MARCH 2018

SCOTTISH BORDERS COUNCIL SUPPLEMENTARY GUIDANCE

RENEWABLE ENERGY

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

CONTENTS

LIST OF FIGURES

PAGE NUMBER

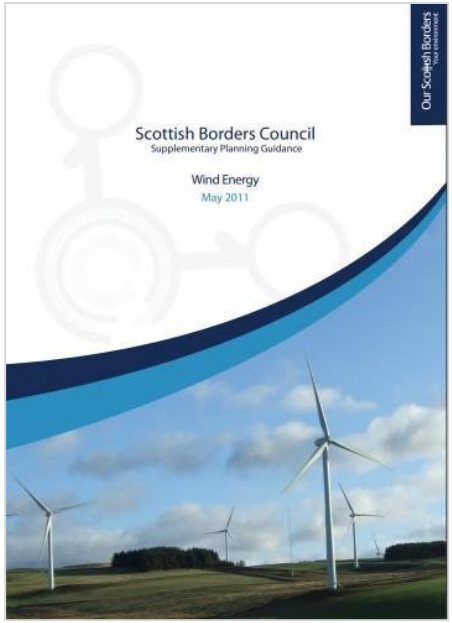
APPENDICES

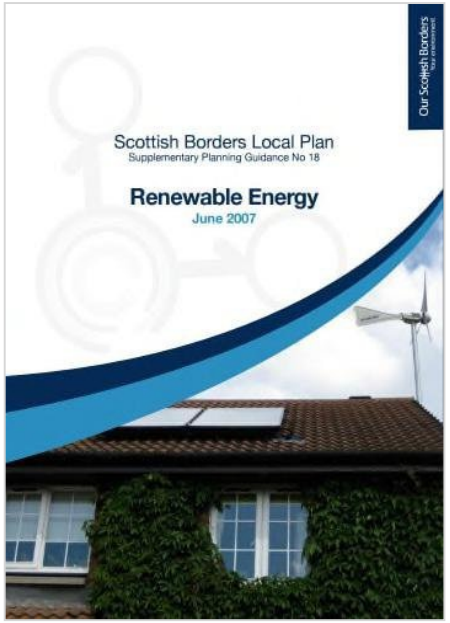
CHAPTER 1: INTRODUCTION

This draft Supplementary Guidance (SG) entitled "Renewable Energy" encompasses updates of previous Supplementary Planning Guidance (SPG) on Wind Energy 2011 and Renewable Energy 2007 as a single document.

Following the Examination of the proposed new Local Development Plan (LDP), as recommended by the Reporter, policy ED9 – Renewable Energy Development confirms Scottish Borders Council will produce this SG and submit it to Scottish Ministers within 12 months of the adoption of the new Plan. The new Plan was adopted on 12th May 2016.

Policy ED9 states that the SG will accord with Scottish Planning Policy (SPP) and should set out detailed policy considerations against which all proposals for wind energy and other forms of renewable energy will be assessed, based on those considerations set out in para 169 of SPP. The guidance on wind energy will contain the onshore spatial framework as required by SPP, identifying areas where wind farms will not be acceptable, areas of significant protection, areas with potential for wind farm development and indicating the minimum scale of onshore development that the framework applies to. The SG has taken cognisance of responses received during the public consultation.





CHAPTER 2: BACKGROUND

National planning policy and guidance promotes and supports renewable energy to facilitate the transition to a low carbon economy. The Climate Change (Scotland) Act 2009 requires all public bodies to contribute to the emissions targets in the Act and to deliver the Government's climate change programme. The need to mitigate the causes of climate change and the need to adapt to its short and long term impacts should be taken into account in all decisions within the planning process.

National Planning Framework 3 and SPP are supportive of promoting renewable energy and also identify the need to support other key sustainability principles of social, economic and environmental considerations (see chapter 4).

Scottish Borders Council has been proactive in supporting a range of renewable energy types. In implementing statutory duties to support both renewable energy and protect the landscape and the environment, the Council seeks a balance between these objectives within the decision making process. This is particularly a more challenging balance with regards wind farms proposals. It is therefore vital that the Council has up to date Supplementary Guidance in place which takes cognisance of all relevant national and local policy advice and legislation in order that it can be used within the Development Management process and considered at Public Inquiries and Hearings.

This SG has been prepared under Part 2 of Town and Country Planning (Scotland) Act 1997, specifically Section 22 as amended by the Planning etc Scotland Act 2006 and will ultimately form part of the Development Plan for the Scottish Borders. It will have a status in decision making in line with section 25 of the Town and Country Planning (Scotland) Act 1997.

CHAPTER 3: AIM OF SUPPLEMENTARY GUIDANCE

This SG is considered to be concise and easily navigated, making reference and expanding upon what are considered to be the salient matters to be addressed and giving electronic links to further information on specific subjects where required.

This SG produces the following main key outputs in order to guide the Development Management process when dealing with applications for renewable energy:

- Guidance on Renewable Energy types (chapter 6)
- Spatial Framework relevant to consideration of wind energy proposals (chapter 7)
- Landscape Capacity Study relevant to wind energy proposals (chapter 8)
- Further guidance on criteria referenced within LDP policy ED9 – Renewable Energy Developments (chapter 8)

Wind farm proposals with a capacity below 50 megawatts (MW) are determined under planning legislation. Larger wind farms of 50MW or greater are determined under Section 36 of the Electricity Act 1989, in which case the Council as planning authority is a statutory consultee. The guidance in this SG applies to both categories of development i.e. above and below 50MW.

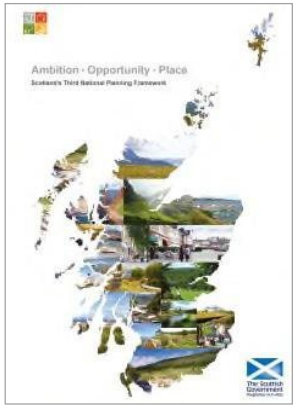
Further information on the procedures for applications governed by the Section 36 process can be found on the Scottish Government website.

BLACKHILL WIND FARM, DUNS

CHAPTER 4: POLICY CONSIDERATIONS

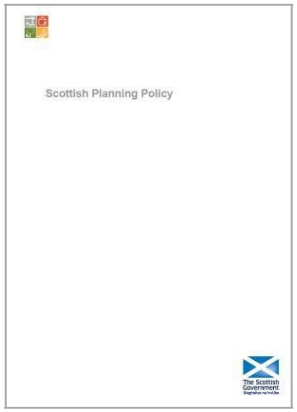
NATIONAL POLICY

NATIONAL PLANNING FRAMEWORK 3 (NPF3)



National Planning Framework 3 is a longer term spatial expression of the Government Economic Strategy. One of the principal thrusts of this strategy for Scotland is the promotion and support for increasing sustainable economic growth. It promotes renewable energy; expressing delivery targets to be achieved and recognises the need to support sustainability principles of protecting the landscape and the environment.

SCOTTISH PLANNING POLICY (SPP)



Scottish Planning Policy is supportive of renewable energy and identifies the requirement to promote key other sustainability principles of social, economic and environmental issues.

Paragraph 154 of SPP requires planning authorities, through their development plan,

- to support the development of a diverse range of electricity generation from renewable energy technologies - including the expansion of renewable energy generation capacity
- to guide development to appropriate locations and to advise on the issues that will be taken into account when specific proposals are being assessed

SPP seeks to ensure the full potential for renewable energy generation is achieved whilst at the same time giving due regard to environmental, community and cumulative impacts. SPP does not single out any sustainable types to have extra weighting over others. Para 28 states that the planning system should "achieve the right development in the right place: it is not to allow development at any cost"

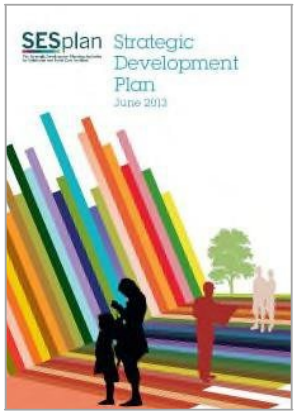
Table 1 within SPP requires the preparation of a spatial framework. In essence this comprises of a sieving exercise of constraints, identifying areas where turbines will not be acceptable, areas of significant protection and ultimately identifying areas with potential for wind farm developments. This approach is set out in chapter 7 of this SG.

Paragraph 169 lists recognised material considerations to be addressed by Development Management with regards to energy infrastructure developments. Further guidance on these considerations is given in chapter 8 of the SG.

CHAPTER 4: POLICY CONSIDERATIONS

REGIONAL POLICY

STRATEGIC DEVELOPMENT PLAN 2013

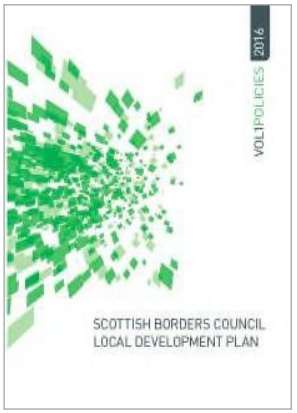


Policy 10 – Sustainable Energy Technologies is a high level policy which states that the Strategic Development Plan seeks to promote sustainable energy sources. It requires that Local Development Plans will:

Set a framework for the encouragement of renewable energy proposals that aims to contribute towards achieving national targets for electricity and heat, taking into account relevant economic, social, environmental and transport considerations, to facilitate more decentralised patterns of energy generation and supply and to take account of the potential for developing heat networks.

LOCAL POLICY

SCOTTISH BORDERS ADOPTED LOCAL DEVELOPMENT PLAN 2016



Renewable energy is a wide ranging subject and many LDP policies need to be considered during the application processing period. However, the most relevant is policy ED9 – Renewable Energy Development.

Policy ED9 in essence is supportive of a wide range of renewable energy types provided that there are no unacceptable significant adverse impacts or effects which cannot be mitigated. If there are then development will only be approved if the Council is satisfied that the wider economic, environmental and other benefits of the proposal outweigh the potential damage arising from it.

Throughout this SG rather than constantly refer to the lengthy phrase “unacceptable significant adverse impacts or effects” from policy ED9 each time it requires referral, the SG has shortened this phrase to “unacceptable impacts” for simplicity**. However, this does not diminish the fact that this is done solely for ease of text and is not being suggested as an alternative policy test.**

This SG provides additional detail and guidance to that referred to in policy ED9 in chapter 8.

The adopted LDP can be viewed at www.scotborders.gov.uk/ldp policy ED9 - Renewable Energy Development can viewed on pages 55 - 59 within Volume 1 - Policies.

CHAPTER 4: POLICY CONSIDERATIONS

OTHER CONSIDERATIONS

NATIONAL ENERGY TARGETS

Scottish Planning Policy and Electricity Generation Policy Statement sets out the Scottish Government's current position regarding renewables. Paragraph 154 of SPP states that the planning system should support the transformational change to a low carbon economy, consistent with national objectives and targets, including deriving:

- 30% of overall energy demand from renewable sources by 2020;
- 11% of heat demand from renewable sources by 2020; and
- the equivalent of 100% of electricity demand from renewable sources by 2020;

There is no cap on these targets and the Council must therefore continue to support renewable energy proposals within appropriate locations. Progress on renewables approvals and implementations can be viewed on the Scottish Government's Energy Statistics for Scotland. (Please see reference to *Scottish Energy Strategy : the future of energy in Scotland* below regarding further updated energy targets).

SCOTTISH GOVERNMENT PUBLICATIONS DECEMBER 2017

Onshore Wind Policy Statement
This Statement confirms clear support for wind energy promoting the economic benefits it offers, helping to substantively decarbonise our electricity supplies, heat and transport systems, thereby boosting our economy, and meeting local and national demand. This needs developers and communities to work together to ensure that projects continue to strike the right balance between environmental impacts, local support, benefit, and – where possible – economic benefits deriving from community ownership. Indeed, securing economic benefit is an important objective to reward support for the industry within local communities. Achieving appropriate environmental protection means that the relevant planning and consenting processes must remain aligned with the policy context and desired outcomes. A major review of the Scottish planning system is well under way; it will continue, as now, to fully reflect the important role of renewable energy and energy infrastructure, in the right places and with appropriate protection for the environment. The Statement can be viewed on the following link - http://www.gov.scot/Publications/2017/12/2064

Scottish Energy Strategy : the future of energy in Scotland
Scotland's first Energy Strategy will strengthen the development of local energy, protect and empower consumers, and support Scotland's climate change ambitions while tackling poor energy provision. The strategy sets out two new energy targets for the Scottish Energy system by 2030. These are :

- The equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources.
- An increase by 30% in the productivity of energy use across the Scottish economy.

Built around the six energy priorities, this Strategy will guide the decisions that the Scottish Government, working with partner organisations, needs to make over the coming decades. The Strategy can be viewed on the following link - http://www.gov.scot/Publications/2017/12/5661

CHAPTER 4: POLICY CONSIDERATIONS

Social / Economic and Other Benefits

When processing applications for renewable energy proposals consideration must be given to any social, economic or environmental benefits the proposal offers. These are material considerations to be taken into account and typical examples of such benefits can include:

- benefits derived from undertakings directly related to the development such as improved infrastructure
- wider socio- economic community benefits in terms of job creation, associated business and chain supply opportunities
- benefits derived from community ownership in the development. Further information on this can be viewed here.

The Scottish Government's Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments 2015 confirms community benefits which are not material considerations. These include, for example:

- voluntary monetary payments to the community that are not related to anticipated impacts of the planning application usually provided via an annual cash sum, often referred to as a community benefit fund
- other voluntary benefits which the developer provides to the community (i.e. direct funding of projects, one-off funding, local energy discount scheme or any other site specific benefits)

Reference should also be made where necessary to the Scottish Government's Good Guidance practice in terms of shared ownership https://consult.gov.scot/energy-and-climate-change-directorate/principles-for-shared-ownership-of-o/

Scottish Borders Council Web Page Advice

The Council produces on line advice covering a wide range of guidance and documents for the interests and use of any interested party which is regularly updated. These include a windfarm database, maps of windfarm and turbine sites and screening and scoping opinions for wind development. Further details on this information and links to them can be found in Appendix A.

CHAPTER 5: ROLE OF THE COUNCIL

As stated in chapter 4 NPF3 and SPP confirm the requirement for Council's to support sustainable development and help attain national energy targets by approving renewable energy proposals within appropriate locations.

Scottish Borders Low Carbon Economic Strategy 2023 in 2013

The Council supports the Scottish Government's promotion of sustainable development and moving towards a low carbon economy. The Council produced Scottish Borders Low Carbon Economic Strategy 2023 in 2013 with its related Action Plan. The Strategy sets out a series of strategic aims, initiatives and priority actions.

A vision for a Scottish Borders low carbon future has been developed based on consultation with stakeholders:

'By 2023 the Scottish Borders will have a more resilient low carbon economy. By supporting businesses and communities to reduce their carbon footprint our business competitiveness and quality of life will be improved.'

Support of Renewable Energy Proposals

The Council has been proactive in supporting a high number of renewable energy proposals. The continuing development interest, extent and wide range of these approvals can be viewed on figures 1, 2 and 3. Figure 3 relates to more major applications for renewable energy types other than wind farms. The Council will continue to support renewable energy proposals within appropriate locations.

FIGURE 1: WIND ENERGY APPLICATIONS OVER 5MWS

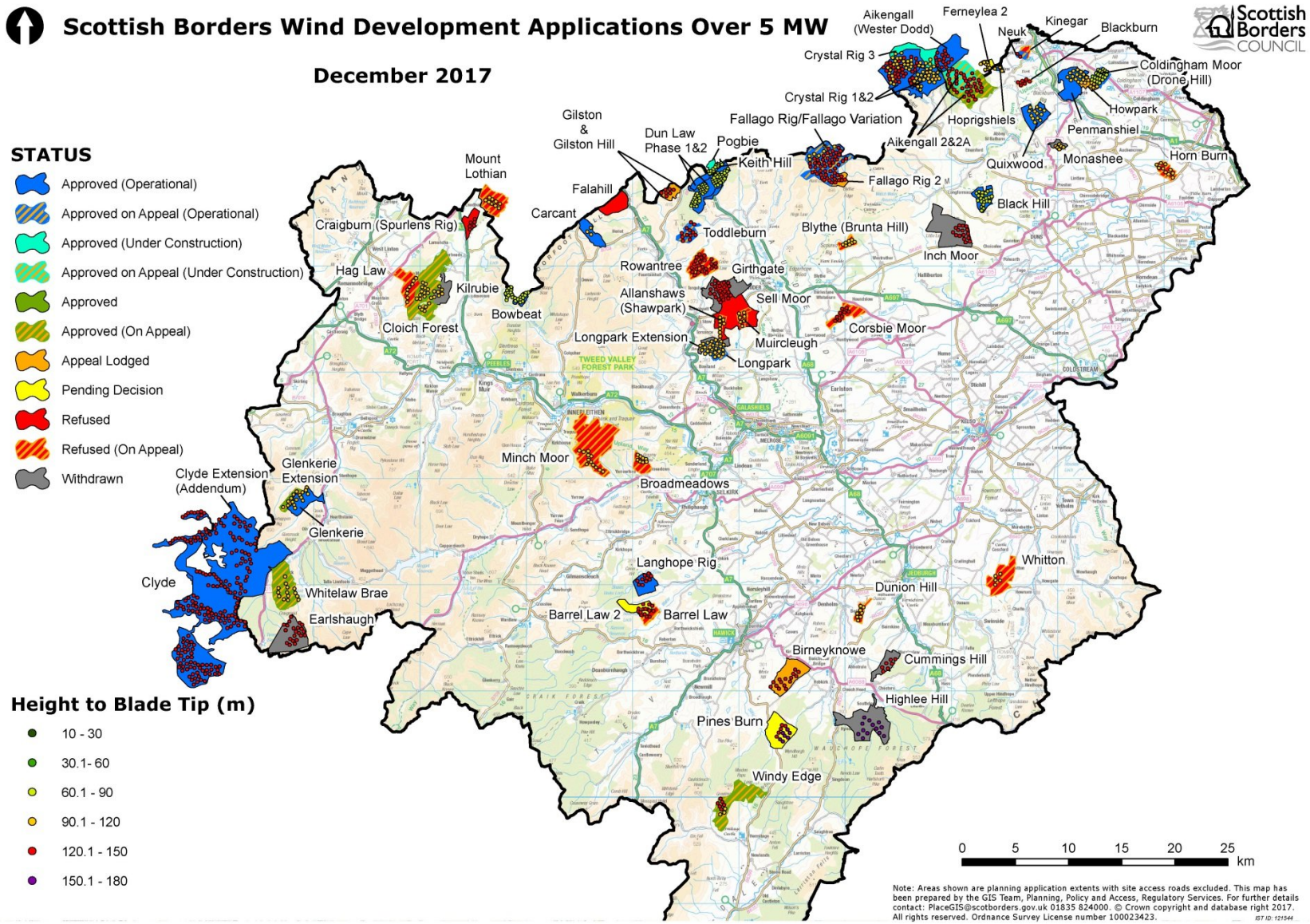
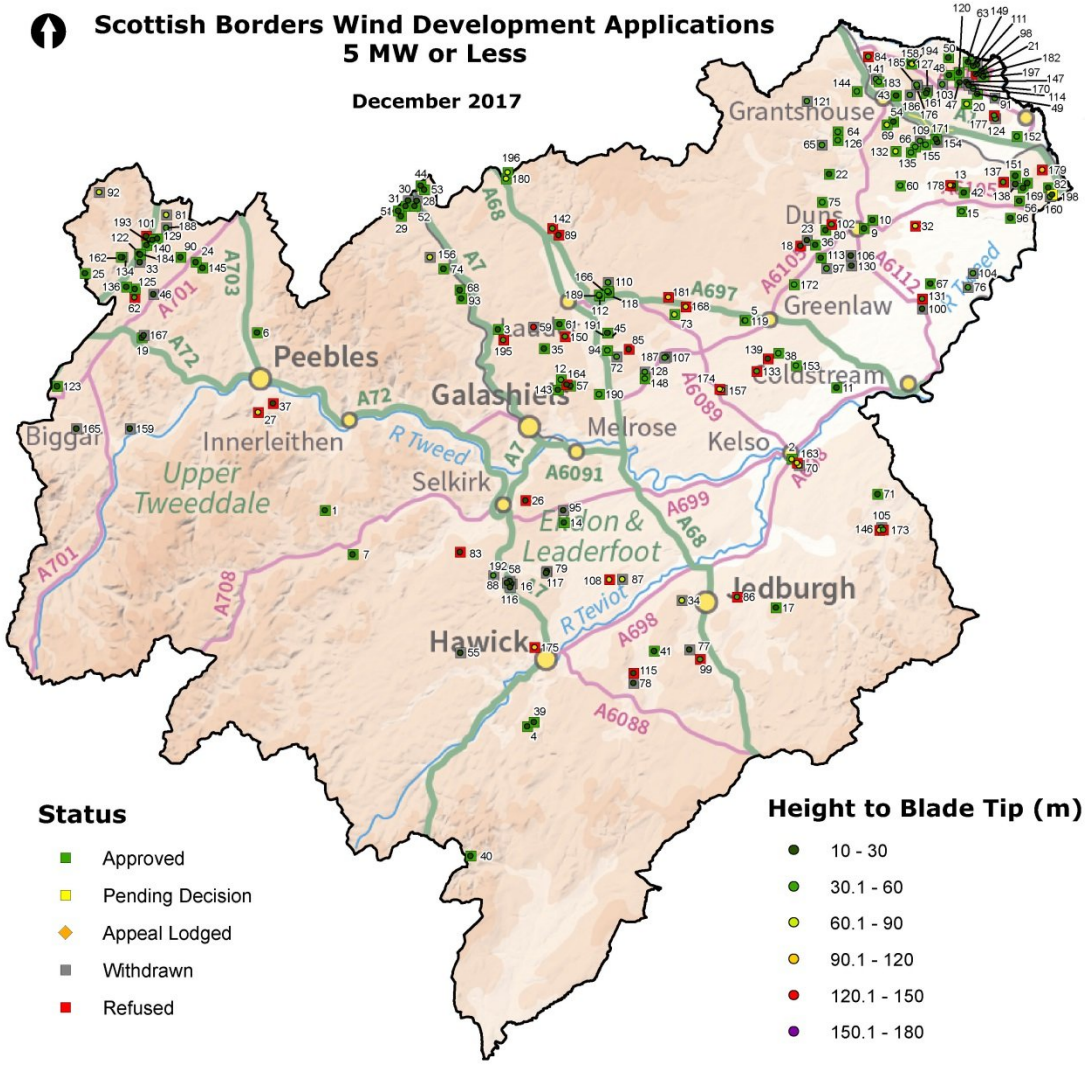
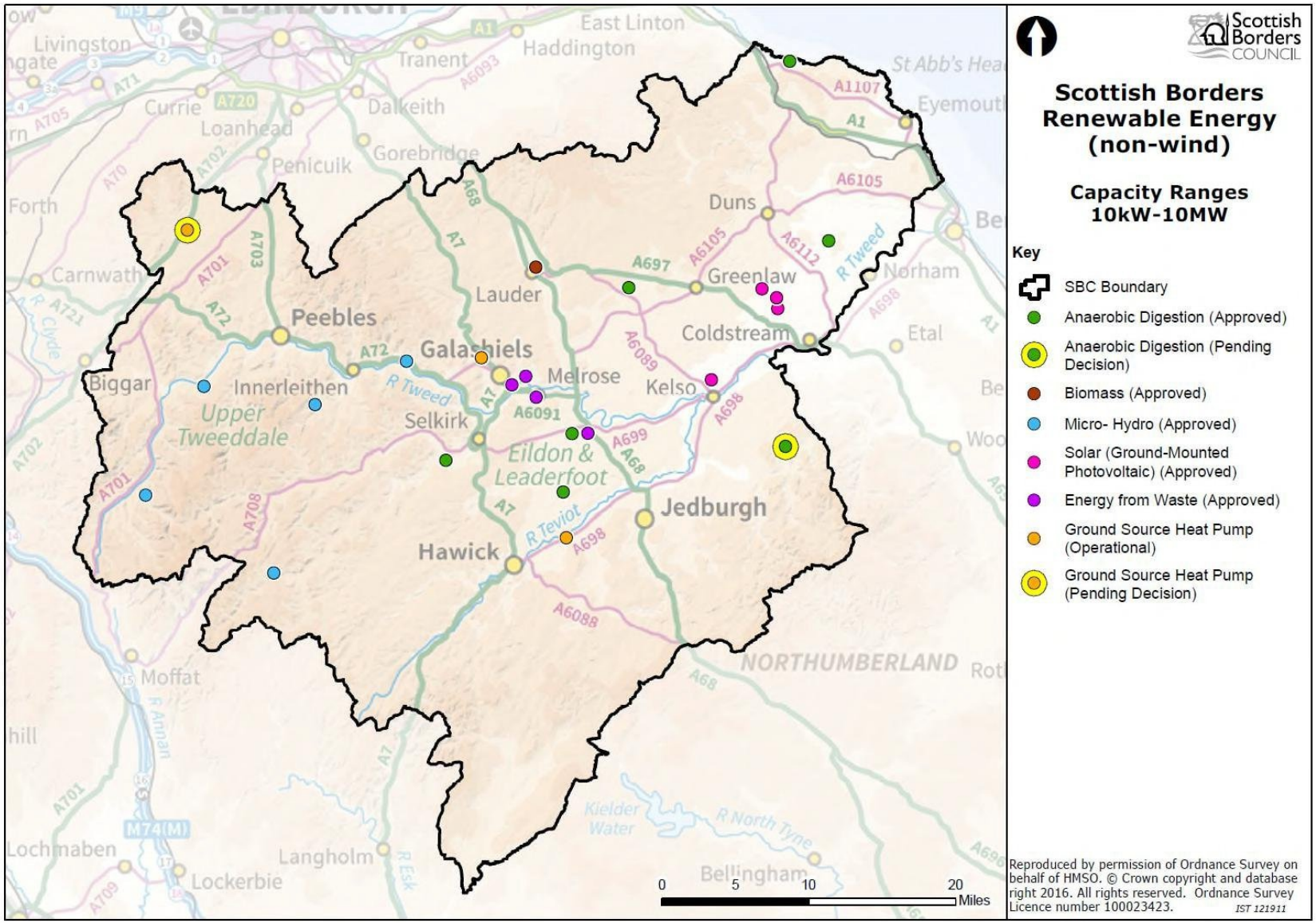


FIGURE 2: WIND ENERGY APPLICATIONS 5MWS OR LESS



Note: Locations are approximate and may have been altered to improve clarity. Specific locations can be provided on request.
This map has been prepared by the GIS Team, Planning, Policy and Access, Regulatory Services. For further details contact: PlaceGIS@scotborders.gov.uk 01835 824000.

FIGURE 3: APPLICATIONS FOR OTHER TYPES OF RENEWABLE ENERGY



CHAPTER 5: ROLE OF THE COUNCIL

HEAT MAPPING

Introduction and Background to District Heating and Heat Networks

This part of the SG seeks to identify where heat networks, heat storage and energy centres exist or would be appropriate. The generation of heat from renewable sources and low-carbon technologies can help to reduce Scotland's dependence on fossil fuels and reduce the output of harmful emissions. The Scottish Government wishes Scotland to be able to produce 11% of heat demand from renewable sources by 2020. Its *Heat Policy Statement* provides a "Scottish Heat System" (see diagram) which aims to reduce the need for heat, enable heat to be supplied efficiently and at least cost to consumers, and use renewable and low carbon heat. The Council endorses the messages from the Scottish Government on ensuring the provision of environmentally sustainable methods to produce heat and some of the key methods are expanded on elsewhere in chapter 6, including biomass and anaerobic digestion. Further draft documents which include guidance on the provision of heat in Scotland have been produced by the Scottish Government including the *Scottish Energy Strategy* and the *Consultation on Heat & Energy Efficiency Strategies, and Regulation of District -Heating.* The Council will continue to develop opportunities for heat mapping, heat storage and energy centres.

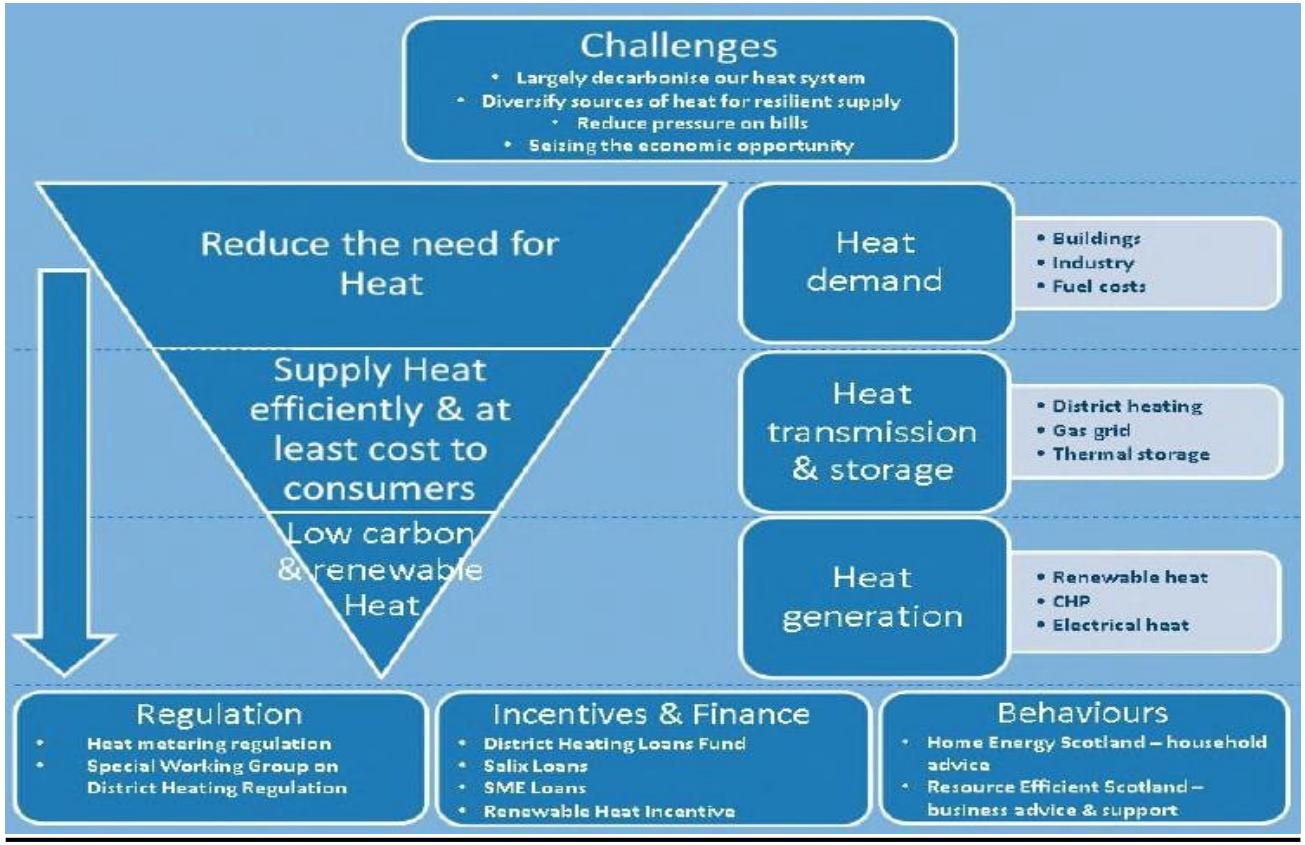
District heating is a means of delivering heat from a point of generation to end users – homes, offices, leisure centres, and other users of heat. A district heating scheme generally consists of:

- A heat source, often in the form of a dedicated central energy centre; and
- A network of insulated pipes used to deliver heat, in the form of water or steam. They provide efficient generation and distribution of heat, helping to secure a significant reduction in CO2 emissions in comparison to conventional heating approaches.

Paras 158-160 of SPP explain how plans should support use heat mapping to identify the potential for co-locating developments with a high heat demand with sources of heat supply, and create a number of planning policies which support the development of heat networks. Maps which show areas with the highest heat demand and potential sources of heat supply are shown on pages 16 and 17.

The Council will work towards identifying short, medium and longer term opportunities within development plans and actions programmes for Combined Heat and Power, district heating and cooling networks, and encourage development proposals to investigate the feasibility of district heating where appropriate. Opportunities for Scottish Borders Council, developers and existing businesses to install facilities or identify routes for pipework within development for future integration into heat networks should be identified in appropriate development proposals. It should be noted when reviewing this section of the SG that the physical implementation of the Council's heat networks is currently being progressed. The Council intends to expand further on its heat network guidance within the next Local Development Plan.

Scottish Heat System and Heat Hierarchy. Taken from the Scottish Government's "Planning and Heat Demand"

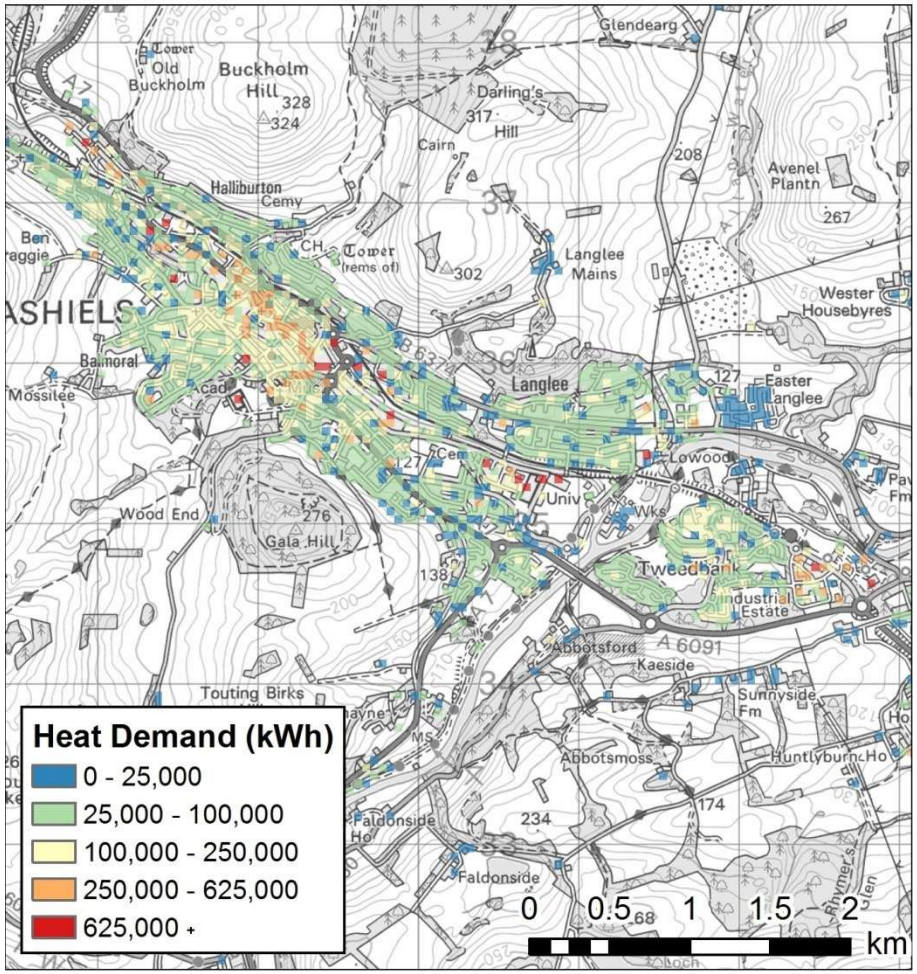


Identifying where heat networks, heat storage and energy centres exist or would be appropriate

The Government encourages local authorities to identify the potential for co-locating developments with a high heat demand with sources of heat supply, to support the development of heat networks in as many locations as possible and to identify where heat networks, heat storage and energy centres exist or would be appropriate. The Scottish Government has provided digital mapping data for Councils to be able to locate places of high heat demand and supply, and the following maps have been created from this data. The Council can use this data and these maps to progress its identifying potential for new and extended heat networks.

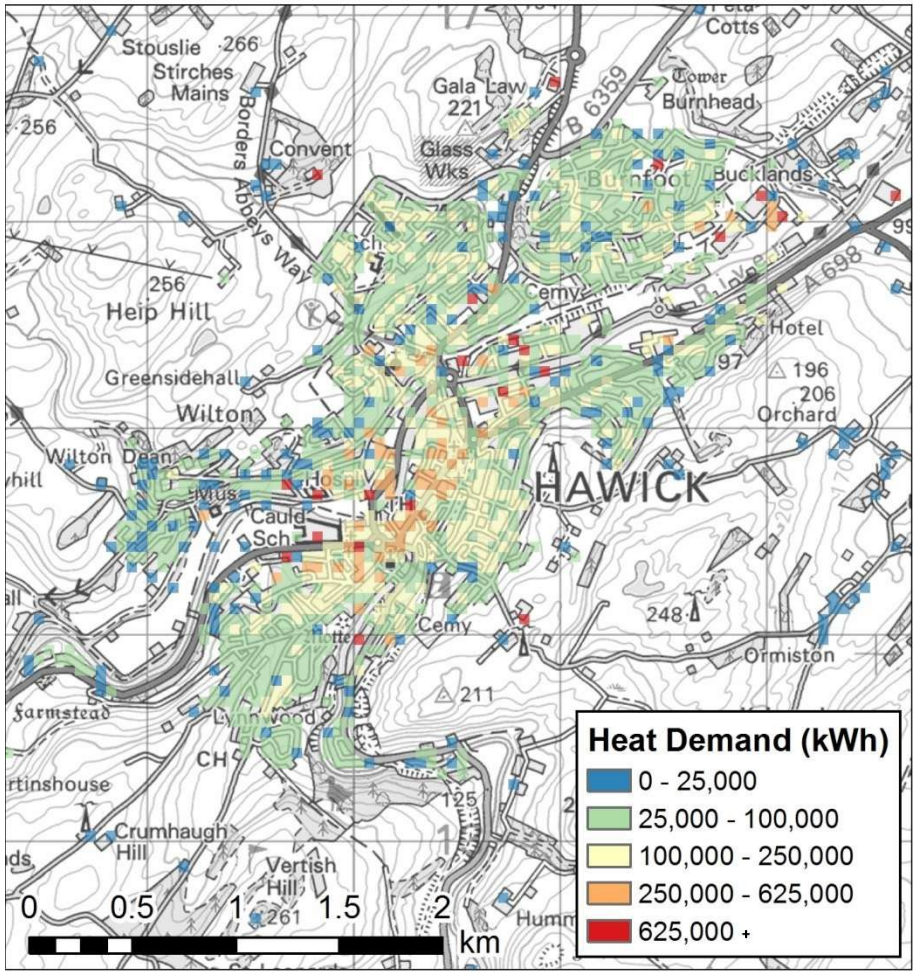
Maps showing heat demand in Galashiels, Tweedbank and Hawick

Galashiels & Tweedbank Heat Demand (50 m grid)



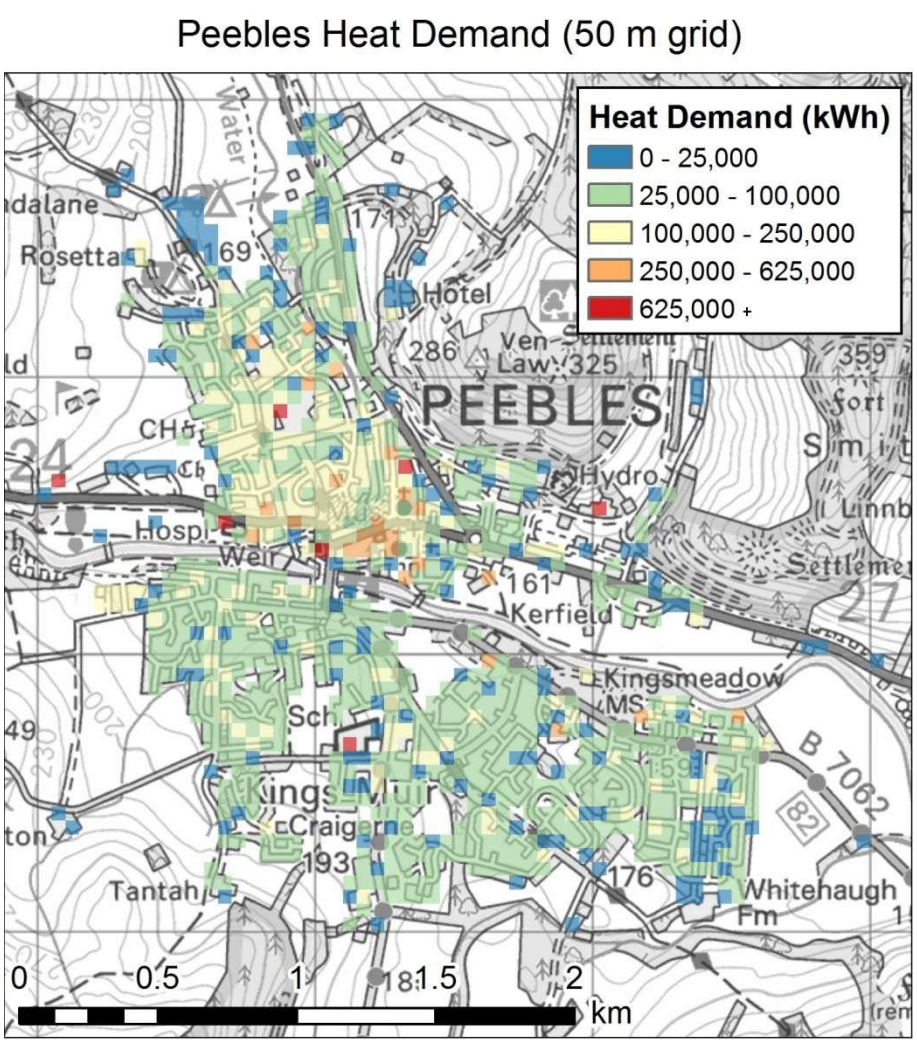
Reproduced by permission of Ordnance Survey on behalf of HMSO.© Crown copyright and database right 2018. All rights reserved. Ordnance Survey Licence number 100023423.

Hawick Heat Demand (50 m grid)

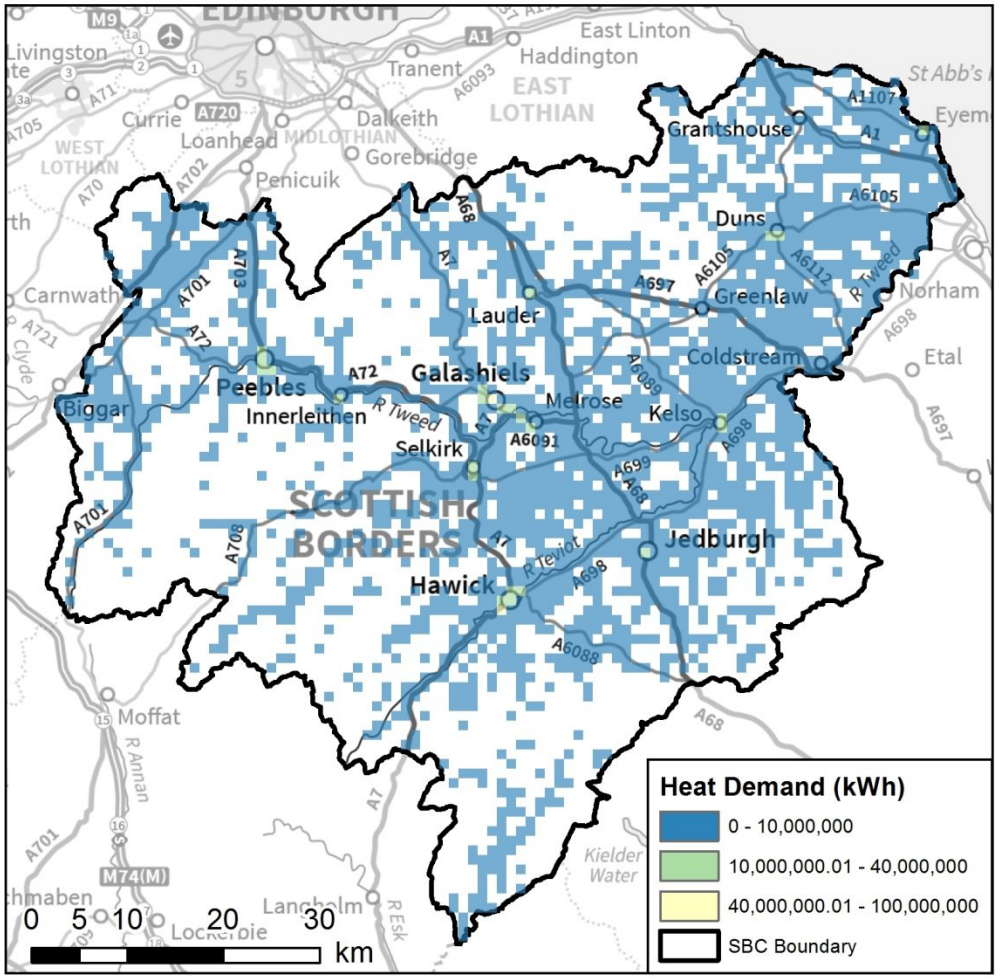


Reproduced by permission of Ordnance Survey on behalf of HMSO.© Crown copyright and database right 2018. All rights reserved. Ordnance Survey Licence number 100023423.

Map showing heat demand in Peebles

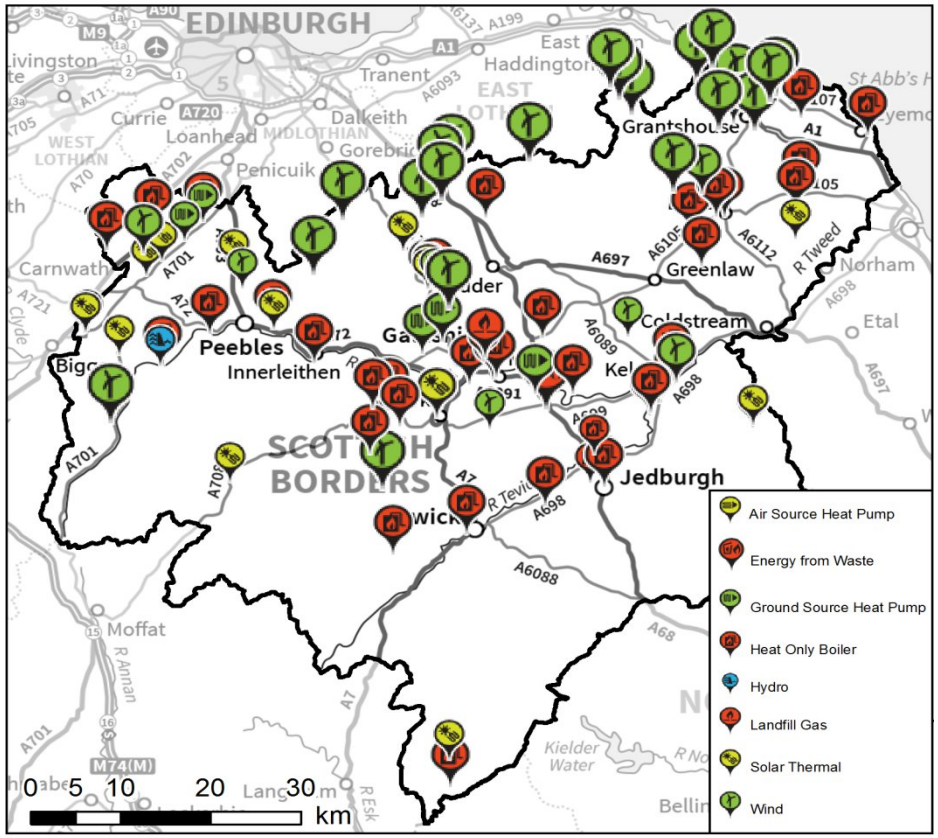


Strategic map indicating heat demand within the Scottish Borders

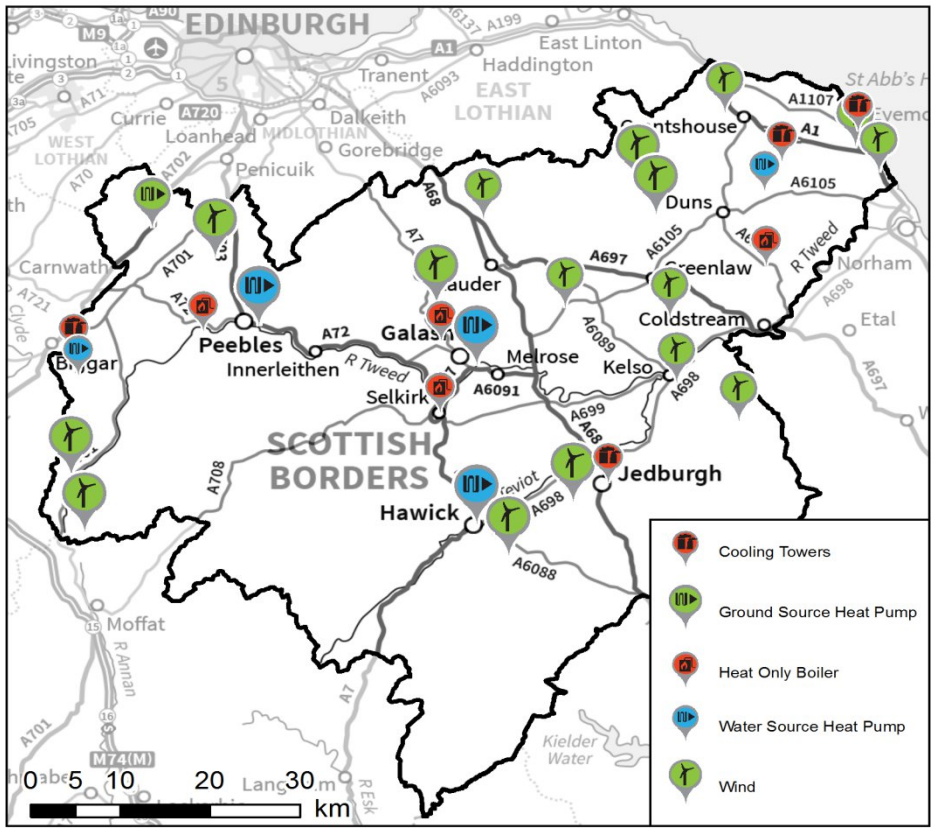


The maps below show existing and potential energy supplies. The key existing energy supplies are air source heat pumps, biomass projects, onshore wind turbines, and solar thermal projects. Most of the potential energy supplies are onshore wind developments. There is also a biomass project at Greenlaw, and a number of possible Ground Source Heat Pump and Wastewater Effluent projects.

Scottish Borders Existing Energy Supplies



Scottish Borders Potential Energy Supplies



CHAPTER 6: RENEWABLE ENERGY TYPES

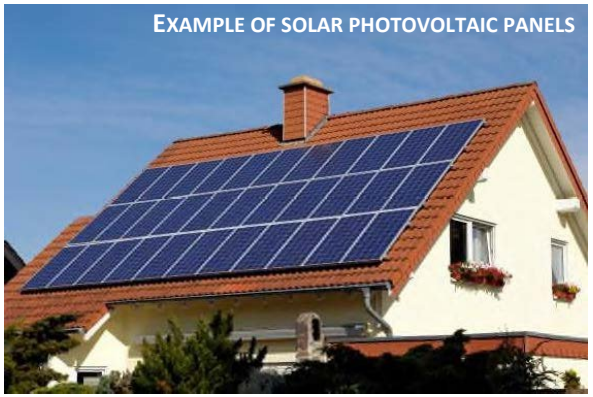
The Council remains supportive of a wide range of renewable energy and promotes and supports its Low Carbon Economic Strategy. The Council supports the development of heat networks and the effective use of renewables, and is taking forward work on heat mapping.

Proposals for all types of Renewable Energy will fundamentally be considered against the requirements of policy ED9. Policy ED9 makes reference to the consideration of Other Renewable Energy Development (i.e. proposals other than wind energy) stating that small scale or domestic renewable energy developments including community schemes, single turbines and micro-scale photovoltaic/solar panels will be encouraged where they can be satisfactorily accommodated into their surroundings in accordance with the protection of residential amenity and the historic and natural environment. Renewable technologies that require a countryside location such as the development of bio fuels, short crop rotation coppice, "biomass" or small scale hydro-power will be assessed against the relevant environmental protection and promotion policies, and other relevant policies in the local development plan. Waste to energy schemes involving human, farm and domestic waste will be assessed against Policy IS10 Waste Management Facilities.

There are a number of different types of renewable energy technologies and this part of the SG makes reference to some of the more common and emerging types, making reference to good practice procedures Development Management or any other interested party should consider. **Wind Energy proposals are referred to separately in chapters 7 and 8.**

MICRO-RENEWABLES INCLUDING SOLAR PHOTOVOLTAIC PANELS (PV)

Micro-renewables are generally defined as installations of less than 50kW (electrical) or less than 45kW (thermal) from renewable energy technologies which harness the power of wind, water, daylight/ sun to produce heat and electricity.


EXAMPLE OF SOLAR PHOTOVOLTAIC PANELS

The generation of heat and/or electricity from micro-renewables may provide an attractive alternative to heating and powering homes etc. by oil and gas due to increasing fossil fuel prices. Microgeneration has a long history and the cost of purchasing micro-renewables is steadily declining.

Small scale wind energy developments include roof mounted turbines and free standing structures which are typically located within the curtilage of houses. Solar photovoltaic panels (PV) convert daylight into electricity and are available in a variety of colours and formats including roof tiles. Wall mounted cladding and free-standing solar PV arrays are also available. In essence water is heated by the sun using panels which is then stored in a hot water cylinder. The visually acceptable levels of roof/wall cover will vary with the technology. For example solar tiles, which have a similar appearance to traditional roof coverings, may cover a large percentage of the roof, whereas conventional flat plate collectors that look similar to roof lights will generally need to cover a smaller area of the roof, particularly where they are installed in traditional tiled roofs. In order to operate most efficiently, solar PV cells should face as close to due south as possible to maximise the hours of sunlight they will receive during the day. In the UK panels should be mounted at an angle of about 30° to 40° from the horizontal although, practically, the existing roof pitch often governs the angle. Any siting chosen should be as free from shadow as possible. Solar cells do not need constant direct sunlight, and will still produce energy on even overcast days. However, the stronger the sunshine, the more electricity is produced. Similarly, the larger the area covered with solar cells, the more electricity is produced.

In some cases micro renewable developments fall into the category of permitted development which means that the works will not require planning consent. This can be confirmed on the Scottish Borders Council website. In terms of noise many domestic turbines are permitted development and do not require planning consent. Any consequent noise complaints would be investigated by the Council after installation and appropriate mitigation / abatement measures would be investigated at that stage on a case by case basis

For applications which may affect historic buildings, historic environment, monuments and sites, reference should be made to Historic Scotland's guidance on micro renewables.

EXAMPLE OF A DOMESTIC MICRO TURBINE

GOOD PLANNING PRACTICE FOR DOMESTIC SCALE PHOTOVOLTAICS:

- PV panels are less likely to be visible on valley roofs, double pitched roofs, roofs contained within parapets, low pitched roofs not easily seen from the street, flat roofs and platformed roofs
- Wherever possible solar panels should be flush with the roof and mounted at the same angle as the roof to minimise contrast
- Free standing arrays within garden ground are preferred to conspicuous roof locations

Most micro-renewable schemes are unlikely to have significant impacts on nature and landscapes, especially where they are located in built up areas. In some places however, the installation of micro-renewables could have an impact on protected areas and some species which are protected by law. In such instances reference should be made to the following SNH publication on Micro-renewables and the natural heritage (2009).

FIELD-SCALE SOLAR PHOTOVOLTAICS (PV)

Solar technologies are concerned with capturing energy from the sun. Field-scale solar PV is a relatively new renewable technology and proposals are likely to consist of groups of solar PV panels installed in 'arrays' of 18-20 panels with each PV panel typically able to generate 220 watts of electrical power.

Panels are dark in colour as a result of their non-reflective coating to maximise absorption of light. They are encased in an aluminium frame, supported by aluminium or steel stands mounted and secured either on pre-moulded concrete block 'anchors', or foundations. Some developments contain panels that can be manually rotated and/or tilted several times a year to enable the arrays to track the sun. The technology does exist to allow for automatic tracking, although this is rarer.

Panels are held at a fixed angle between 20-40 degrees from the horizontal, facing south to maximise absorption of energy from the sun. Arrays are sited in rows with intervening gaps between them for access and to ensure that the individual panels are not in the shade of another panel. The actual arrangement of the arrays within the landscape varies from scheme to scheme depending upon the site contours and orientation. The height of the racks of solar panels varies depending on the panel manufacturer and installer, but they tend to be between 2-4m off the ground. Grazing by some livestock is possible dependent on the height of the solar panels. This is a compatible form of land management, as it ensures that growing vegetation does not affect the efficiency of the panels, and allows for traditional rural land management to continue.

EXAMPLE OF A FREE-STANDING SOLAR ARRAY

Field-scale solar PV installations can occupy substantial areas of ground which may be visible (particularly where sites are able to be viewed from adjacent higher ground) and therefore the following should be considered:

GOOD PLANNING PRACTICE FOR FIELD SCALE PHOTOVOLTAICS:

- Consideration to be given to inherent characteristics of landscape to absorb panels. Solar PV development should be located on flat landforms or on lower slopes/within folds in gently undulating lowland landscapes rather than on prominent upland landforms, highly visible slopes, or coastal headlands.
- Consideration to be given to impacts on sensitive receptors e.g. residencies, public roads, tourist routes, long distance footpaths and other Rights of Ways
- Landscape Management Plans to be submitted and agreed by Planning Authority
- A glint / glare assessment to be submitted with an application
- A more cautious approach to be taken within designated landscapes
- Developments should preferably be in landscapes where screening is already provided by woodland, hedgebanks or high hedges. Screen planting may be necessary to ensure the solar panels and associated infrastructure are screened from view. This has to be at sufficient distance to avoid casting shade over the peripheral panels.
- Avoid siting PV developments across multiple fields in areas with a small scale irregular field pattern that is important to landscape character
- Suitable materials (such as cladding of buildings) and finish colours should be used that integrate any new buildings with their surroundings
- Avoid adversely affecting areas of semi-natural habitat, and designated historic and archaeological sites directly or indirectly
- Proposals should not affect the character or setting of the built heritage
- Ensure that any PV developments do not detract from prominent landmarks. Avoid locating solar PV developments where they could be directly overlooked at close quarters from important or sensitive viewpoints
- Consideration to be given to any potential impacts regarding the detailed design of any required deer/securing fencing

Further guidance and good planning practice regarding large photovoltaic arrays can be found on the Scottish Government website.

CHAPTER 6: RENEWABLE ENERGY TYPES

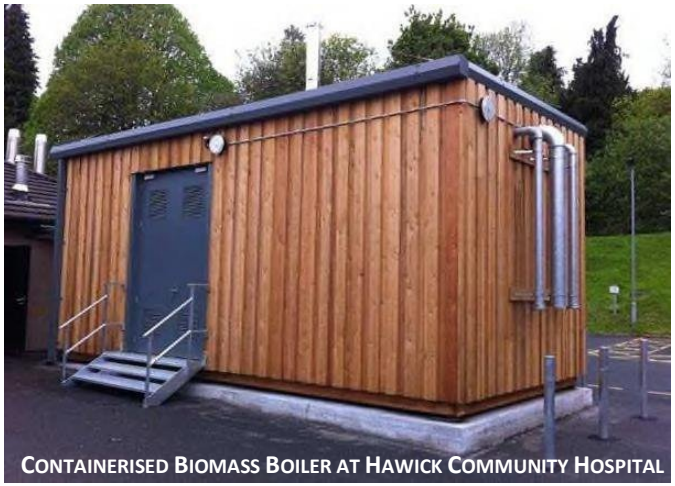
BIOMASS

Biomass is the generic term for organic matter from forestry or agricultural sources which is processed to form either solid or liquid fuel (e.g. wood chip / wood pellets, bio-diesel). Biomass is burnt to generate energy in domestic, public and commercial settings. The most common use of biomass is the direct burning of wood. Large biomass power stations require structures such as a furnace, generator and a transformer while the smallest installations consist of a wood burning stove. Smaller biomass developments tend to be sited near urban areas where the heat or electricity generated can be used, while larger biomass developments requiring more fuel need to be sited close to the fuel source – possibly in a rural area near a forest.

Correctly managed, biomass is a sustainable fuel that can offer a wide range of benefits. Biomass is a "carbon lean" fuel producing a fraction of the Carbon emissions of fossil fuels. UK sourced biomass can offer local business opportunities and support the rural economy. The establishment of local networks of production and usage allows financial and environmental costs of transport to be minimized.

There are likely to be three scales of biomass plants of relevance to the Scottish Borders:

- Small scale installations which have a capacity of up to 50kW used to heat single buildings. Organic matter of recent origin is burnt in a biomass furnace. In domestic situations this is usually wood or a forestry co-product such as wood chip or pellets. Biomass energy can be used to heat an individual house or flat using a stand-alone pellet stove to provide space heating in a room, or incorporate boilers connected to a central heating and hot water system. A biomass heating system can also connect to an existing chimney.
- Medium scale installations with a capacity of up to 2MW used to provide power for large commercial buildings and some district heating systems
- Commercial biomass power stations or large district heating systems



CONTAINERISED BIOMASS BOILER AT HAWICK COMMUNITY HOSPITAL

Smaller biomass installations may not require planning permission if they are to be accomodated inside a building, although it may be that parts of the installation do demand planning permission such as the flue or an external storage facility. Medium scale installations will usually require planning permission. Parts of the development which may require the most careful planning are the flue, the fuel storage area, and the transport and access needs. Large scale power stations or heating systems will need to be considered with regard to transport, landscape and build environment impacts as well as wider constraints and sensitivities. The re-use of wasted materials from the process should be considered.

Further Scottish Government on line advice on woody biomass can be found here.

GOOD PLANNING PRACTICE FOR BIOMASS:

It is considered that when submitting an application for a biomass plant the following good practice guidance should be followed:

- Consideration to be given to the source and security of the supply of woodfuel
- Consideration to be given to the scale of the biomass plant and its impact on surrounding buildings, landscape and other land uses
- Proposals should not be sited in prominent locations where there is a significant visual impact, particularly from the flue, on key views or landmarks
- Consideration to be given to issues regarding transport and access for work traffic carrying fuel. Large applications may require a transport statement
- Proposals should have no unacceptable impact on the amenity of any surrounding residential areas, including noise impact
- Proposals should be integrated or adjacent to existing industrial areas or other buildings unless another location can be fully justified as the preferred option
- There should be appropriate management and storage of the biomass resource and proportionate harvesting of any wood resource - a Woodland Management Strategy must accompany any plans which make use of woodlands in the Borders as fuel
- Biomass plants can have adverse impacts on air quality. Levels of pollutants should be minimised though the use of best available technology, including abatement technology
- Suitable materials (such as cladding of buildings) and finish colours should be used that integrate structures with their surroundings
- Tree planting (using native species) that helps filter views of the biomass plant should be considered from key public vantage points. This may include tree planting at a distance from the biomass plant
- Proposals should not adversely affect the character and appearance of the built heritage
- Proposals should not affect the value of historic monuments, buildings, archaeological sites and remains or their settings, or the ecological value of semi-natural habitats
- Heat mapping should be referred to which can confirm the best locations for where district heating and heat networks might exist. (Note – the Council is currently progressing work on heat mapping).

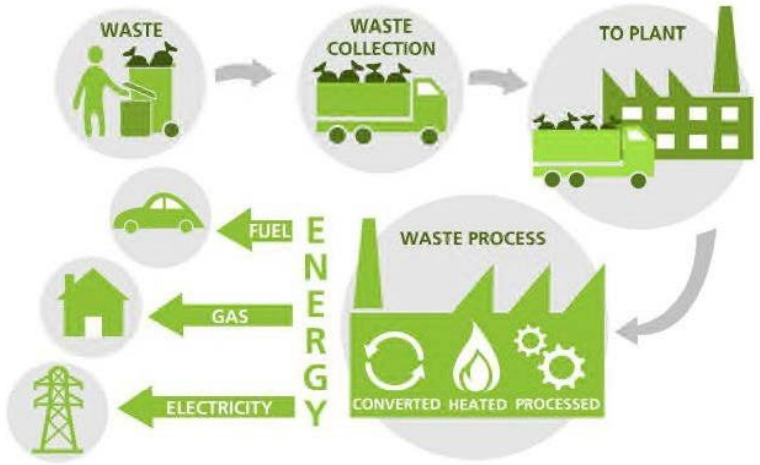
ENERGY FROM WASTE

Energy from waste primarily involves the use of thermal processes to convert municipal and commercial waste streams to energy and heat. The Zero Waste Plan (ZWP) for Scotland sets out how Scotland can move towards being a zero waste society. This does not mean we never throw anything away, but that we make the most effective use of resources contained in waste. An important part of achieving a zero waste Scotland is maximising reuse and recycling. Actions must be taken to increase the quantity and quality of materials collected for recycling. Recycling materials must be sorted into separate streams to avoid contamination with other wastes and materials.

The planning system has a crucial role in delivering waste management facilities for all waste to ensure the objectives and targets of the ZWP are met. Moving to zero waste means more facilities will be required to collect, sort, reuse, recycle and process waste. There will also be opportunities to harness heat and power generated from waste recovery processes.

The Waste (Scotland) Regulations 2012 provide a statutory framework to maximise the quantity and quality of materials available for recycling and to minimise the need for residual waste infrastructure. Good practice supporting that goal and the sustainability principles of SPP will secure new ways of capturing the economic value of waste resources.

The Scottish Government published updated online guidance for planning and waste management in July 2015. Proposals must comply with SEPA's Thermal Treatment of Waste Guidelines (http://www.sepa.org.uk/media/28983/thermal-treatment-of-waste-guidelines_2014.pdf) and the National Waste Plan for Scotland Regulations 2007 can be viewed here. Authorisation from SEPA for an EfW plant is also required (see guidelines http://www.sepa.org.uk/regulations/waste/energy-from-waste/)



SIMPLIFIED DIAGRAM SHOWING PROCESS OF PRODUCING ENERGY FROM WASTE

GOOD PLANNING PRACTICE FOR ENERGY FROM WASTE

- Buildings should be located as close to the waste resource as possible
- Installations should not be sited in prominent locations or on exposed skylines. Existing landmarks should remain prominent and installations should not detract from views to these landmarks
- Proposals should not affect the value of historic monuments, buildings, archaeological sites and remains or their settings, or the ecological value of semi-natural habitats
- Suitable materials (such as cladding of buildings) and finish colours should be used that integrate structures with their surroundings
- Tree planting (using native species) that helps filter views of the plant should be considered from key public vantage points
- Measures should be taken to minimise any visual, odour and noise impacts on local residents associated with the operation of the plant and delivery of feedstocks
- Consideration to be given to the suitability of local access roads to adequately accommodate large scale delivery / service vehicles

ANAEROBIC DIGESTION

Anaerobic digestion (AD) is a method of waste treatment that can either produce a biogas with high methane content or, following a similar process, produces hydrogen, both from organic materials such as organic agricultural, household and industrial wastes and sewage sludge (feedstocks). The methane or hydrogen can be used to produce heat, electricity, or a combination of the two. Alternatively hydrogen can be used for storage of energy in hydrogen cells or as a medium for transporting energy for use elsewhere.

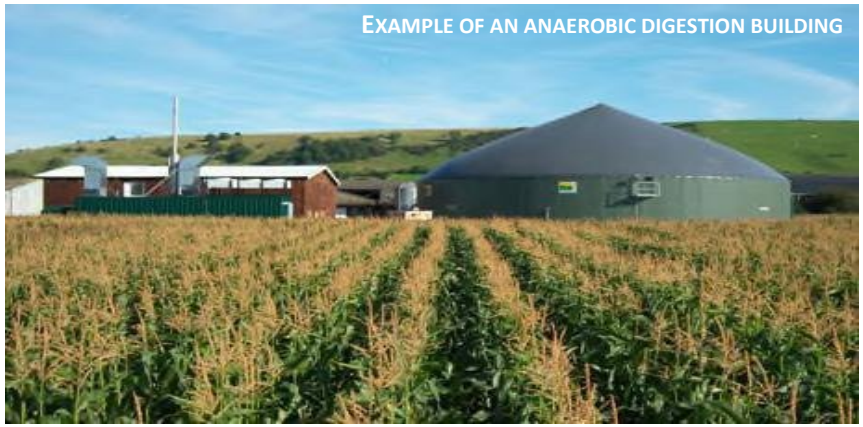
Anaerobic digesters utilising farm and food wastes bring considerable benefits. They convert methane, a significant greenhouse gas and a major by-product of animal slurries from livestock farming and anaerobic decomposition of food waste, into energy (electricity and heat). They make a significant contribution to reducing greenhouse gas emissions, both by reducing the quantities of methane released into the atmosphere, and by providing a low carbon energy source that substitutes for energy generated from fossil fuels.

An AD plant typically consists of a digester tank, buildings to house ancillary equipment, a biogas storage tank and a flare stack (3 – 10m in height). The digester tank is usually cylindrical or egg-shaped, its size being determined by the projected volume and nature of the waste. It can be part buried in the ground.

There are likely to be three scales of anaerobic digestion plant of relevance to the Scottish Borders:

- Small scale plants dealing with the waste from a single farm (generating in the region of 10kW) with the biogas potentially used to heat the farmhouse and other farm buildings in the winter when farm wastes are available
- A medium-sized centralised facility (CAD) dealing with wastes from several farms supplemented by other feedstocks and potentially producing up to 2MW
- A large scale facility serving a broader strategic purpose

Planning permission is likely to be required for all anaerobic digestion plant installations. It will be incumbent upon potential developers to liaise with the Planning Authority to establish whether any such planning application will need to be accompanied by an Environmental Statement and/or whether an Environmental Impact Assessment will be required.


EXAMPLE OF AN ANAEROBIC DIGESTION BUILDING

Small-scale AD plants and those dealing with wastes from one or two farms offer significant potential for the generation of electricity and heat within Scottish Borders. Provided digesters are integrated into the existing farm complex, or building groups, and natural screening is provided where appropriate, small digesters can be incorporated into the wider landscape and should not conflict with the Local Development Plan objectives.

Larger digesters, shared between a number of farms, or located to provide heat and energy to groups of houses, will need to be considered in terms of traffic movements and the potential impacts on landscape and the built environment.

Large commercial AD plants may be acceptable within Scottish Borders, but this will depend mainly on site specific and wider constraints and sensitivities, therefore potential developers are advised to make early contact with the Development Management Service to discuss whether any such potential may be available.

One of the main issues to be addressed are the consideration of possible impacts of nearby residential properties in terms of odour and noise. It is advised that applicants contact SEPA and the Council's Environmental Health section to discuss requirements to be addressed and mitigated. Any proposed AD within 250m of a residence may require more rigorous

testing issues although that will be considered on a case by case basis. There may be a need for an AD plant to obtain authorisation from SEPA and the biogas produced from AD plants requires to comply with SEPA's The Thermal Treatment of Waste Guidelines 2014 (see http://www.sepa.org.uk/media/28983/thermal-treatment-of-waste-guidelines_2014.pdf)

It is considered that when submitting an application for an anaerobic digestion plant the following good practice guidance should be followed:

- Buildings should be located as close to the waste resource as possible
- They should be integrated within or be adjacent to existing buildings or farmsteads
- The digester tank should be part buried in the ground
- Installations should not be sited in prominent locations or on exposed skylines – the flare stack can be prominent
- Existing landmarks should remain prominent and installations should not detract from views to these landmarks
- Proposals should not affect the value of historic monuments, buildings, archaeological sites and remains or their settings, or the ecological value of semi-natural habitats
- Suitable materials (such as cladding of buildings) and finish colours should be used that integrate structures with their surroundings
- Tree planting (using native species) that helps filter views of the AD plant should be considered from key public vantage points
- Measures should be taken to minimise any visual, odour and noise impacts on local residents associated with the operation of the plant and delivery of feedstocks
- Consideration to be given to the suitability of local access roads to adequately accommodate large scale delivery / service vehicles

Planning authorities role in dealing with proposals for AD plants are set out in Scotland's Zero Waste Plan 2011. Further information regarding anaerobic digestion and related guidance and good planning principals can be found on the Scottish Government website.

HYDROPOWER

Hydropower systems convert potential energy stored in water to turn a turbine to produce electricity. They can be connected to the main electricity grid or be part of a stand-alone (off-grid) power system. The end user (or grid connection point) needs to be close to the hydropower system, and for an off-grid hydro system, a back-up power system may be needed to compensate for seasonal variations in water flow.


EXAMPLE OF A HYDROPOWER SYSTEM

Hydro power schemes can be a variety of scales and are very site specific, reliant entirely on having a suitable watercourse. The suitability of a watercourse is determined by the average flow rate, the available 'head' (often closely linked to gradient) and the accessibility to an end user and a national grid connection where relevant. The greater the head and flow, the more power can be produced. Without all of the above it is very unlikely that a hydro scheme would be viable.

The Scottish Hydropower Resource Study produced for the Forum for Renewable Energy Development

in Scotland (FREDS) in autumn 2008, found that there is huge untapped potential - and a sustainable and profitable future - in smaller and micro hydro schemes. It suggests that there are financially viable hydroelectricity schemes to exploit in Scotland.

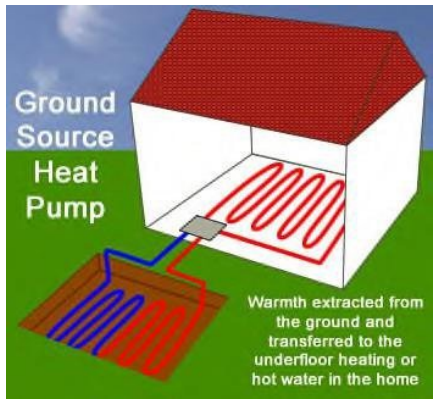
Environmental considerations need to be addressed in terms of, for example, any impacts on the water environment including the disruption to any water flows, potential flood risk, disturbance of aquatic species and the consideration of impacts on riparian habitats. In terms of any larger scale hydro schemes consideration should be given to any adverse visual impacts on the environment particularly in the case of steeply sloping sites. Hydropower schemes require authorisation from SEPA and guidance can be found on the following link - http://www.sepa.org.uk/media/136104/planning-guidance-on-hydropower-developments.pdf

The Scottish Borders has traditionally many towns which were built around mills next to water courses. It is considered the opportunity to utilise this resource should be maximised where possible. The majority of small hydro schemes within the Scottish Borders 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. Many of the larger tributaries and main watercourses within Scottish Borders are designated as part of the River Tweed SAC, parts of which are also designated as SSSI. In assessing impacts, connectivity to the protected areas (SAC) including via non-designated watercourses, needs to be considered.

GOOD PLANNING PRACTICE FOR HYDROPOWER

- Ensure any potential impacts on water courses are addressed including protected areas, the ecological interest and protected species. Further guidance is available from SNH and SEPA
- Consideration to be given to potential noise and visual impact
- Consideration to be given to any potential implications and conflicts with any recreation and access issues
- A Flood Risk Assessment is likely to be required
- An Environmental Assessment is likely to be required

GROUND SOURCE HEAT PUMPS



Ground source heat pumps transfer heat from the ground into a building to provide space heating and, in some cases, to pre-heat domestic hot water. This transfer requires an energy input (usually electricity) generating a far greater output (usually heat). They consist of a length of pipe filled with water (and anti-freeze) which is buried underground (either in a trench or borehole) and a heat pump which acts like a refrigerator and removes the heat from the water and converts it into heat and hot water. The heat distribution system consists of either an underfloor heating system or radiators for space heating, and in some cases water storage for hot water supply. Water source heat pumps are also available. Some heat pumps may also be used to provide both heating and cooling.

Ground source heat pumps may not be suitable for every building. Most systems feature pipes laid in a trench, as trenches are often cheaper to dig than boreholes. For a trench system a large amount of land is required, although the land can be returned to its previous use

or be landscaped following installation of the pipes. A borehole system will need less land area, but may be more expensive to install, and may not be suitable for every site. Obviously trenches and boreholes must avoid any underground services, and the underlying geology may also be a factor. Consent may be needed from SEPA for a borehole ground source heat pump and SEPA should be contacted at an early stage.

GOOD PLANNING PRACTICE FOR GROUND SOURCE HEAT PUMPS

- Consideration to ensure trenching works or boreholes have no adverse impact on any ecological or archaeological site without ensuring adequate mitigation (PAN 2/2011 Planning and Archaeology allows for objection to permitted development and also the potential for stop notices, if archaeology will be impacted)
- Ensure the pipe is free from the threat of any future development
- If the property is within a conservation area or is listed the planning authority should be contacted in order to confirm if any formal consents are required
- Ensure the pipe system will not affect any public access on land or water
- The excavation works should have no impacts on any water course

CHAPTER 7: WIND ENERGY

Parts of the Scottish Borders, particularly the upland areas where the landscape offers better wind speed opportunities for turbines, have enabled a number of approvals. To date there have been 510 no approved turbines of over 15m in height to blade tip and these turbines have the potential to generate 832MW of energy.

Many of the larger scale commercial approvals have taken place in the Lammermuir Hills within the northern part of the Scottish Borders, predominantly at Crystal Rig, Aikengall and Fallago Rig. There have been several approvals within the Moorfoot Hills at Dun Law and development interest continues in the area to the south in the vicinity of Lauder Common. There is now developer interest in the southern part of the Scottish Borders and it is envisaged further applications will be submitted for large scale developments within that area. There have been a number of smaller scale non-commercial proposals for single and small groups of turbines. This is particularly prevalent within Berwickshire. As a result of these approvals cumulative impact is a significant issue to be considered, including proposals in the extreme west of the Scottish Borders where cognisance must be given to the extensive turbine development in the Clyde Valley. Figures 1, 2 and 3 confirm the continuing interest in wind farms proposals and the high number of approvals within the Scottish Borders.

CRYSTAL RIG WIND FARM, CRANSHAWS

CHAPTER 7: WIND ENERGY

SPATIAL FRAMEWORK

With regards to wind farms, the spatial framework as laid down in table 1 of SPP in essence seeks to identify areas where wind farms will not be acceptable, areas which have significant protection and areas which have potential. The spatial framework relates to wind farm proposals and is a requirement for this SG. Table 1 requires identification of the following parts:

FIGURE 4: SPATIAL FRAMEWORK REQUIREMENTS AS PER SPP

Group 1 : Area where windfarms 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 SNH 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

With regards to the Scottish Borders the requirements of the spatial framework can be summarised as follows and the relevant component parts for each part are identified in figure 5.

GROUP 1 - AREAS WHERE WIND FARMS WILL NOT BE ACCEPTABLE

There are no National Parks within the Scottish Borders and therefore the only recognised constraints within this group are the National Scenic Areas at Eildon & Leaderfoot and Upper Tweeddale. These are identified in fig 5 (i).

GROUP 2 - AREAS OF SIGNIFICANT PROTECTION

The spatial framework requires the identification of the "National and International Designations" and these have been incorporated into fig 5 (ii). "Other Nationally Important Mapped Environmental Interests" have been identified and incorporated into fig 5(iii).

The identification of "Community Separation for consideration of Visual Impact" raises a number of practical issues. In the case of the Scottish Borders there are 88no identified settlements within the adopted LDP 2016. This presents a major exercise to be carried out for each of these settlements, bearing in mind factors such as the variable topography within many of these settlements and the consequent variations of views over a 2km area, the implications of different turbine types and sizes which should be addressed and confirming what proportion or part of a turbine may be acceptable to view within the 2km distance.

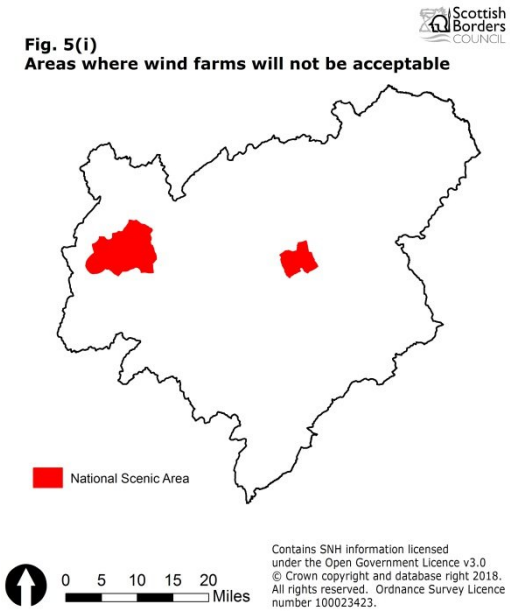
Furthermore, whatever the output proposals are for each settlement, in practice if any developer wished to propose turbines within 2kms of a settlement they would produce more detailed site specific visualisations in relation to their proposal in any event. It is therefore considered a more appropriate means of addressing this issue is to identify the 2km as required by the spatial framework around all recognised LDP settlements and test any applications against the following:

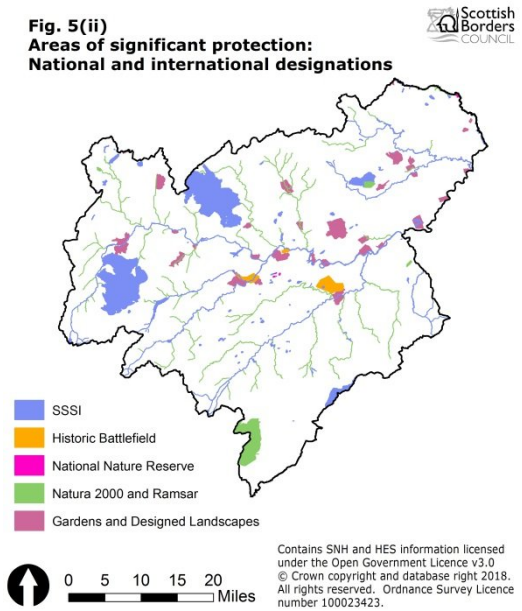
AS RECOGNISED BY SPP A 2KM AREA AROUND SETTLEMENTS IDENTIFIED WITHIN THE LDP IS A MORE SENSITIVE AREA FOR WIND TURBINES AND THE CONSIDERATION OF TURBINES WITHIN THESE AREAS SHOULD BE JUDGED IN TERMS OF CONSIDERING ANY POTENTIAL ADVERSE IMPACTS ON RESIDENTS WITHIN THE 2KM DISTANCE. APPLICANTS ARE REQUIRED TO DEMONSTRATE THE ACCEPTABILITY OF SUCH PROPOSALS WITH ANY MITIGATION MEASURES REQUIRED.

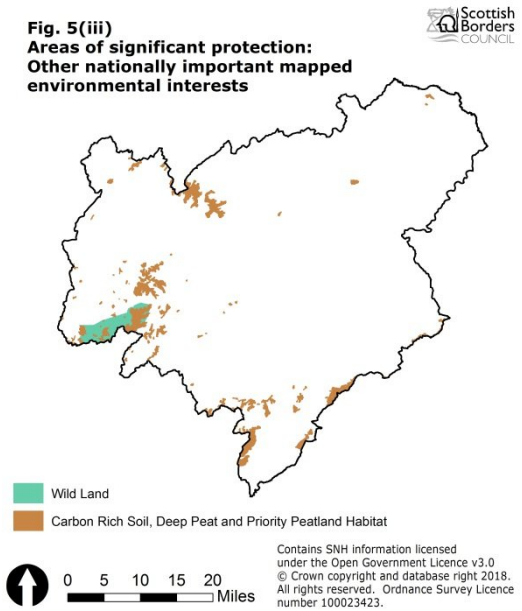
The 2km sensitivity areas identified around all LDP settlements are shown in figure 5 (iv).

Having carried out the sieving exercise of the identification of constraints as required by SPP and identified within figures 4 and 5, figure 6 confirms the remaining areas as Group 3 – Areas with Potential for Wind Farm Development. Consequently **figure 6 sets out the Spatial Framework.** The spatial framework applies to all turbines which exceed 15m in height. The spatial framework is an important initial starting point to be considered for all wind turbine proposals which exceed the aforesaid height.

FIGURE 5: SPATIAL FRAMEWORK COMPONENT PARTS







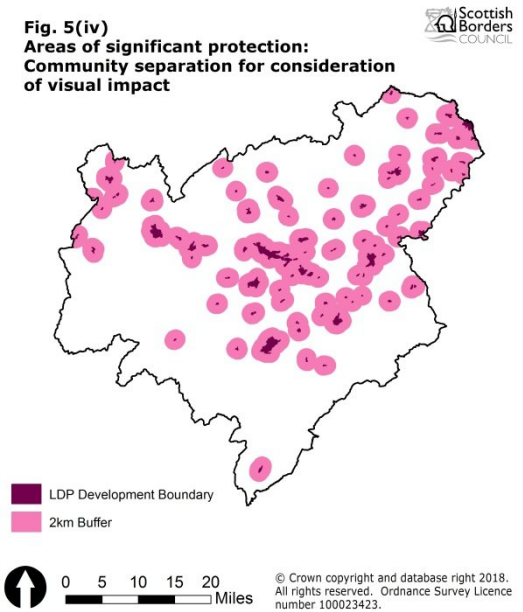
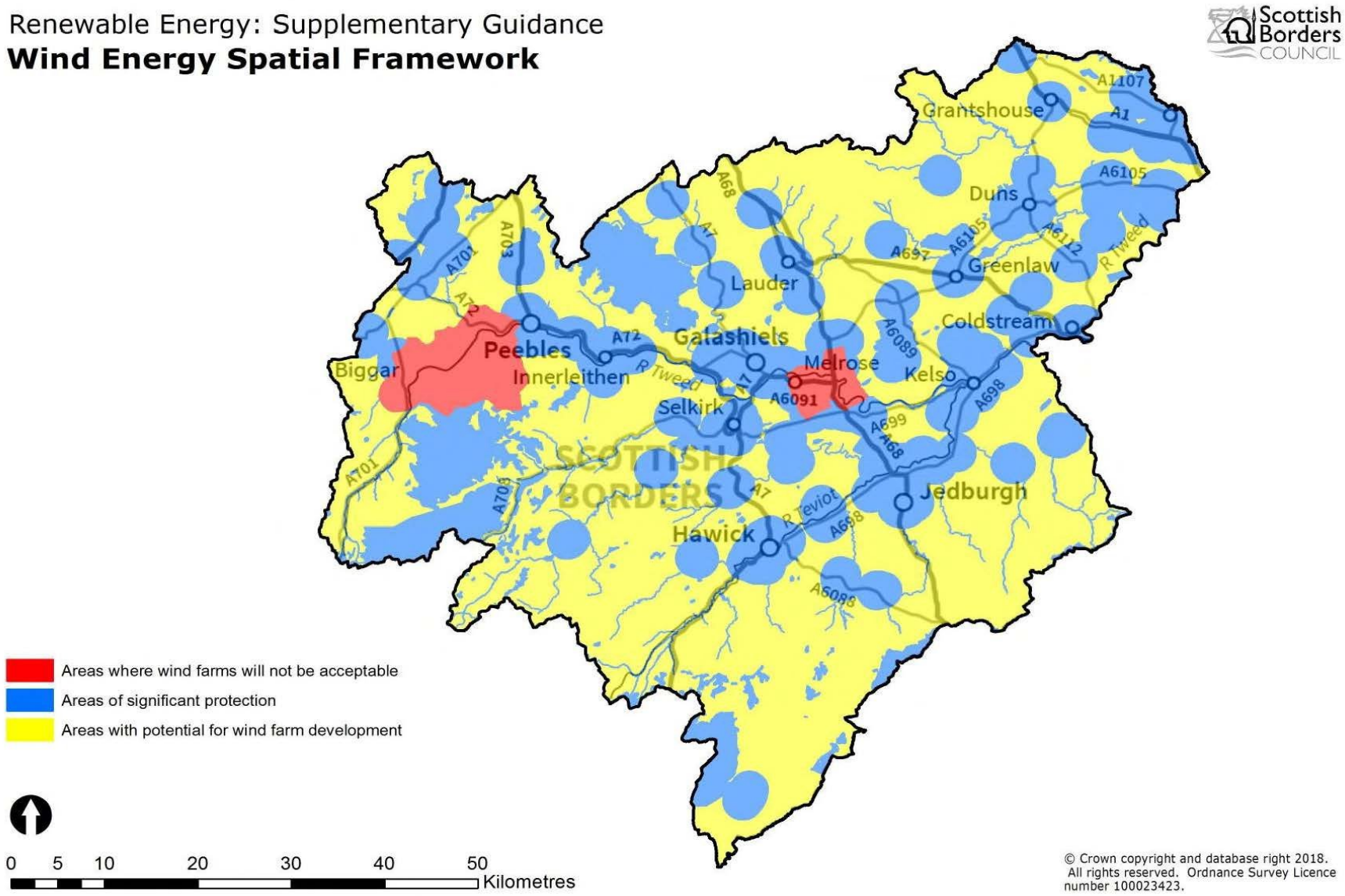


FIGURE 6: SPATIAL FRAMEWORK



CHAPTER 8: DEVELOPMENT MANAGEMENT CONSIDERATIONS

Under the section entitled "Consideration of Wind Energy Proposals" within policy ED9 of the adopted LDP there are listed a number of subjects for Development Management to consider during the application processing period. This section expands upon the listed subjects by giving more detailed guidance and useful information where possible for the benefit of a range of users. Where relevant there is an additional guidance at the beginning of each subject. Each subject is listed as follows and are laid out in order of their references within policy ED9:

A) Onshore Spatial Framework
B) Landscape and Visual Impacts and Effects on Wild Land
C) Cumulative impacts
D) Impacts on Communities and Individual Dwellings (including visual impact, residential amenity, noise and shadow flicker)
E) Impacts on Carbon Rich Soils, Public Access, Historic Environment, Tourism, Recreation, Aviation and Defence Interest and Seismological Recording, Telecommunications and Broadcasting Installations and adjacent trunk roads and roads traffic
F) Effects on the natural heritage (including birds, hydrology, the water environment and flood risk)
G) Opportunities for Energy Storage
H) Net economic impact, including socio-economic benefits such as employment, associated business and supply chain opportunities
I) The scale of contribution to renewable energy generation targets and the effect on greenhouse emissions
J) Planning Conditions relating to the decommissioning of developments, including ancillary infrastructure and site restoration (including the use of planning obligations)

A) ONSHORE SPATIAL FRAMEWORK

The spatial framework as required by SPP is identified in figure 6.

B) LANDSCAPE AND VISUAL IMPACTS AND EFFECTS ON WILD LAND

LANDSCAPE IMPACT

Landscape Impact Assessment deals with effects of change and development on the landscape as a resource in its own right (GVLIA 3rd edition; chapter 5)

THE COUNCIL WILL SUPPORT PROPOSALS IF:

THEY ARE CAPABLE OF BEING ACCOMMODATED IN THE LANDSCAPE IN A MANNER WHICH RESPECTS ITS MAIN FEATURES AND CHARACTER AS IDENTIFIED IN THE SCOTTISH BORDERS "LANDSCAPE CAPACITY AND CUMULATIVE IMPACT STUDY" (2016) AND WHICH MINIMISES EFFECTS ON THE LANDSCAPE AND THE WIDER AREA THROUGH A CAREFUL CHOICE OF SITE, LAYOUT AND OVERALL DESIGN

CHAPTER 8: DEVELOPMENT MANAGEMENT CONSIDERATIONS

The diversity of character within Scottish Borders was analysed by Ash Consulting Group in 1995 and the "Borders Landscape Assessment" was published in 1998. This identified within Scottish Borders 30 landscape character types within 5 broad categories namely: upland types, upland fringe types, lowland types, coastal types and river valley types.

Broadly, the landscapes of the Borders are formed by a horseshoe of hills surrounding the valley of the River Tweed and its tributaries and the Borders Landscape Assessment has described 6 distinct 'Regional Landscape Areas' namely:

- Tweed Lowlands
- Lammermuir and Moorfoot Hills
- Central Southern Uplands
- Cheviot Hills
- Midland Valley
- Coastal Zone

The Borders Landscape Assessment provides the baseline descriptions for subsequent landscape studies. The Ironside Farrar Landscape Capacity and Cumulative Impact Study (2016) is referred to in this chapter and comprises of three main themes:

- A strategic landscape capacity study investigating the underlying capacity of landscapes within Scottish Borders to accommodate wind energy development;
- A cumulative assessment examining the level of cumulative development of operating, consented and proposed wind turbines and windfarms in Scottish Borders;
- Guidance on remaining development capacity and on the size and types of wind turbine development throughout Scottish Borders that would be acceptable in landscape terms, taking account of the first two considerations.

It is the Council's view that the design and location of any wind farm must seek to minimise landscape and visual effect on the character of local landscapes, achieving a scale and nature of effect that can be deemed acceptable. In this respect, the Borders Landscape Assessment (1998 – currently being updated) should be used as landscape baseline to inform the assessment of wind energy development and should be used to assess the following:

- Effects on elements and features of the landscape
- Effects on character of the landscape including adjacent landscape character areas
- Effects on landscapes that are designated for their quality, scenic value, tranquillity or wildness, recreation opportunities, nature conservation or its historic and cultural associations, e.g. National Scenic Areas, Special Landscape Areas and Wild Land Areas.
- Chapter 3 of SNH guidance 'Siting and Designing Wind Farms in the Landscape, Vers 3 2017 covers the range of landscape issues in more detail and should be used to inform the scope of the Landscape Impact Assessment.

The Ironside Farrar Study (2016) will be used as a further tool to inform future wind energy proposals.

VISUAL IMPACT

Visual Impact Assessment deals with effect of change and development on the views available to people and their visual amenity (GVLIA 3rd edition 2013; chapter 6)

THE COUNCIL WILL SUPPORT PROPOSALS IF:

THEY DO NOT HAVE AN UNACCEPTABLE VISUAL IMPACT, TAKING INTO ACCOUNT VIEWS EXPERIENCED FROM SURROUNDING RESIDENTIAL PROPERTIES AND SETTLEMENTS, PUBLIC ROADS AND PATHS, SIGNIFICANT PUBLIC VIEWPOINTS AND IMPORTANT RECREATIONAL ASSETS AND TOURIST ATTRACTIONS

Wind turbines are large structures and either singly or in groups have the potential to create significant visual impacts. Associated development such as access tracks and buildings also need to be considered.

These impacts are influenced by the distance from which the turbines will be viewed and whether the turbines are seen in isolation or with other features in the landscape including other windfarms. As a general rule, the prominence of wind turbines in an open landscape, often described as the nature of the effect of visual impact, diminishes as the distance between the observer and the object increases. This general rule will vary depending on weather conditions, screening by intervening landform or by vegetation and with the height and spread of the turbines. Consideration of visual effects is also influenced by the nature of receptor of the observer, often described as the receptor sensitivity so that significant effects are a function of magnitude and sensitivity.

Perception is also influenced by the scale of the landscape itself with larger scale more open landscapes, often found in the uplands, usually better able to accommodate large scale turbines than more complex landscapes where detailed features such as trees and buildings can emphasise the height of adjacent turbines.

An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity. Guidance from Scottish Natural Heritage advises that wind farms should be of a minor vertical scale in relation to key features of the landscape and of minor size compared to other features and foci within the landscape or separated from these by a sufficiently large area of open space so that direct scale comparison does not occur. To inform the visual assessment of future proposals, the Council will request that proposals should reflect the good practice published by Scottish Natural Heritage and include:

- A Zone of Theoretical Visibility (ZTV) map showing the areas from which turbines may be seen. (N.B. This needs to be at an adequately detailed scale, at least 1:50,000 for areas where windfarms may be prominent.)
- Computer generated wire line diagrams where appropriate.
- An analysis of the visual impacts on viewpoints including representative samples from a variety of short and long range positions. (N.B. These viewpoints positions should be agreed with the Council.)
- Photomontages of the proposed development from sensitive key viewpoints (receptors)

- Video montages (if appropriate)

An assessment of the visual effects on the following interests (where relevant) will be requested:

- Residences, towns and villages within 2km of a windfarm
- Significant landscape features including areas of highest visual sensitivity identified in Ironside Farrar study (2016)
- The settings of Scheduled Ancient Monuments, Inventory Battlefields and significant un-designated archaeological sites, structures and historic or archaeological landscapes (see Historic Environment Section from page 44 and link to Historic Environment's Managing Change guidance on page 45). Guidance on visualisations for determining setting impacts follows SNH guidance
- Locally prominent and valued buildings, including listed buildings and conservation areas
- Historic Gardens and designed landscapes
- Designated coastal and scenic areas
- Scenic driving and recreational routes
- Nationally recognised cycle and walking routes.
- Core path network
- Significant transport corridors
- Special landscape areas
- Effects of Talla - Hart Fell Wild Land Area and its character and setting
- Impacts on and views from identified Iconic Viewpoints (see appendix D – Iconic Viewpoints)

A range of viewpoints should be chosen which are representative of issues in the area and which are likely to experience significant effects. In choosing viewpoints, applicants should consider the likely effects on difference receptors, such as residents, people travelling to work on a regular basis and those involved in recreation within the area. The mode of transport (e.g. foot, cycle, car, train etc.) also needs to be considered.

The extent of likely visibility of different types of windfarms/turbines on the local landscape features and viewpoints is also considered within the Ironside Farrar study (2016). The degree of openness or enclosure which influences visibility, including the amount of screening created by topography (topographical containment) and by woodland, should also be considered.

In terms of the requirement to install lighting on to turbines reference should be made to page 46 of this SG

Further guidance is provided by:

Landscape Institute:

- Guidelines for landscape and Visual Impact Assessment, 3rd edition (2013)

SNH:

- https://tethys.pnnl.gov/publications/siting-and-designing-wind-farms-landscape-version-3 (2017)
- Siting and design of small scale wind turbines of between 15 and 50 metres in height (2012)
- Good practice advice on visual representation of wind farms (2014)

Historic Environment Scotland's Guidance on Managing Change in the Historic Environment: Setting 2016 should also be referred to where relevant.

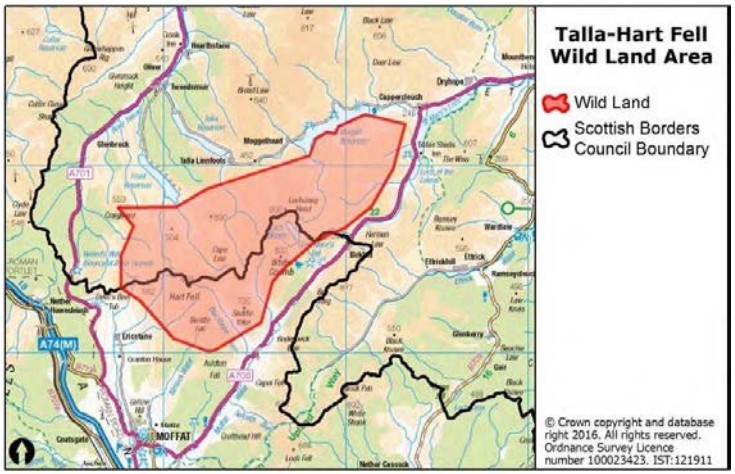
Developers should reflect this advice within their proposals.

WILD LAND

Within the Scottish Borders there is a wild land area identified at Talla-Hart Fell. This wild land area is identified within a map published by Scottish Natural Heritage which is recognised within NPF3. The sensitivity and need to protect the character of these wild land areas is stated in para 200 of SPP. Although Wild Land areas are not a statutory designation they are identified within the SPP spatial framework as areas of significant protection.

Para 169 of SPP and policy ED9 of the LDP refer to the need to give consideration to the effects of proposals on wild land. The consideration of the effects of proposals upon the wild land qualities as identified in the wild land area description should not be limited solely to development within the wild land area. SNH will shortly be publishing guidance on Wild Land. The Talla- Hart Fell wild land area is shown in figure 7.

FIGURE 7: TALLA-HART FELL WILD LAND AREA



TALLA-HART FELL WILD LAND AREA

C) CUMULATIVE IMPACTS

THE COUNCIL WILL SUPPORT PROPOSALS IF:

THEIR CUMULATIVE IMPACT IN COMBINATION WITH OPERATIONAL AND APPROVED WIND ENERGY DEVELOPMENTS AND APPLICATIONS PENDING DETERMINATION, HAVE NO UNACCEPTABLE IMPACTS

With a large number of operational and consented windfarms within Scottish Borders and close to its boundaries, the assessment of the cumulative impact of proposals will be increasingly relevant in determining the acceptability of future proposals. Consideration of cumulative impacts will be guided by SNH advice and in particular by Assessing the cumulative impact of onshore wind energy developments (2012).

GLVIA3 refers to both changes to landscape and visual amenity caused by the proposed development in conjunction with other development, past, present or likely to occur in the future.

Cumulative landscape effects can impact on

1. the physical fabric by affecting the landscape components such as woodlands, rural roads and hedgerows, or
2. the character of the landscape by changing the landscape character to such an extent that they create a different landscape character type, including the character of landscapes recognised to be of special value, this recognition may take the form of national or local designations such as National Scenic Areas or Special landscape Areas (and Wild Land Areas)

Cumulative effects on visual amenity can be caused by

1. combined visibility - where the observer is able to see two or more developments from one viewpoint, either in combination - where the developments are in the observers view at the same time, or in succession - where the observer has to turn his or her head to see two or more developments
2. sequential effects where the observer has to move to another viewpoint to see different developments and are generally assesses for routes such as roads, railway lines and paths. Two windfarms need not be intervisible, or even visible from a common viewpoint – to have impacts on the landscape experience for those travelling through an area.

Assessments of cumulative landscape and visual impacts should take account of all of the above forms of effect.

Section 2 of the Ironside Farrar Study (2016) specifically addresses cumulative impacts and guidance on potential cumulative effects is given for each landscape character type at Table 6.1 where relevant. Figure 13 identifies where cumulative impact is an issue to be addressed.

Cumulative impacts will most frequently involve landscape and visual impacts but may also affect ornithological, aviation and historic interests. Cumulative impact assessment will require to consider existing windfarms, those which have permission and those that are subject to valid but undetermined applications. In addition, windfarm impacts will be assessed along with other impacts from other land uses (e.g. quarry uses) which in combination may produce significant adverse cumulative impacts. The threshold of acceptability will be monitored and where it is judged that the limit of acceptable cumulative impact has been reached, this will limit the capacity for further development.

There will be a presumption against all wind farm development in areas where cumulative impacts are judged to be unacceptable when weighed up against the economic and other benefits of the proposal.

The assessment of cumulative impacts is complex and will be informed by relevant guidance including the SNH guidance, June 2015, titled: "Spatial Planning for Onshore Wind Turbines – natural heritage considerations". This includes reference to the consideration of clusters of wind farms that are in separate landscape character types and where the objective is to maintain the distinction between those character types.

D) IMPACTS ON COMMUNITIES AND INDIVIDUAL DWELLINGS (IN TERMS OF VISUAL IMPACT, RESIDENTIAL AMENITY, NOISE AND SHADOW FLICKER)

THE COUNCIL WILL SUPPORT PROPOSALS IF:

THEY DO NOT HAVE AN UNACCEPTABLE IMPACT ON THE AMENITY OF NEARBY RESIDENTS, INCLUDING FROM NOISE AND SHADOW FLICKER

COMMUNITIES AND INDIVIDUAL DWELLINGS

VISUAL IMPACT

Visual impacts of wind turbines and wind farms on individual residences or groups of houses are an important planning consideration when considering any wind energy application. This has potential to be a significant factor even when the turbines are small.

The presence of turbines can substantially alter the perception of residents about their enjoyment of their private residential amenity. This can relate to the dwelling, its curtilage and approaches to and from the dwelling. In relation to groups of dwellings similar impacts may be experienced by communities moving in and around the building group during day-to-day activity. The potential for visual impacts to be significant depends on where and how the turbines (and associated development such as buildings and infrastructure) have been sited in relation to the dwellings and their environs, which could include approaches to and from the dwelling.

Non-commercial turbines can cause adverse visual impacts if they are sited too close to residences, especially if there is no intervening landform, buildings or vegetation to offset the impacts. Sensitive and sensible siting of turbines should involve making use of landform, buildings and vegetation to provide screening and to provide a sense of visual separation that minimises visual effects. Residents should not expect to encounter overtly dominant turbines in relation to their day-to-day activities; it is anticipated that with this

range of turbine size there will be opportunities in many scenarios to guide development to the least sensitive locations where landform, buildings and vegetation are utilised to minimise effects.

Larger commercial turbines and wind farms tend to cause more obvious visual impacts because their relationship in terms of scale with other items in the landscape means that they become the tallest structures in most scenarios. They have the capacity to stand out above mature woodlands and will generally be sited on high ground to achieve good wind capture.

Significant visual impacts on residential amenity can occur over greater distances than it might first be considered. For example, if a prominent ridge or hill visible from a substantial area of a settlement would be occupied by prominent turbines at distances of up to 5 kilometres, this could be said to cause harmful visual impacts, especially if views to such a ridge or hill are strongly associated with the settlement.

However, it is considered that the most significant visual impacts occur when commercial turbines are sited within approximately 2km of residences. At this distance and below, the sense of proximity tends to be heightened, although specific circumstances will reduce specific effects at any distance, if landform and vegetation (topography) are available and they are adequate to mitigate impacts.

If such interventions are not available, usually visual effects begin to require careful consideration in particular where the distance falls to less than 2km. At this distance and below, it is most likely that the perception of turbines to strongly influence the amenity experiences of residences (and groups) will potentially occur. It is expected that any applications for commercial-sized turbines will be accompanied by material reflecting assessment of residential amenity impacts, in particular where those impacts occur at 2km or less.

NOISE

This advice provides guidance for applicants on the noise information required to allow a full assessment of the potential noise impacts of individual wind turbines. It also considers the appropriate methodology and criteria to determine turbine noise impacts at noise sensitive receptors. In most cases turbine assessments should be based on a 2km radius from the site.

In broad terms there are two types of wind turbines, large turbines and small turbines.

Small Wind Turbines

A turbine is considered small where the rotor swept area is less than 200m2 and/or the power output is less than 50kW. The Renewable UK standard follows the method set out in IEC 61400-2 ED 3.0 (2013-12) and is an appropriate method for assessing small wind turbines.

Where there is adequate octave band data available the methodology for a large turbine can be used if the LAeq is taken as the LA90. This is because there is no evidence to suggest that the relationship between LAeq and LA90 for large turbines is the same for small turbines.

Large Wind Turbines

These should be assessed using The Assessment and Rating of Noise from Wind farms (ETSU-R-97) in conjunction with the Institute of Acoustics Good Practice Guide 2013 (IOA GPG). Under ETSU-R-97 there are two methods of assessment, a simplified assessment where no background monitoring is required or a full assessment where limits are set in relation to the background noise or a fixed limit whichever is greater.

Scottish Borders Council will look to condition developments to a fixed day time limit of LA90, 10mins35 dB unless satisfactory justification in line with the criteria set out in ETSU-R-97 is provided. A background noise survey should not be carried out until an Environmental Health Officer at the Council has been consulted and a methodology agreed. Any noise assessment submitted as part of a planning application should follow the format as set out in chapter 6 of the IOA Good Practice Guide Reporting Results of the Noise Assessment.

To ensure the operation of the newly commissioned wind farm will operate within the prescribed noise limits as set out in conditions, the Planning Service will through an appropriate condition request a noise assessment report from an independent Acoustic consultant to be submitted.

Cumulative Impact

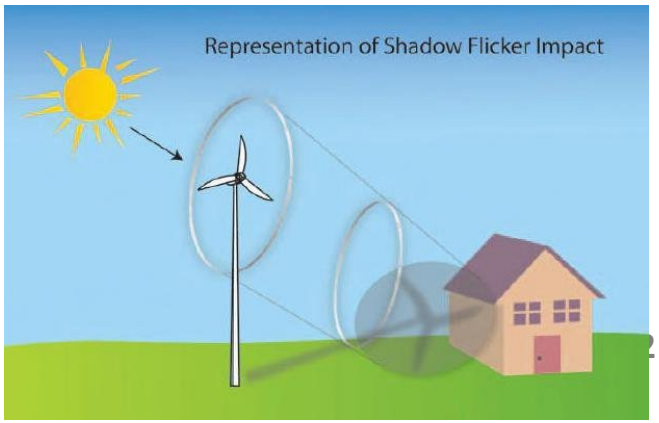
The IOA GPG provides some guidance on how to assess cumulative noise impacts. However each development is different and the applicant should consult with an Environmental Health Officer to agree on a methodology. In most cases cumulative assessments will need to be carried out based on the noise limits from the surrounding developments.

Financially involved properties

If an applicant wishes for the higher ETSU limit of LA90, 10mins 45dB to be applied to a receptor then evidence will need to be provided. This should demonstrate that the occupiers received a direct benefit from the proposed development.

SHADOW FLICKER

Under certain combinations of geographical position, time of day and time of year when the sun passes behind rotating blades a shadow can be cast over neighbouring residential properties. The rotation of the blades creates a shadow which appears to flick on and off, this "shadow flicker" can be disruptive and create significant annoyance.



Although there is some general acceptance which suggests at a distance of greater than 10 rotor diameters of a turbine shadow flicker should not be an issue, the study by SLR entitled the "Review of the Visual, Shadow Flicker and Noise Impacts of onshore Wind farms" in 2015 states there is some recent evidence that shadow flicker can be experienced at greater than 10 rotor diameter distance and that the modelling of those residences within 10X rotor

diameter may not capture all homes where people experience shadow flicker effects. Where requested by the Council, the developer will be required to produce shadow flicker assessments modelled to take into account all residential property within 2km of a wind turbine. This distance threshold should take into account any screening of turbines offered by topography.

E) IMPACTS ON CARBON RICH SOILS, PUBLIC ACCESS, HISTORIC ENVIRONMENT, TOURISM, RECREATION, AVIATION AND DEFENCE INTEREST AND SEISMOLOGICAL RECORDING, TELECOMMUNICATIONS AND BROADCASTING INSTALLATIONS AND ADJACENT TRUNK ROADS AND ROADS TRAFFIC

THE COUNCIL WILL SUPPORT PROPOSALS IF:

THEY DO NOT HAVE AN UNACCEPTABLE IMPACT ON CARBON RICH SOILS, PUBLIC ACCESS ROUTES, THE HISTORIC ENVIRONMENT, TOURISM, RECREATION, AVIATION AND DEFENCE INTEREST AND SEISMOLOGICAL RECORDING, TELECOMMUNICATIONS AND BROADCASTING INSTALLATIONS AND ADJACENT TRUNK ROADS AND ROADS TRAFFIC

CARBON RICH SOILS

Fig 5(iii) showing the component parts of the spatial framework identifies areas of carbon rich soil, deep peat and priority peatland habitat and these areas of land are identified by SPP as “Areas of Significant Protection”. These soil types provide a significant national carbon store. Where peat and other carbon rich soils are present on site, applicants will be required to assess the likely effects of development on carbon dioxide (CO2) emissions. CO2 will be released when peatland is drained and developments will be required to demonstrate how any release will be minimised.

The Scottish Government’s published method for assessing carbon losses and savings requires to be carried out. Developers are expected to follow best practice for minimising carbon emissions and disturbance of peat, and the carbon calculator represents a useful tool in assessing proposed practices. Full details of this can be found on the Scottish Government website.

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. 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. The disposal of significant depths of peat is considered landfill waste and this may not be granted under SEPA’s regulations. Reference should be made to SEPA’s Regulatory Position Statement – Developments on Peat and Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and Minimisation of Waste

SNH’s Carbon and Peatland 2016 map is a useful 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 of the likely presence of peat on each individually mapped area, at a coarse scale.

CHAPTER 8: DEVELOPMENT MANAGEMENT CONSIDERATIONS

PUBLIC ACCESS

If any turbines are proposed within 2km of a core path or significant access route the onus will be on the applicant to provide evidence to confirm any such turbines will not have a significantly detrimental impact on the path or route. Any proposals which have such an impact will be considered on a case by case basis taking cognisance of any mitigation measures. Interests of safety will be judged by the Council on a case by case basis taking note of, for example, the status of the route, its usage and condition.

HISTORIC ENVIRONMENT

The Scottish Borders historic environment comprises designated and undesignated archaeology, built heritage, conservation areas, battlefields, historic or archaeological landscapes, and gardens and designed landscapes. It forms the background to virtually all aspects of living and working in the region and contributes to local identity, the sense of place and regional distinctiveness that has attracted visitors from around the world.

Assessment

The Council requires that potentially significantly adverse impacts / effects to the historic environment through development are identified, defined and evaluated through an Environmental Statement (ES) on Cultural Heritage, must be conducted by an archaeologist working to the standards of the Chartered Institute for Archaeologists (CIfA), or provided as supporting information if the proposal falls below the environmental assessment threshold. This should predict the direct and indirect impacts on the resource and propose recommendations for mitigation or off-setting. The ES will identify through desk-based assessment of relevant documents and records all designated and undesignated historic environment assets within the proposal area, and within an area beyond this where there might be indirect impacts to the setting of significant (both designated and undesignated) archaeological sites, historic buildings, historic or archaeological landscapes, battlefields and gardens and designed landscapes. This will normally be supplemented by field survey that will seek to assess the potential impacts to, and current conditions of, known and previously unknown heritage assets.

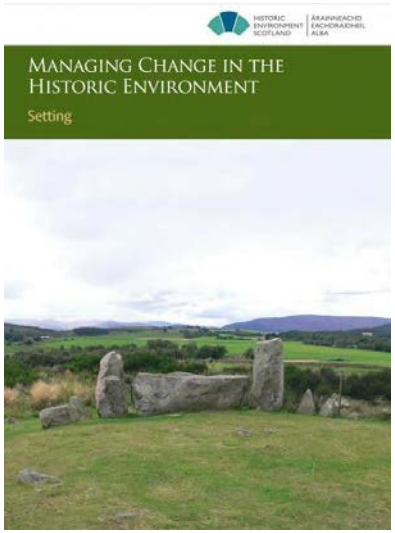
Direct Impacts

Direct impacts are any impact where an asset, and the archaeological or historic information they contain, will be wholly or partly lost or destroyed by development. In order to understand the resource, the ES or supporting information will include a baseline desk-based assessment. The desk-based assessment, including information from the Council's Historic Environment Record, will inform a gazetteer of known heritage assets. This will be followed by site surveys which might include an archaeological walkover survey of the development area, focussing on designed infrastructure, detailed survey of known assets where impacts are predicted, and identification, classification and assessment of previously unknown assets. These studies may be supplemented by other data such as LIDAR survey or aerial photogrammetry. From this, the developer will predict potential direct impacts from development and either seek to avoid these through design or propose mitigation in the event that preservation of the assets in situ is not possible. Assessment should follow an understanding of an assets cultural significance and value at the national (both designated and undesignated), regional and local levels. Historic Environment Scotland must be consulted in the event of predicted direct impacts to designated assets including Scheduled Monuments, A Listed Buildings, Inventory Battlefields and Gardens and Designed Landscapes.

CHAPTER 8: DEVELOPMENT MANAGEMENT CONSIDERATIONS

Proposals that will have an adverse direct impact on historic environment assets will only be permitted if it can be demonstrated that the benefits of the proposal will clearly outweigh the heritage significance and value of the asset. Where adverse impacts are predicted the ES will propose a mitigation strategy acceptable to the Planning Authority. Developers may be required to carry out detailed investigations in advance of development in a manner acceptable to the Council, or, in the event of this being a Scheduled Monument, Historic Environment Scotland.

Indirect Impacts – Setting



In 2016, Historic Environment Scotland produced their revised guidance on Managing Change in the Historic Environment: Setting. This states that 'setting can be important to the way in which historic structures or places are understood, appreciated and experienced' and sets out principles by which this can be defined and impacts of development assessed. An assessment of the proposed development impacts on setting – including, Scheduled Monuments, Listed Buildings, Conservation Areas, Gardens & Designed Landscapes, significant undesignated historic environment assets, historic or archaeological landscapes and historic battlefields – will be made following the Managing Change guidance and any scoping requests made by the Council and Historic Environment Scotland. The assessment should be undertaken by a suitably qualified historic environment consultant and incorporated within an ES or provided as supporting information if the proposal falls below the environmental assessment threshold.

This will be prepared in line with a Zone of Theoretical Visibility (ZTV) and all assets with a predicted setting impact within the ZTV will be assessed. Specific wireframes and/or photomontages may be required to demonstrate the significance of an asset, its setting and the development's impacts. For designated assets, Historic Environment Scotland act as statutory consultee on setting impacts and their views will be balanced along with those of other consultees. Ultimately it is for the planning authority to determine the acceptability of impacts in line with SPP, Local Plan policies and other material considerations.

TOURISM / RECREATION

Any possible impacts or effects on tourism and recreation must be considered as part of any planning application submitted. Consequently an accompanying statement must be submitted along with any planning application giving details of any possible impacts, effects or benefits a proposal may raise.

AVIATION AND DEFENCE INTERESTS

Aviation

Airports and their associated airspace are recognised as significant components of national infrastructure. Gradual erosion of airspace through windfarm development has the potential to compromise safety, flexibility, capacity and potentially the viability of the airport. Wind turbines are also known to have significant adverse impacts on instrument landing systems, navigational aids, radar systems and air traffic control. Applicants are therefore encouraged to have early discussions with airport operators, National Air Traffic

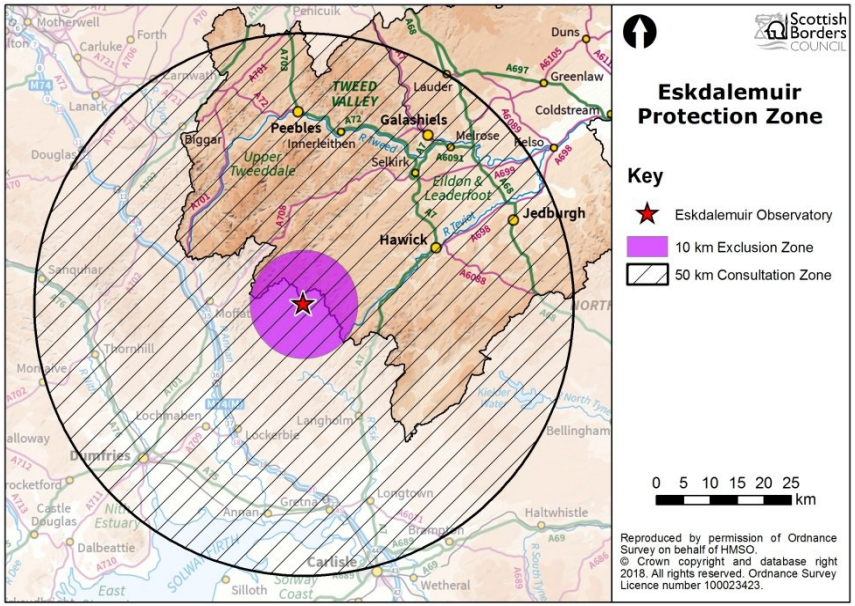
Services, Civil Aviation Authority and the Ministry of Defence prior to an application being submitted. Where developers can specify technological or other mitigation solutions in relation to specific developments they will be required to demonstrate agreement between themselves and the relevant operator that it can be delivered within a reasonable timeframe and will provide appropriate mitigation.

The Civil Aviation Authority (CAA) is responsible for providing advice regarding aviation safety. The CAA produced a document entitled Policy Guidelines on Wind Turbines 2016 which provides CAA policy and guidance on a range of issues associated with wind turbines and their effect on aviation which will need to be considered by aviation stakeholders, wind energy developers and planning authorities when assessing wind turbine developments. The document states that if any turbine is over 150m in height there is a requirement to fit medium intensity steady red lights to the structure. Further advice on this can be read within chapter 3 of the document from para 3.8. It is advised that any interested developer contacts the CAA at an early stage to discuss and confirm their lighting requirements. The need for such permanent night time lighting on large turbines is a major planning consideration to be addressed in terms of visual impact. Para 2.13 of SNH's Siting and Designing Wind Farms in the Landscape 2017 states `*These effects (of visible lighting) are likely to be more significant in areas with less artificial lighting, including remoter rural locations, Wild Land Areas and dark sky sites where the absence of artificial lighting contributes to the feeling of remoteness or the direct appreciation of the night sky. Lit turbines may lessen the contrast between developed and undeveloped areas, e.g. when viewed from nearby settlements. Whilst it may be possible to mitigate these effects, they should still be considered in the assessment. Effects at dawn and dusk should also be considered where these could be significant'.* Further information regarding this can be viewed on SNH guidance on Visual Representation of Wind Farms Feb 2017

Defence Interests

Consideration must be given to any adverse interference turbines may have on the Ministry of Defence's (MoD) Seismic Testing station at Eskdalemuir near Langholm in Dumfries and Galloway. The Eskdalemuir Seismic Array is one of 170 seismic stations across the globe 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.

The buffer zone around Eskdalemuir has been reviewed and recently confirmed within the Scottish Government's Onshore Wind Policy Statement Dec 2017. The Statement confirms the Exclusion Zone will remain at 10km with a surrounding 50m consultation zone as confirmed on the map. In the first instance it is suggested any interested party contacts the MoD directly to discuss any wind turbine proposal with them in order to confirm their current stance.



Broadcasting Installations

The siting of wind turbines must take cognisance to radio, television and other communication systems in order to ensure transmission links are not compromised. Guidance on these effects can be viewed within the Ofcom document.

If turbines 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 form of mitigation. A planning condition should be attached to any consent to ensure any consequent interference after construction is rectified.

Road and Traffic Implications

During construction, wind energy developments have the potential to generate significant levels of traffic, including abnormal loads associated with transporting the turbine components. The Council expects all proposals to fully consider potential impacts of the development on the Scottish Borders road network in terms of the structural and physical ability of both roads and bridges to accommodate the additional traffic generated and the need to minimise any disturbance to local communities. Should turbine transportation routes require to cross third party land, the applicant should ensure that appropriate agreements are in place to allow access to be achieved. Early contact should be made with the Council's roads planning section in terms of the scope and extent of a Transport Assessment and Construction Traffic Management Plan which would be required to address issues such as routeing, timing of deliveries, community liaison and road infrastructure improvements.

F) EFFECTS ON THE NATURAL HERITAGE (INCLUDING BIRDS, HYDROLOGY, THE WATER ENVIRONMENT AND FLOOD RISK)

THE COUNCIL WILL SUPPORT PROPOSALS IF:

THEY DO NOT HAVE AN UNACCEPTABLE EFFECT ON NATURAL HERITAGE FEATURES, INCLUDING PROTECTED HABITATS AND SPECIES, AND TAKING INTO ACCOUNT THE CRITERIA OF THE LDP POLICY: INTERNATIONAL NATURE CONSERVATION SITES AND PROTECTED SPECIES (EP1), NATIONAL NATURE CONSERVATION SITES AND PROTECTED SPECIES (EP2), LOCAL BIODIVERSITY (EP3), AND THEY DO NOT HAVE AN UNACCPETABLE IMPACT ON THE WATER ENVIRONMENT

Protected Areas : Natural Heritage including international, national and locally protected species and habitats

Scottish Borders has a rich and varied natural heritage which comprises of a wide range of important habitats including important moorland, woodland, wetland, grassland and coastal habitats. These are protected through European and National legislation and a variety of non-statutory designations. The area lies largely within the catchment of the River Tweed large parts of which are designated as a SAC and SSSI.

BLACK GROUSE IN HABITAT

At an International level, European legislation offers protection to sites which are of international significance. These are designated as Natura sites, a term given to Special Areas of Conservation (SACs) designated under the Habitats Directive

and Special Protection Areas (SPA's) designated under the Birds directive. Any development which is likely to have a significant effect on sites within the Natura network will be subject to an appropriate assessment of the implications for the site in view of the site's conservation objectives.

Development on or affecting a Natura site is only likely to be approved if that assessment concludes that the development will not adversely affect the integrity of the site or it can be shown that there are no alternative solutions, and there exist imperative reasons of overriding public interest, including those of a social or economic nature and compensatory measures are provided to ensure that the overall coherence of the Natura network is protected. Any development proposal within the catchment of the River Tweed SAC will need to demonstrate that potential impacts on the SAC have been taken into consideration in the design layout of the proposal, particularly regarding infrastructure and appropriate measures to prevent pollution and sedimentation, mitigate impacts on flows, channel substrates and riparian habitats, of watercourses on and near the site which will be incorporated into a Construction Environmental Management Plan including Construction Method Statements.

At a national level protection is offered by the designation of a number sites which are of Special Scientific Interest (SSSI's). Development which would affect a designated or proposed SSSI will only be permitted where an ecological appraisal has demonstrated to the satisfaction of the Council that there will not be an adverse effect on the integrity of the site and any adverse effects are outweighed by social, environmental and economic benefits that clearly outweigh the national nature conservation value of the site.

The European and national sites are afforded significant protection and are included in the spatial framework shown in figure 6.

Local Biodiversity

Local natural heritage designations include:
Local Wildlife Sites, Local Biodiversity Sites and Green Networks. The process of assessing and approving Local Biodiversity Sites is ongoing and will be subject to further Supplementary Guidance.

A developer must demonstrate there will not be a significant adverse impact on these and take into account the criteria of the LDP policy EP3 (Local Biodiversity).

Through Local Development Plan policy EP3 the Council takes an ecosystem approach to protecting the natural heritage which involves conserving designated and local sites, the wider supporting habitat network and species and consideration of an integrated approach to ecosystems services having regard to the principles for sustainable land use set out in the Scottish Government's Land Use Strategy. In accordance with Ecological Impact Assessment Adopting good practice[1] the Council will expect avoidance, mitigation and compensation to be integrated into the planning and design of the development. Ecological Impact Assessment should be in accordance with recognised guidelines[2].

No Net Loss

Where development impacts on areas of nature conservation value (non-designated) which may include habitats of conservation concern including woodlands, grasslands, wetlands

[1] Biodiversity- Code of practice for planning and development. BS42020:2013 British Standards Institute 2013.
[2] CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

and heathlands, hedgerows, habitat networks and wildlife corridors and water features, and sites containing important populations of Borders Notable Species where the reasons in favour of development clearly outweigh retaining such features, compensation will be required to offset the loss to ensure that there is no net loss of LBAP habitats and biodiversity. The Council has successfully adopted this approach to ensure delivery of compensatory schemes (biodiversity offsets) for black grouse, natural flood management and woodland.

This approach is set out in the Council's Supplementary Guidance for biodiversity and contributes to the Council's duty under the Nature Conservation (Scotland) Act 2004 to further the conservation of biodiversity.

Protected Species

The presence or potential presence of a legally protected species is an important consideration when considering future development. If there is evidence that protected species are present on site or will be affected by the development it will be necessary to take steps to establish their presence. The level of protection afforded by legislation must be factored into the planning and design of the development and any impacts fully considered prior to the determination of the application. Bats (European Protected Species) are vulnerable to impacts arising from wind turbines including through collision and barotrauma. Guidance on survey requirements are included in Bat Conservation Trust guidelines (see 2nd edition for "Surveying proposed onshore wind turbine developments"). New UK guidance is proposed. Planning permission will not be granted for development that would be likely to have an adverse effect on protected species unless it can be justified in accordance with relevant protected species legislation.

Ornithology

An assessment of a proposed wind farm's effect on the bird interest of a site should consider the potential risk to birds through displacement, collision and habitat loss for each key bird species which uses the site. Areas of high, moderate and low or unknown ornithological sensitivity for species at risk from wind farm developments (though collision, disturbance and displacement) are identified in: RSPB/SNH Bird Sensitivity Map to Provide Locational Guidance for Onshore Windfarms in Scotland[3]. Further information on bird distribution and abundance including for breeding waders is available from the South-East Scotland Bird Atlas 2008-13[4], and important areas for geese (Mitchell[5]) and black grouse (Warren[6]) have been identified. Information is also available on Natural Heritage Zones (NHZ) Bird Population Estimates[7], the relevant NHZ[8] are Borders Hills and Eastern Lowlands.

Habitat Management Plans

The opportunities for wind turbine development for enhancements and adaptations for climate change through the maintenance of high quality ecosystems and restoration of

[3] J.A. Bright , R. H. W. Langston1, R. Bullman, R. J. Evans, S. Gardner, J. Pearce-Higgins & E. Wilson (2006) Bird sensitivity Map to provide locational guidance for onshore wind farms in Scotland RSPB Research report No.20 https://www.rspb.org.uk/Images/sensitivitymapreport_tcm9-157990.pdf
[4] South-East Scotland bird Atlas 2008-13 (In prep). Scottish Ornithologists Club
[5] Mitchell, C. (2012) Mapping the distribution of feeding Pink-footed and Iceland Greylag Geese in Scotland WWT/SNH
[6] Warren, P (2016) Black grouse conservation in southern Scotland - Phase 2 Development of a regional strategic conservation plan. GWCT (.
[7] Wilson, M.W., Austin, G.E., Gillings S. and Wernham, C.V. (2015) Natural Heritage Zones Bird Population Estimates. SWBSG Commissioned report No. 1504 www.swbsg.org
[8] SNH Natural Heritage Zones http://www.snh.gov.uk/about-snh/what-we-do/nhf/

degraded ecosystems should be considered. This can be achieved through changes to land management practices or through active restoration as part of the scheme. These opportunities should be set out within the Environmental Statement and in detail within a draft Habitat Management Plan. The Council will encourage the development of habitat management plans and subsequent restoration plans that promote the actions identified within the Scottish Borders Local Biodiversity Action Plan.

Biosecurity and invasive species, pests and diseases

Invasive non-native species (INNS) can spread rapidly and have adverse ecological and economic impacts. INNS may also affect health. Pre-construction surveys to establish the status and distribution of INNS should be undertaken and appropriate mitigation policies and procedures should be confirmed during construction and restoration phases of the windfarm to mitigate the risk of spread. Refer to SNH Good practice during wind farm construction-version 3.

Additional Information

SNH provide a range of information on assessing impacts and managing the risk from wind turbines to habitats and species, this includes impacts on peat, bats and birds and assessment of cumulative impacts on birds. Applicants should reflect this guidance and advice in their assessment of the site and future management. Guidance is also available on good practice during wind farm construction.[9] to minimise ecological and hydrological impacts

HYDROLOGY/ WATER ENVIRONMENT/ FLOOD RISK

Planning authorities have a duty to safeguard and seek improvements to the water environment and consequently the potential impact of wind farm construction on the local hydrology requires to be assessed with protective and preventive strategies put in place to reduce the potential risk to the ecology of the area. Proposals for wind turbines should avoid areas which are considered likely to be affected by flooding or if it is considered a proposal will exacerbate the likelihood of flooding elsewhere. The Council will consult the Council's Flood Risk team and SEPA for advice where required. Site drainage should take account of likely flood events and local storm intensity. To minimise pollution risks to local water courses and sensitive habitats and groundwater infrastructure such as culverts, settlement ponds and other pollution mitigation techniques on site should be designed to accommodate 1 in 200 year flood events. SEPA's engineering guidance gives more advice and should be referenced. Should proposals be granted, where appropriate a planning condition should be attached to the consent requiring the long term monitoring of impacts on the water environment. Application submissions should identify private water supplies within the vicinity of the application site and the site design must ensure the proposal causes no risks to any private water supply. SEPA have produced a background paper on Renewable Energy https://www.sepa.org.uk/media/162922/lups-bp-gu2c-iii-land-use-planning-background-paper-on-renewable- energy.pdf . In terms of Groundwater Dependent Terrestrial Ecosystems these are mentioned in Appendix A as part of the Land Use Planning System SEPA Guidance Note 4 Planning - guidance on onshore windfarm developments (May 2014) (page 69). In relation to SUDS reference should also be made to Scotland's Water Assessment and Drainage Assessment Guide and should accord with the SUDS Manual (C753). SEPA's wind farm guidance can be viewed at http://www.sepa.org.uk/media/136117/planning-guidance-on-on-shore-windfarms-developments.pdf and reference to SEPA's Water Framework Directive should be made which ensures impacts of hydrology and from river engineering and pollution are appropriately considered

[9] Good practice during wind farm construction (version 3).(2015) Scottish Renewables, SNH, SEPA, FCS, HES.

G) OPPORTUNITIES FOR ENERGY STORAGE

Within the decision making process the Council will take cognisance and give weight to the incorporation of energy storage associated with a wind turbine proposal

Energy storage allows the opportunity for renewable energy to be captured and set aside for future use. 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 panels. Further investment into research of the development of energy storage is required. It is anticipated that as technology and the market advances, more developments of this type are likely to be submitted. The Council will consider proposals for energy storage on a case by case basis. Scottish Government on line advice on Energy Storage can be viewed here.

H) NET ECONOMIC IMPACT, INCLUDING SOCIO-ECONOMIC BENEFITS SUCH AS EMPLOYMENT, ASSOCIATED BUSINESS AND SUPPLY CHAIN OPPORTUNITIES

The Council will support proposals if:

It is considered that the net economic impact outweighs any other possible unacceptable impacts or effects which cannot be satisfactorily mitigated

Policy ED9 states that "Renewable energy developments, including wind energy proposals, will be approved provided that there are no relevant unacceptable significant adverse impacts or effects that cannot be satisfactorily mitigated. If there are judged to be relevant significant adverse impacts or effects that cannot be satisfactorily mitigated, the development will only be approved if the Council is satisfied that the wider economic, environmental and other benefits of the proposal outweigh the potential damage arising from it".

Wind energy proposals should be accompanied by detailed information outlining possible economic benefits of the development for the local area. This should include reference to: direct job creation e.g. associated with site construction and operation, and indirect job creation e.g. supply-chain opportunities for local businesses; and any wider benefits to the local economy. Any possible negative impacts should also be identified.

I) THE SCALE OF CONTRIBUTION TO RENEWABLE ENERGY GENERATION TARGETS AND THE EFFECT ON GREENHOUSE EMISSIONS

The Council will support proposals if:

It is considered that the scale of contribution towards renewable energy targets outweighs any other possible unacceptable impacts or effects which cannot be satisfactorily mitigated

CHAPTER 8: DEVELOPMENT MANAGEMENT CONSIDERATIONS

Government policy emphasises the role of local authorities and the planning system in meeting national renewable energy targets. Although there is not a cap on these targets, they include: 100% electricity demand from renewables by 2020; and 30% overall energy demand from renewables by 2020. If there are judged to be significant adverse impacts or effects that cannot be satisfactorily mitigated consideration and weighting must be given as to the contribution the proposal makes towards the national energy targets.

J) PLANNING CONDITIONS RELATING TO THE DECOMMISSIONING OF DEVELOPMENTS, INCLUDING ANCILLARY INFRASTRUCTURE AND SITE RESTORATION (INCLUDING THE USE OF PLANNING OBLIGATIONS)

The Council will seek to ensure appropriate measures are put in place to ensure satisfactory decommissioning and site restoration where required

When consent is granted a condition is normally applied requiring the developer to agree a scheme for the decommissioning of the wind farm 21 months before the expiry of the consent. A second condition is also normally applied requiring a financial guarantee to cover the cost of decommissioning in the event the development is abandoned. Parties to the financial guarantee would be the Council, the developer and the landowner.

In order to be able to accurately quantify the financial guarantee a draft decommissioning statement is prepared to cover the removal of the turbines and tracks as well as all ancillary plant and equipment i.e. control building and transformer units.

In discussion with the developer it is assumed that above ground plant and machinery will be dismantled for off-site disposal. The level of access track removal and turbine bases will be considered on a case by case basis. The tracks which are to be retained would normally be reduced in width to reflect the proposed agricultural use.

To facilitate the debate on the quantum the Council has produced a decommissioning table covering various aspects of works which are considered necessary for the removal of the facility and the reinstatement of the land (See Appendix B).

Developers normally allow a reduction in the quantum to reflect scrap values for the equipment, however the view of the Council is that the quantum should fully reflect the cost associated with removal and reinstatement of the wind farm and therefore the Council would not agree to a reduction in the quantum.

Whilst the costs can be considered in the same manner as a normal civil engineering project, most developers submit the costing based on a Mw production basis. The Council have collated over a period of time costing based on this approach. In circumstances where the developers' Mw costings are substantially different from what is anticipated the Council would engage with developer on an individual item by item assessment of the figures to understand where the shortfall is in the overall cost submission.

Once the quantum has been agreed consideration will then be given to the best means to secure the financial guarantee. There are various forms of guarantee available with different risk profiles for the Council. Heads of Planning Scotland have produced a helpful document entitled Position Statement on operation of Financial Mechanisms to Secure Decommissioning, Restoration and Aftercare of Developments which sets out the various options and the associated levels of risk with each option.

Whichever mechanism is chosen to deliver the financial guarantee, specific clauses require to be included in the document to allow for reviews of the financial guarantee to be undertaken, usually at 5 years intervals, and that an annual inflation component is included to allow the quantum to be maintained during the life of the guarantee.

The financial guarantee would be secured by means of a Section 75 legal agreement which should be between the developer and the Council. If a third party is included there could be a risk that they may draw down funds as part of a restoration program, however if they don't fully complete the works there may not be sufficient funds available to the Council to deliver the required restoration without putting at risk public finances.

To ensure compliance with the conditions attached to major wind farm consents and to ensure best practices are adopted which will mitigate possible impacts of the development on the environment the Planning Service will through an appropriate condition request regular reports from an independent monitoring consultant during the construction, operation and decommissioning phases of the development. To ensure the efficient discharge of conditions attached to major wind farm consents, post consent the Planning Service will through an appropriate condition request the appointment of an independent assessor to assist in the process.

An Energy and Resources Sub-Committee of the Heads of Planning Scotland has produced a Position Statement on the Operation of Financial Mechanisms to Secure Decommissioning, Restoration and Aftercare of Development Sites. The Position Statement seeks to:

- identify the best financial tools available to secure decommissioning, restoration and aftercare of windfarm, mineral, landfill and coal extraction sites develop a standardised section 75 Agreement template
- establish a standardised template for assessment of restoration, aftercare and decommissioning costs
- establish best practice for the review of financial guarantees through the life time of the development
- establish standards for compliance and monitoring

OTHER DEVELOPMENT MANAGEMENT CONSIDERATIONS

LANDSCAPE CAPACITY STUDY

Whilst the spatial framework in fig 6 identifies areas of protection and potential for wind farms, it takes no cognisance of landscape capacity issues which are material considerations for wind energy proposals. The importance and role of landscape capacity studies to give guidance to development management is acknowledged within the Scottish Government paper entitled "Scottish Planning Policy – Some Questions Answered" and policy ED9 of the LDP. Policy ED9 also makes specific reference to the requirement to consider the Ironside Farrar Landscape Capacity and Cumulative Impact study as an initial reference point.

Consequently reference and outputs from the Ironside Farrar Landscape Capacity Study must be referred to as well as the spatial framework in order to give best advice to any interested party. It is advised that any developer makes reference to the output recommendations of the Landscape Capacity study at a very early stage of their site investigation procedures in order to ascertain and fully understand any issues which need to be addressed and will be referred to within the application submission period. It is considered this would be in the best interests of a developer.

LANDSCAPE CAPACITY AND CUMULATIVE IMPACT STUDY BY IRONSIDE FARRAR 2013

The initial study in 2013 was prepared by Ironside Farrar (IF) who are widely recognised as knowledgeable and experienced landscape consultants. This study investigated the capacity of each of the Scottish Borders Landscape Character Areas to accommodate turbines taking cognisance of matters such as landform, approved turbines to date, impact on key receptors, the identification of opportunities and constraints and any cumulative impact issues. The study has been updated in 2016 as part of this SG. The updated study primarily takes account of any approved turbines in the interim period and gives consideration to any consequent landscape or cumulative impacts they may have. The updated study can be viewed in Appendix C of this SG.

The updated study is a strategic level study providing a context for consideration of capacity for, and the cumulative effects of, existing and potential future wind farm developments. No site specific conclusions should be drawn from it in relation to currently proposed or potential future wind turbines and wind farms.

If turbines are proposed which exceed the turbine heights identified within the Ironside Farrar study 2016 the onus would be on the applicant to demonstrate how the impacts of the proposal on the key constraints and any unacceptable significant adverse effects can be mitigated in an effort to show a proposal can be supported.

Table 6.1 within the study gives a summary of what is considered to be the landscape capacity for each Landscape Character Area (LCA) within the Scottish Borders for 5no identified turbine typologies (15 – 35m, 35 – 50m, 50 – 80m, 80 – 120m and over 120m). These conclusions are identified spatially on output maps which are identified in figs 8 to 13 within this SG. It is advised that as an initial starting point any interested party makes reference to the relevant LCA within table 6.1 and the corresponding relevant output map.

Para 162 of SPP requires planning authorities to identify where there is strategic capacity for windfarms. Although the Council does not have any definitive statistics confirming this, figure 13 gives a spatial reference as to the potential overall strategic opportunities for turbines.

LANDSCAPE AND VISUAL GUIDANCE ON SINGLE AND GROUPS OF 2 OR 3 WIND TURBINES IN BERWICKSHIRE IN 2013 (UPDATED 2015)

This guidance was instigated due to the high number of planning applications being submitted for single and groups of 2 and 3 wind turbines in Berwickshire and sought to give guidance to any interested party. The study can be viewed on the Scottish Borders Council website. This study will be updated again separately. Any applications for single and groups of 2 and 3 turbines in Berwickshire should refer to this study.

FIGURE 8 – UNDERLYING LANDSCAPE CAPACITY FOR TURBINES BETWEEN 15 – 35M

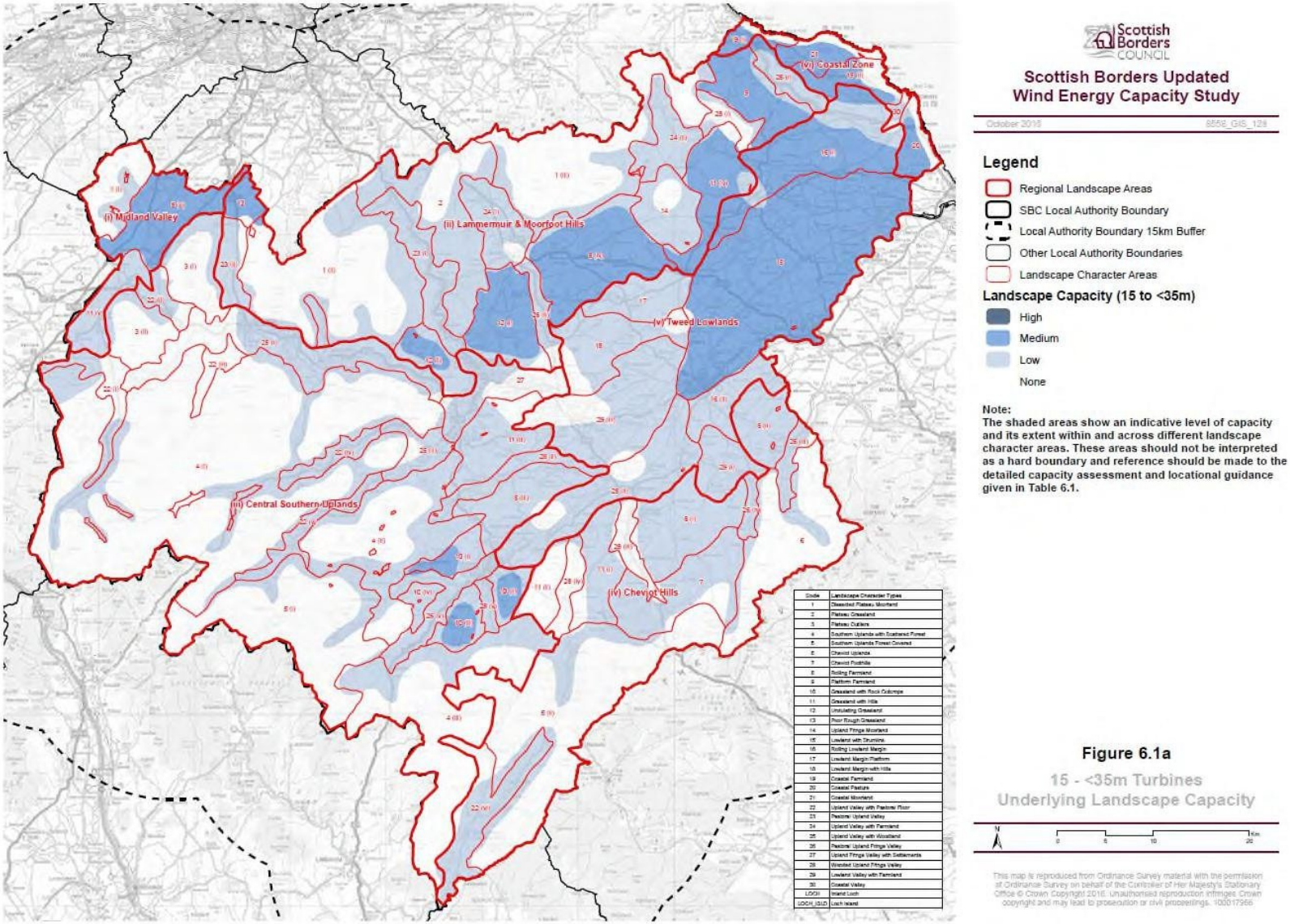


FIGURE 9 – UNDERLYING LANDSCAPE CAPACITY FOR TURBINES BETWEEN 35 – 50M

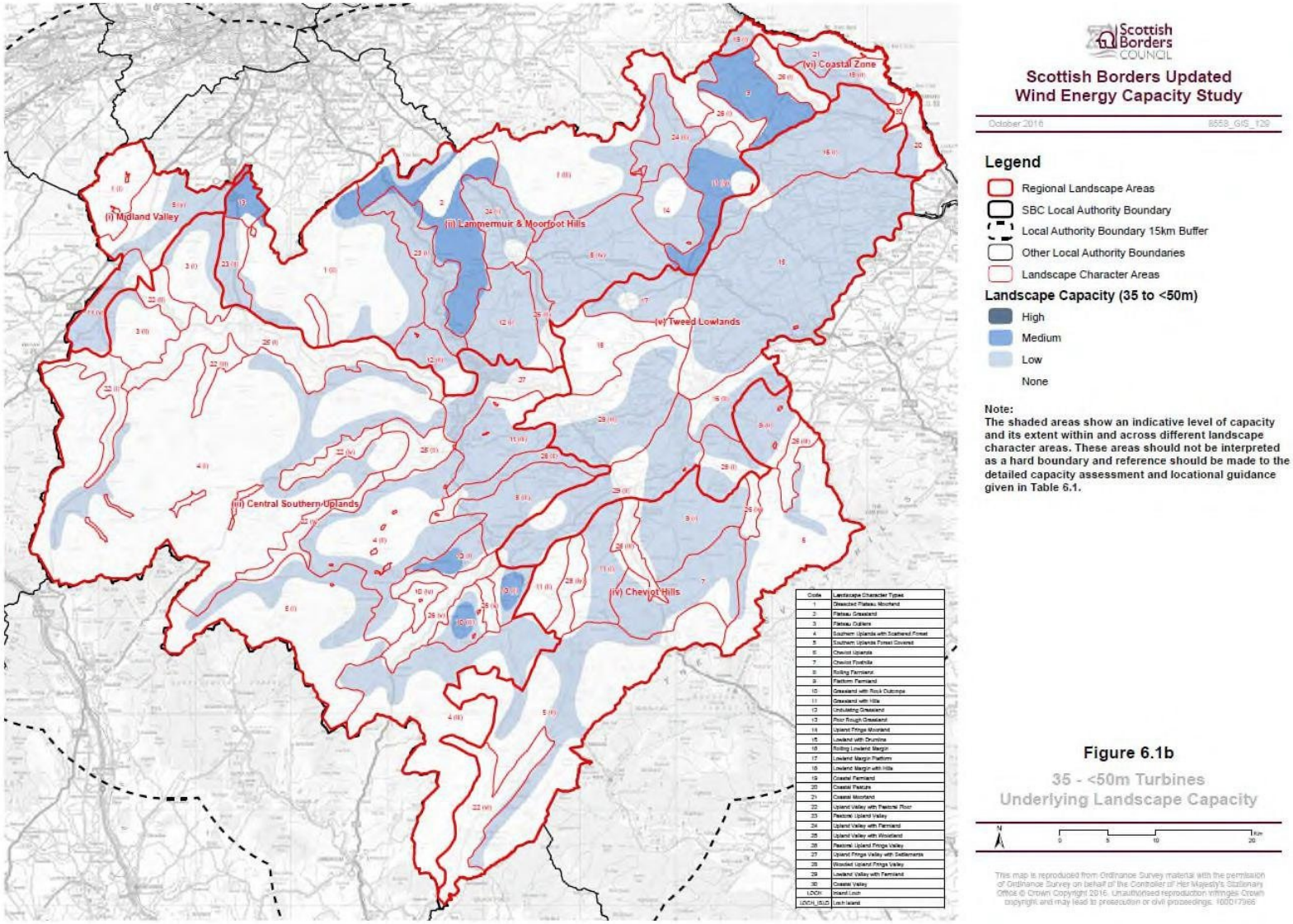

Scottish Borders Council
Scottish Borders Updated Wind Energy Capacity Study
October 2016
8558_GIS_130
(i) Midland Valley
(ii) Lammermuir & Moorfoot Hills
(iii) Central Southern Uplands
(iv) Cheviot Hills
(v) Tweed Lowlands
(vi) Coastal Zone
Legend
Regional Landscape Areas
SBC Local Authority Boundary
Local Authority Boundary 15km Buffer
Other Local Authority Boundaries
Landscape Character Areas
Landscape Capacity (35 to <50m)
High
Medium
Low
None
Note:
The shaded areas show an indicative level of capacity and its extent within and across different landscape character areas. These areas should not be interpreted as a hard boundary and reference should be made to the detailed capacity assessment and locational guidance given in Table 6.1.
Code
Landscape Character Types
1 Dissected Plateau Moorland
2 Plateau Grassland
3 Plateau Cuplains
4 Southern Uplands with Scattered Forest
5 Southern Uplands Forest Covered
6 Cheviot Uplands
7 Cheviot Foothills
8 Rolling Farmland
9 Flatform Farmland
10 Grassland with Rock Outcrops
11 Grassland with Hills
12 Undulating Grassland
13 Poor Rough Grassland
14 Upland Fringe Moorland
15 Lowland with Drumlins
16 Rolling Lowland Margin
17 Lowland Margin Platform
18 Lowland Margin with Hills
19 Coastal Farmland
20 Coastal Pasture
21 Coastal Moorland
22 Upland Valley with Pastoral Floor
23 Pastoral Upland Valley
24 Upland Valley with Farmland
25 Upland Valley with Woodland
26 Pastoral Upland Fringe Valley
27 Upland Fringe Valley with Settlements
28 Wooded Upland Fringe Valley
29 Lowland Valley with Farmland
30 Coastal Valley
LOCH Inland Loch
LOCH_ISLD Loch Island
Figure 6.1b
35 - <50m Turbines
Underlying Landscape Capacity
N
0 5 10 20 Km
This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright 2016. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. 100017966

FIGURE 10 – UNDERLYING LANDSCAPE CAPACITY FOR TURBINES BETWEEN 50 – 80M

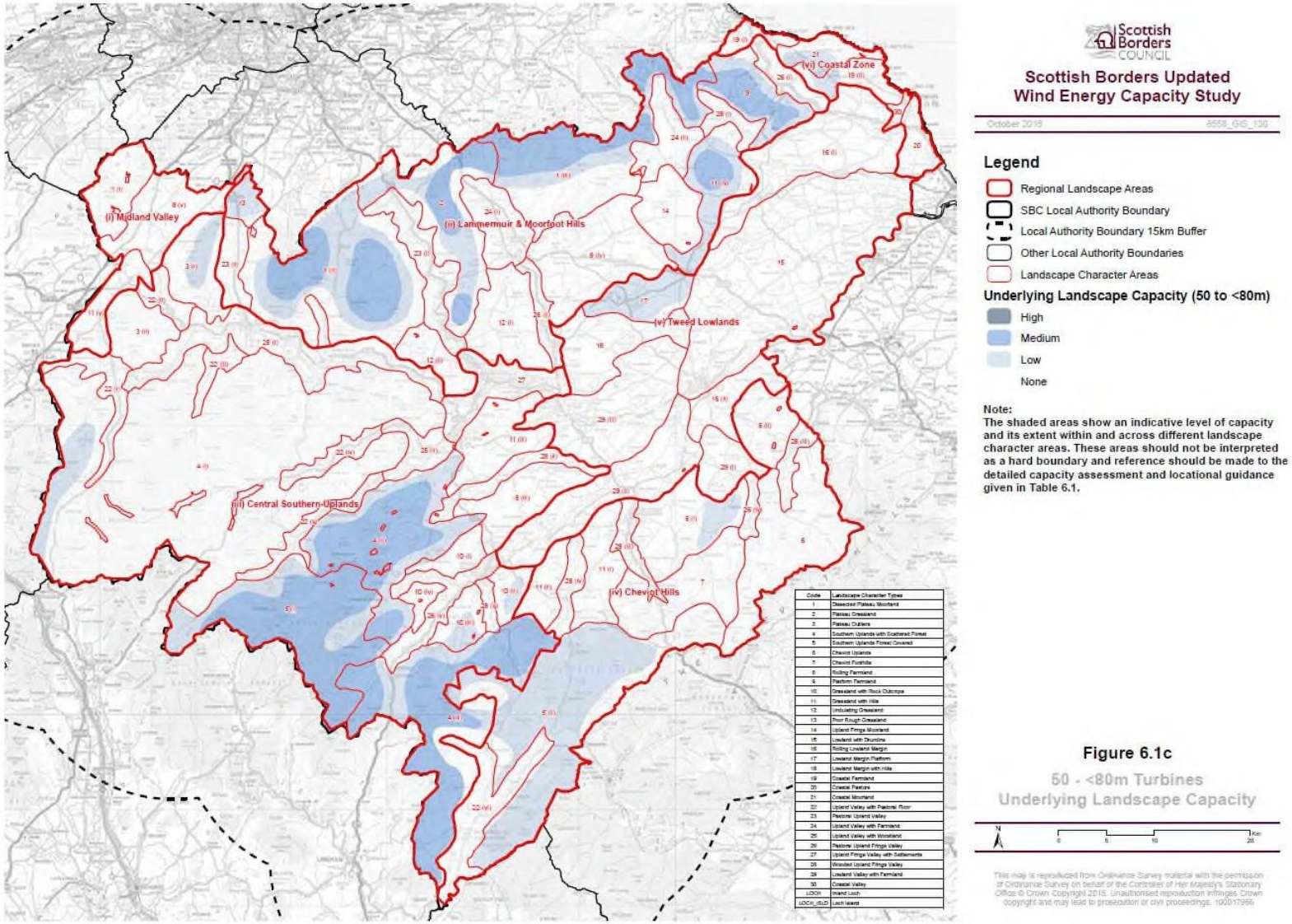


FIGURE 11 – UNDERLYING LANDSCAPE CAPACITY FOR TURBINES BETWEEN 80 - 120M

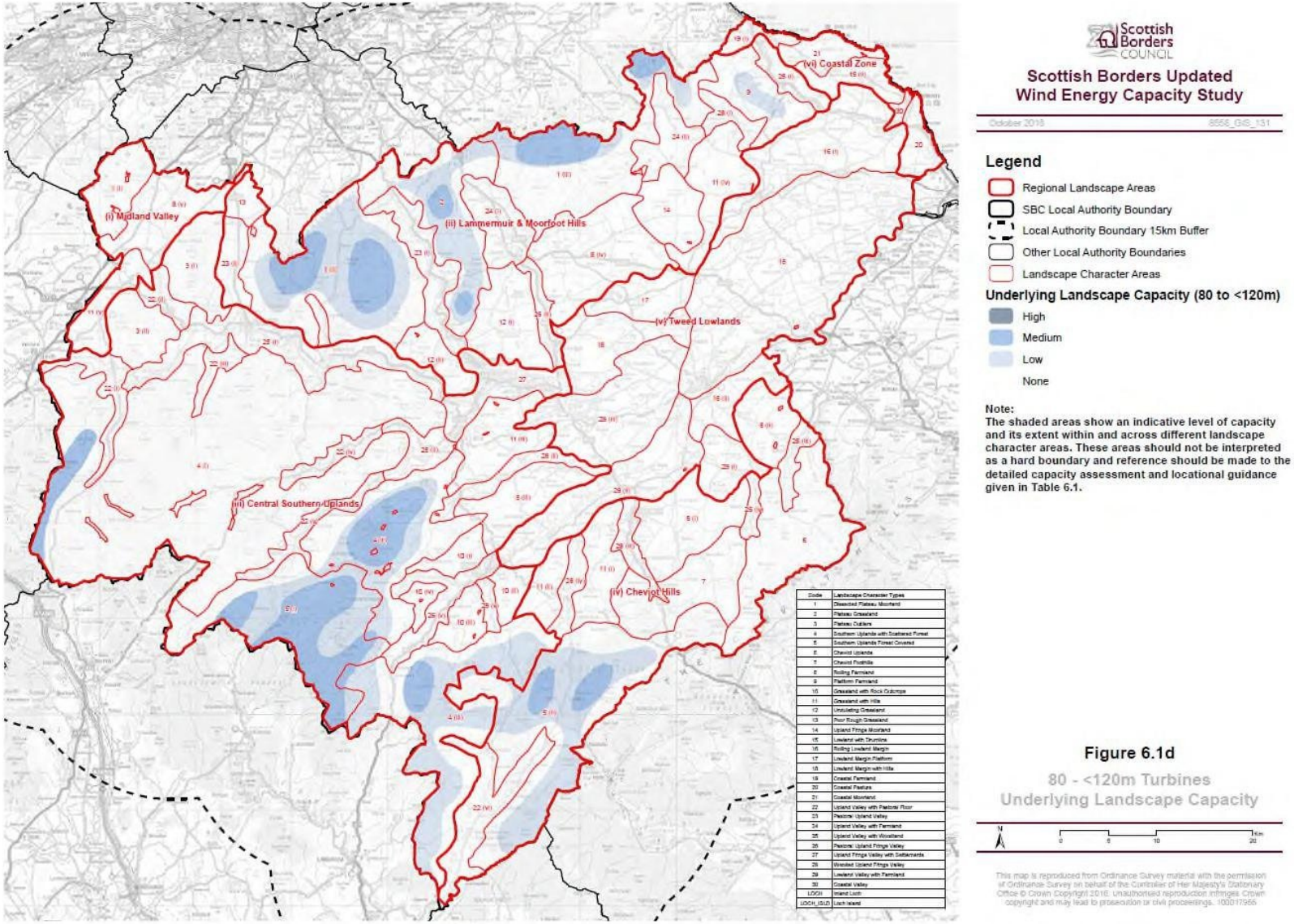


FIGURE 12 – UNDERLYING LANDSCAPE CAPACITY FOR TURBINES 120M +

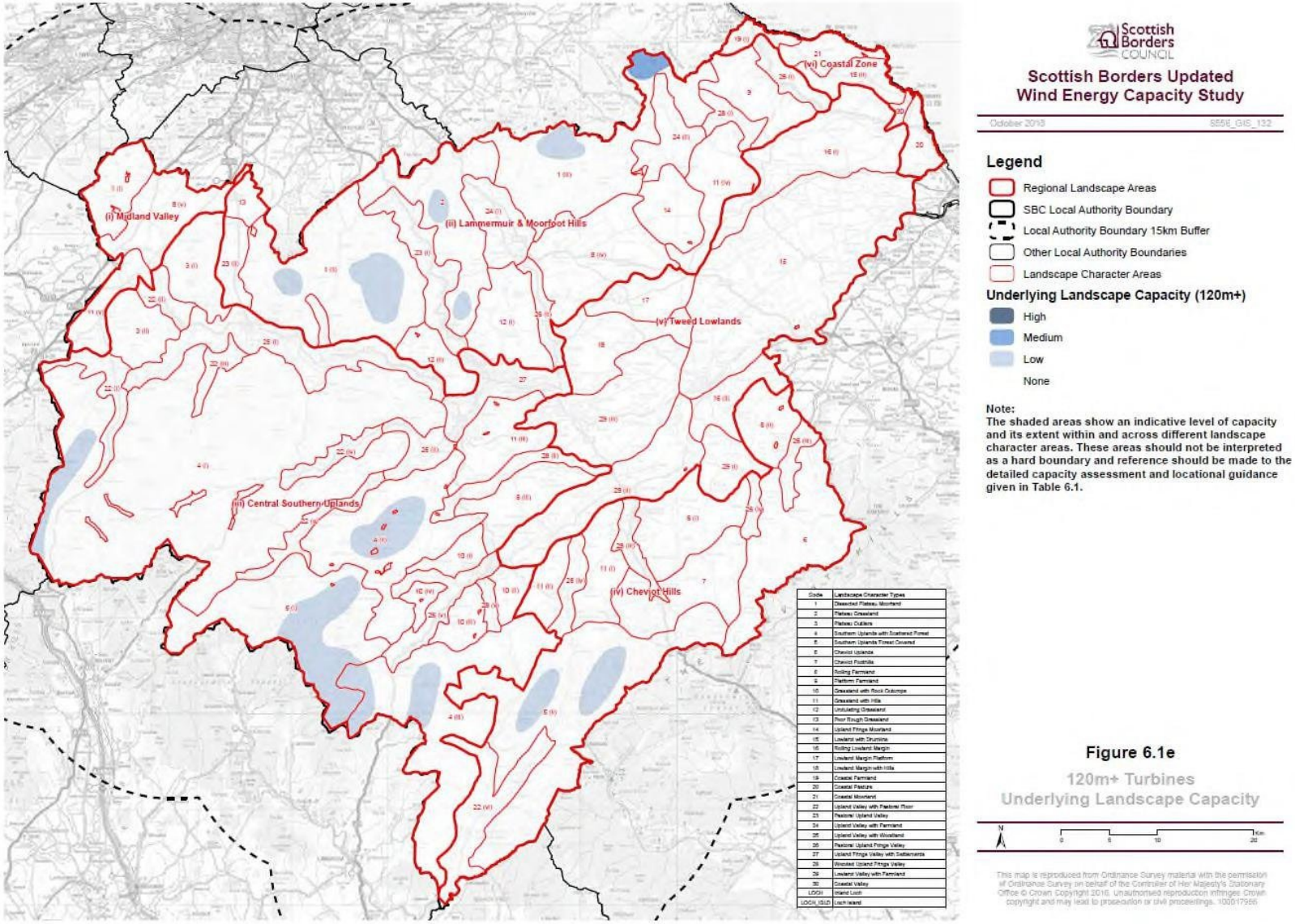


FIGURE 13 - SUMMARY MAP OF WIND TURBINE OPPORTUNITIES AND CONSTRAINTS

(THE OUTPUTS FROM FIGURES 8 - 12 ARE INCORPORATED IN FIGURE 13 WHICH ALSO TAKES COGNISANCE OF CUMULATIVE IMPACT ISSUES)

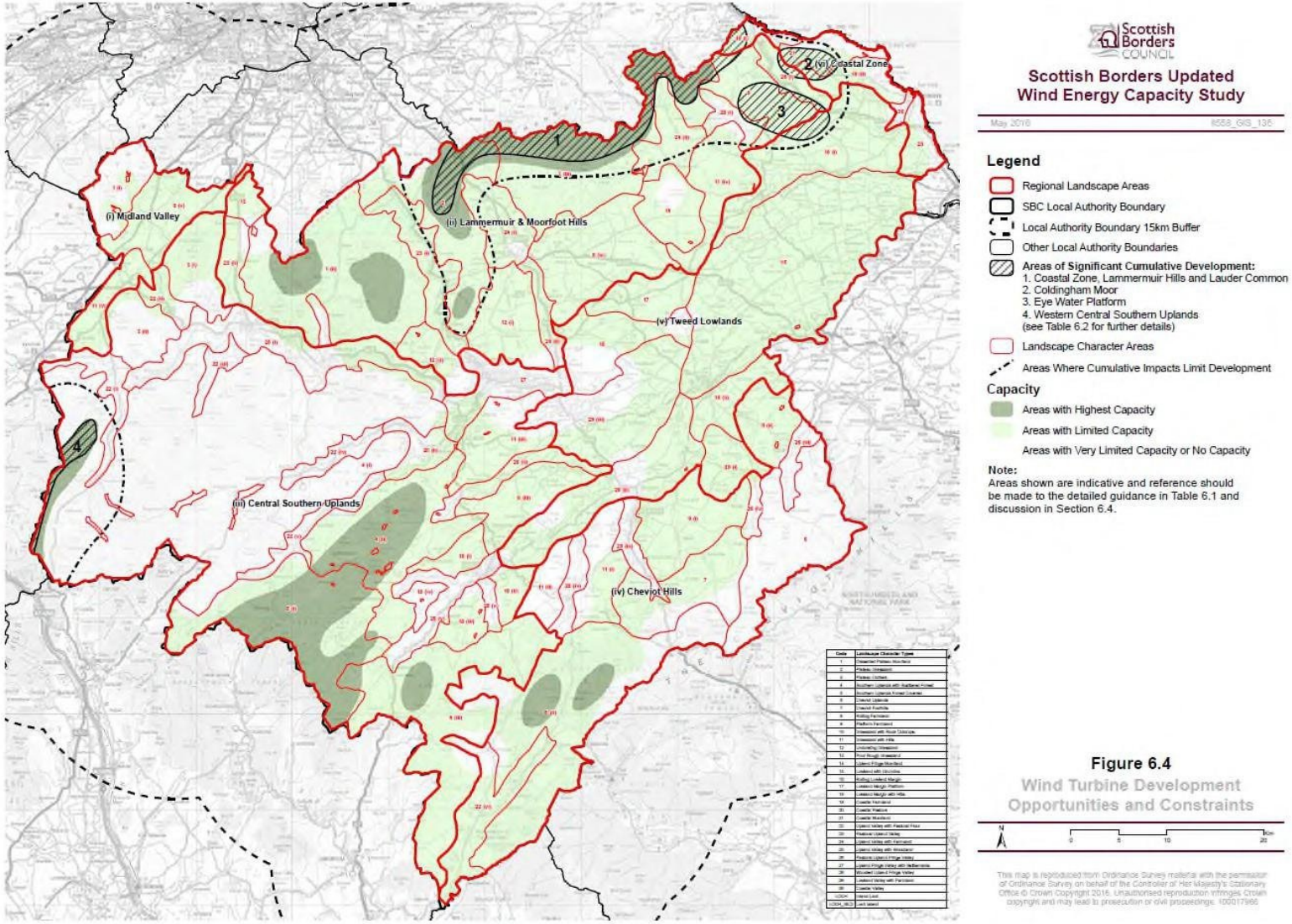


Figure 6.4
Wind Turbine Development Opportunities and Constraints

Repowering

Para 170 of SPP refers to areas for wind farms being suitable for use "in perpetuity" which relates to the future re-use of sites for repowering. This is a significant change in policy in that turbine sites must now be considered for permanent use which is re-affirmed by the Scottish Government in their paper entitled "Scottish Planning Policy – Some Questions Answered". Consequently this makes it even more vital that proper scrutiny is given to wind farm proposals on repowering to ensure full policy appraisal.

It is acknowledged that where existing turbine infrastructure exists there is an opportunity to re-use this when the lifespan of turbines expires and also to make turbine outputs more efficient. It is also acknowledged that turbines are now manufactured to increasingly greater heights, partly due to increase efficiency and the loss of subsidy. The fact a wind farm exists on a site, which would be picked up in an EIA, should be a material consideration to any repowering planning application and repowering offers opportunities to consider improvements to site layout and reassess environmental benefits. However, as part of the repowering process in instances where turbine heights are proposed to be increased, quite significantly in many cases, there are significant issues to be addressed. Existing turbines have been approved taking great care to consider how they will be fitted into the landscape, a procedure which regularly involves amended plans, reductions in heights and numbers and the finished approved heights are ultimately justified in any decision notice either by planning officials or Scottish Ministers. To increase the height of turbines could be contentious in many instances as higher turbines raises new parameters in terms of matters such as their prominence and suitability within the landscape and impacts on receptors. It therefore cannot be considered that such proposals will be faits accomplis on the grounds that turbines already exist on the site and such proposals should be considered de novo.

It is considered that this SG, policy ED9 of the LDP and para 6.6 of the Ironside Farrar Landscape Capacity and Cumulative Impact Study 2016 give useful guidance for any application submitted for the repowering of an existing wind farm. SNH will shortly be providing guidance on repowering.

Forestry and Woodland

Where woodlands within the Scottish Borders are affected by wind farm developments, the Scottish Government's policy on the Control of Woodland Removal will apply.

Consideration of the effects on woodlands will be informed by advice from the forestry regulator (Forestry Commission Scotland) and will normally be based on minimising forest loss by:

- Replacing felled areas on the basis of 'no net loss' of woodland area.
- Minimising woodland loss for wind turbines by adopting the 'keyholing' approach rather than large scale clearance.
- Locating replacement woodland planting within the application site as far as possible.
- Providing 'off-site compensation planting', as a last resort, as close to the application site as possible within the Scottish Borders.

All replacement and compensatory planting, covered by condition, will remain the responsibility of the applicant.

Consideration must also be given to how any forestry waste will be disposed of. Further information on this can be obtained from SEPA's Guidance on Management of Forestry Waste.

Policy EP13 – Trees, Woodlands and Hedgerows of the LDP 2016 encourages developers to take account of the woodland resource at the outset and requires that the public benefits of a development clearly outweigh the loss of landscape, ecological, recreational, historical or shelter value. It confirms the need to seek appropriate replanting where there is unavoidable loss of the woodland resource. This policy is informed by the Scottish Borders Woodland Strategy 2005.

Any turbine development is initially likely to be judged taking cognisance of existing woodland in the vicinity and how the proposal will relate to it. However, as required by SPP, proposals need to be considered "in perpetuity", and therefore consideration must also be given to changing woodland pattern through future tree felling and re-stocking as well as natural tree growth and further afforestation. It is therefore expected that any accompanying Environmental Statement should incorporate detailed reference to woodland management and felling, taking also into consideration required access roads and infrastructure.

Cross Boundary Issues

It is important that cross boundary issues are addressed in order that neighbouring planning authorities are fully aware and in agreement of each other's spatial strategies and wind energy policies. Neighbouring planning authorities were consulted on this SG and their comments and responses have been incorporated into the finalised document where required. It should also be noted that there is a wind farm Cross Boundary Liaison Group comprising of representatives from the Council, neighbouring planning authorities and Scottish Natural Heritage. Consideration of any potential impacts on the Northumberland National Park needs to be considered requiring consultation with the Northumberland National Park Authority where appropriate.

Contaminated Land

Policy IS13 of the LDP should be referred to where relevant. This policy seeks to allow development on land where contamination is known or suspected but in a manner that ensures the redevelopment of such sites is made possible without unacceptable risk to human health and the wider environment. Consideration should also be given in instances where coal mining activity has left a legacy and potential public safety and stability problems can be triggered.

CHAPTER 9: CONCLUSION

This SG gives further advice and guidance relating to policy ED9 - Renewable Energy Developments of the Council's Local Development Plan 2016. This SG has been prepared for the benefit of any interested party as to where in principle renewable energy proposals can be supported. It covers a wide range of material considerations and complies with SPP and Scottish Government advice by following the principle of accommodating renewable energy proposals where appropriate, whilst also taking cognisance of economic and other benefits a proposal may offer.

The SG, including its appendices, are material considerations to future decision making on all planning applications for on-shore wind energy development and associated infrastructure and will form part of the Development Plan. It is advised that any developers take cognisance of the Guidance at any early stage of proceedings and address parts relevant to their specific proposal.

GLOSSARY OF TERMS

BIODIVERSITY
The variability in living organisms and the ecological complexes of which they are part. This includes diversity within species, between species and of ecosystems (UN Convention on Biological Diversity, 1992).

CLIMATE CHANGE ADAPTATION
The adjustment in economic, social or natural systems in response to actual or expected climatic change, to limit harmful consequences and exploit beneficial opportunities.

CLIMATE CHANGE MITIGATION
Reducing the amount of greenhouse gases in the atmosphere and reducing activities which emit greenhouse gases to help slow down or make less severe the impacts of future climate change.

CO_2 CARBON DIOXIDE
The main greenhouse gas, formed by the combustion of all fossil fuels.

CULTURAL HERITAGE
Cultural Heritage encompasses the tangible and intangible creations of past and present cultural groups. This includes the historic environment (archaeological sites, monuments, historic buildings, designed landscapes, historic landscapes), artistic expressions, traditions and stories and aspects of the natural environment with cultural associations. Cultural heritage is inherited, informs identity and sense of place and is passed on to future generations

COMMUNITY
A body of people. A community can be based on location (for example people who live or work in or use an area) or common interest (for example the business community, sports or heritage groups).

CUMULATIVE IMPACT
Impact in combination with other development. That includes existing developments of the kind proposed, those which have permission, and valid applications which have not been determined. The weight attached to undetermined applications should reflect their position in the application process.

CUMULATIVE EFFECTS *(IN THE CONTEXT OF THE STRATEGIC TRANSPORT NETWORK)*
The effect on the operational performance of transport networks of a number of developments in combination, recognising that the effects of a group of sites, or development over an area may need different mitigation when considered together than when considered individually.

ENERGY CONSERVATION
The reduction of energy consumption usually achieved by changing habits or patterns of use and not requiring significant investment.

ENHANCEMENT
To improve the quality of an area affected by a wind energy development.

ENVIRONMENTAL IMPACT ASSESSMENT
The process used for describing, analysing and evaluating the range of environmental effects that are caused by a wind energy proposal

GLOSSARY OF TERMS

Environmental Statement
The document supporting a planning application that sets out the findings of the Environmental Impact Assessment.

Historic Environment
Scotland's historic environment is the physical evidence for human activity that connects people with place, linked with the associations we can see, feel and understand.

Landscape Character
A distinct pattern or combination of elements that occurs consistently in a particular landscape.

Landscape Character Classification
A process for describing areas which have broadly consistent and recognisable characteristics. An assessment was carried out for the Scottish Borders in 1995. It describes 70 distinct "Landscape Character Areas" which have been grouped into 31 defined "Landscaped Types". These in turn fall into five broad categories namely the "Upland Types", the "Upland Fringes Types", the "Lowland Types", the "Coastal Types" and the "River Valley Types". These reflect the diversity and pattern of landscape character areas that occur within the region.

Landscape Character areas
These are single unique areas which are discrete geographical areas of a particular landscape type

Landscape Character Assessment
The process of identifying and describing variation in the character of the landscape, and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make landscapes distinctive. The process results in the production of a Landscape Character Assessment

Landscape Character Types
These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern, and perceptual and aesthetic attributes.

Landscape Sensitivity
The extent to which the character and visual amenity of a landscape is susceptible to change brought about by the introduction of wind energy development.

Landscape Value
The relative importance that stakeholders attach to a landscape for a verity of reasons including scenic quality, perceptual aspects such as wildness, remoteness or tranquillity that contribute to a sense of place, rarity, presence and influence of other conservation interests and special cultural associations.

Mega Watt
A watt is an electrical unit of power. A megawatt is a million watts.

Micro-Generation
Very small scale power generation schemes, typically providing energy to a single household/office. These schemes are less than 50kw or 45kw (thermal) – Source Energy Act 2004

GLOSSARY OF TERMS

Mitigation
The act of amending a wind energy development to reduce/remove harmful impacts.

National Nature Reserve (NNR)
An area considered to be of national importance for its nature conservation interests.

National Scenic Area (NSA)
An area which is nationally important for its scenic quality.

Offshore
Location on the sea bed, below the mean low tide level, for a number of prospective renewable energy sources including wind, tidal and wave.

Planning Advice Note (PAN)
A series of documents that are produced at the national level and which provide advice on good practice.

Ramsar Sites
Wetlands designated under the Ramsar Convention on Wetlands of International Importance.

Renewable Energy
Collective term for energy flows that occur naturally and repeatedly in the environment. It includes energy derived by the sun, such as wind, solar hot water, solar electric (photo-voltaic), hydro power, wave, tidal, biomass, bio fuels, and from geothermal sources, such as ground source heat pumps.

Scheduled Monument
Archaeological sites, buildings or structures of national or international importance. The purpose of scheduling is to secure the long-term legal protection of the monument in the national interest, in situ and as far as possible in its existing state and within an appropriate setting.

Section 36 Applications
Applications for turbines which exceed 50MW in size require to be determined under section 36 of the Electricity Act 1989. These applications are submitted to the Scottish Government and planning authorities are consulted on these proposals.

Section 69 Agreement
This method of payment requires the applicant / developer to make the necessary development contribution prior to consent being issued. Section 69 Agreements will be processed on the basis that, should the contribution not be disbursed for the purpose contributed within five years of the agreement, it shall be repaid to the contributor with interest.

Section 75 Agreement
A legal agreement which regulates the development or use of land and is entered into by the Planning Authority and any person interested in the land to which it relates.

GLOSSARY OF TERMS

Sensitive Receptor

Aspect of the environment likely to be significantly affected by a development, which may include for example, population, fauna, flora, soil, water, air, climatic factors, material assets, landscape and the inter-relationship between these factors. In the context of planning for Zero Waste, sensitive receptors may include aerodromes and military air weapon ranges.

Setting

Setting is more than the immediate surroundings of a site or building, and may be related to the function or use of a place, or how it was intended to fit into the landscape of townscape, the view from it or how it is seen from areas round about, or areas that are important to the protection of the place, site or building.

Site of Special Scientific Interest (SSSI)

An area which is designated for the special interest of its flora, fauna, geology or geomorphological features.

Sustainable Development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The Brundtland Definition. Our Common Future, The World Commission on Environment and Development, 1987.

Sustainable Economic Growth

Building a dynamic and growing economy that will provide prosperity and opportunities for all, while ensuring that future generations can enjoy a better quality of life too.

Visual Receptors

Individuals and/or defined groups of people who have the potential to be affected by a proposal

Zone of Theoretical Visibility (ZTV)

The area from which a development is potentially visible as determined by topography and other intervening features on the ground

APPENDIX A – COUNCIL WEB PAGE ADVICE ON WIND ENERGY

APPENDIX A – COUNCIL WEBPAGE ADVICE ON WIND ENERGY

The following information is available on the Councils' webpage.

The windfarm database includes information on planning applications, applications being considered by the Scottish Government (Section 36 Applications) and sites where preliminary screening and scoping opinions have been issued.

Three maps of windfarm and turbine sites are also available to download, split into small and medium turbine locations, large scale turbine locations, and sites subject to screening and scoping requests. These maps confirm the high number of application submissions within the Scottish Borders and the consequent pressure the area is under from turbine proposals.

Before a planning application is submitted for a larger windfarm development, the applicant will normally ask for the Council's opinion on screening and scoping. A screening opinion will normally be in response to the question of whether an Environmental Impact Assessment (EIA) is required to accompany a planning application, while a scoping opinion will normally be about what that assessment should include.

The Council records the location of all sites subject to screening and scoping opinions for wind energy development in the Scottish Borders on the Screening and Scoping Opinions for Wind Development PDF map.

Note: Once an application for planning permission has been lodged, the proposal will be removed from this list and will then appear on the windfarm database.

APPENDIX B - DECOMMISSIONING TABLE

APPENDIX B – DECOMMISSIONING TABLE

Decommissioning Cost Estimate				
Description	**Quantity**	**Unit**	**Rate (£)**	**Total (£)**
Decommission Turbines				
Decommission Turbines – including all required carnage, loading/ unloading and transport for disposal off site				
Oil Disposal – disposal of wind turbine generator oils assume 1 turbine per day including disposal off site and all plant and equipment				
NO turbine scrap value should be taken into consideration				
Transport – transport off site for recycling distance not excelling 100km				
Transformers/ Package Substations Decommission package substations				
Decommission Turbine Foundations				
Decommission and make good foundation areas not exceeding XXm^2 x 1m below F.G.L (m^3)				
General allowance for turbine foundation area landscaping assume grading and seeding or similar				
Cost of material offsite as inert waste				
Decommission Site Roads (inc. SuDS)				
Quantity of site roads requiring decommissioning				
Site Road Programme – programme for site road decommissioning				
Labour				
Plant				
Does the site require imported fill material?				
Imported fill material from off site				
Decommission Crane Hardstandings				
Number of hardstandings to be decommissioned as standard set to number of turbines but can be altered				
Hardstanding Programme 0 programme for hardstandings decommissioning				
Labour				
Plant				
Does the site require imported fill material?				
Crane hardstanding size				
Material				
Decommission Substation Building(s)				
Allowance for substation control building and compound decommissioning civil works only including disposal of all material off site				
Decommission substation electrical installation including taking into account residual value of equipment				
Additional Decommissioning Civil Works				
Site Entrance – decommission site entrance				
Signage – remove site signage and install new where appropriate				
Fencing and hedging – remove/adjust site fencing and hedging where applicable				
Additional works – defined by the user				
Electrical Infrastructure Cost				
Works involved in removing cable from trenches and making good on completion				
Independent Engineering Design and Consultants				
General allowance for engineering costs through decommissioning phases of the works				
Decommission Met Mast				
Decommission met mast at the same time as turbines				
Management and Preliminaries				
Management and staff time				
Preliminaries				
Insurance				
Insurance rate as advised				
			Total	

APPENDIX C - IRONSIDE FARRAR STUDY ON LANDSCAPE CAPACITY AND CUMULATIVE IMPACT 2016

APPENDIX D - ICONIC VIEWPOINTS

Appendix D - Iconic Viewpoints

Route	Location	Grid Reference	Angle of View (degrees)	Direction of View	Main points of interest
Southern Upland Way	Pikestone Rig, Yarrow	NT 244176	180	NW	Highest hills in the Scottish Borders
	Blake Muir, Traquair	NT 304306	270	NE	Tweed Valley & Moorfoot Hills
	Minchmoor	NT 355336	360		Tweed and Yarrow valleys
	Browne Knowe	NT 390327	360		Tweed and Yarrow valleys
	Three Brethren	NT 4333320	360		Much of the Scottish Borders
	Chester Hill, Lauder	NT 525465	270	NE	Lauderdale & Lammermuir Hills
	Twin Law, Longformacus	NT 625548	270	SE	The Merse & Cheviot Hills
	Penmanshiel, Co'path	NT 795690	90	NW	Coast
St Cuthbert's Way	Eildon Hills		360		Much of the Scottish Borders
	Lilliardsedge	NT 620275	270	SW	Eildon Hills & Cheviot Hills
	Littledeanlees Crailing	NT 695234	180	NW	Teviot Valley
	Grubbit Law to Crookedshaws Hill	NT 792239 to NT 805248	360		Eastern & Central Borders, Cheviot Hills
Pennine Way (Border Ridge)	White Law	NT 857263	360		Eastern & Central Borders, north Northumberland & Cheviot Hills
	The Schil	NT 870224	360		Cheviot Hills
	Auchope Cairn	NT 890198	180	W	Cheviot foothills, Eastern Borders
	Windy Gyle	NT 855153	360		Cheviot Hills
Coastal Path	Lamberton	NT 973580	270	NE	Coast & sea
	Burnmouth	NT 957613	180	E	Burnmouth, coast & sea
	Fancove, Eyemouth	NT 954626	360		Coast, sea & eastern Borders
	Fort Point, Eyemouth	NT 944650	180	NW	Coast & sea
	St Abbs Head		360		Coast, sea & eastern

					Lammermuir Hills
	Tun Law	NT 894693	360		Firth of Forth, coast, sea & eastern Borders
	Dowlaw to Pease Bay	NT 855700 to NT 800705	180	NW	Firth of Forth
Borders Abbeys Way	Black Law, Jedburgh	NT 619182	360		Cheviot Hills, Rubers Law, & Teviot valley
	Drinkstone Hill, Hawick	NT 484186	360		Teviot Valley, Cheviot Hills & Tweedsmuir Hills
	Hartwoodmyers	NT 435245	180	NE	Ettrick & Yarrow valleys and Moorfoot Hills
	Shawmount to Cauldshiels Loch	NT 490297 to NT 507316	180	NW	Yarrow & Tweed valleys, Moorfoot Hills
John Buchan Way	Cademuir Hill, Peebles	NT 238387 to NT 225371	360		Manor Valley, Tweed valley, Tweedsmuir Hills & Moorfoot Hills
	Easter Dawyck, Stobo	NT200375	180	NW	Tweed Valley, Tweedsmuir Hills & Broughton Heights
	Stobo	NT155385	360		Tweed Valley, Tweedsmuir Hills & Broughton Heights
Dere Street	Whitton Edge to Pennymuir	NT 740190 to NT753150	360		Cheviot Hills & Central Borders
Tweed Trails	Cauldstane Slap, West Linton	NT 597118	360		Pentland Hills and particularly NW into Lothians & S to Tweedsmuir Hills.
Newcastleton Paths	Larriston Fell	NY 560915	180	W	Liddesdale
	Carby Hill	NY 486842	180	W	Liddesdale
	Blackburn	NY 474854	180	NE	Liddesdale
B6438	Preston to Auchencrow (Bunkle)	NT 804596	180	S	The Merse
A68	Carter Bar	NT 697068	180	N	Cheviot Hills, Eastern & Central Borders
A6105	Greenlaw Moor	NT 715475	180	SW	Central Borders

Minor road	Talla	NT 140201	90	NW	Talla Reservoir & Tweedsmuir hills
Hills	Rubers Law, Denholm	NT 580155	360		Teviot Valley & Cheviot Hills
	Black Hill, Earlston	NT 585370	360		Eildon Hills, Lauderdale Lammermuir Hills & central Borders
	Duns Law, Duns	NT 785546	270	SE	Merse, coast & eastern Lammermuir Hills
	White Meldon, Peebles	NT 219429	360		Moorfoot Hills, Pentland Hills & Tweedsmuir Hills
	Lee Pen, Innerleithen	NT 325386	360		Tweed valley, Moorfoot & Tweedsmuir Hills
	Dirrington Little Law, Westruther	NT 686532	360		Lammermuir Hills, Greenlaw Moor & the Merse
	Peniel Heugh	NT 653263	360		Cheviot Hills, Teviot valley eastern & central Borders
Historic Sites	Smailholm Tower	NT637347	360		Lammermuir Hills, Cheviot Hills, Eildon Hills & Tweed valley
	Scott's View	NT 594343	180	W	Eildon Hills & Tweed valley
	Hume Castle	NT 705414	360		Lammermuir Hills, Cheviot Hills, Eildon Hills & Tweed valley