Lion Hill. This creates a mixture of Wind Turbine Landscape and Landscape with Wind Turbines, depending on topography and the degree of separation of turbine groups.	1. Other wind farms should be clearly separated from Clyde wind farm: 2. Limit further significant northward wind turbine development to avoid extension of Landscape with Wind Turbines into the Southern Upland Fault area or onto Culter Fell, and to avoid visual coalescence with Glenkerie wind farm to the northeast in Scottish Borders 3. Limit further significant southward development, to maintain clear visual and physical separation from Harestanes wind farm in Dumfries and Galloway. 4. Any proposed wind farm to the west of Clyde wind farm should be separated from the latter by at least 10km or two ridges and valleys. 5. Avoid further extension of Landscape with Wind Turbines/ Wind Turbine Landscape of Clyde wind farm down slopes into **Upland Glen** areas.

5.57 The SG identifies the areas listed in Table 5.2 and the Southern Uplands foothills and Pentland Hills area as those where, at the time the Landscape Capacity Study was prepared, the cumulative impact of existing and consented wind farms currently may limit further development. However it is recognised that cumulative impact issues are also likely to occur outwith these areas as new developments come forward, and that this could apply to small scale and single turbine proposals as well as larger wind farms. It is therefore possible that in future other areas not currently shown on figure 5.2 could meet the definition of 'areas of significant cumulative development'. Developers should refer to section 6 and Appendices of the Landscape Capacity Study 2016 for further guidance on cumulative impact. The Council's requirements for the content of cumulative impact assessments are summarised below.

Requirements for Cumulative Impact Assessments

Four or more turbines:

- All applications for four or more wind turbines must contain a cumulative landscape and visual impact assessment, prepared in accordance with current NatureScot guidance (see Appendix 1).
    - A 35km or greater (dependent on turbine height and effects) cumulative study area - for all developments with four or more turbines.
    - To include single, two and three turbine developments (above 15 metres in height) up to a 10km radius of the proposed development (to be agreed with the planning authority).

    Single/small scale developments (up to three turbines):

- The Council may request that developers of smaller schemes submit a cumulative impact assessment.
    - The cumulative study area is required to be agreed with the Council prior to the submission of the application.
    - To include single, two and three turbine developments (above 15 metres in height) and wind farm developments up to a 10km radius of the proposed development (to be agreed with the planning authority).

    All cumulative landscape and visual impact assessments must include all operating and consented schemes and those that are the subject of valid but undetermined applications. Assessments must consider where appropriate, sequential effects that may extend beyond the Council area.

5.58 At present, the scale and nature of other types of renewable energy development proposals in South Lanarkshire is not considered to raise issues relating to cumulative impact. However, the Council will keep this under review and, should issues emerge during the lifespan of the LDP, then cumulative impact assessments may be requested for such developments.

Impacts on communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker.

5.59 SPP states that individual properties and those settlements not identified within the development plan will be protected by the safeguards set out in the local development plan policy criteria for determining wind energy developments and the development management considerations taken into account when determining individual applications.

5.60 There is currently no standard minimum distance specified in Scottish Government guidance between residential properties and turbines. The renewable industry standard for the distance from non-financially involved residential properties to a turbine is approximately 500-600 metres. The Council will assess all proposals on their merits taking into account turbine height, rotor diameter and number of blades, local topography and landscape features.

Residential visual amenity

5.61 For all wind turbine proposals of more than 15 metres, the Council will expect an assessment to identify the likely significant effects of the proposals on residential visual amenity, or to demonstrate that an assessment is not required. The need for a Residential Visual Amenity Survey (RVAS) requires to be determined on a case by case basis. The survey of residential visual amenity may vary but can extend up to 5km from the proposed development site.

Development management considerations

5.62 The residential visual amenity survey is in addition to the consideration of particular viewpoints that have been assessed under the Landscape and Visual Impact Assessment. Consideration should also be given to the cumulative impacts of wind farm and wind turbine developments within the area, as experienced from residential properties (see section on cumulative impacts).

5.63 At present, there is no published guidance on the extent of study areas for residential amenity surveys. However, the potential effects of wind turbine developments on residential amenity and living conditions has been examined in detail at recent public inquiries. Taking account of this, it is considered that the residential visual amenity survey area is required if the impact on residential visual amenity could potentially be so great as to materially affect the living conditions of the occupiers.

Requirements for residential visual amenity survey

The residential visual amenity survey should assess the impact of the proposal from the following parameters:

- distance of the property from the development
- extent of the development in the view from the property
- angle of view in relation to orientation of the property
- proportion of the view from the property occupied by the development
- local context in which the development is seen
- extent of other built development visible from the property, in particular vertical elements
- screening effect of intervening landscape elements such as local landform and vegetation (woodland tree cover and hedges).

The residential visual amenity survey and assessment should be undertaken in accordance with the Landscape Institute's technical guidance: TGN 2/19 Residential Visual Amenity Assessment.

5.64 The approach taken by reporters in Scotland and inspectors in England confirms that no individual has a legal right to a particular view. However, there may be circumstances where the proximity, size and scale of a wind energy development would render a residential property 'so unattractive a place to live' - albeit not uninhabitable - that planning permission should be refused. This may be the case where turbines affect visual amenity in a way that is 'unpleasantly overbearing', or where they are 'inescapably dominant and overwhelming'.

5.65 The appropriate distance from residential properties should, therefore, be determined by the size and proximity of the turbines, orientation of views, local topography, the position of buildings, vegetation and trees and the spread or extent of the turbines.

The turbine(s) should not have an overbearing presence or dominate adjacent residential buildings.

5.66 NatureScot guidance Siting and Designing Wind Farms in the Landscape (2017) advises that the height of the turbine in relation to nearby buildings and structures should be considered. See also Wind Farm Impacts Study - Climate X Change 2015.

Noise

5.67 There are two main types of noise associated with wind turbines: mechanical noise produced by the gearbox and generator, and aerodynamic noise produced by the movement of the blades through the air. Noise can be influenced by a number of factors including turbine design, local topography and land cover and prevailing climatic conditions.

5.68 All applications for wind turbine developments should be accompanied by a site specific noise assessment. Noise assessments may also be required for other renewable energy developments. The applicant shall

undertake a noise assessment to determine the impact of noise from the proposed development on nearby dwellings and any noise sensitive premises, taking cognisance of the Scottish Government document Planning Advice Note 1/2011 Planning and Noise.

5.69 For single/small scale wind energy developments, the noise assessment should use the principles set out in the document 'Small turbine performance and safety standard' (February 2008) published by the British Wind Energy Association.

5.70 For wind farm developments, the guidance and the application of the appropriate limit for day time and night time limits should follow ETSU-R-97. This will be used by planning authorities to assess and rate noise from wind energy developments, until such time as an update is available. This should be used together with Institute of Acoustics (IoA) Best Practice Guide (A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise, May 2013).

5.71 For small scale wind energy developments, the applicant will ensure that noise associated with the proposed development measured as LA90, This shall not exceed the prevailing background noise level +5dB at anytime.

5.72 For wind farm developments, the applicant shall ensure that noise associated with the proposed development shall not exceed a level of between 35dB to 40dB, measured LA90, T, or the prevailing background noise level +5dB, during the day time period, whichever is greater, and shall not exceed 43dB measured as LA90, T, or the prevailing background noise level +5dB during the night time period, whichever is greater, for nearby noise sensitive dwellings. For involved dwellings the limits shall not exceed 45dB LA90 T or the prevailing background noise level +5dB, whichever is greater. The factors for deciding the exact limit are set out in ETSU-R-97.

5.73 The applicant for any wind energy development will be required to consider the cumulative noise effects of any nearby wind turbine developments, either operational, approved or under construction at the time of submission of the application.

5.74 Should a consented development subsequently amend the number, height or design of the proposed turbine(s) a revised Noise Assessment is likely to be required. Developers are advised to contact the Council's Environmental Service to discuss the Councils requirements (see contact details in Appendix 5)

5.75 The Scottish Government's online guidance for Onshore Wind Farms provides links to various publications setting out technical advice for the measurement and assessment of wind farm and turbine noise.

Shadow flicker

5.76 In certain circumstances, shadow flicker from turbines can cause a nuisance for neighbouring properties. Current Scottish Government online guidance advises that where there is sufficient separation between wind turbines and nearby dwellings (as a general rule a distance of greater than 10 rotor diameters), shadow flicker should not be a problem. For properties within 10 rotor diameters of a turbine, under the right conditions and circumstances, shadow flicker could occur and as such the Council would expect an assessment to be undertake by the applicant to assess potential effects. It is noted that a review of light and shadow flicker effects from wind turbines in Scotland was commissioned by ClimateXChange and published in 2017. This made a number of recommendations regarding the content of guidance on assessing shadow flicker, including removing the reference to a 10 rotor diameter distance as this may not capture all homes where people experience effects. Should Scottish Government guidance subsequently be updated to reflect these findings the Council will expect developers to follow any new guidance issued.

Development management considerations

Impacts on peatland and carbon rich soils, using the carbon calculator

5.77 The Scottish Government's published method for assessing carbon losses and savings requires to be carried out. The latest (2018) version of the carbon calculator is a web based application and central database. This replaces all previous excel versions, which should no longer be used. Developers are expected to follow best practice for minimising carbon emissions and disturbance of peat, and the carbon calculator represents a useful to tool in assessing proposed practices. Full details of this can be found on the Scottish Government website wind farms and carbon.

5.78 The 2000 Land Cover Map of Great Britain indicates that the main concentrations of peatland in South Lanarkshire are located in the upland areas, particularly along the northern and western boundaries of the area. This data is now augmented by the NatureScot consolidated spatial dataset of carbon-rich soil, deep peat and priority peatland habitats in Scotland derived from existing soil and vegetation data (see section 3 of this guidance).

5.79 Often these areas coincide with other designated sites (SPA, SAC, SSSI). The areas of peat which are not covered by any designations are not excluded from wind farm development but require to be subject to good on-site peat management practices to ensure minimum carbon loss (refer to: Good Practice During Windfarm Construction (NatureScot, SEPA, FCS, HES and Scottish Renewables) Version 4, 2019) and relevant current guidance on peat management. SEPA's 2017 document Planning Guidance on on-shore windfarm developments is also a useful source of advice. Applications which affect peatland or carbon rich soils may require a Peat Management Plan to be prepared.

5.80 If turbines and associated infrastructure (turbine foundations, array road network, drainage) are to be located in areas of peat a detailed peat survey, undertaken in accordance with the online guidance for developers on peat survey requirements prepared by Scottish Government, SNH and SEPA (2017), is required in order to inform the assessment of the proposal. Where proposals affect peat and carbon rich soils, developments must be designed to minimise soil disturbance when building and maintaining tracks, turbine bases and other infrastructure to ensure that the carbon balance savings of the scheme are maximised. Where relevant, developers will be expected to provide geotechnical and hydrological information in support of applications, identifying the presence of peat at each site, including the risk of landslide connected to any development work.

5.81 Current SEPA guidance emphasises that developing on peat sites can raise significant issues in relation to re-use of excavated peat and disposal of peat waste. There are important waste management implications regarding measures to deal with surplus peat, as set out within SEPA's Regulatory Position Statement - Developments on Peat. Landscaping with surplus peat (or soil) may not be of ecological benefit, and consequently a waste management exemption may not apply. In addition, the disposal of a significant depth of peat is considered landfilled waste and this may not be consentable under SEPA's regulations. It is therefore essential that the scope for minimising the extraction of peat is explored and alternative options identified that minimise risk in terms of carbon release, human health and environmental impact.

5.82 Early discussion with NatureScot, SEPA and the Council's Countryside and Greenspace Service is recommended where wind farm developments are likely to affect peatland or mire systems. Such developments may require a habitat management plan to be submitted, dealing with mitigation measures.

Prime agricultural land

5.83 SPP emphasises the need for the protection of prime agricultural land (classes 3.1 and above). Renewable energy development may be acceptable where restoration proposals will return the land to its former status.

Public access

5.84 SPP requires consideration of public access, including impact on long distance walking and cycling routes and scenic routes identified in the NPF. The Council recognises the importance of outdoor access (walking, cycling, horse riding and non-motorised water based activities) for both the health and social wellbeing of communities and economic vitality of the area. The South Lanarkshire Core Path Plan should be referred to, however, core paths are only one component of the overall outdoor access provision of the area. Core paths will be supplemented by, and linked to, a more extensive network of access routes (non core paths). There are a number of strategic long distance walking and cycling routes in South Lanarkshire including the Clyde Walkway, Southern Upland Way and elements of the National Cycling Network. These are important visitor attractions. NPF 3 makes provision for a 20km extension of the Clyde Walkway from New Lanark to Biggar.

5.85 Any impacts from renewable energy developments on core paths, wider access network routes and recreational uses across South Lanarkshire require to be fully assessed and, if appropriate, proposed mitigation measures require to be identified. The visual impact of renewable energy developments from core paths and strategic routes is an important consideration. The SPG seeks to ensure that views from key routes will not be significantly adversely affected by development.

5.86 Wind farm array road networks (turbine service roads) are of importance for recreational access purposes, and are often strategically important in linking up elements of the longer distance routes network, as well as offering considerable potential for extending the access network provision (for walking, cycling and horse riding) for local communities. The Land Reform Act creates a statutory right of non-motorised access to most land and inland water in Scotland for the purpose of recreation and passage. There are, however, certain exceptions to this right on grounds of safety, security and privacy. This should be recognised by developers and appropriate public access provision should be incorporated in proposals, and an Access Management Plan prepared aimed at addressing the development and future management of the site for recreational access use.

Impacts on the Historic Environment, including Scheduled Monuments, Listed Buildings and their Settings

5.87 Historic environmental resources are widely distributed across South Lanarkshire, these include:

- Gardens and designed landscapes.
- New Lanark World Heritage Site and its setting and buffer zone.
- Historic battlefields.
- Listed buildings.
- Conservation areas.
- Scheduled monuments.
- Archaeology.

5.88 The first three listed above are international/national designations and are identified as areas of significant protection in the spatial framework for onshore wind. Scheduled Monuments and Category A Listed Buildings are also national designations. In general, historical environmental resources are widely dispersed throughout South Lanarkshire. In these circumstances, impacts arising from renewable energy development should be assessed at project level and mitigated where possible.

5.89 Renewable energy developments have the potential for direct and/or indirect impacts on the historic environment by virtue of the location of wind turbines and ancillary development, or changes to ground water levels or surface water patterns, which may affect archaeological deposits. Developments can be designed to avoid or minimise such impacts. Historic Environment Scotland's guidance on Managing Change in the Historic Environment : Settingexplains how the impact of change can be assessed and mitigated.

Development management considerations

5.90 The Council considers that the policies in LDP2, for the protection of the historic environment, continue to provide an adequate basis for the assessment of renewable energy proposals. Renewable energy developments of any scale must accord with Policy 14, Natural and Historic Environment, of LDP2 Volume 1 and the detailed policies/guidance on designations set out in Volume 2. International and National historic environmental designations, which are areas of significant protection are shown on Renewable Energy Map 1, and other historic designations are shown on Map 2.

5.91 Applications for renewable energy developments must:

1. identify historic assets that could be affected by the development,
2. consider the potential for direct impacts on historic environment assets from components of the application, such as turbine bases, access tracks and ancillary structures,
3. consider the potential for impacts on the setting of historic environment assets by identifying the setting of assets within the vicinity of the proposal and assessing the potential impact of the development on these settings,
4. consider the potential for cumulative impact on historic environmental assets,
5. consider opportunities for improving the accessibility of historical assets and their interpretation.

Impacts on tourism and recreation

5.92 Tourism and recreation and renewable energy developments are not necessarily incompatible. Frequently those areas which are important for tourism are often protected by other designations, as is the case in South Lanarkshire where the most popular destinations are already covered by designations (World Heritage Site, National Nature Reserves (NNR), Country Parks, historic gardens/designed landscapes and Special Landscape Areas).

5.93 The visual impact of renewable energy developments from tourist routes and viewpoints is an important consideration. The Clyde Valley National Tourist Route passes through South Lanarkshire. The guidance seeks to ensure that views from key tourist routes and visitor attractions will not be significantly adversely affected by development. Further guidance on public access routes is set out above. The Landscape Capacity Study for Wind Turbines 2016 carried out an analysis of visibility from selected viewpoints and routes within and adjacent to South Lanarkshire (refer to Section 4 of Capacity Study 2016). This concluded that the most visible parts of South Lanarkshire in relation to tourism, recreation routes and viewpoints lie in the north east of South Lanarkshire, around Tinto Hill, Biggar and Lanark. This only related to turbines up to 125m in height, for the larger turbines now coming forward in applications the visibility will be exacerbated.

5.94 Views from key tourist routes, including the Clyde Valley National Tourist Route, and visitor attractions must not be significantly adversely affected. Any impacts identified on tourism and recreational facilities and uses require to be assessed in full, and proposed mitigation measures identified where appropriate.

Impacts on aviation and defence interests and seismological recording

5.95 South Lanarkshire is affected by a number of aviation and defence interests:

- The northern part of South Lanarkshire is within the radar coverage for Glasgow Airport.
- An area on the western edge of South Lanarkshire is within the radar coverage for Prestwick Airport.
- The north east of South Lanarkshire is within the radar coverage for Edinburgh Airport.
- Almost all of South Lanarkshire is identified by NATS (En Route) plc (NERL) as an area where wind farm developments are likely to interfere with operational infrastructure.

- The south of South Lanarkshire is within the 50km buffer zone around Eskdalemuir Seismic Array.
- MOD Tactical Training Area (TTA) covers the southern and western area of South Lanarkshire (low flying operations take place across all of South Lanarkshire not just in the TTA).
- There is a small airfield at Strathaven, where local safeguarding requirements apply.

5.96 Scottish Planning Circular 2/2003 Safeguarding of Aerodromes, Technical Sites and Military Explosives Storage Areas: The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage) Direction 2003 identifies the need for safeguarding of Glasgow, Edinburgh and Prestwick airports and NATS (En Route) plc technical installations. Strathaven airfield is subject to a local safeguarding agreement which identifies a 3km radius consultation area around the airfield (the area is shown on Renewable Energy Map 2). NATS have self assessment maps available for downloading on their website.

5.97 The relationship between wind farm development and aviation and defence interests is an evolving field. Current advice from the aviation industry and Ministry of Defence (MoD) is that development proposals will continue to be assessed on a case by case basis. However, all developers of wind turbines are advised that early engagement with the relevant consultees is essential to determine the nature of any issues and identify possible mitigation at an early stage.

5.98 The Civil Aviation Authority (CAA) has prepared a policy and guidance document Civil Aviation Authority Publication CAP 764, which contains detailed information relating to requirements for developers in relation to radar, aviation lighting, safeguarding of aerodromes and other relevant matters. This guidance is updated regularly and developers should ensure that they are using the current version, obtainable on CAA website. In addition, CAA issued a policy statement in 2017 on Lighting on Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m above ground level Lighting Wind Turbines Onshore Above 150m Further guidance on aviation lighting for tall turbines is contained in the Council's Tall Wind Turbines: Landscape Capacity. Siting and Design Guidance (June 2019), and summarised in paragraph 5.44 of this SPG.

5.99 NATS (En Route) plc (NERL) offer a pre-planning service to developers. All pre-planning enquires and scoping requests should be made via the pre-planning service on NATSwebsite.

5.100 There are particular issues with regard to radar capacity in the south west of Scotland. Early in 2009 a group was set up under the leadership of the Scottish Government Energy Consents and Deployment Unit (ECDU) to investigate the potential for solutions to the radar-based objections affecting a significant number of consented or proposed developments in the south-west of Scotland. The South-west Scotland Regional Aviation Solution Group's work concluded with the publication in February 2010 of the South West Scotland Regional Aviation Solution Group Final Radar Feasibility Study. This report made recommendations as to opportunities for further use of existing "blanking and infill" infrastructure informed by the development proposals at that time. Further, the Scottish Government published its guidance on the use of aviation suspensive conditions in January 2012. Blanking and infill remains an active solution but there are also now wind farm tolerant radars being deployed with Glasgow, Edinburgh and Prestwick which are testing the technology. This may prove to be a more holistic solution in the longer term. The Scottish Government has sought to continue engagement between aviation stakeholders and the wind industry to look for future regional solution opportunities. In relation to radar capacity, the Scottish Windfarm Aviation Group is no longer active however there is an active Central Belt Radar Forum which covers the Central Belt.

5.101 Eskdalemuir Seismological Recording Station is located in southern Scotland. The Eskdalemuir Seismic Array is one of 170 seismic stations across the world used to monitor compliance with the Comprehensive Nuclear-Test-Ban Treaty. The UK is bound by the Test-Ban Treaty not

to compromise the detection capabilities of the Eskdalemuir station, and it is the responsibility of the MoD to safeguard this station. A study in 2004, commissioned by the Eskdalemuir Working Group (EWG), showed that wind turbines generate ground vibrations that could interfere with Eskdalemuir Seismic Array. To safeguard the Seismic Array, MoD manage a statutory consultation zone for wind farm planning applications within a radius of 50km around the station using a noise budget.

5.102 The Eskdalemuir Working Group (EWG), supported by Xi Engineering, reviewed the cumulative seismic budget allocation in 2014 and concluded that budget remained to allow further development within the Eskdalemuir consultation zone. Earlier in 2018, the last of the budget was allocated, meaning that any further development within 50km of the zone is likely to receive an objection from the MoD. The Scottish Government have reformed the EWG and various workstreams are being undertaken to review the allocation policy and establish an accurate picture of the cumulative noise within the consultation zone. Further details on the progress of this work can be obtained from the Onshore Wind Policy Team at the Scottish Government.

5.103 The impacts of the proposal on radar performance, defence interests and other air safety and seismological recording considerations must be satisfactorily addressed and demonstrated to the satisfaction of the relevant technical authorities. Developers are strongly advised to seek early engagement with the relevant consultees. Further useful information is contained in the Department of Energy and Climate Change publication The Aviation Plan: 2015 update, which considers the interaction of wind turbines and aviation interests.

5.104 The use of suspensive conditions to address aviation issues on planning consents for wind energy developments will not be considered, unless the principle of the type of solution to be developed has been established with the appropriate operator and there is agreement between the developer and the relevant operator that such a solution can be delivered in a reasonable time frame.

Solar farms

5.105 Due to the potential impact solar PV arrays may have on aviation safety, developers are advised to consult with all aerodrome operators 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.

5.106 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.

Impacts on telecommunications and broadcasting installations

5.107 The siting of wind turbines must have regard to radio, television, telecoms and other communication systems particularly ensuring that transmission links are not compromised. The construction of tall structures, including wind turbines, may impact on wireless services, including wireless links or domestic broadcast reception. More information on these effects is available in an Ofcom guidance document, Tall Structures and their impact on broadcast and other wireless services**.** Developments shall be assessed by consultation with relevant operators.

5.108 Scottish Power and Scottish Water radio telemetry links are located within some parts of South Lanarkshire. Wind turbine developments have the potential to cause interference to radio systems operated by energy companies in support of their operational requirements for the management of critical national infrastructure. If turbine proposals are assessed as causing interference to a protected link, discussions with the appropriate operator is required at an early stage to determine if there is a solution through siting, design or other mitigation.

5.109 Where there are potential issues with TV reception, the developer will be required to carry out appropriate surveys. A baseline/ pre-construction study involves measurements of baseline television and radio reception conditions, prediction and assessment of impacts and effects and the identification of suitable mitigation. Post-construction study includes measurements and analysis of post-construction reception conditions, assessment of actual impacts and identification of suitable mitigation.

5.110 It must be demonstrated that no electromagnetic disturbance is likely to be caused by the proposal to any existing transmitting or receiving system, or where such disturbances may be caused, that measures will be taken to remedy or minimise any such disturbances. In relation to TV reception, pre-surveys should be carried out and agreed demonstrating the baseline position, and if required, appropriate mitigation measures and remedial procedures should be agreed with the Council.

Impacts on road traffic and on adjacent trunk roads

5.111 Road and traffic impacts require to be identified in the application submission. In siting wind turbines close to major roads, it is recommended that pre-application discussions are held with Transport Scotland's Trunk Road and Bus Operations (TRBO). This is also particularly important for the movement of large components (abnormal load routing) during the construction period, periodic maintenance and for decommissioning. Where the trunk road network is to be used to transport turbine components to site then an abnormal load route assessment should be undertaken and submitted to Transport Scotland for consideration. The assessment should identify the preferred route to site and should identify any pinch points on the trunk road network where mitigation measures may be required. Swept path analysis should be included to help identify the nature and extent of the trunk road mitigation required. In terms of siting and design, it is recommended that a minimum set back from roads and railways is one and half times the height to tip of the turbine proposed, though this will be considered in detail on a case by case basis.

5.112 For wind farm developments (of three or more turbines) a Transport Assessment will be required. Prior to drafting the Transport Assessment, a Roads and Transportation Transport Assessment/Statement Scoping form is required to be completed and approved to ensure the necessary details are submitted with the application. Details of the development will be required such as programme of works including, junction requirements, phases of development, volume and frequency of vehicles, impact on road network, surveys (including swept path analysis) and travel plan. Where appropriate, the Assessment should demonstrate the likely impacts of the development on the trunk road network. If a proposal involves locating wind turbines close to the Trunk Road Network, approval will be required from Transport Scotland who will require to be satisfied that the proposal will not adversely affect the safety and free flow of the trunk road network. It should be noted that any new or modified direct access from the trunk road network will require approval from Transport Scotland. The design of the new or modified access junction will require to be designed in accordance with the Design Manual for Roads and Bridges (DMRB).

5.113 The construction of wind energy developments can have significant short term impacts on the road network. Access for construction traffic must not compromise road safety, residential amenity or cause significant permanent damage to the environment. Applicants must provide an assessment of the traffic impact during both the construction and operational periods and demonstrate suitability of the transport routes for delivering turbine and other components from their source. It is likely that the developer will be required to enter into a Section 96 Agreement with the Council or agree to an upfront payment for smaller sites. Where appropriate, pre and post construction road surveys will be required to be completed that cover damage to public roads by construction traffic. A bond or guarantee may be required to cover the cost associated with this damage.

5.114 Where appropriate, an appraisal of the ecological and landscape/visual impacts associated with road construction/upgrading will be required from the developer. Any impacts of road construction/upgrading on

Natura 2000 sites or Protected Species must comply with paragraph 5.10 above and Policies NHE7 Natura 2000 sites and NHE9 Protected Species in LDP2 Volume 2.

5.115 The siting and design of solar farms should take account of the effect of glint and glare on the road transport network, and include appropriate mitigation measures, where required.

Effects on hydrology, the water environment and flood risk

5.116 Renewable energy developments can have a significant effect on the water environment, for example, watercourses, lochs, wetlands and riparian areas. A principal concern is the potential impact from construction works in, or adjacent to, water bodies. These works may involve watercourse crossings, river bank modifications and/or culverting. The most appropriate water crossing, from a technical and environmental perspective, requires to be considered.

Water quality and quantity

5.117 Water abstraction and impacts on water resources, for example, springs, are also important considerations. Roads, foundations and other construction works associated with large scale developments can disrupt groundwater flow and impact on groundwater abstractions. To address this risk a list of groundwater abstractions both within and outwith the site boundary, within a radius of i) 100m from roads, tracks and trenches and ii) 250 m from borrow pits and foundations), should be provided. Where appropriate, applications which gain consent will require to submit a Water Quality Management Plan prior to commencement of construction.

5.118 It is recommended that pre-application discussions for proposals and applications for wind energy developments should be undertaken with Scottish Water so that they can be assessed for any impact on:

- drinking water quality and quantity,
- below-ground assets,
- radio telemetry interference.

This allows Scottish Water to assess any potential impact on its operations and suggest adequate control measures if required.

5.119 Waters used for the abstraction of drinking water have to comply with the requirements of Article 7 of the Water Framework Directive. The general objective of this Article is: To protect bodies of water used for the abstraction of water intended for human consumption avoiding deterioration in quality in order to reduce the level of purification treatment required. This has been interpreted to mean avoiding additional requirement for treatment and not the removal of treatment systems. Scottish Water can advise of precautions to take if an activity falls within or comes within close proximity to a Drinking Water Protected Area. The Scottish Government website has maps showing these areas. Protected Areas Maps 2013.

Ecology

5.120 The Water Framework Directive also requires maintenance of the good ecological status of water bodies and consideration of any potential impacts on hydromorphological and hydrological processes. These issues may be a constraint to wind farm developments and other renewable energy developments in terms of site location, layout and design. Proposals should avoid impacting Groundwater Dependent Terrestrial Ecosystems (GWDTEs). GWDTEs are types of wetland, specifically protected under the Water Framework Directive. A phase 1 habitat survey should be carried out for the whole site and the guidance contained in A functional wetland typology for Scotlandshould be used to identify all wetland areas. National Vegetation Classification should be completed for any wetlands identified. The results of the National Vegetation Classification survey should be used to identify if wetlands are GWDTEs. If any GWDTEs are located within a radius of (i) 100 m from roads, tracks and trenches or (ii) 250 m from borrow pits and

foundations, the likely impact of these features will require further assessment. Further guidance can be found in SEPA planning guidance on onshore windfarms developments.

5.121 In addition, a fisheries habitat survey following the Scottish Fisheries Coordination centre method requires to be carried out on all areas directly, (for example, watercourse crossings), or indirectly, (for example, sediment run off), affected by the proposal, along with appropriate buffers up and downstream. This would inform the likelihood of the presence of salmonids, eels, freshwater pearl mussel and other freshwater protected species and therefore identifying the need or otherwise for species specific surveys. Where there is connectivity to protected areas (for example, a river Special Area of Conservation), a higher level of survey and targeted assessment may be required.

Flood risk

5.122 The Council's Flood Risk Management requirements must be adhered to, which include providing details and information on Sustainable Drainage Design (SuDS) and flood risk. A SuDS serving a proposed development site requires to be designed and independently checked in accordance with South Lanarkshire Council - Developer Design Guidance. It is expected the surface water runoff will be collected, treated, attenuated and discharged using sustainable urban drainage techniques in accordance with the latest industry guidance.

5.123 To ensure the risk of flooding to the proposed development site from any source is at an acceptable level, as defined in Scottish Planning Policy, and there is no increase in the future flood risk to adjacent land as a result of the proposed development, a Flood Risk/Drainage Assessment and Independent Check are to be carried out in accordance with the latest industry guidance listed.

5.124 The Council's self-certification for SuDS, flood risk, professional indemnity insurance and future maintenance responsibilities of SuDS apparatus are contained in the Developer Design Guidance and require to be completed to the satisfaction of the Council prior to the commencement of development. This can be obtained from the Flooding Section of the Council's Roads and Transportation Service (see Appendix 5 Contact details)

Hydro

5.125 Hydro proposals should have regard to the above guidance, where appropriate. In addition, at the early stages in the planning process, developers should apply the SEPA Guidance for developers of run-of-river hydropower schemes. This sets out how SEPA intends to achieve Scottish Ministers' policy objectives and contains guidance on the developments that are likely to be acceptable. NatureScot also has guidance on hydroelectric schemes and the natural heritage (2015).

The Need for conditions relating to the decommissioning of developments, including ancillary infrastructure and site restoration

5.126 Renewable energy applications must acknowledge the need for decommissioning, restoration and aftercare at the end of the life of the turbines. The Scottish Government's Onshore Wind Policy Statement 2017 makes it clear that there are no current statutory or legislative limits to the duration of a consent for a proposed development. However, it notes that this does not remove the need for decommissioning provisions, where considered appropriate. Conditions, requiring a restoration bond or other approved mechanisms to be put in place, will be imposed on any permission granted. These conditions will also include a requirement for implementation measures to be agreed with the Council in accordance with best practice at the time. Key elements of decommissioning and restoration are shown in Table 5.3.

5.127 An outline Decommissioning/Restoration Plan (DRP), following NatureScot guidance Decommissioning and Restoration Plans should be submitted as part of the Environmental Statement (or other environmental report supporting a planning application). The

outline DRP should be brief, however, it should still provide an appropriate level of detail about how the site infrastructure may be removed and how the site is intended to be restored. In the 3-5 years prior to the year of decommissioning/restoration, the DRP should be revised and completed, to provide full details of decommissioning/restoration, and then submitted for approval. Further survey work may be required to inform the final DRP.

5.128 Developers are required to satisfy the Council that the plan for decommissioning and restoration of the proposed development is robust, and any consent granted will require to have a decommissioning and restoration condition attached. The purpose of the condition is to return the site to as near to its original state as is feasible in a practicable and environmentally sound way.

Table 5.3

Key element	Description of restoration
Turbines	Removal of blades, hub, nacelle, gear box, tower. Requires crane to dismantle and involves abnormal loads.
Turbine base.	Remove base approximately 1 metre of top of concrete base and backfill above and around base. Excavator and dump trucks required and dispose/recycle of material.
Transformer.	Remove electrical components and concrete base. Break and remove concrete and dispose/recycle material. Low-loader required.
Crane Pad.	Remove hardstanding. Excavator and dump trucks required and dispose/recycle of material.
Tracks	Reinstate as required, excavator and dump trucks required and dispose/recycle of material.
Control Buildings	Reinstate as required, excavator and dump trucks required and dispose/recycle of material.
Substation	Isolation of electrical power. Controlled removal using cranes and specialist contractors. Reinstate base as required, excavator and dump trucks required and dispose/recycle of material.
Cables	Remove using extractor to pull out of trench or duct. Load onto tippers and dispose/recycle of material.
Professional fees	Construction Method Statements, Environmental Management Plan, Project Manager, Ecological Clerk of Works.

Opportunities for energy storage

5.129 Energy storage allows renewable energy to be captured and set aside for use when and where it is needed. The energy storage technologies are developing and it is considered that energy storage opportunities could facilitate the expansion of variable renewable energy sources such as wind and solar.

5.130 As technology and the market advances, more developments of this nature are likely to come forward. Dependent on the technology used to create the energy storage, there may be potential environmental impacts which need to be considered, particularly in respect to emissions and other pollutants. The Council will consider proposals for energy storage on a case by case basis.

The need for a robust planning obligation to ensure that operators achieve site restoration

5.131 The requirement for decommissioning and restoration plans is noted above. In addition to proposed plans, the Council requires a financial bond or guarantee to be put in place to meet all the expected costs of the proposed decommissioning and restoration phase.

5.132 The bond or guarantee will require to be satisfactory to the Council and requires to meet the following criteria:

- There shall be no commencement of development or operations at the site until the guarantee or bond is satisfactory to the Council.
- The guarantee must be granted in favour of the Council as Planning Authority.
- The bond or guarantee will be lodged for a period from the date of commencement of development to a date no earlier than 24 months after the date of completion of the restoration and/or aftercare.
- The guarantee or bond shall be increased on an annual basis by the same percentage increase in the Tender Price Index of Public Building Non-housing (PUBSEC) .
- The guarantee or bond is from a financial institution, bank or building society that is of sound financial standing and capable of paying the Indexed Restoration Sum.
- The guarantee or bond is enforceable by the Planning Authority either (a) for the whole Guarantee Period or (b) for a period not less than five years.
- The Planning Authority is entitled to make a claim on the Guarantee for the Indexed Restoration Sum (a) on a breach of the restoration and aftercare conditions (b), for a breach of the requirements set out in the guarantee/bond criteria, (c) for a breach of the requirement for a guarantee/bond to be in place for the guarantee period.

Other considerations for renewable energy proposals

5.133 The following matters are not specifically referred to in paragraph 169 of SPP, but nevertheless are important considerations in the assessment of wind energy and other renewable energy proposals.

Forestry and woodland

5.134 Woodlands within South Lanarkshire are under increasing pressure from wind energy developments. The Scottish Government's Control of Woodland Removal Policy (2009) includes a presumption in favour of protecting woodland resources, and woodland removal should only be allowed where it would achieve significant and clearly defined additional public benefits. Compensatory planting is generally expected where woodland is removed in association with development, and will be taken into account when assessing proposals.

5.135 The effects that the proposed development will have on woodlands, and the consequences that woodland removal will have on the ecology and landscape of the area and environs requires to be fully assessed. The information submitted with the application requires to adequately address the impact that the felling associated with the development will have on the environment and how the felling proposals adhere to the UK Forestry Standard Guidelines, the Scottish Government's Control of woodland removal policyand its Implementation Guidance (2019). Design options to minimise the necessity for tree removal should be considered.

5.136 In some cases South Lanarkshire has an extensive forestry and woodland coverage and this often coincides with upland areas which have potential for wind farms. In order for a full assessment to be undertaken on the removal of woodland, the following requires to be provided as part of the planning application:

- A Forest Plan that details all major forest operations over the lifespan of the wind farm. When developing the plan, the developer should follow Forestry Commission Scotland's Strategic Forest Plan guidance. All operations should be compliant with the UK Forest Standard. The restructuring of the woodland area may increase the diversity of tree species and habitats with biodiversity benefits for habitats.
- A woodland habitat assessment in terms of its social, economic and environmental value.
- Proposed mitigation for area of woodland to be felled. Where compensatory planting is required, full details should be provided that are compliant with the UK Forest Standard. The compensatory planting land must have the necessary forestry consents to allow tree planting.

Development management considerations

- An assessment of the landscape impact of the felling plans. The developer should refer to the UK Forest Standard, Forest and Landscape guidelines when undertaking this assessment.
- Where the technique of key holing turbines into woodlands is proposed, this prescription must be supported by a full description of both the top height and yield class of the surrounding woodland, as well as the topography of the site. This information is necessary to demonstrate how these factors influence wind flow and inform the extent of felling that is required to mitigate against reductions in wind yield.
- Where it is proposed to fell significant quantities of trees to accommodate a proposal, then consideration of how forestry waste will be disposed of needs to be provided as part of the planning application. Further information can be found in SEPA Guidance on management of forestry waste.

5.137 Any wind energy proposal that includes woodland removal should therefore be discussed at an early stage with Forestry Commission Scotland (FCS) and take account of the advice in the Scottish Government's Control of Woodland Removal Policy, Scottish Forest Strategy and Glasgow and Clyde Valley Forest and Woodland Strategy. Where forestry occurs on peatland, additional guidance should be sought regarding habitat restoration proposals and early engagement with FCS and the Council's Countryside and Greenspace Service is advised.

5.138 The removal of trees from some wind farm sites is perceived as problematic by some developers. SEPA, NatureScot and FCS has produced a guidance note on Use of Trees Cleared to Facilitate Development on Afforested Land 2014. Some management approaches allow felled trees to remain on site. Depending on the proposed use of materials produced as a result if the development, the removed trees may be defined as waste and waste management licensing requirements may apply. In such situations SPEA's Management of Forestry waste should be referred to. In the context of waste minimisation, all trees to be felled to support development such as wind farms should be considered as a resource. The guidance sets out that the preference is for forest materials to be used for economic and environmental benefits and not to be disposed of as waste. The best practice for dealing with forest materials is set out in the guidance from SEPA on the use of trees cleared to facilitate development.

5.139 Depending on the location and extent of forest felling works, there could be changes to the site hydraulics and the hydrology regime possibly resulting in increased flood risk and this impact requires to be fully considered in any proposals.

Environmental protection

5.140 A Construction Method Statement (CMS) and Environmental Management Plan (EMP) should be submitted for wind energy developments for four turbines or more. These documents should also take into consideration SEPA's Pollution Prevention Guidance Notes. A finalised CMS and EMP will be required through a condition attached to any consent granted for wind energy developments for four or more turbines. It may be appropriate to require a similar level of information for developments with three or less turbines in particular cases, or for renewable energy developments other than wind.

Scottish water assets

5.141 There may be waste water and/or water assets which are above and/or underground in the area that may be affected by the proposed development. Copies of water or waste water network drawings can be ordered from the undernoted Asset Plan Providers who have developed internet based, plan collation services which deliver substantial benefits over traditional methods of plan provisioning. Cornerstone Projects Ltd Tel: 0151 632 5142 Email: enquiries@cornerstoneprojects.co.uk National One-Call Tel: 0844 800 9957 Email: swplans@national-one-call.co.uk Website: www.national-one-call.co.uk/swplans. Scottish Water can supply a list of precautions to take if an activity may impact on water and/or water assets above and/or underground.

Notifiable installations and exclusion zones

5.142 When locating wind turbines and other renewable energy infrastructure, attention must be paid to their proximity to notifiable installations and exclusion zones. In South Lanarkshire there are a number of high pressure gas pipelines and an ethylene pipeline. The locations of these pipelines and their buffer zones are shown on the Local Development Plan strategy map. The Health and Safety Executive (HSE), as a statutory consultee, provides land use planning advice to planning authorities on proposed developments on sites which lie near to a major hazard site or a major accident hazard pipeline. HSE Planning Advice

Appendix 1

Further sources of information

Scottish Government

- Scottish Government subject specific planning policies
- Policy on control of woodland removal
- Energy Consents Unit
- Good practice principles for community benefits
- Energy Strategy 2017
- Onshore Wind Policy Statement 2017
- Climate change plan 2018 - 2032 (2018)

SEPA

- guidance for renewable generation technologies
- Guidance on Water Environment
- Additional guidance is available from SEPA's CAR Practical Guide
- SEPA planning guidance for onshore wind

NatureScot:

NatureScot Online guidance Planning and Development : Renewable Energy

NatureScot publications referred to in this SG include the following. These can be accessed via the link above:

- Visual Representation of Windfarms (Version 2.2 February 2017)
- Assessing the impact of small-scale wind energy proposals on the natural heritage (2016)
- Guidance on Assessing Connectivity with Special Protection Areas (SPAs) Version 3 (2016)
- Assessing the cumulative impact of onshore wind energy developments (2012)
- Siting and designing wind farms in the landscape (Version 3a) (August 2017)
- Recommended bird survey methods to inform impact assessment of onshore wind farms (2017)
- Spatial planning for onshore wind turbines – natural heritage considerations (June 2015)
- Habitat management plans (January 2016)
- Research and guidance on restoration and decommissioning of onshore wind farms (2013)
- Guidance on hydro-electric schemes and the natural heritage (December 2015)
- Natural heritage considerations for solar photovoltaic installations Version 3 (2017)
- Micro-renewables and the natural heritage (2016)
- Decommissioning and Restoration plans for onshore wind farms (2016)
- Constructed tracks in the Scottish Uplands (2015)
- Carbon Rich soils, deep peat and priority peatland mapping (2016)
- Assessing the impact of repowered wind farms on nature (draft June 2018)
- Good practice during wind farm construction – NatureScot, SEPA, Forestry Commission, Historic Scotland, Scottish Renewables (4th edition 2019)

Other:

- Wind Energy developments and Natura 2000 (EU Guidance Document) (October 2010)
- NATS en route safeguarding maps and guidance
- Civil Aviation Authority policy and guidance document CAP 764
- Historic Environment Scotland - Micro-renewables in the historic environment (2014)
- South Lanarkshire Biodiversity Strategy 2018 - 2022

Landscape Institute publications:

- guidelines for landscape and visual impact 3rd edition
- Residential Visual Amenity assessment - Technical Guidance note 2/19

Appendix 1

Further sources of information

ClimateXChange publications:

- ClimateXChange Windfarms Impacts Study
- ClimateXChange Review of light and shadow effects

Appendix 2

Glossary of terms

Ancient Semi-natural Woodlands: Categories 1a and 2a on the 'Inventory of ancient, semi-natural and long-established woodlands'. Interpreted as semi-natural woodland from maps of 1750 (1a) or 1860 (2a) and continuously wooded to the present day. If planted with non-native species during the 20th century, they are referred to as Plantations on Ancient Woodland Sites (PAWS). Datasets can be downloaded from NatureScot datasets.

Cumulative Impact: The additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together. Although the term 'cumulative impact' is often used to refer only to landscape and visual effects, cumulative effects of wind energy development can relate to a wider range of natural heritage effects, including impacts on birds and habitats.

Environmental Impact Assessment (EIA): An Environmental Impact Assessment is a technique for drawing together, in a systematic way, expert quantitative analysis and qualitative assessment of a proposals environmental effect. The need for an EIA is determined under the Environmental Impact Assessment (Scotland) Regulations 2017 and divides into two schedules:-

- **Schedule 1** - development which by law must have an Environmental Assessment.
- **Schedule 2** - development which poses significant harm to the environment by virtue of the nature, size and location of the proposal requires an EA at the discretion of the local authority.

Environmental Statement (ES): A document containing the compiled information gathered during the EIA process.

Habitat Survey: A field based survey that identifies and maps the different types of habitat (assemblages of plants) within an area and highlights any special or potentially sensitive areas.

Habitat Management Plan (HMP): Mitigation measures proposed by the applicant as part of their submitted development proposal, or required by a condition of planning consent which mitigate or compensate for the impacts caused by the development, or enhance the natural heritage interest of the area.

Habitats Regulations Appraisal: Used to describe an assessment of the implications of the policies and proposals of the LDP on Special Protection Areas (SPAs) or Special Areas of Conservation (SACs) as required by Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) as transposed into domestic law by the Conservation (Natural Habitats, &c.) Regulations 1994 as amended.

Inventory of Gardens and Designed Landscapes: This is a list of nationally important sites that meet the criteria published in Historic Environment Scotland's guidance on Gardens and Designed Landscapes

Inventory of Historic Battlefields: The Inventory of Historic Battlefields is a list of nationally important battlefields in Scotland that meet the criteria published in the Historic Environment Policy for Scotland (HEPS) 2019. It provides information on the sites in it to raise awareness of their significance and assist in their protection and management for the future. See HES guidance Historic Battlefields

Landscape: The landscape is part of the land, as perceived by local people or visitors, which evolves through time as a result of being acted upon by natural forces and human beings. (European Landscape Convention).

Landscape Character Assessment (LCA): Landscape Character Assessment provides a classification and description of the landscape. The process identifies distinct areas of consistent and recognisable landscape character. The South Lanarkshire Landscape Character Assessment includes guidelines for assessing the sensitivity of different landscape character types to development.

Long-Established Woodlands or Woodlands of High Conservation Value: Categories 1b, 2b, and 3 in the Inventory of ancient, semi-natural and long-established woodlands. Long-established woodland is interpreted as

Appendix 2
Glossary of terms

plantation from maps of 1750 (1b) or 1860 (2b) and continuously wooded since. Category 3 sites are shown as unwooded on the 1st edition maps but as woodland on the Roy maps of 1750. Such sites have, at most, had only a short break in continuity of woodland cover and may still retain features of Ancient Woodland. Datasets can be downloaded from NatureScot Natural Spaces.

Megawatts (MW): The unit for measuring power equalling one million watts (1000 kW). The output from wind farms is measured in MW.

National Nature Reserves (NNR): Areas of land set aside for nature, where the main purpose of management is the conservation of habitats and species of national and international significance. They are declared by NatureScot.

Renewable Energy: Those sources of energy which are naturally occurring within the environment and which can either be tapped without consuming the resource, or where the resource can renew itself on a human timescale.

Riparian Zone: Land relating to or situated on the banks of a river, or land relating to wetlands adjacent to rivers and streams.

Setting (Historic Asset/Place): The way in which the surroundings of a historical asset or place contribute to how it is experienced, understood and appreciated. Setting often extends beyond the immediate property boundary into the broader landscape.

Sites of Special Scientific Interest (SSSI): SSSIs represent the best of Scotland's natural heritage. They are 'special' for their plants, animals or habitats, their rocks or landforms, or a combination of these. SSSIs are designated by NatureScot under the provisions of the Nature Conservation Act (Scotland) Act 2004.

Special Areas of Conservation (SAC): A European wide network of important sites containing rare or endangered species and habitats, (Natura 2000 sites) designated under the terms of the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (The Habitats Directive).

Special Landscape Areas (SLAs): Local designation for quality and value of landscape.

Special Protection Areas (SPA): Designated under the terms of Directive 2009/147/EC of the European Parliament and of the Council of Europe on the conservation of wild birds. These areas are specifically protected for their ornithological importance.

Water Environment: All surface water, groundwater and wetlands.

Appendix 3

Community benefit contributions

Background

The Council has a well established mechanism for the collection and distribution of community benefit related to renewable energy developments. The Council's Renewable Energy Fund (REF), set up in 2004, administers community benefit schemes for a number of wind farms within South Lanarkshire, which has supported the delivery of a wide range of locally led projects. The Scottish Government advises that a community can gain valuable benefits from renewables projects over and above the energy generated and financial benefits. The South Lanarkshire REF seeks to support this and maximise the returns to communities from renewable energy developments.

Where a development is considered acceptable in planning terms but may have potential long-term impacts, it is important that the options for securing community benefit are maximised. Since Scottish Government guidance is clear that such developments should deliver wider benefits, the Council's Business and Property Development Service actively seeks a benefit package including financial contributions to support local communities, in respect of appropriately scaled renewable energy developments.

At the Executive Committee on the 1st December 2010 the Council approved a report which updated and refined existing policy, and considered and set the level of community benefit for renewable energy developments in South Lanarkshire. This policy was further updated in a report approved by the Enterprise Services Committee on the 1st April 2014.

The Renewable Energy Fund

The purpose of the REF is to collect and distribute funds to assist affected communities to improve the quality of life and economic prosperity in their local area by providing capital funding for community based projects within the identified area of benefit. Examples of previously funded projects include either upgrading or providing new community halls, upgrading of play parks, environmental improvements, enhancing community owned assets, purchase of equipment for community groups and feasibility studies for future projects.

The REF will consider grant applications for projects within an identified radius of each participating renewable energy development site. Applications can be considered from outwith the identified area if it can be clearly demonstrated that the beneficiaries of the project reside within the eligible area. The grant award in these cases would be proportionally based on the percentage of residents from eligible communities benefiting from the project.

The REF will provide financial support for capital projects which meet one or more of the criteria set out in the fund application process. Details of the REF and eligibility criteria can be found on the Council's website

The REF provides the opportunity for affected communities to access funding for their eligible projects and benefit from the support and expertise that the Council can provide. Communities also have the comfort that the fund has a fully transparent reporting process, is accessible by all eligible organisations and operates independently from any one community group.

Contribution level and process

It is common industry practice, although not mandatory, for the level of community benefit to be related to the electrical output of a wind farm. This is the approach that South Lanarkshire Council will use in relation to the community benefit calculation. In this respect there are two elements to consider:

(1) The measure of electrical output from the wind farm is in Megawatts.

It is considered that installed/consented capacity is the most appropriate mechanism as this provides a consistency of payment and allows the Council to project future payments and manage their distribution.

(2) The value of the contribution per Megawatt of production.

The Council has agreed that a package of contribution of £5,000 per megawatt be set as the standard minimum contribution.

Appendix 3

Community benefit contributions

This would be payable annually from the date of commissioning and would increase relative to the PubSec Index (non housing building) or other such replacement index as agreed with the Council.

The Council are keen to explore ways of maximising local benefits from community benefit contributions and, working with contributing developers, may seek to deliver training and employability initiatives locally around participating developments as part of the community development package.

The payment would be expected for developments of four or more turbines, including either planning applications to the Council or Section 36 applications to the Scottish Government. Contributions may also be sought from developments of three or less turbines with the scale and structure of the payments considered on a case by case basis.

It is recognised that there may be circumstances when the development costs of a wind farm are exceptional and a developer may find it difficult to finance the level of contribution sought. On this basis, the Council may not wish to prejudice the development proceeding. In these circumstances the Council will ask the developer to enter into an open book discussion on the finances of the scheme. This would allow an informed judgement to be made by the Council on the level of contribution sought.

With regard to other forms of renewable energy generation, an equivalent level of Community Benefit will be negotiated once the details of the scheme are known.

Business and Property Development Service will handle the negotiation and collection of community benefit from all renewable energy developments. The funds secured by the Council will be distributed to eligible communities using the REF approach providing a coordinated and comprehensive system to the whole process of collection and distribution.

It is the Council's view that discussions on contributions should begin as early as possible in the development process to provide a degree of certainty to all parties. At the same time, however, these discussions should not be construed as the Council, as Planning Authority, pre-determining the application. As stated above, any contributions are not material considerations in the assessment of the proposed development.

For further information please contact: John Archibald, Project Development Officer, Telephone: 01698 455181,

Email: john.archibald@southlanarkshire.gov.uk

Appendix 4

Settlements in South Lanarkshire

Table 4.1

Settlements in South Lanarkshire (* LDP2 proposes further settlements at Blaircross, Devonburn, Kaimend and Limekilnburn)									
1	Abington	20	Carstairs	39	Elsrickle	58	Law	77	Sandford
2	Ashgill	21	Carstairs Junction	40	Elvanfoot	59	Leadhills	78	Shawsburn
3	Auchengray	22	Cartland	41	Ferniegair	60	Lesmahagow	79	Stonehouse
4	Auchenheath	23	Chapelton	42	Garrion	61	Libberton	80	Strathaven
5	Auldhouse	24	Cleghorn	43	Gilmourton	62	Nemphlar	81	Symington
6	Biggar	25	Coalburn	44	Forth	63	Nerston	82	Tanhill
7	Blackwood/Kirkmuirhill	26	Covington	45	Glassford	64	Netherburn	83	Tarbrax
8	Blantyre	27	Newtown of Covington	46	Glespin	65	New Lanark	84	Thankerton
9	Boghead	28	Coulter	47	Hamilton	66	New Trows	85	Thorntonhall
10	Bothwell	29	Crawfordjohn	48	Hawksland	67	Newbigging	86	Tillietudlem
11	Braehead	30	Crossford	49	Hazelbank	68	Pettinain	87	Uddingston
12	Lower Braidwood	31	Crawford	50	Hyndfordbridge	69	Ponfeigh	88	Walston
13	Upper Braidwood	32	Dillarburn	51	Kerswell	70	Quarter	89	West End
14	Brocketsbrae	33	Dolphinton	52	Kilncadzow	71	Quothquan	90	Wilsontown
15	Cambuslang	34	Douglas Water	53	Kirkfieldbank	72	Ravenstruther	91	Wiston
16	Candy Mill	35	Douglas	54	Kittochside	73	Rosebank	92	Woolfords
17	Carmichael	36	Drumclog	55	Lamington	74	Rigside	93	Yieldshields
18	Carluke	37	Dunsyre	56	Lanark	75	Roberton	*	
19	Carnwath	38	East Kilbride	57	Larkhall	76	Rutherglen		

Appendix 5
Contacts

Planning and Building Standards Headquarters (Policy and applications for 4 or more wind turbines and solar farms)

South Lanarkshire Council
Community and Enterprise Resources
Planning and Building Standards Services HQ
Montrose House
154, Montrose Crescent,
Hamilton ML3 6LB
Telephone: 01698 455943 Email: localplan@southlanarkshire.gov.uk

Area offices (applications for 3 or fewer wind turbines/applications for domestic scale renewable energy developments)

South Lanarkshire Council
Community and Enterprise Resources
Planning and Building Standards Services Area Office
Montrose House
154 Montrose Crescent
Hamilton ML3 6LB
Tel: 01698 455179 Email: planning@southlanarkshire.gov.uk

Regeneration Services (Renewable Energy Fund)

South Lanarkshire Council
Community and Enterprise Resources
Montrose House
154 Montrose Crescent
Hamilton, ML3 6LB
Tel: 01698 455928

Roads and Transportation

RoadsandTransportation@southlanarkshire.gov.uk

Flood Risk Management Team

Phone: 01698 453615

Countryside and Greenspace

CAG@southlanarkshire.gov.uk
Tel: 01698 543413

Environmental Health

Tel: 0303 1231015

NatureScot

strathclyde_ayrshire@naturescot.gov.uk
Tel: 01698 421 668

South Lanarkshire

Planning and Economic Development

Local Development Plan 2

Supporting planning guidance

Renewable energy

South Lanarkshire
Local Development Plan 2

South Lanarkshire Council
Community and Enterprise Resources
Planning and Economic Development
Montrose House, Montrose Crescent
Hamilton ML3 6LB
www.southlanarkshire.gov.uk

If you need this information in another language or format, please contact us to discuss how we can best meet your needs, phone 0303 123 1015 or email: equalities@southlanarkshire.gov.uk