

EAST AYRSHIRE COUNCIL Local Development Plan 2

East Ayrshire Landscape Wind Capacity Study

Non-statutory Planning Guidance

2024

East Ayrshire Landscape Wind Capacity Study



East Ayrshire Landscape Wind Energy Capacity Study

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Summary

This study revises and updates the 2013 East Ayrshire Landscape Wind Capacity study. It aims to inform strategic planning for wind energy development in line with Scottish Planning Policy and to also provide guidance on the appraisal of individual wind farm and wind turbine proposals in East Ayrshire.

The study considers the landscape and visual sensitivity of 12 landscape character types within East Ayrshire to a range of wind turbine developments; these principally categorised on the basis of turbine height. This study also considers scope for repowering existing wind farms using larger wind turbines. Potential cumulative issues associated with operational and consented wind farm developments are additionally considered. Guidance on the constraints and opportunities for wind energy development within each landscape character type is set out in the study.

Key findings of the study

- Operational wind farms are largely located in upland landscapes and while these generally have relatively limited landscape and visual effects on the settled lowlands in the northern part of East Ayrshire, some developments have significant effects on parts of the Doon and upper Nith Valleys.
- Recently consented wind farms in East Ayrshire and neighbouring Dumfries and Galloway will significantly increase landscape and visual effects, particularly in the Loch Doon, Doon Valley and Upper Nith Valley areas.
- There is some scope to site additional wind farm development with turbines above 70m height within upland areas of East Ayrshire although this will be limited by potential cumulative and other landscape and visual constraints including effects on adjacent smaller scale settled valleys and lowland landscapes.
- There is no scope to accommodate turbines above 50m height within the smaller scale, well-settled lowlands and valleys due to their increased landscape sensitivity to tall turbines, including potential cumulative effects with wind farm development in adjacent upland areas.
- The narrow, incised and diverse valleys of the Doon, Ayr and Lugar and the rugged uplands, lochs and forest of the Carrick Forest and Loch Doon area are highly sensitive to turbines over 30m high.
- Larger turbines replacing operational and consented turbines in wind farm 'repowering' schemes could only be accommodated in very few locations in East Ayrshire.

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1 INTRODUCTION

1.1 Policy context (Updated 2024)

The Scottish Government is committed to increasing the amount of electricity generated from renewable sources. Most of this capacity is likely to be met from hydro-electric and on-shore wind power, but in due course there is expected to be a wider range of productive renewable technologies, including off-shore wind power as well as biomass, solar, energy from waste and landfill gas and wave and tidal power.

1.1.1 National Planning Framework 4

National Planning Framework 4 seeks to support the initiatives set out above. It requires local authorities to ensure that an area's full potential for electricity and heat from renewable resources is achieved, while giving due regard to relevant environmental, community and cumulative impact considerations.

NPF4 stresses the need for the planning system to guide development to appropriate locations and local development plans are required to set out the issues that will be taken into account when considering specific proposals for energy developments. NPF4 Policy 11 states that "LDPs should seek to realise their area's full potential for electricity and heat from renewable, low carbon and zero emission sources by identifying a range of opportunities for energy development". It also states that project design and mitigation should demonstrate how any potential landscape and visual impacts and/or cumulative impacts can be addressed.

1.1.2 The role of landscape capacity studies for wind energy development

NatureScot provides further guidance on the use of landscape capacity studies in the document *Spatial Planning for Onshore Wind Turbines – natural heritage considerations* (June 2015). This guidance states that landscape capacity studies are a material development management consideration that will underpin supplementary guidance and inform good decision making. These studies can support the requirements of NPF4 by identifying landscape sensitivities early in the process and capacity for further development, considering cumulative landscape and visual effects. Landscape capacity studies can also provide advice on general design, such as turbine height and layout, and on the scope for change to existing wind farm development, for example, through the replacement of turbines (commonly known as 'repowering').

1.2 Background to the study

The 2013 East Ayrshire Landscape Wind Capacity Study (EALWCS) considered all scales of wind energy development with turbine heights ranging from 15m to over 70m high to blade tip. The assessment within the 2013 EALWCS considered a

baseline of operational and consented wind farms. Between 2013 and 2018, additional wind farms have been consented and/or constructed both in East Ayrshire and close-by in the neighbouring authorities of South Lanarkshire, South Ayrshire and Dumfries and Galloway and this has changed the landscape and visual baseline. In addition, interest in smaller wind turbines has reduced in East Ayrshire since 2013 due to changes in the feed-in tariff subsidy.

This updated and revised study (2018) principally considers any changes to sensitivity to larger wind farm developments, including in some landscapes, wind turbines over 130m high. Detailed review of potential cumulative landscape and visual impacts has been undertaken given the greater number of operational and consented developments now in existence in East Ayrshire and neighbouring authorities.

1.3

Study objectives

The study aims to inform both strategic spatial planning for wind energy developments and to provide guidance on the appraisal of individual wind farm and wind turbine proposals. In summary, it provides:

- A landscape and visual sensitivity assessment for wind farms and wind turbine developments within different landscape character types in East Ayrshire considering potential cumulative effects with other operational and consented wind energy developments.
- An appraisal of potential scope for repowering operational and consented wind farms (which is likely to involve replacement of existing turbines with new larger turbines) while minimising landscape and visual effects.
- Definition of clear spatial principles as to what height of turbine would be appropriate, in landscape and visual terms, within the different landscape character types considered in the study.
- Provision of design and siting guidance for use by the Council and applicants to promote good practice in locating and siting individual and small groups of lower height turbines.

1.4 Structure of the report

This report initially sets out the methodology adopted for the study in Section 2, together with the landscape character types and turbine development typologies considered in detail in the study. Operational and consented wind farm and turbine developments which form the baseline for the study are also identified.

The key findings of the study are summarised in Section 3 of the report and precede the more detailed landscape and visual sensitivity assessments which have been produced for 12 landscape character types within East Ayrshire. Guidance is provided on cumulative issues (including cross-boundary matters), opportunities and constraints and on siting and design for each landscape character type within these assessments.

2 STUDY METHODOLOGY

The study methodology is based on landscape and visual capacity assessment, which uses sensitivity assessment to determine the ability of the landscape character and visual amenity to accommodate changes brought about by new development.

2.1 Background to landscape capacity

Landscape capacity is described as 'the degree to which a particular landscape character type or area is able to accommodate change without significant effects on its character, or overall change of landscape character type. Capacity is likely to vary according to the type and nature of change being proposed'¹

There is currently no formally agreed approach or methodology for assessing the sensitivity or capacity of different landscapes to wind energy development. Scottish Natural Heritage (SNH) Commissioned Report 385 *Landscape Capacity Studies in Scotland – Review and Guide to Good Practice* was issued in 2010 and this study accords with the guidance set out in this document (and the online Toolkit which was informed by it). More detailed guidance is also provided by SNH in the document *Siting and Designing Wind Farms in the Landscape* (2014) which includes advice on strategic planning for wind farms, and in the *Siting and Design of Single and Groups of Small Turbines in the Landscape* (2012). A full list of reference material used in the study is set out in Annex A.

Most landscape capacity studies consider the potential sensitivity of key characteristics of landscape character types and areas to a given development. The particular characteristics defined as key sensitivity criteria may change according to the nature of the development being considered, although the methodological approach between studies is generally similar. Visibility and views may be considered as a separate issue or may form part of the assessment of landscape sensitivity as a criterion together with key landscape characteristics.

Landscape values (which include designated or valued landscapes) may be considered as a separate criterion in the sensitivity assessment although this will largely depend on the background information available on the reasons for designation and the brief from the commissioning body. The brief for this study required that landscape designations and other recognised values should not be considered in the sensitivity assessment (although some qualities relating to the Galloway Forest Dark Skies Park are addressed within the *perceptual qualities* sensitivity assessment criterion).

The Guidelines for Landscape and Visual Impact Assessment Version 3 (GLVIA3) sets out a methodology for appraising landscape sensitivity which considers

¹ Swanwick, Carys and Land Use Consultants, *Landscape Assessment Guidance for England and Scotland*, 2002, Countryside Agency and Scottish Natural Heritage.

susceptibility and value. While this methodology is similar to the methodology used in the EALWCS, GLVIA3 makes it clear that the purposes of assessing sensitivity in the wider arena of landscape planning is different to that undertaken as landscape and visual impact assessment which is specific to a particular project or development and its location.

2.2 Definition of terms

The following definitions of terms apply to this study:

Landscape character assessment

Landscape character assessment is a standard methodology for identifying, classifying and mapping what is distinctive about landscapes. It helps to understand what makes one landscape different from another. Landscape character relates not only to the physical attributes of the land, such as landform, land cover and settlement pattern, but also to perceptual responses to the landscape.

Landscape sensitivity

Sensitivity relates to landscape character and how susceptible this is to change. In this study, change relates to wind energy development and any findings on landscape sensitivity are restricted to this. Landscapes may have different sensitivities to other forms of change or development. Sensitivity is assessed by considering the effect of different heights of wind turbine development on the physical and perceptual characteristics of landscapes. In this study, the nature of views and visibility and the value associated with a landscape are also considered in determining sensitivity.

Landscape capacity

The terms landscape sensitivity and capacity are often used interchangeably in Scotland to refer to landscape studies that assess a landscapes susceptibility to a particular form of development. Capacity relates to the extent to which a landscape is able to accommodate development without significant adverse impacts occurring on its character. In this study, landscape capacity is determined by the nature and degree of effects likely to occur on key characteristics of the landscape. This is explained in more detail in 2.8 of this report.

2.3 General approach to the study

The approach to the study has been informed by guidance on the potential impacts and landscape sensitivities associated with wind energy development and on the practical application of methodologies used in recent landscape capacity studies we have undertaken for wind energy development. It involves the following key tasks:

 Field review of the landscape character types identified in the Ayrshire Landscape Assessment (LUC, 1998) published by Scottish Natural Heritage (SNH) and identification of any sub-divisions or boundary alterations necessary for the purposes of this sensitivity assessment.

- Identification of operational and consented wind farm developments in East Ayrshire and, where relevant, within adjoining authorities to inform the baseline for this study and understand development trends.
- Identification of the wind turbine development typologies (largely defined by the height of turbines) to be assessed in the study.
- Definition of landscape and visual sensitivity criteria to be used in the assessment.
- Production of computer-generated Zone of Theoretical Visibility (ZTV) mapping and visualisations to allow comparisons of different turbine heights to be considered in the field.
- Field work to assess the sensitivity of different landscape character types to the agreed development typologies using identified sensitivity criteria.
- Guidance on the siting of smaller turbines (<50m high), informed by field work undertaken across Ayrshire.
- Provision of an overview of landscape and visual sensitivities across the study area and recommendations on strategic landscape and visual considerations for wind farms and single and smaller wind turbines, updating the information contained in the 2013 EALWCS.

2.4 Operational and consented wind farms and turbines

The following operational and consented wind farm developments in East Ayrshire and relevant developments in neighbouring authorities (turbines >50m high to blade tip) listed in Table 1 have formed the baseline for the landscape and visual sensitivity. A cut-off date of April 2018 was set for the study. These developments are shown in Figure 1.

Windfarm	Turbines	Height to	Authority		
		blade tip			
Operational wind farms > 50m high					
Hare Hill	20	64m	East Ayrshire		
Whitelee	140	110m	East Ayrshire/East		
			Renfrewshire/South Lanarkshire		
Whitelee II	75	140m	East Ayrshire		
Afton	27	120/100m	East Ayrshire		
Galawhistle	3	122m	East Ayrshire		
Hare Hill extension	39	70 – 91m	East Ayrshire		
Windy Standard	36	53.5m	Dumfries and Galloway		
Windy Standard II	30	120m	Dumfries and Galloway		
Dersalloch	23	115/125m	South Ayrshire		
Consented wind farms >50m high					
South Kyle	50	149.5m	East Ayrshire		
Lethans	22	136 to 176m	East Ayrshire		
Benbrack	18	130m	Dumfries and Galloway		
Sneddon Law	15	130m	East Ayrshire		

Table 1: Wind Farm/turbine baseline for East Ayrshire study (April 2018)

2.4.1 Smaller wind turbine developments

A relatively small number of operational single and small groups of turbines below 50m high are located in East Ayrshire. Although a considerable number of approvals have been made for smaller wind turbines, many have not been erected.

2.5 Baseline landscape character

This capacity study has been informed by the landscape characterisation set out in the Ayrshire Landscape Assessment (LUC 1998). The landscape character types set out in the 1998 study have been reviewed in the field. Some minor changes have been made to the boundaries of some landscape character types and this is explained in Annex B. In addition, a new landscape character type, the *Rugged Uplands, Lochs and Forest* (21) has been classified in the area centred on Loch Doon and the Carrick Hills. The character types and sub-types considered in this study are shown on Figure 2.

A new numerical referencing system has been adopted for the areas of landscape character considered in this study. Annex B provides a table listing the original 1998 landscape character types and the new names and references used in this study.

2.6 Development typologies

2.6.1 *Smaller typologies*

The height of turbines relative to other structures in the landscape is a key consideration in terms of landscape 'fit'. Different sensitivities come into play once turbines exceed the height of other common landscape features, for example trees and small wood pole lines.

Turbines below 15m height to blade tip have been excluded from the detailed sensitivity assessment undertaken for character types within East Ayrshire. This is because turbines of this size can be successfully accommodated within most landscapes subject to careful siting and design.

We have categorised smaller turbines as being those under 50m height to blade tip. We have found during our field assessments (and observations of existing smaller turbines in the landscape) that there is a noticeable 'threshold' at around 30-35m height to blade tip where over this height a turbine will quickly become a dominant feature in many lowland/more settled landscapes. Two 'smaller' typologies have therefore been assessed in detail within more settled lowland landscapes based on turbines 15-30m and 30m-50m height to blade tip.

2.6.2 Larger typologies

In terms of larger developments (turbines 50m +) we have principally considered the height of turbine within the sensitivity assessment as this is a critical factor in determining landscape and visual sensitivity. We have not specifically considered pre-determined numbers of turbines within the typologies assessed although some indication is given of the likely extent of development that may be accommodated where the sensitivity assessment indicates some capacity within the guidance set out for each landscape character type. The assessment therefore is applicable to both single, small groups and larger groups of turbines comprising wind energy developments.

This updated and revised capacity study additionally considers sensitivity to very large wind turbines >130m high to blade tip in selected landscape character types which either already accommodate commercial wind farms and/or where scope for the large typology (turbines 70m+) was identified in the 2013 EALWCS.

2.6.3 Summary of development typologies considered

The following development typologies are considered in the study:

- Small turbines 15-30m high
- Small-medium turbines 30m to 50m high
- Medium turbines 50m to 70m high
- Large turbines 70-130m high
- Very Large turbines over 130m high

The study has focussed on assessing the relationship between the height of the turbine and the landscape and visual sensitivity criteria. In undertaking this analysis, it has been assumed that small, small-medium and medium typologies will comprise single and small groups of turbines rather than more extensive commercial wind farms. The assessment considers scope for multiple developments located across the character area.

In addition, possible extensions and repowering of existing wind farm developments have been considered in the guidance provided for relevant landscape character types as explained in paragraph 2.9.

2.7 The sensitivity assessment

The capacity study considers the sensitivity of key characteristics of each landscape character type or sub-type to different types of wind farm or turbine development. The assessment process uses a range of sensitivity criteria to do this based on key landscape and visual characteristics. The sensitivity assessment combines landscape sensitivity, visual amenity and existing cumulative effects. Landscape designations and other recognised interests such as the Dark Sky Park, Inventory designed landscapes and Wild Land Areas are not considered in the sensitivity assessment. These are however likely to form another layer of information considered in strategic planning for wind farm/turbine development in East Ayrshire.

2.7.1 Landscape and visual sensitivity criteria

The sensitivity assessment considers the following criteria in assessing the potential effects of wind turbines and associated infrastructure on the landscape character types:

- Landscape context
- Scale and openness
- Landform
- Land cover pattern
- Built environment
- Perceptual qualities
- Visual amenity
- Cumulative effects

A detailed description of the factors considered within the sensitivity assessment is set out in Annex C.

2.7.2 Field assessment

The sensitivity assessments have been informed by extensive field work. Computer-generated visualisations from relevant Environmental Statements were used, where available, to inform the assessment of potential cumulative visual issues. A number of computer-generated 'photo wire' visualisations illustrating a range of turbine heights from identified viewpoints were also produced to inform the sensitivity assessment in the field.

2.8 Sensitivity ratings

Each of the sensitivity criterion set out in paragraph 2.8.1 has been scored using a five-point scale. An overall landscape and visual sensitivity rating is also set out considering all landscape and visual criteria. The overall landscape and visual sensitivity rating has been arrived at by considering the combined weight of evidence set out in the sensitivity assessment using professional judgement, rather than using a numerical scoring system. This is interpreted in the following table:

Overall	Definition	
Sensitivity rating		
Low	The development typology relates well to key landscape characteristics and change is able to be accommodated without significant adverse impacts on landscape character or visual amenity.	
Medium - Iow	Some limited sensitivities although there are opportunities to accommodate the development typology in most locations.	

Table 4: Explanation of Sensitivity Ratings

Medium	Some key landscape characteristics or aspects of visual amenity are sensitive but there is still some ability to accommodate development in some locations with acceptable character change and/or visual impact; the development typology relates to some aspects of landscape character.
High-medium	A number of key landscape characteristics are vulnerable to change. Development would undermine some important defining aspects of landscape character and/or visual amenity and/or may result in significant cumulative effects with other wind farm developments. A limited amount of development may be able to be accommodated in very small parts of some landscape character types/areas however.
High	The majority or all of the key landscape characteristics are vulnerable to change. Development would conflict with key aspects of landscape character and visual amenity with widespread and significant adverse impacts likely to arise.

2.9 Repowering of existing wind farms

An assessment has been undertaken to consider opportunities for repowering existing wind farms (assumed to principally comprise replacement with larger turbines) and for very large wind turbines (>130m high to blade tip). The assessment has been informed by computer-generated visibility mapping and visualisations based on selected operational and consented wind farms and showing replacement with larger turbines. The comparative height mapping and visualisations are representative examples, intended to demonstrate potential landscape and visual impacts associated with repowering. The assessment of scope for very large turbines >130m high (as new developments or repowering projects) has been undertaken for six landscape character types. These are listed in Section 4 of the report which forms an introduction to the sensitivity assessment.

The background study undertaken to inform the assessment of scope for repowering using larger turbines is contained in Annex D.

2.10 Cumulative issues and overall capacity assessment

There are two outputs from the assessments in relation to cumulative landscape and visual assessment.

2.10.1 Cumulative effects

We have firstly considered cumulative effects in the sensitivity assessments. This is one of the criteria listed in the detailed sensitivity assessments, and considers the implications of existing and consented turbines and wind farms within the landscape character type and nearby.

2.10.2 Potential cumulative issues

We have also identified potential cumulative landscape and visual issues. These are more speculative potential impacts, and reflect what might happen depending on the number and type of developments which might be introduced into the landscape character type which is the subject of the assessment. These potential issues are listed prior to identifying opportunities and constraints to different development typologies within the sensitivity assessments undertaken for each landscape character type.

Potential landscape and visual cumulative impacts considered include:

- Change in landscape character i.e. where an addition to existing and consented wind farms and turbines is likely to result in wind turbines becoming a recognisable and consistent characteristic associated with a specific landscape character type, rather than a one-off feature (this may not necessarily be a negative impact);
- Significant alteration to a defining characteristic of that landscape character –
 i.e. a characteristic which is recognised as contributing to the distinctive identity
 of the character of a type is likely to be lost or significantly diminished by the
 addition of one or more wind farms or multiple wind turbines to multiple existing
 and consented wind farms or turbines;
- Loss of recognisable development pattern i.e where wind farms or turbines are introduced into a landscape where existing wind farms or turbines already create a recognisable pattern of development which complements the existing character, but additional development diminishes the integrity and robustness of the pattern leading to fragmentation of landscape character
- Visual dominance i.e where wind farms or turbines become a visually dominant feature because of their combined presence as multiple or merged developments affecting a skyline as viewed from a significant viewpoint, or encountered sequentially as a series of focal points from a road or stretch of coast which is a definable journey.
- Visual clutter where different types of turbines, including different heights and styles of design, come together to create a muddled visual distraction from the landscape or key features.

2.11 Overall sensitivity ratings

We advise that there is no scope for development within landscape character types concluded to have a *High* overall sensitivity.

Within landscape character types found to be of *High-medium* sensitivity, we consider that there is either no scope or very limited scope for development in a small part of the character type only. Within these High-medium sensitivity landscapes, it is recommended that developers should be required to demonstrate how they have dealt with the identified constraints in the siting and design of wind farm developments.

We consider that there is scope for more extensive development where a *Medium or lower sensitivity* is identified in the study. Medium and lower sensitivity landscapes are not without constraints however and developers should be required to take note of these in the siting and design of wind energy proposals.

2.12 The significance of landscape and visual effects

Most large-scale wind energy developments are likely to incur significant adverse landscape and visual effects. This study sets out guidance on the likely nature, extent and severity of potential effects and proposes a strategy aimed at identifying scope for additional wind energy development while protecting the most sensitive landscapes within East Ayrshire from inappropriate development. The study only considers landscape and visual sensitivity and a range of environmental and other issues need to be considered in determining the overall acceptability of wind energy development

2.13 Guidance for siting smaller turbines

Guidance on the siting of wind turbines below 50m height is provided in Annex F. This work supplements SNH's published guidance *Siting and Designing Windfarms in the Landscape* (2017) and *Siting and Designing of Small Scale Wind Turbines of between 15 and 50 metres in height* (2012).







3 SUMMARY OF FINDINGS AND RECOMMENDATIONS

3.1 Introduction

This section of the report summarises the key findings of the sensitivity assessment undertaken as part of the study. It addresses the landscape and visual issues associated with wider strategic planning of wind farm and turbine developments in East Ayrshire and outlines recommendations for a landscape strategy.

The study has considered the sensitivity of 12 landscape character types within East Ayrshire to wind turbines of different heights. This sensitivity assessment applies to both single, small groups of turbines and larger numbers of turbines forming wind farm developments. While the landscape character types used in the sensitivity assessment were informed by the published Ayrshire Landscape Character Assessment (1998), a number of these landscape character types have been sub-divided and reclassified to better reflect local character and context (and also potential issues in relation to operational and consented wind farm developments) for the purposes of this study.

The sensitivity assessment set out in this study identifies constraints in analysis at a strategic scale. Developers would need to demonstrate how they have dealt with potential effects on the constraints identified in the sensitivity assessment when preparing proposals.

3.2 Key findings of the sensitivity assessment

3.2.1 Scope for turbines >70m high

East Ayrshire already accommodates extensive operational and consented wind farm development located in the uplands which extend into neighbouring Dumfries and Galloway, South Lanarkshire and East Renfrewshire. The extent of operational and consented wind farm development restricts scope for additional larger wind turbines to be accommodated. This is because the generally less sensitive parts of these uplands are already occupied by wind farms with remaining undeveloped areas either lying on the periphery of these uplands close to more sensitive settled landscapes or contain more diverse landscape features. Cumulative effects are also more likely to occur affecting surrounding more sensitive landscapes and views.

The sensitivity assessment concluded that only two landscape character types had scope to accommodate larger turbines >70m high. These are the *Foothills with Forest and Opencast Mining* (17a) and the *Plateau Moorlands* (18a). However, although some scope has been identified in these landscapes they are not without constraints with potential cumulative effects with operational and consented wind farms especially needing careful consideration.

A summary table showing the sensitivity of each landscape character type to the wind turbine typologies is contained in Annex G.

3.2.2 Repowering of operational and consented wind farms

An assessment has been undertaken to consider scope for accommodating much larger wind turbines as part of repowering (or amending) operational and consented wind farm. Comparative ZTV mapping and visualisations were prepared for representative wind farms in a variety of landscapes across Ayrshire and further field work was undertaken to consider potential landscape and visual effects of increasing turbine heights within all developments as part of the updated sensitivity assessment. The background study is contained in Annex D.

The assessment concluded that there was no scope to increase the heights of the operational wind farms of Dersalloch (in neighbouring South Ayrshire), Afton and Hare Hill. In the case of Dersalloch, this is because of the likely exacerbation and extension of already significant effects on the Doon Valley (and particularly the Craigengillan designed landscape) and increases in the extent of visibility and degree of intrusion on the Girvan Valley. The Afton and Hare Hill wind farms are both associated with more sensitive distinctive landform features (the pronounced and highly visible Hare Hill and the ridge which contains the head of Glen Afton). Any increases in the size of turbines in these developments would be likely to significantly increase the prominence of these developments and their effect on these features in views from the *Upland Basin* (15) landscape character type.

The operational Whitelee II wind farm already comprises relatively large turbines and while increases of turbine height to 200m would be likely to exacerbate scale contrasts with the small field pattern and buildings in the nearby *Ayrshire Lowlands* (7), it may be possible to redesign the layout and omit more prominent outer turbines to reduce landscape and visual effects.

In terms of consented wind farms, the assessment principally considered the South Kyle and Sneddon Law developments, concluding that both had turbines at maximum height already given the increased effects that would occur on the nearby sensitive landscape of Loch Doon and the setting of Dalmellington (South Kyle) and the more settled hill slopes at the transition with the *Ayrshire Lowlands* (7) (Sneddon Law).

3.2.3 Smaller turbines

The sensitivity assessment concluded that the small-medium typology (turbines 30-50m) could be accommodated in limited parts of the *East Ayrshire Lowlands* (7c), the *Upland River Valleys* (10) and the *Upland Basin* (15). These landscapes often have an even dispersal of small farms and other buildings and capacity would be quickly reached if even a small number of these were to feature a turbine of this height with multiple turbines in close proximity likely to overwhelm landscape features. Turbines <30m would fit more comfortably with the scale of these settled lowland landscapes, incurring fewer landscape and visual effects and allowing a greater number of turbines to be accommodated.

There is also some scope for limited numbers of turbines 30-50m to be accommodated on sparsely settled lower hill slopes and broader valleys on the fringes of the *Plateau Moorland* (18a) character type where the more widely spaced pattern of farms would be likely to reduce cumulative effects.

3.3 Strategic Landscape Issues

3.3.1 Introduction

The sensitivity assessment identifies constraints and opportunities within each landscape character type/area. Although landscape context is considered as one of the key sensitivity criteria, the assessment essentially relates to specific landscapes and any effect on immediately adjacent character types in isolation. It is therefore important to also take into account the experience and appreciation of the landscape of East Ayrshire as a whole and to 'stand back' from the individual assessments to consider the wider implications of the judgements made on landscape and visual sensitivity. The following text provides a landscape overview, summarises current issues relating to wind farm and turbine development and also addresses key cumulative landscape and visual effects before outlining a recommended landscape strategy for wind energy development in East Ayrshire.

3.3.2 The East Ayrshire Landscape

The uplands which form a broad arc around the eastern and south-eastern edge of East Ayrshire extend into neighbouring South Ayrshire, Dumfries and Galloway, South Lanarkshire and East Renfrewshire. Although all of these upland areas are sparsely settled and have a larger scale than the lowlands, valleys and glens of East Ayrshire, they vary considerably in the complexity of their landform, land-cover and scenic qualities. These uplands form simple, relatively low-lying undulating plateaux in the north-east (and are now principally characterised by extensive wind farm developments). They are higher and more diverse to the east where a number of well-defined, steep-sided hills, including Blackside, Cairn Table and Wardlaw Hill form widely visible 'landmark' features seen across the more settled parts of East Avrshire (see Figure 3 and Annex E). The rolling Southern Uplands and the craggy granite hills within the Carrick Forest to the south are higher still and form often complex and dramatic skylines seen at distance from the settled lowlands of Ayrshire. The Southern Uplands, which lie east of the Doon Valley, will accommodate extensive wind farm development because of recent consents in East Ayrshire and neighbouring Dumfries and Galloway.

Opencast mining, unsympathetically designed commercial forestry and wind farm development has influenced the landscape character of parts of East Ayrshire and there are few tracts of open uplands now unaffected by these. An upland area lying between East and South Ayrshire and centred on Loch Doon and the Carrick Forest, defined as the *Rugged Hills, Lochs and Forest* (21) landscape character

type in this study, is one remaining area. This landscape has a richly diverse landform and land cover pattern and the absence of large scale built infrastructure, sparse settlement and the ruggedness of these hills, gives a strong sense of wildness. It is popular for recreation and important in providing a contrast with the surrounding more modified and well-settled landscapes of East Ayrshire.

The River Ayr and its tributary the Lugar Water is another key landscape asset within East Ayrshire. These river valleys are characterised by extensive wooded policies including those associated with Dumfries House, Auchinleck and Sorn Castle, amongst others. These valleys are little affected by built infrastructure, despite lying relatively close-by mining operations in places, and are often highly scenic with sections of rocky gorge, small enclosed pastures alternating with mixed woodlands which cover steeply rolling valley sides and further enhanced by the presence of small settlements with a rich architectural heritage.

3.3.3 Analysis of the existing pattern of wind farm development

This analysis reflects a baseline situation taken at the end of April 2018 with the operational and consented wind farm developments shown in Figures 1 and 2 of this report. The large operational Whitelee wind farm is sited within the expansive uplands in the north-east of East Ayrshire (the *Plateau Moorlands with Forestry and Wind Farms* 18b). Although the height and number of these turbines result in them being extensively visible across the lowlands of Ayrshire, they are seen in the context of a relatively low and simple upland backdrop which reduces prominence. The consented Sneddon Law wind farm development will result in a greater intrusion on the smaller scale settled hill slopes and lowlands to the west as it is sited closer to the outer edge of these uplands.

The operational Hare Hill and Afton wind farms form a cluster of development on the *Southern Uplands* (20a) and contribute to the concentrations of operational and consented wind farms within East Ayrshire and Dumfries and Galloway influencing Nithsdale. These developments are particularly prominent because of their siting on pronounced and highly visible landscape features.

The operational Windy Standard I and II and the consented Benbrack and South Kyle wind farms are located in the *Southern Uplands with Forest* (20c) (which straddles Dumfries and Galloway and East Ayrshire). The South Kyle and Benbrack wind farms will, if constructed, have a significant landscape and visual effect on the Loch Doon area. The Dersalloch wind farm, although sited in South Ayrshire, has a greater effect on the landscape of the upper Doon Valley in East Ayrshire. This wind farm differs from most other operational and consented wind farms in East Ayrshire as it is located within a narrower band of uplands rather than the more extensive *Plateau Moorlands* and *Southern Uplands* landscapes thus increasing its effects on adjacent settled valleys.

Single turbines (generally <30m high) sited within the settled lowlands and valleys of East Ayrshire have been largely appropriate in terms of scale and successful in

their siting to date. A single consented 80m turbine close to Sorn however has a significant effect on the small scale and diverse character of the Lugar Water valley.

3.3.4 Current trends and issues related to wind farm/turbine development

The following trends and issues have been taken into account in considering an appropriate landscape strategy for East Ayrshire:

- Pressure for wind farms comprising much larger turbines within the uplands of East Ayrshire including the *Foothills with Forestry and Opencast Mining* (17a) and the *East Ayrshire Southern Uplands* (20a).
- Demand for extensions to operational wind farms that could exacerbate intrusion on adjacent more sensitive landscapes and could also affect the design integrity of the original development.
- Potential cumulative landscape and visual impacts between operational, consented and proposed larger wind farms sited in upland areas.

3.4 Key cumulative issues

The following key cumulative landscape and visual issues have been identified during the course of the study and are likely to additionally limit scope for development in some areas:

- Potential effects on the smaller scale, settled *Upland Basin* (15) character type which could be 'encircled' by turbines seen on the skyline of containing ridges and hills if wind farm developments were situated within the *Foothills with Forestry and Opencast Mining* (17a), the *East Ayrshire Southern Uplands* (20a) and the *Plateau Moorlands* (18a).
- Potential effects on the upper Doon Valley and on the setting of settlements such as Dalmellington should turbines be sited so visible on the containing skylines of the *Foothills with Forest and Opencast Mining* (17a), *Foothills west of Doon Valley* (18b) and *Southern Uplands with Forest* (20c).
- Potential effects on the upper Irvine Valley and the eastern areas of the East Ayrshire Lowlands (7c) where the very large turbines of the Whitelee II wind farm development are already visible and where any wind farm development located on the north-eastern edges of *Plateau Moorlands* (18a) could exacerbate this effect.
- The effects of opencast mining (both operational and past workings) when seen in close proximity with wind farm developments where the combination of both would be likely to increase the fragmentation of the landscape and visual clutter.

3.5 A recommended landscape strategy

• **Protect the landmark hills and their setting** The well-defined Blackside, Cairn Table and Wardlaw Hills within the *Plateau Moorland* (18a) provide a backdrop to the settled lowlands and valleys of East Ayrshire and form 'landmarks' widely seen across Ayrshire. Very large scale wind farm development is associated with the more extensive and lower-lying uplands of the *Plateau Moorland with Forestry and Wind Farms* (18b) which forms a simple and unobtrusive backdrop to the Ayrshire lowlands. It is important to retain the integrity and setting of the highest most prominent hills seen in panoramic views from settled lowlands of Ayrshire but also to accord with the established association of large wind farm developments with simpler, lower-lying upland landscapes.

- Smaller landmark hills are also prominent in more local views and include Corsecon Hill in upper Nithsdale, Auchencroy and Benquhat on the edges of the Doon valley and Loudoun Hill within the upper Irvine valley. Wind farm development on or near these hills would detract from their distinct form and character and would also be visually prominent. The location of key 'landmark hills' within East Ayrshire are shown on Figure 5 and their key characteristics are described in Annex D.
- Maintain the rugged scenery and sense of wildness associated with the area west of Loch Doon and extending into the Carrick Forest This landscape is special within East Ayrshire because of its richly diverse landform and land cover but also because it is little modified unlike other areas where opencast mining and, more recently, wind farm development influences character. Wind farm development should be directed away from this landscape and development in surrounding landscapes should be sited to avoid significant impact on its setting and experiential qualities.
- **Protect the richly diverse Lowland River Valleys of the Ayr and Lugar** which are important assets within East Ayrshire featuring sections of deeply incised gorges, extensive woodlands, mansion houses and castles with designed landscapes and settlements with a strong architectural and historic identity. Larger turbines situated in these valleys would dominate the intimate scale of these valleys and significantly detract from their richly diverse land cover pattern and heritage.
- Ensure that any further development of turbines >50m is associated with less sensitive upland landscapes where their more extensive scale can better accommodate and provide an appropriate wider setting to larger turbines. Impacts on adjacent more sensitive smaller scale settled landscapes should be minimised by setting development well back into the upland interior and also considering limitations in the height of turbines.
- Ensure that any wind farm development on former mining sites is planned and delivered in tandem with high quality restoration and environmental improvements Where former mining operations have left a legacy of disturbed ground, remedial earth works and landscape restoration should form an integral part of any and wind farm proposals.

4 INTRODUCTION TO THE SENSITIVITY ASSESSMENT

Sensitivity assessments have been undertaken for 12 landscape character types within East Ayrshire. These landscape character types are shown on Figure 3. More detailed maps, showing each landscape character type and their immediate context, are contained within each of the sensitivity assessments.

The sensitivity assessments consider the sensitivity of each character type to four different wind energy typologies, based on the height of the turbines *taken to blade tip*. Detailed assessment of very large turbines >130m has only been undertaken for the following landscapes which either accommodate wind farms or where some scope for larger turbines was identified in the 2013 EALWCS:

- Foothills with Forest and Opencast Mining (17a)
- Foothills with Forest west of Doon Valley (17b)
- Plateau Moorlands (18a)
- East Ayrshire Plateau Moorlands with Forest and Wind Farms (18b)
- East Ayrshire Southern Uplands (20a)
- Southern Uplands with Forestry (20c)

The sensitivity scores outlined in the summary of sensitivity are made on the basis of a five-point scale: High, High-Medium, Medium, Medium-Low and Low. These assessments consider and combine landscape sensitivity and visual sensitivity against a range of criteria including cumulative effects associated with operational and consented wind energy developments. Further detail on the method of assessment is included in Section 2 and in Annex C of this report.

Potential cumulative issues and key constraints and opportunities to development are set out for each landscape character type and the sensitivity assessment concludes with recommendations related to the scope for development and with guidance given on siting and design of wind turbine development.

Landscapes with a 'High' combined score will present major landscape and visual constraints to the specific development typology assessed, with unavoidable significant adverse impacts occurring across the majority of key sensitivity criteria. A 'High-medium' combined sensitivity indicates a landscape where the constraints are such that there would be likely to be unavoidable significant adverse impacts on some key sensitivity criteria despite other criteria being potentially less sensitive to the development typology or where there is very limited scope for development in a relatively small part of the landscape character type only.

A landscape accorded 'Medium' sensitivity would have increased opportunities for wind farm/turbines, although there would still be some constraints (including any cumulative effects) which would be likely to restrict the geographic scope for development and/or the ability to accommodate multiple developments. 'Medium-

low' sensitivity landscapes would have fewer constraints and therefore present greater scope for accommodating multiple developments, although careful siting and design would still be necessary to mitigate effects on more sensitive landscapes or limit visual intrusion in some instances. No landscapes with a low sensitivity to any of the development typologies were identified in the assessment.

Caution is needed in interpreting the combined sensitivity scores set out in the following assessments as these represent an average across landscape character types. Considerable variation can occur within these landscape and the detailed sensitivity assessments should therefore be read and fully reviewed in terms of specific constraints and opportunities when considering individual development proposals. The assessment identifies constraints in analysis at a strategic scale and developers would need to demonstrate how they have dealt with potential effects on the constraints identified in the sensitivity assessment when preparing proposals.

5 CHARACTER TYPE 7C: EAST AYRSHIRE LOWLANDS

5.1 Introduction

This landscape character type occurs extensively across Ayrshire where it covers much of the Ayrshire Basin. This assessment considers the part of the Ayrshire Lowlands which occur within East Ayrshire only. Separate assessments have been carried out for the areas of Ayrshire Lowlands identified in the Ayrshire Landscape Character Assessment (1998) lying in South and North Ayrshire.

This assessment considers both smaller and larger development typologies in detail.

5.1.1 Operational/consented wind farms

An operational single large turbine, 48 m high is located to the south of Crosshouse, on the western edge of Kilmarnock, within this character type. Some smaller turbines <30m high are also located in this character type.

The operational Whitelee I and II wind farm (a total of 215 turbines, 110-140m high located in East Renfrewshire and East Ayrshire) lies approximately 14km to the east of this character type. The consented Sneddons Law wind farm (15 turbines, 130m high) will be located entirely in East Ayrshire.

The operational Hare Hill I and II wind farm (59 turbines, 63.5m to 91m high) lies approximately 9km to the south-east of this character type but is only visible from limited areas.

The operational Kelburn, Ardrossan, Dalry and Millour Hill wind farms are located in the southern uplands of the Clyde Muirshiel Park within neighbouring North Ayrshire. These lie approximately 14km to the west of the *East Ayrshire Lowlands* and appear as a single development in views from the northern part of this landscape. Together, these wind farms comprise 41 turbines between 100 and 125m high. The GSK turbines near Irvine in North Ayrshire (2 turbines, 110m high) are also visible from parts of this landscape.



Topic and summary description	Assessment of large typology (70m +)	Assessment of medium typology (50-70m)
Landscape context This character type covers a fairly extensive area across Ayrshire. Within East Ayrshire it forms the edge to generally smaller scale and often diverse <i>Lowland River Valleys</i> (9) which cut through it including the valleys of the Ayr, Lugar and Irvine. This landscape gradually merges with a more elevated landscape of rugged ridges and hills in the north-east at the transition with East Renfrewshire ² and with the relatively simple and more extensive uplands of the <i>East Ayrshire</i> <i>Plateau Moorlands with Forestry and Wind Farms</i> (18b) and the <i>Foothills with Forest and Opencast</i> <i>Mining</i> (17a). The <i>Plateau Moorland</i> (18a) has a more diverse landform where it abuts the south- eastern edge of this landscape, with Blackside Hill forming a 'landmark' feature.	The large extent of this character type reduces sensitivity in relation to potential effects on adjacent character types although turbines of this size would dominate the often intimate scale of the <i>Lowland River Valleys</i> (9) if sited so visible on containing edges. Turbines of this size would also detract from the 'landmark' Blackside Hill if sited close-by the <i>Plateau Moorland</i> (18a). Sensitivity is reduced where this landscape abuts the simpler uplands of 17a. Although the <i>Plateau Moorland with Forest and Wind Farm</i> (18b) also has a simple and expansive character, cumulative effects would occur with wind farm development already sited in this landscape. <i>Medium sensitivity</i>	The large extent of this character type reduces sensitivity in relation to potential effects on adjacent character types although turbines of this size would dominate the often intimate scale of the <i>Lowland River Valleys</i> (9) if sited so visible on containing edges. Turbines of this size would also detract from the 'landmark' Blackside Hill if sited close-by the <i>Plateau Moorland</i> (18a). Sensitivity is reduced where this landscape abuts the simpler uplands of 17a. Although the <i>Plateau Moorland with Forest and Wind Farm</i> (18b) also has a simple and expansive character, cumulative effects would occur with wind farm development already sited in this landscape. <i>Medium sensitivity</i>
Scale The gently rolling landform combines with the strongly enclosed field pattern and regularly spaced dispersed small farms, houses and woodlands to create a small to medium scale landscape, dependant on the complexity of landform and land cover pattern. Some small but prominent hills occur in places, for example, to the south-west of Dunlop, but tend to rise no more than 160m. The scale of this landscape	This typology would appear very large compared with the relatively low relief of occasional small prominent hills. It would also dominate the small buildings, woodlands and trees which regularly pattern this landscape and provide ready scale references, even if sited within the more open remnant moss areas and hill fringes. <i>High sensitivity</i>	This typology would appear large compared with the relatively low relief of small hills SW of Dunlop. This typology would have less of a negative effect on landscape scale if sited in the less settled southern fringes at the transition with the <i>Foothills with Forest and Opencast</i> <i>Mining</i> (17a) and at the transition with the <i>Rugged Upland Farmland</i> in neighbouring East Renfrewshire in the north-east. Turbines towards the lower height band of this typology

Character Type 7c: East Ayrshire Lowlands – Sensitivity assessment for large and medium typologies

² This is classified as the 'Rugged Upland Farmland' in the Glasgow and the Clyde Valley Landscape Assessment (1999) and features rugged ridges and hills with steep craggy bluffs and with troughs and valleys between them flooded to form reservoirs.

increases at the transition with the <i>Foothills and</i> <i>Forestry</i> (Qb) and <i>Rugged Upland Farmland</i> ' in neighbouring East Renfrewshire where higher, more open ground (rising to 244m at the Craigs of Kyle) is sparsely settled. Scale also increases where remnant mosses, and larger flatter areas of pastures surrounding them, are more open and less settled to the north-west at the boundary with North Ayrshire.		would also have less of an effect on the larger scale of more open mosses and pastures on the north-western edge of this character type. <i>High-medium sensitivity</i>
Landform A gently undulating to rolling landform with occasional more defined small hills forming prominent features and pockets of more complex interlocking drumlins enclosing narrow valleys and small flat areas of wetter pasture. More extensive areas of flatter moss and pasture occur close to the North Ayrshire boundary at Bloak Moss. The southern fringes of this character type form more evenly graded hill slopes but with some exposed crags and disturbed ground evident in places.	The generally simple, gently undulating landform of this landscape reduces sensitivity although this typology would detract from more complex rolling landform and more defined small hills if sited nearby. <i>Medium sensitivity</i>	The generally simple, gently undulating landform of this landscape reduces sensitivity although this typology would detract from more complex rolling landform and more defined small hills if sited nearby. <i>Medium sensitivity</i>
Landscape pattern This farmed landscape has small to medium sized pastures, strongly enclosed by intact hedgerows with field trees in places. Small mixed woodlands and shelterbelts are also a common feature. Some remnant areas of moss occur on the more elevated areas on the eastern fringes of North Ayrshire and these comprise a core of slightly domed heath/bog often fringed by birch woodland and rough grazing.	Turbines of this height would detract from the rich patterning of fields and woodlands characteristic of many parts of this landscape. Diverse areas of moss and heath would also be sensitive although turbines could relate to simpler more open areas of pasture. <i>High-medium sensitivity</i>	Turbines of this height would detract from the rich patterning of fields and woodlands characteristic of many parts of this landscape. Diverse areas of moss and heath would also be sensitive although turbines could relate to simpler more open areas of pasture. <i>High-medium sensitivity</i>
Built environment A regular and fairly dense pattern of small farms, these often located on low hill tops and ridges, is	This size of turbine (and particularly multiple turbines) could significantly intrude on the setting of small settlements and farms which are closely	This size of turbine (and particularly multiple turbines) could significantly intrude on the setting of small settlements and farms which are

characteristic of this landscape together with some small settlements. The landscape becomes more fragmented near Kilmarnock where infrastructure, dispersed industry and housing feature. This landscape is crossed by a concentrated network of roads and high voltage transmission lines also occur east of Stewarton. Opencast mining operations are evident in the southern part of this character type at the transition with the Foothills with Forest and Opencast Mining (17a).	spaced across this landscape. While areas with a more 'semi-industrial' character with larger buildings would be less sensitive these are often on the edge of towns and this typology would be more likely to affect their setting. <i>High-medium sensitivity</i>	closely spaced across this landscape. This typology would have less of an effect if located in sparsely settled hill fringes and in areas with a more 'semi-industrial' character with larger buildings. Multiple turbines of this turbines could add to the clutter of disparate built features and disturbance in some areas <i>Medium sensitivity</i>
Perceptual qualities Although this landscape does not have any sense of wildness, lush rolling pastures with intact hedgerows and traditional white-rendered small farms give a distinctly rural character in many areas. More industrial features around Kilmarnock, coal mining and obviously disturbed ground are present to the south.	The introduction of multiple turbines of this size to this landscape could affect the perception of rural character if sited within more intact farmland. This typology could also accentuate the semi-derelict character of the southern fringes of this character type. Sensitivity is however reduced in relation to the key perceptual qualities of wildness. <i>Medium-low sensitivity</i>	The introduction of multiple turbines of this size to this landscape could affect the perception of rural character if sited within more intact farmland. This typology could also accentuate the semi-derelict character of the southern fringes of this character type. Sensitivity is however reduced in relation to the key perceptual qualities of wildness. <i>Medium-low sensitivity</i>
Visual amenity This character type is criss-crossed by a dense network of minor roads as well as the major routes of the M77, A735, A719 and A76. It is also very well settled. The rolling landform and presence of woodlands, hedgerows and trees restricts long views in some areas although surprisingly open and elevated minor roads provide extensive views across this and adjacent landscapes.	Turbines of this size would be highly visible from more open elevated roads and from settlement. Multiple turbines of this size would be inter-visible and seen in close proximity (due to the dense network of roads and settlement). <i>High sensitivity</i>	Turbines of this size would be highly visible from more open elevated roads and from settlement. Multiple turbines of this size would be inter- visible and seen in close proximity (due to the dense network of roads and settlement). <i>High sensitivity</i>
Cumulative effects This character type lies close to the <i>East Ayrshire</i> <i>Plateau Moorland with Forestry and Wind Farms</i> (18b) which accommodates the operational	Turbines of this size sited in the Ayrshire Lowlands would be contrary to the established association of larger wind farm developments with more expansive, simpler and less settled upland	Although this typology would be significantly smaller than turbines within existing wind farms visible from this character type, turbines towards the upper height band of this typology would still

Whitelee wind farm I and II. These developments	landscapes. Significant cumulative effects would	appear large from close-by roads and settlement
are clearly visible from this landscape. The	be likely to occur, particularly where multiple	with a clear differential in size unlikely to be
consented Sneddons Law wind farm will lie closer	turbines of this size were located in the eastern	appreciated. Significant cumulative effects would
to this character type and have an increased	part of this character type which lies in close	be likely to occur, particularly where multiple
visual prominence.	proximity to the extensive Whitelee/Sneddons	turbines of this size were located in the eastern
Operational wind farms within the uplands of	Law wind farms.	part of this character type which lies in close
mainland North Ayrshire are also visible from the	High sensitivity	proximity to the extensive Whitelee and
NE part of this character type but seen at		Sneddons Law wind farms.
distances of over 14km which lessens their		High-medium sensitivity
influence.		

Topic and summary description	Assessment of small-medium typology (30m-	Assessment of small typology (15m-30m)
	50m)	
Landscape context This character type covers a fairly extensive area across Ayrshire. Within East Ayrshire it forms the edge to generally smaller scale and often diverse Lowland River Valleys (9) which cut through it including the valleys of the Ayr, Lugar and Irvine. This landscape gradually merges with a more elevated landscape of rugged ridges and hills in the north-east at the transition with East Renfrewshire ³ and with the relatively simple and more extensive uplands of the <i>East Ayrshire Plateau Moorlands</i> with Forestry and Wind Farms (18b) and the Foothills with Forest and Opencast Mining (17a). The Plateau Moorland (18a) has a more diverse landform where it abuts this landscape, with Blackside Hill forming a 'landmark' feature close to the south-eastern boundary of 7c.	This typology would have a minimal effect on surrounding landscapes although turbines should be sited well back from the edge of the <i>Lowland</i> <i>River Valleys</i> (9) and <i>Plateau Moorlands with</i> <i>Forestry and Wind Farms</i> (18b) (where cumulative effects would occur with operational wind farms) and the landmark hill of Blackside. <i>Medium-low sensitivity</i>	This typology would have a minimal effect on surrounding landscapes although turbines should be sited well back from the edge of the <i>Lowland River Valleys</i> (9). <i>Low sensitivity</i>
Scale The gently rolling landform combines with the strongly enclosed field pattern and regularly spaced dispersed small farms, houses and woodlands to create a small to medium scale landscape, dependant on the complexity of landform and land cover pattern. Some small but prominent hills occur in places, for example, to the south-west of Dunlop, but tend to rise no more than 160m. The scale of this landscape increases at the transition with the	Turbines of this size would still appear large in relation to more complex rolling landform, small defined 'landmark' hills, farms and domestic buildings, small scale field enclosure pattern and woodlands although there is some limited scope to accommodate this typology in more open areas of less rolling landform and sparser settlement. <i>Medium sensitivity</i>	There is increased scope to site these smaller turbines to avoid conflicts of scale. <i>Medium-low sensitivity</i>

Character Type 7c East Ayrshire Lowlands – Sensitivity assessment for small-medium and small typologies

³ This is classified as the 'Rugged Upland Farmland' in the Glasgow and the Clyde Valley Landscape Assessment (1999) and features rugged ridges and hills with steep craggy bluffs and with troughs and valleys between them flooded to form reservoirs.

Foothills and Forestry (Qb) and <i>Rugged Upland</i> <i>Farmland'</i> in neighbouring East Renfrewshire where higher, more open ground (rising to 244m at the Craigs of Kyle) is sparsely settled. Scale also increases where remnant mosses, and larger flatter areas of pastures surrounding them, are more open and less settled to the north-west at the boundary with North Ayrshire.		
Landform A gently undulating to rolling landform with occasional more defined small hills forming prominent features and pockets of more complex interlocking drumlins enclosing narrow valleys and small flat areas of wetter pasture. More extensive areas of flatter moss and pasture occur close to the North Ayrshire boundary at Bloak Moss. The southern fringes of this character type form more evenly graded hill slopes but with some exposed crags and disturbed ground evident in places.	The generally simple, gently undulating landform of this landscape reduces sensitivity although this typology would detract from more complex rolling landform and more defined small hills if sited nearby. This typology is less likely to involve significant numbers of turbines thereby reducing potential impacts associated with producing an integrated layout and access tracks in more complex rolling landform. <i>Medium sensitivity</i>	These smaller turbines could fit more easily within areas with a more complex rolling landform although the tops of drumlins and more pronounced small 'landmark' hills are sensitive. <i>Medium-low sensitivity</i>
Landscape pattern This farmed landscape has small to medium sized pastures, strongly enclosed by intact hedgerows with field trees in places. Small mixed woodlands and shelterbelts are also a common feature. Some remnant areas of moss occur on the more elevated areas on the eastern fringes of North Ayrshire and these comprise a core of slightly domed heath/bog often fringed by birch woodland and rough grazing.	Turbines of this size would detract from areas with a strong enclosure pattern, policy woodlands and field trees. Diverse areas of moss and heath would also be sensitive. Areas with a simpler land cover pattern, for example, more open hill slopes at the transition with adjacent upland areas and larger pastures fringing mosses would be less sensitive. <i>Medium sensitivity</i>	This typology could be more easily accommodated without detracting from more pronounced land cover pattern although more diverse areas of moss and heath and policy woodlands would remain sensitive. <i>Medium-low sensitivity</i>
Built environment A regular and fairly dense pattern of small farms often located on low hill tops and ridges, occurs throughout this landscape together with some small settlements. The landscape becomes more fragmented near Kilmarnock where infrastructure,	This size of turbine (and particularly multiple turbines) could significantly intrude on the setting of small settlements and farms which are closely spaced across this landscape. Areas with a more 'semi-industrial' character and the sparsely settled upland fringes would be less sensitive to this	These smaller turbines are more likely to be able to be partially screened by landform and vegetation and would have a less dominant scale thus limiting impacts on the setting of settlement. <i>Medium-low sensitivity</i>
disported industry and housing feature. This	typology	
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landagana is grassed by a concentrated natural of	Madium consitivity	
randscape is crossed by a concentrated network of	medium sensitivity	
toads and high voltage transmission lines east of		
Stewarton. Opencast mining operations are		
evident in the southern part of this character type at		
the transition with the Foothills with Forestry and		
Opencast Mining (17a).		
Perceptual qualities	While multiple turbines of this size could affect the	This small typology would have minimal effects
Although this landscape does not have any sense	strongly rural character experienced in parts of	on perceptual qualities.
of wildness, lush rolling pastures with intact	this landscape, sensitivity is reduced however due	Low sensitivity
hedgerows and traditional white-rendered small	to the absence of key perceptual qualities.	
farms give a distinctly rural character in many	Medium-low sensitivity	
areas. More industrial features around Kilmarnock,		
coal mining and obviously disturbed ground are		
present to the south.		
Visual amenity	Turbines of this size would extend above	There are greater opportunities to site these
This character type is criss-crossed by a dense	woodlands and would be visible from roads and	smaller turbines to minimise effects on views
network of minor roads as well as the major routes	settlement although there may be some scope to	and utilise containment by low hills and
of the M77, A735, A719 and A76. It is also very	site turbines towards the lower height band of this	woodland.
well settled. The rolling landform and presence of	typology to minimise visual intrusion.	Medium sensitivity
woodlands, hedgerows and trees restricts long	High-medium sensitivity	····· ,
views in some areas although surprisingly open		
and elevated minor roads provide extensive views		
across this and adjacent landscapes		
Cumulative effects	Cumulative effects of multiple turbines of this size	This smaller typology would have a clear height
This character type lies close to the Fast Avrshire	could be minimised by limiting this typology to the	differential with existing large-scale wind farm
Plateau Moorland with Forestry and Wind Farms	larger scale more open and less settled fringes of	developments visible from this landscape
(18b) which accommodates the operational	the Avrshire Lowlands, where they abut more	Turbines towards the lower height hand of this
Whitelee wind farm L and IL. These developments	extensive unland landscapes or by associating	typology are less likely to be appreciable in more
are clearly visible from this landscape. The	them with larger buildings around Kilmarnock	distant views due to screening by landform and
consented extension to this wind farm together with	This typology would be clearly different in size to	woodlands which would also minimise the
the consented Sneddons I aw wind farm will lice	those within existing wind farms in the unlands	cumulative effects of multiple turbines. Cloar
closer to this character type and increase visual	although cumulative offects would occur with the	accordation of turbinos of this size with forms
norminance	Although cumulative enects would occur with the	association of turbines of this size with latms
prominence.	whitelee/Sheddon's Law wind larms if turbines	and buildings would also establish a rational

Operational wind farms within the uplands of mainland North Ayrshire are also clearly visible from the north-eastern part of this character type but seen at distances of over 14km which lessens	were sited on the eastern fringes of this landscape. <i>Medium sensitivity</i>	pattern, reducing clutter and cumulative effects. <i>Low sensitivity</i>
their influence.		

5.2 Summary of sensitivity

The *Ayrshire Lowlands* have a variable landform which although generally undulating, can be more complex and rolling in some areas and also comprises small areas of flatter remnant moss on more elevated areas close to the North Ayrshire border. It is a diverse landscape with small pastures, enclosed by intact hedgerows, small woodlands and field trees and a regular pattern of small farms enriching the overall composition. Broader hill slopes with a less densely settled character occur at the transition with the larger scale upland landscape of the *Foothills with Forestry and Opencast Mining* (17a) to the south and the *Rugged Upland Farmland* within neighbouring East Renfrewshire in the north-east of this character type.

The generally small to medium scale of this landscape, which is influenced by the relatively dense pattern of evenly distributed small farms, trees and woodlands, increases sensitivity to larger development typologies. The presence of existing and consented large wind farm developments within adjacent upland areas also increases sensitivity in relation to cumulative effects. There would be a *High* sensitivity to the large typology (turbines 70m+) and a *High-medium* sensitivity to the medium typology (turbines 50-70m). Sensitivity to the small-medium typology (turbines 30m-50m) would be *Medium* and *Medium-low* for the small typology (turbines 15-30m) reflecting increased opportunities for these smaller typologies to fit better with the scale of this well-settled landscape and to minimise cumulative effects.

5.2.1 Potential cumulative issues

Potential cumulative issues may include the following:

- Close inter-visibility between the operational and consented wind farm developments of Whitelee (+ extensions) and Sneddons Law sited in the adjacent *Plateau Moorland with Forestry and Wind Farms* (18a) and multiple larger turbines sited in this character type seen from roads and settlement, particularly in the east but also from open elevated roads and settlements across this landscape.
- Turbines (and particularly larger turbines) sited close to the consented Whitelee extension and Sneddons Law wind farms in the eastern part of this character type, which could increase visual clutter and contrasts of scale/design potentially affecting the landscape setting and design integrity of these developments.
- Close inter-visibility between any turbines sited on the southern fringes of this character type at the transition with the more extensive upland landscape of the *Foothills with Forestry and Opencast Mining* (17a) which could in future accommodate larger wind farm developments.

- Larger typologies sited in this settled small scale landscape would be contrary to the established association of turbines >100m high with more simple and expansive upland landscapes.
- Multiple turbines >30m associated with the majority of land holdings would have significant cumulative landscape and visual effects due to the relatively dense spacing of small farms characteristic of this landscape, quickly becoming a dominant feature. A greater number of turbines <30m could be accommodated in this landscape due to their ability to fit more comfortably with the size of buildings, woodlands and trees and be partially contained by landform and vegetation.
- Variations in the type and size of single and small groups of small turbines

5.2.2 Constraints

- The predominantly small to medium scale of this landscape where the rolling landform and woodlands provide containment and the density of closely spaced small farms and settlements provide ready scale references and increase potential for cumulative effects associated with multiple turbines and particularly turbines >30m high.
- Occasional more complex areas of rolling landform, more defined prominent small hills, diverse areas of policy woodlands, field and road-side trees and hedgerows and the distinctive heath, raised bog and birch woodland of remnant moss areas.
- Potential intrusion of larger turbines on the setting to Blackside Hill located within the adjacent *Plateau Moorland* (18a) character type which forms a landmark feature widely visible across Ayrshire.
- The often intimately scaled *Lowland River Valleys* (9) character type which cut into the Ayrshire Lowlands and often feature diverse policy woodlands and mansion houses/castles which would be sensitive to intrusion by larger turbines seen on the skyline of containing ridges above the valley.
- The potential for significant cumulative effects to arise with large wind farm developments sited in the adjacent *Plateau Moorland with Forestry and Wind Farms* (18b) character type which lie in close proximity to the eastern part of this character type and are also highly visible from roads and settlement across much of this landscape.

5.2.3 Opportunities

- The less densely settled, more elevated hill slopes which lie at the transition with the *Rugged Upland Farmland* character type (within neighbouring East Renfrewshire) in the north-eastern part of this character type and the *Foothills with Forestry and Opencast Mining* (17a) lying to the south where the medium typology (turbines 50-70m) could potentially be accommodated.
- More open and less densely settled flatter pastures fringing remnant moss in the western part of this character type where the small-medium typology (turbines 30-50m) could potentially be accommodated.
- The more fragmented urban fringes around Kilmarnock where the landform is often less rolling, the field enclosure and woodland pattern weaker and where

the small-medium typology (turbines 30-50m) would fit better with the scale of industrial and other larger buildings provided they were sited close-by to minimise the spread of clutter.

- The regular pattern of farms which are often located on low hills and ridges where the small typology (turbines <30m) could be sited so visually associated with buildings thus emphasising this existing pattern and relationship to landform and minimising clutter.
- The rolling landform and often dense pattern of hedgerows, woodlands and roadside trees which could provide intermittent screening of smaller turbines.

5.3 Guidance for development

There is *no scope* for very large and large turbines >70m high to be accommodated in this landscape.

There is **very limited** scope for the medium typology (turbines 50-70m) to be accommodated but only in the southern fringes of this character type at the transition with the *Foothills with Forestry and Opencast Mining* (17a) and in the north-east at the transition with the Rugged Upland Farmland character type in neighbouring East Renfrewshire where the landscape is less densely settled and scale increases. Potential cumulative effects could occur with any future larger scale wind farm developments that may be proposed in these upland areas.

There are some *limited* opportunities for the small-medium typology (30-50m). Turbines of this size should be set back from the *East Ayrshire Plateau Moorland with Forestry and Wind Farms* (18b) to minimise potential cumulative effects with operational and consented wind farm developments. They should avoid areas with a more complex rolling landform and more strongly enclosed field pattern and diverse pattern of woodlands/field trees. The less densely settled, flatter and more open areas of pasture fringing the remnant mosses in the western part of this character type and the broader and less settled hill slopes at the transition with the *Rugged Upland Farmland* (in neighbouring East Renfrewshire) to the north-east and the *Foothills with Forestry and Opencast Mining* (17a) to the south offer opportunities to accommodate this size of turbine whilst minimising landscape and visual impact. This size of turbine could also be associated with larger industrial and municipal buildings on the fringes of Kilmarnock although the number and range of turbines would need to be limited to avoid significant cumulative effects.

There are increased opportunities to locate multiple turbines of the small typology (15-30m) to minimise cumulative effects as turbines of this size would have a less dominant effect on buildings, field enclosure pattern, woodland and rolling landform which all influence the scale of this landscape. Turbines could be sited to be partially back-dropped by low hills and would be additionally screened in places by woodland and trees. Turbines <15m should be visually associated with existing farms and other buildings to minimise clutter in this fairly densely settled landscape. Detailed siting and design should accord with the guidance set out in Annex F to this report.



Areas of remnant moss occur close to the border with North Ayrshire and these are often fringed by less strongly enclosed pastures.



Small turbines <20m relate well to the scale of the rolling landform and small field pattern on the eastern fringes of this landscape.



The regular spacing of compact farms, strongly enclosed fields and occasional field trees all contribute to the small scale of this landscape.



Occasional more pronounced, but low hills would be dominated by larger turbines.



The landscape becomes more extensive at the transition with the adjacent Foothills with Forest and Opencast Mining (17a) as farms are more widely dispersed and fields are larger.



The operational Whitelee wind farm is seen in close proximity from the more settled eastern part of this landscape increasing potential for cumulative effects.

6 CHARACTER TYPE 9: LOWLAND RIVER VALLEYS

6.1 Introduction

This landscape character type occurs across Ayrshire where it covers the lower valleys of the Garnock, Annick Water, Irvine, Ayr and Doon, together with a number of smaller tributaries of these rivers.

The detailed assessment considers both larger and smaller development typologies.

6.1.1 Operational/consented wind farms

No operational wind farms are sited within this character type. An operational single 80m high turbine is located within the Ayr valley near Sorn. An operational single 48m high turbine is located at the Moorfield Industrial Estate, south-west of Kilmarnock and within the *East Ayrshire Lowlands* (7c). A number of smaller turbines (generally <20m high) are located near Galston and close to the Irvine valley.

The operational Whitelee wind farm, its consented extensions and the consented Sneddon Law wind farm (a total of 230 turbines, 110m-130m high) lie about 4km to the north of the Irvine valley. The GSK turbines near Irvine in North Ayrshire (2 turbines, 110m high) also lie relatively close to the Irvine valley.



Tonic and summary description	Assessment of large typology (70m+)	Assessment of medium typology (50-70m)
Topic and Summary description	Assessment of large typology (rom)	Assessment of medium typology (ou-rom)
Landscape context These lowland river valleys are generally narrow with upper slopes merging gradually with the adjacent rolling <i>North Ayrshire Lowlands</i> (7a) although landform is often more complex and interlocking at the transition between the Ayr and Doon valleys and the <i>East and South Ayrshire Lowlands</i> (7c, 7d). The narrower and more densely wooded valleys are often hidden from roads and settlement within surrounding landscapes. The Ayr valley extends well inland and abuts the <i>East Ayrshire Plateau Moorland</i> (18a), providing the foreground to views of the 'landmark' hill of Blackside. The lower Doon valley is back-dropped by the prominent <i>Brown Carrick Hills</i> (4b) and the richly patterned eastern slopes of these hills have a strong relationship to the extensive wooded policies within this valley. Other upland areas abutting these valleys form relatively low and simple skylines and are less sensitive.	Turbines of this height would extend well above the side slopes which contain these valleys and would intrude on the adjacent <i>Ayrshire Lowlands</i> (7a, 7c and 7d), detracting from more complex knolly landform where this is present. This typology would also impact on views to the landmark Blackside Hill within the <i>East Ayrshire</i> <i>Plateau Moorland</i> (18a) if located in the upper Ayr valley and on the <i>Brown Carrick Hills</i> (4b) if located in the lower Doon valley. <i>High sensitivity</i>	Turbines of this height would extend well above the side slopes which contain these valleys and would intrude on the adjacent <i>Ayrshire Lowlands</i> (7a, 7c and 7d), detracting from more complex knolly landform where this is present. This typology would also impact on views to the landmark Blackside Hill within the <i>East Ayrshire Plateau Moorland</i> (18a) if located in the upper Ayr valley and on the <i>Brown</i> <i>Carrick Hills</i> (4b) if located in the lower Doon valley. <i>High sensitivity</i>
Scale These valleys are predominantly very narrow and contained by steep slopes. The convoluted course of the river, rolling landform of side slopes, small fields, woodlands, narrow winding roads and compact buildings also contribute to the intimate scale of these river valleys. The upper Irvine valley is broader and more open.	Turbines of this size would dominate the intimate to small scale of these predominantly narrow and settled valleys. <i>High sensitivity</i>	Turbines of this size would dominate the intimate to small scale of these predominantly narrow and settled valleys. <i>High sensitivity</i>
Landform The valleys are narrow and entrenched and rivers	Turbines of this size would significantly detract from narrow incised and particularly contorted	Turbines of this size would significantly detract from narrow incised and particularly contorted sections of

Character Type 9: Lowland River Valleys – Sensitivity assessment for large and medium typologies

often flow in tight meanders, cutting into side slopes and occasionally forming more dramatic rocky gorges. Small interlocking hills on valley sides often form complex skylines although the Irvine valley is simpler, being contained by smoother and longer side slopes.	sections of these valleys (which can often be appreciated from elevated roads and settlement) They would also detract from more dramatic rocky gorges and the often complex interlocking landform of small knolly hills which occur on the top of containing side slopes and form prominent skylines. Gentler side slopes within the broader Irvine valley would be less sensitive. <i>High-medium sensitivity</i>	these valleys (which can often be appreciated from elevated roads and settlement). They would also detract from more dramatic rocky gorges and the often complex interlocking landform of small knolly hills which occur on the top of containing side slopes and form prominent skylines. Gentler side slopes within the broader Irvine valley would be less sensitive. <i>High-medium sensitivity</i>
Landscape pattern	This typology would significantly detract from the	This typology would significantly detract from the
I nese valleys are well-wooded with riparian	richly diverse landscape pattern characteristic of	richly diverse landscape pattern characteristic of all
course of the river and extensive mixed policy	High sensitivity	High sensitivity
woodlands associated with the many estates		
covering valley sides. Small pastures cover broader		
sections of floodplain and rolling side slopes, where		
field trees. Designed landscapes, including those		
associated with Dumfries House. Loudon Castle and		
Sorn Castle and the extensive policies within the		
lower Doon valley, contribute to a rich land-cover		
pattern.	Traditions for the first of the literation of the second states of the s	
Built environment A rich built beritage of planned settlements, mills	I urbines of this size would be likely to significantly	I urbines of this size would be likely to significantly
bridges, castles and mansion houses and their	landscapes. Modification of narrow winding roads	landscapes. Modification of narrow winding roads
designed landscapes and historic settlements, such	would be necessary for construction access of	would be necessary for construction access of
as Sorn and Alloway which lie in the Ayr and Doon	turbines of this size, further eroding character.	turbines of this size further eroding character.
valleys. Narrow winding roads provide access into	High sensitivity	High sensitivity
often deeply incised valleys.		
Perceptual qualities	I he sense of seclusion and perception of	I he sense of seclusion and perception of historical
Although these valleys are settled they can feel	nistorical integrity which can be experienced in	Integrity which can be experienced in many of these valleys could be compromised by turbings of this
lowlands Extensive woodlands give a sense of	turbines of this size	
naturalness and there is also a rich built heritage in	High-medium sensitivity	High-medium sensitivity

all these valleys and strong literary associations with		
the Doon.		
Visual amenity	Single, and particularly multiple, turbines of this	Single, and particularly multiple, turbines of this size
Views are limited within the more tightly contained	size located within these valleys would be highly	located within these valleys would be highly visible
and densely wooded sections of these valleys. There	visible from main roads and settlements aligned	from main roads and settlements aligned on upper
are however many elevated views from settlement	on upper valley sides and from within the more	valley sides and from within the more open Irvine
and major roads on the more open upper valley	open Irvine valley. This typology would also be	valley. This typology would also be likely to be seen
sides. Footpaths and a network of minor roads also	likely to be seen close to roads and settlement.	close to roads and settlement.
provide views along and across these valleys.	High sensitivity	High sensitivity
provide views along and across these valleys. Cumulative effects	High sensitivity Significant cumulative effects would arise if this	<i>High sensitivity</i> Significant cumulative effects would arise if this
provide views along and across these valleys. Cumulative effects The operational Whitelee and consented Sneddon	<i>High sensitivity</i> Significant cumulative effects would arise if this typology was located in the Irvine valley. The	High sensitivitySignificant cumulative effects would arise if thistypology was located in the Irvine valley. The limited
provide views along and across these valleys. Cumulative effects The operational Whitelee and consented Sneddon Law wind farm is/will be visible in close proximity	High sensitivity Significant cumulative effects would arise if this typology was located in the Irvine valley. The limited visibility of operational wind farms and	High sensitivitySignificant cumulative effects would arise if thistypology was located in the Irvine valley. The limitedvisibility of operational wind farms and large
provide views along and across these valleys. Cumulative effects The operational Whitelee and consented Sneddon Law wind farm is/will be visible in close proximity from the Irvine valley in the Galston area. The	High sensitivity Significant cumulative effects would arise if this typology was located in the Irvine valley. The limited visibility of operational wind farms and large turbines elsewhere reduces sensitivity in	High sensitivitySignificant cumulative effects would arise if thistypology was located in the Irvine valley. The limitedvisibility of operational wind farms and largeturbines elsewhere reduces sensitivity in relation to
provide views along and across these valleys. Cumulative effects The operational Whitelee and consented Sneddon Law wind farm is/will be visible in close proximity from the Irvine valley in the Galston area. The operational 80m high turbine at Sorn is also highly	<i>High sensitivity</i> Significant cumulative effects would arise if this typology was located in the Irvine valley. The limited visibility of operational wind farms and large turbines elsewhere reduces sensitivity in relation to cumulative effects.	High sensitivitySignificant cumulative effects would arise if thistypology was located in the Irvine valley. The limitedvisibility of operational wind farms and largeturbines elsewhere reduces sensitivity in relation tocumulative effects.
provide views along and across these valleys. Cumulative effects The operational Whitelee and consented Sneddon Law wind farm is/will be visible in close proximity from the Irvine valley in the Galston area. The operational 80m high turbine at Sorn is also highly visible from elevated roads and settlement in the	High sensitivitySignificant cumulative effects would arise if this typology was located in the Irvine valley. The limited visibility of operational wind farms and large turbines elsewhere reduces sensitivity in relation to cumulative effects.Medium sensitivity	High sensitivitySignificant cumulative effects would arise if this typology was located in the Irvine valley. The limited visibility of operational wind farms and large turbines elsewhere reduces sensitivity in relation to cumulative effects.Medium sensitivity

Topic and summary description	Assessment of small-medium typology (30-	Assessment of small typology (15-30m)
	50m)	
Landscape context These lowland river valleys are generally narrow with upper slopes merging gradually with the adjacent rolling <i>North Ayrshire Lowlands</i> (7a) although landform is often more complex and interlocking at the transition between the Ayr and Doon valleys and the <i>East and South Ayrshire</i> <i>Lowlands</i> (7c, 7d). The narrower and more densely wooded valleys are often hidden from roads and settlement within surrounding landscapes. The Ayr valley extends well inland and abuts the <i>East Ayrshire Plateau Moorland</i> (18a), providing the foreground to views of the 'landmark' hill of Blackside. The lower Doon valley is back-dropped by the prominent <i>Brown Carrick Hills</i> (4b) and the richly patterned eastern slopes of these hills have a strong relationship to the extensive wooded policies within this valley. Other upland areas abutting these valleys form relatively low and simple skylines and are less sensitive.	Turbines of this size would still impact on the adjacent <i>Ayrshire Lowlands</i> (7a, 7c and 7d) if sited on upper valley sides. There may be some opportunities to site this typology to minimise effects on the appreciation of the landmark Blackside Hill within the <i>East Ayrshire Plateau</i> <i>Moorland</i> (18a) although the policy landscapes which characterise the eastern slopes of the <i>Brown Carrick Hills</i> (4b) remain sensitive. <i>High-medium sensitivity</i>	There would be increased opportunities to site these smaller turbines to minimise effects on adjacent more sensitive landscapes. Small scale complex knolly hills at the transition with the <i>Ayrshire Lowlands</i> (7a, 7b and 7d) and the policy landscapes on the eastern slopes of the <i>Brown</i> <i>Carrick Hills</i> (4b) would be sensitive even to these small turbines however. <i>Medium sensitivity</i>
Scale These valleys are predominantly very narrow and contained by steep slopes. The convoluted course of the river, rolling landform of side slopes, small fields, woodlands, narrow winding roads and compact buildings also contribute to the intimate scale of these river valleys. The Irvine valley is broader and more open.	This typology could easily dominate the narrow floor of these valleys and appear to fill up more enclosed spaces. They would also dominate more complex small-scale landform features, farms and domestic buildings, small woodlands and enclosed fields. Even the broader and more open Irvine valley features a pronounced pattern of small fields, trees and settlement which increases sensitivity in relation to scale. <i>High sensitivity</i>	There is increased scope to site single and small clusters of these smaller turbines within broader and more upper hill slopes to avoid conflicts of scale with small scale landform features, field pattern, woodlands and buildings. <i>Medium sensitivity</i>

Character Type 9: Lowland River Valleys – Sensitivity assessment for small-medium and small typologies

Landform The valleys are narrow and entrenched and rivers often flow in tight meanders, cutting into side slopes and occasionally forming more dramatic rocky gorges. Small interlocking hills on valley sides often form complex skylines although the Irvine valley is simpler, being contained by smoother and longer side slopes.	Turbines of this size would significantly detract from narrow incised and particularly contorted sections of these valleys (which can often be appreciated from elevated roads and settlement. They would also detract from more dramatic rocky gorges and the often complex interlocking landform of small knolly hills which occur on the top of containing side slopes and form prominent skylines. Gentler side slopes within the broader Irvine valley would be less sensitive. <i>High-medium sensitivity</i>	These smaller turbines (and especially turbines <20m) could fit more easily within areas with a more rolling landform although the tops of small knolls, the deeply incised valleys, steep side slopes and the often complex interlocking upper valley sides which form prominent containing skylines are sensitive. <i>Medium sensitivity</i>
Landscape pattern These valleys are well-wooded with riparian woodlands tracing the often strongly meandering course of the river and extensive mixed policy woodlands associated with the many estates covering valley sides. Small pastures cover broader sections of floodplain and rolling side slopes, where they are strongly enclosed by hedges and occasional field trees. Designed landscapes, including those associated with Dumfries House, Loudon Castle and Sorn Castle and the extensive policies within the lower Doon valley contribute to the richly diverse land cover pattern of these river valleys.	Turbines of this size would detract from areas with a strong enclosure pattern, from open floodplain pastures and from policy woodlands, parkland and field trees. Areas with a simpler land cover pattern would be less sensitive although these are limited within most of these valleys. <i>High-medium sensitivity</i>	This typology could be more easily accommodated without detracting from more pronounced land cover pattern although the extensive designed landscapes and often strongly enclosed small rolling pastures and floodplain pastures should be avoided. <i>Medium sensitivity</i>
Built environment A rich built heritage of planned settlements, mills, bridges, castles and mansion houses and their designed landscapes and historic settlements, such as Sorn and Alloway which lie in the Ayr and Doon valleys. Narrow winding roads provide access into often deeply incised valleys.	Turbines of this size could impact on the setting of settlement and designed landscapes in these valleys although there may be some very limited opportunities to site turbines towards the lower height band of this typology in less settled areas. Designed landscapes remain sensitive to intrusion by all turbines. <i>High-medium sensitivity</i>	These smaller turbines would be partially screened by landform and vegetation and would have a less dominant scale thus limiting impacts on the setting of settlement. Designed landscapes remain sensitive to intrusion by all turbines. <i>Medium sensitivity</i>

Perceptual qualities	There may be some scope to site this size of	This small typology, which is likely to comprise
Although these valleys are settled they can feel	turbine to limit intrusion on more secluded	single or very small groups of turbines closely
secluded being hidden from the surrounding	sections of these valleys and to site them away	associated with farms and other buildings would
lowlands. Extensive woodlands give a sense of	from areas with a particularly rich heritage and	be likely to have minimal effects on perceptual
naturalness and there is also a rich built heritage in	thereby minimise effects on perceptual qualities.	qualities.
all these valleys and strong literary associations	Medium sensitivity	Medium-low sensitivity
with the Doon.		
Visual amenity	Single, and particularly multiple, turbines of this	There are some opportunities to site these smaller
Views are limited within the more tightly contained	size located within these valleys would be highly	turbines to minimise effects on views and utilise
and densely wooded sections of these valleys.	visible from main roads and settlements aligned	containment by local topography and woodland.
There are however many elevated views from	on upper valley sides and from within the more	Turbines <20m could be more easily assimilated
settlement and major roads on the more open	open Irvine valley. This typology would also be	in these landscapes.
upper valley sides. Footpaths and a network of	likely to be seen close to roads and settlement.	High-medium sensitivity
minor roads also provide views along and across	High sensitivity	
these valleys.		
Cumulative effects	Significant cumulative effects could arise if	This typology would have minimal cumulative
The operational Whitelee and consented Sneddon	turbines were located in the Irvine valley and	effects if sited within the Irvine valley and
Law wind farm is/will be visible in close proximity	closely inter-visible with existing/consented wind	elsewhere due to their smaller size and increased
from the Irvine valley in the Galston area. The	farms. The limited visibility of operational wind	ability to be partially screened by landform and
operational 80m high turbine at Sorn is highly	farms and large turbines elsewhere reduces	woodland.
visible from elevated roads and settlement in the	sensitivity in relation to cumulative effects.	Low sensitivity
upper Ayr valley and from surrounding landscapes.	Medium sensitivity	

6.2 Summary of sensitivity

The *Lowland River Valleys* (9) predominantly form narrow valleys which merge gradually with the adjacent gently rolling *Ayrshire Lowlands* (7a, 7c and 7d). These valleys are incised and often feature steep side slopes and a complex contorted course of main river and tributaries which is seen in elevated views from settlement and roads. The Doon, Ayr, Lugar Water and Water of Coyle are particularly well-wooded with a mix of semi-natural riparian woodland and extensive wooded policies associated with the many large estates sited on lower slopes. These woodlands, together with small rolling hedged fields on side slopes, more open floodplain pastures, individual trees, parkland and small buildings, contribute to the intimate scale of these river valleys. The *Lowland River Valleys* are well settled and contain a number of architecturally interesting settlements and historic built features.

The predominantly intimate scale and diverse landform of these well-settled *Lowland River Valleys*, together with their rich diversity of land cover and built heritage, comprise key constraints to larger typologies. There would be a *High* sensitivity to the large typology (turbines >70m), the medium typology (turbines 50-70m) and the small-medium typology (turbines 30-50m). Sensitivity would be *Medium* for the small typology (turbines 15-30m).

6.2.1 Potential cumulative issues

The following issues may arise in association with any possible developments situated in this and adjacent landscapes:

- Inter-visibility between larger turbines which are more likely to be located in the surrounding upland areas and any smaller turbines sited in these valleys.
- Potential location of larger turbines within the *Plateau Moorland* (18a) which could result in significant cumulative effects on the Irvine valley (in combination with the operational/consented Whitelee and Sneddon Law wind farms) which may limit scope for even smaller turbines to be accommodated in the Irvine valley.
- Any larger turbines which may be sited in the adjacent *Ayrshire Lowlands* (7a, 7c and 7d) and could be visible on sensitive containing skylines seen from these *Lowland River Valleys*.

6.2.2 Constraints

- The strongly enclosed and confined nature of these valleys and the small farms and houses, areas of woodlands and enclosed farmland which provide ready scale references.
- Small interlocking hills which form complex skylines particularly within the Ayr and Doon valleys, rolling side slopes and the strongly meandering rivers which create spurs, cliffs and small arcs of flat floodplain in places.

- The intricate pattern of mixed policy woodlands covering steep side slopes, semi-natural riparian woodlands, small rolling pastures enclosed by hedges and occasional field trees and occasional areas of parkland.
- The setting these valleys provide to historic buildings, settlements and designed landscapes, including the more extensive estates of Sorn Castle, Dumfries House, Auchencruive and Loudoun Castle and the rich policy landscapes of the lower Doon valley.
- The often open and elevated views over and across these valleys from settlement and roads sited on upper valley sides.
- The close proximity of the Irvine valley to operational and consented wind farm developments within the *East Ayrshire Plateau Moorlands with Forestry and Wind Farms* (18b).

6.2.3 Opportunities

- The broader and more open Irvine valley, and less richly patterned sections of other valleys (which are very limited in extent) where the small typology (turbines 15-30m) could be accommodated to minimise effects on designed landscapes and cumulative effects with operational/consented wind farm development.
- More gently sloping upper valley sides where turbines <15m could be towards the small typology could be associated with farms and other buildings to minimise clutter and intrusion on the more dramatically incised and wooded valleys.

6.3 Guidance for development

This study has found there to be *no scope* for the large, medium or small-medium typology (turbines >30m high) to be accommodated in this landscape.

There are *limited* opportunities for the small typology (turbines 15-30m) to be sited in the broader and more open sections of the Lowland River Valleys. Turbines below 15m high only could be accommodated within the narrower and more richly patterned of these valleys and should be closely associated with farms and other buildings which are often located on upper valley sides to minimise intrusion.

All turbines should be sited to avoid impact on designed landscapes and areas with a more diverse landform and land-cover pattern, particularly evident within the Lugar Water, Ayr and Doon valleys but also within some sections of the other valleys of this character type. Turbines should not be sited on containing skylines prominent in views from settlement, roads and footpaths within the lower valley and the tops of small knolls should also be avoided. Detailed siting and design should accord with the guidance set out in Annex F of this report.



A narrow floodplain accommodating small arcs of pasture contained by steep wooded banks



The majority of these valleys feature richly patterned woodlands and parkland associated with mansion houses and castles



Small farms are often located on more gently sloping fields set above the deeply incised valley sides.



Broader floodplain pastures and policy woodlands of Dumfries House in the upper Lugar valley



Many of these deeply incised and densely wooded valleys are hidden from view although more open upper slopes are prominent from roads and settlement



Small gently rolling fields are predominantly enclosed by hedges and field trees contributing to the richness of these valleys.

7 CHARACTER TYPE 10: UPLAND RIVER VALLEYS

7.1 Introduction

This landscape character type occurs only within East Ayrshire where it covers the upper valleys of the Rivers Doon, Irvine, Ayr and Nith. These valleys are strongly contained by adjacent upland character types within East Ayrshire.

The detailed assessment considers both larger and smaller development typologies.

7.1.1 Operational/consented wind farms

No existing wind farms or larger wind turbines are sited within this character type.

The Hare Hill I and II operational wind farm and the consented Lethans wind farm are located on the adjacent *East Ayrshire Plateau Moorlands* (18c) which contain the upper Nith Valley. Both these wind farms are/will be visible in relatively close quarters from the A76 and settlement in this valley.

The operational Whitelee wind farm (215 turbines, 110-140m high) lies around 2-3km to the north of the upper Irvine valley. The consented Sneddon Law wind farm (15 turbines, 130m high) will also lie relatively close to the Irvine valley.

The operational Hagshaw Hill and Galawhistle wind farms lie relatively close to the upper Ayr valley (both these developments are largely located in South Lanarkshire although 3 of the Galawhistle turbines lie within East Ayrshire).



Topic and summary description	Assessment of large typology (70m+)	Assessment of medium typology (50-70m)
Landscape context These valleys are fairly limited in extent and strongly contained by the uplands of the <i>Plateau Moorlands</i> (18a, 18b), the <i>Southern Uplands</i> (20a, 20c) and the <i>Foothills</i> (17a, 17b). Landmark hills, including Cairn Table, Auchenroy and Corsencon Hills, occur on the edge of these uplands and are prominent from the Ayr, Doon and Nith valleys although containing uplands also form lower less distinctive skylines in places.	The limited extent of this landscape would result in turbines (and particularly multiple turbines) of this size dominating views to, and detracting from, the more dramatic 'landmark' hills lying on the fringes of the <i>Southern Uplands</i> (20a), <i>Plateau</i> <i>Moorlands</i> (18a) and <i>Foothills with Forest west of</i> <i>Doon Valley</i> (17b). Sensitivity is reduced where adjacent uplands are simple and less scenic. <i>Medium sensitivity</i>	I urbines of this size would still be prominent features and would also detract from more dramatic upland backdrops. Sensitivity is reduced where adjacent uplands are simple and less scenic. Medium sensitivity
Scale The <i>Upland River Valleys</i> are relatively broad in comparison with the <i>Upland Glens</i> (15) although they are not extensive. They often feature open floodplains although the steep slopes of adjacent uplands provide strong containment. These valleys are well-settled with farms on lower hill slopes and some small settlements, trees, woodlands and enclosed fields reducing scale.	This typology would appear very large in relation to the limited width of these valleys and the vertical scale of containing hill slopes. Turbines of this size would dominate the small buildings, woodlands and trees which pattern this landscape and provide ready scale references. <i>High sensitivity</i>	This typology would appear very large in relation to the limited width of these valleys and the vertical scale of containing hill slopes. Turbines of this size would dominate the small buildings, woodlands and trees which pattern this landscape and provide ready scale references. <i>High sensitivity</i>
Landform The Rivers Nith and Doon form a relatively wide flat floodplain although this is generally narrower either side of the Irvine and Ayr. Valley sides are often steep but also vary in gradient with gentler lower slopes, occasional broader terraces and subtle knolls occurring in places. Landform is generally more complex within the Irvine valley, featuring deeply incised side valleys with the steep-sided craggy Loudon Hill prominent. The upper Doon valley also features more complex knolly hills. The lower northern slopes of the Ayr valley and the eastern slopes of the Doon valley are significantly modified by opencast mining.	This typology could relate to simpler gently graded hill slopes and flatter broader areas. Smaller landform features including knolls, steeper hill slopes, more deeply incised complex side valleys and 'landmark' hills would be more sensitive. It may be difficult to achieve an integrated development comprising multiple turbines in more complex areas of disturbed ground <i>High-medium sensitivity</i>	This typology could relate to simpler gently graded hill slopes and flatter broader areas. Smaller landform features including knolls, steeper hill slopes, more deeply incised complex side valleys and 'landmark' hills would be more sensitive. It may be difficult to achieve an integrated development comprising multiple turbines in more complex areas of disturbed ground <i>High-medium sensitivity</i>

Character Type 10: Upland River Valley – Sensitivity assessment for large and medium typologies

Landscape pattern The meandering river, associated wetlands and water bodies form prominent land cover features within the open floodplain of the Nith and are particularly extensive and diverse within the Doon valley (some of this area forming part of the designed landscape of Craigengillan). Riparian woodlands trace the course of the Irvine and mixed policy woodlands create a strong pattern on the steep southern slopes of this valley. Small woodlands pattern the lower slopes of the Ayr valley. Small to medium sized fields are enclosed by stone dykes, hedges and shelterbelts on lower side slopes in all of these valleys. Semi-improved pastures and more open grass moorland and coniferous woodlands are also present on upper valley sides.	Turbines of this height would detract from the more diverse areas of policy woodlands, floodplain wetlands and water bodies and smaller enclosed fields which lie on lower slopes. Simple, more open areas of pasture would be less sensitive. <i>Medium sensitivity</i>	Turbines of this height would detract from the more diverse areas of policy woodlands, floodplain wetlands and water bodies and smaller enclosed fields which lie on lower slopes. Simple, more open areas of pasture would be less sensitive. <i>Medium sensitivity</i>
Built environment A relatively well settled landscape with a number of settlements including Dalmellington, Patna, Newmilns, Darvel and Muirkirk. Notable designed landscapes are present within the upper Doon valley and Irvine valleys. The industrial heritage site of Waterside is also prominent within the Doon Valley. Each of these valleys accommodates major 'A' roads and minor roads provide access to small farms and houses sited on lower hill slopes. Built industrial infrastructure and extensive past and current coal mining operations are evident in the Ayr and Doon valleys.	Turbines of this size would be likely to significantly affect the setting of settlements particularly within the well-settled Irvine and Doon valleys. Designed landscapes and the industrial heritage site of Waterside would also be sensitive to intrusion. This typology could exacerbate the fragmented and cluttered nature of parts of the Ayr and Doon valleys which are disturbed by open cast mining. <i>High-medium sensitivity</i>	Turbines of this size would be likely to significantly affect the setting of settlements particularly within the well-settled Irvine and Doon valleys. Designed landscapes and the industrial heritage site of Waterside would also be sensitive to intrusion. This typology could exacerbate the fragmented and cluttered nature of parts of the Ayr and Doon valleys which are disturbed by open cast mining. <i>High-medium sensitivity</i>
Perceptual qualities This landscape is well-settled and accommodates major roads and some industry/mining.	Sensitivity is reduced due to the modified and settled nature of this landscape although multiple turbines of this typology could be perceived as accentuating industrial aspects of character. <i>Medium-low sensitivity</i>	Sensitivity is reduced due to the modified and settled nature of this landscape although multiple turbines of this typology could be perceived as accentuating industrial aspects of character. <i>Medium-low sensitivity</i>

Visual amenity Settlement predominantly sited on lower hill slopes	Turbines of this size would be highly visible in close proximity from settlement and roads in these	Turbines of this size would be highly visible in close proximity from settlement and roads in
above the floodplain of the Nith has elevated views	well-settled and well-traversed valleys. Multiple	these well-settled and well-traversed valleys.
across this valley. Although the settlements of Darvel	turbines of this size spread throughout these	Multiple turbines of this size spread throughout
and Newmilns are more contained within the bottom of	valleys would be inter-visible due to the long	these valleys would be inter-visible due to the
the Irvine valley, higher valley sides are also well-settled	views possible along the open valley bottom from	long views possible along the open valley
and have open views across and along this valley.	major roads.	bottom from major roads.
Views are fairly open from Muirkirk and particularly	High sensitivity	High sensitivity
focus on the 'landmark' hill of Cairn Table to the south		
while elevated housing in Dalmellington also has open		
views along the Doon valley. Major 'A' roads are		
accommodated within these valleys.		
Cumulative effects	This typology would be contrary to the established	This typology would be contrary to the
Although no operational wind farms are located in this	association of larger turbines >50m with less	established association of larger turbines >50m
character type, the Hare Hill wind farm is prominently	settled upland landscapes. Turbines of this size	with less settled upland landscapes. Multiple
sited on a landmark hill which provides the immediate	would have significant cumulative visual effects	turbines of this size would have significant
backdrop to the Nith valley. Some of the Galawhistle	with existing and consented wind farm	cumulative visual effects with existing and
turbines are partially visible from the upper Ayr valley.	development seen in close proximity on the	consented wind farm development seen in close
The operational Whitelee I and II wind farm occupies	skyline of LCTs 17b, 18a, 18c and 20a from the	proximity on the skyline of LCTs 17b, 18a, 18c
much of the northern skyline of the Irvine valley and is	Nith, Irvine and Doon valleys.	and 20a from the Nith, Irvine and Doon valleys.
visible in close proximity particularly from elevated side	High sensitivity	High sensitivity
slopes. Consented wind farms of Sneddon Law,		
Penbreck and Lethans will also increase the extent of		
wind farm development seen on the skyline from these		
valleys. The operational Dersalloch wind farm is visible		
from the upper Doon Valley and the consented South		
Kyle development will significantly extend visibility of		
wind turbines in this same valley.		

Topic and summary description	Assessment of small-medium typology (30-	Assessment of small typology (15-30m)
	50m)	
Landscape context These valleys are fairly limited in extent and strongly contained by the uplands of the <i>Plateau Moorlands</i> (18a, 18b), the <i>Southern Uplands</i> (20a, 20c) and the <i>Foothills</i> (17a, 17b). Occasional 'landmark' hills, including Cairn Table, Auchenroy and Corsencon Hills, occur on the edge of these uplands and are prominent from the Ayr, Doon and Nith valleys although containing uplands also form lower less distinctive skylines in places.	Turbines of this size could still detract from more dramatic upland backdrops if sited close-by although there would be increased scope to site this typology to minimise effects on more scenic landscapes. <i>Medium sensitivity</i>	The smaller turbines of this typology would have minimal effects on surrounding landscapes. <i>Low sensitivity</i>
Scale The <i>Upland River Valleys</i> are relatively broad in comparison with the <i>Upland Glens</i> (15) although they are not extensive. They often feature open floodplains although the steep slopes of adjacent uplands provide strong containment. These valleys are well-settled with farms on lower hill slopes and some small settlements, trees, woodlands and enclosed fields reducing scale.	Turbines of this size would still appear large in relation to more complex small-scale landform features, farms and domestic buildings and small woodlands. There is some limited scope to accommodate this typology in more sparsely settled and open upper hill slopes within the broader sections of these valleys. <i>High-medium sensitivity</i>	There is increased scope to site these smaller turbines to avoid conflicts of scale with buildings and other small elements. <i>Medium sensitivity</i>
Landform The Rivers Nith and Doon form a relatively wide flat floodplain although this is generally narrower either side of the Irvine and Ayr. Valley sides are often steep but vary in gradient with gentler lower slopes, occasional broader terraces and subtle knolls. Landform is generally more complex within the Irvine valley, featuring deeply incised side valleys with the steep-sided craggy Loudon Hill prominent. The upper Doon valley also features small complex knolly hills. The lower northern slopes of the Ayr valley and the eastern slopes of the Doon valley are significantly	This typology could relate to simpler, more gently graded hill slopes and flatter areas. Steep hill slopes, more complex knolly landform, deeply incised valleys and occasional landmark hills would be more sensitive. <i>Medium sensitivity</i>	These smaller turbines could fit more easily within areas with a more complex rolling landform although the tops of small knolls would be sensitive. <i>Medium-low sensitivity</i>

Character Type 10: Upland River Valley – Sensitivity assessment for small-medium and small typologies

modified by past and current opencast mining.		
Landscape pattern The meandering river, associated wetlands and water bodies form prominent land cover features within the open floodplain of the Nith and are particularly extensive and diverse within the Doon valley. Riparian woodlands trace the course of the Irvine and mixed policy woodlands create a strong pattern on the southern slopes of this valley. Small woodlands pattern the lower slopes of the Ayr valley. Small to medium sized fields are enclosed by stone dykes, hedges and shelterbelts on lower side slopes in all of these valleys. Semi-improved pastures and more open grass moorland and coniferous woodlands are also present on upper valley sides.	Turbines of this height would detract from the more diverse floodplains of the Doon and Nith valleys and areas with a pronounced woodland and field enclosure pattern within the Irvine and upper Doon valley. Simple, more open areas of pasture and grass moorland would be less sensitive. <i>Medium sensitivity</i>	This typology could be more easily accommodated without detracting from more pronounced land cover pattern although it would be important to conserve the naturalistic woodland and wetlands and the setting of water bodies found within some floodplains. <i>Medium-low sensitivity</i>
Built environment A relatively well settled landscape with a number of settlements including Dalmellington, Patna, Newmilns, Darvel and Muirkirk. Notable designed landscapes are present within the upper Doon valley and Irvine valleys. Each of these valleys accommodates major 'A' roads and minor roads provide access to small farms and houses sited on lower hill slopes. Built industrial infrastructure and extensive past and current coal mining operations are evident in the Ayr and Doon valleys.	There is increased scope to site turbines of this size to minimise effects on the setting of settlement, designed landscapes and the industrial heritage site of Waterside and to be set well away from more fragmented opencast workings and disturbed ground. <i>Medium sensitivity</i>	These smaller turbines are more likely to be able to be partially screened by landform and vegetation and would have a less dominant scale thus limiting impacts on the setting of settlement and designed landscapes. They would also be more likely to be associated with existing buildings thus avoiding more disturbed areas. <i>Low sensitivity</i>
Perceptual qualities This landscape is well-settled and accommodates major roads and some industry/mining.	The absence of a strong sense of wildness reduces sensitivity although multiple turbines towards the upper height band of this typology could be perceived as accentuating industrial aspects of character. <i>Medium-low sensitivity</i>	This small typology, which is likely to comprise single or very small groups of turbines associated with individual farms and other buildings, would have minimal effects on perceptual qualities. <i>Low sensitivity</i>
Visual amenity Settlement predominantly sited on lower hill slopes	Turbines of this size would extend above woodlands and would be clearly visible from roads	There are greater opportunities to site these smaller turbines to minimise effects on views and

above the floodplain of the Nith has elevated views across this valley. Although the settlements of Darvel and Newmilns are more contained within the bottom of the Irvine valley, higher valley sides are also well- settled and have open across and along this valley. Views are fairly open from Muirkirk and particularly focus on the 'landmark' hill of Cairn Table to the south while elevated housing in Dalmellington also has open views along the Doon valley. Major 'A' roads are aligned through these valleys.	and settlement although there may be some scope to site turbines against a backdrop of rising hill slopes to minimise visual intrusion. <i>High-medium sensitivity</i>	utilise containment by local topography and woodland. <i>Medium sensitivity</i>
Cumulative effects Although no operational wind farms are located in this character type, the Hare Hill wind farm is prominently sited on a landmark hill which provides the immediate backdrop to the Nith valley. Some of the Galawhistle turbines are partially visible from the upper Ayr valley. The operational Whitelee I and II wind farm occupies much of the northern skyline of the Irvine valley and is visible in close proximity particularly from elevated side slopes. Consented wind farms of Sneddon Law, and Lethans will also increase the extent of wind farm development seen on the skyline from these valleys. The operational Dersalloch wind farm is visible from the upper Doon Valley and the consented South Kyle development will significantly extend visibility of wind turbines in this same valley.	Multiple turbines of this size would have significant cumulative visual effects with existing and consented wind farm development seen in close proximity on the skyline of LCTs 17b, 18a, 18c and 20a from the Nith, Irvine and Doon valleys. Cumulative effects could be minimised by locating single and small groups of this size of turbine on less settled upper hill slopes away from operational and consented wind farms in adjacent areas (but avoiding breaking containing skylines to minimise intrusion). <i>High-medium sensitivity</i>	This smaller typology would have a clear height differential with existing large-scale wind farm developments visible from this landscape. Turbines towards the lower height band of this typology are less likely to be appreciable in more distant views due to screening by landform and woodlands which would also minimise the cumulative effects of multiple turbines. Clear association of turbines of this size with farms and buildings would also establish a rational pattern, reducing clutter and cumulative effects. <i>Low sensitivity</i>

7.2 Summary of sensitivity

The Upland River Valleys (10) of the upper Doon, Nith, Ayr and Irvine form relatively broad valleys which are strongly contained by adjacent uplands. The Rivers Nith and Doon have open flat floodplains which are patterned with wetlands and water bodies - these being particularly diverse and extensive within the Doon valley. Valley sides are often steep but also comprise gentler lower slopes and occasional broader terraces. More complex knolls and deeply incised side valleys are especially associated with the Irvine valley and the prominent craggy Loudoun Hill, and the hills of Cairn Table, Auchenroy and Corsencon, form 'landmark' features on the edge of these valleys. Mixed policy woodlands create a strong pattern on the southern slopes of the Irvine valley and are also associated with the Craigengillan designed landscape in the Doon valley. Small woodlands and small to medium-sized fields, enclosed by stone dykes, hedges and shelterbelts, occur throughout these valleys while semi-improved pastures and more open grass moorland and coniferous woodlands are also present on upper valley sides. These valleys contain a number of settlements including Newmilns, Darvel, Dalmellington, Patna and Muirkirk and small farms and dwellings are commonly positioned on lower hill slopes above the floodplain. Each of these valleys accommodates a busy 'A' road.

The confined scale of these well-settled *Upland River Valleys*, together with the potential for significant cumulative effects to occur with operational and consented wind farm developments sited within adjacent uplands, comprise key constraints to larger typologies. There would be a *High* sensitivity to the large typology (turbines >70m) and the medium typology (turbines 50-70m). Sensitivity would be *High-medium* for the small-medium typology (turbines 30-50m) and *Medium-low* for the small typology (turbines <30m), reflecting increased opportunities for these smaller typologies to fit better with the scale of this well-settled landscape and to be sited to avoid significant cumulative effects with existing wind farm development in adjacent upland landscape character types.

7.2.1 Potential cumulative issues

The following issues may arise in association with any possible developments situated in this and adjacent landscapes:

- Inter-visibility between larger turbines which are more likely to be located in the surrounding upland areas and smaller turbines sited in these valleys.
- Cumulative effects on the setting of Dalmellington, the Doon Valley and the designed landscape of Craigengillan if further larger turbines were located in the surrounding uplands LCTs 17a, 17b and 20c and formed a dominant effect on immediate skylines.
- Potential location of additional larger turbines within the *Plateau Moorland* (18a) both to the north and south of the Irvine valley, which in combination with the

operational/consented Whitelee I and II and Sneddon Law wind farms, would have cumulative effects on settlement and from roads.

• Cumulative effects arising if further wind farms were located on the *Plateau Moorlands* (18a) bordering the upper Ayr Valley, resulting in sequential views and a possible concentrated corridor effect of turbines seen on immediately containing skylines from the A70 in combination with the Galawhistle and Hagshaw wind farms (the majority of turbines within these developments are located in neighbouring South Lanarkshire).

7.2.2 Constraints

- The strongly enclosed nature of these valleys and the small farms and houses, areas of enclosed farmland and woodlands which provide ready scale references.
- More complex landform including steep hill slopes, small knolls, deeply incised side valleys and the 'landmark' Loudoun Hill in the Irvine Valley.
- The 'landmark' hills of Corsencon and Cairn Table which lie on the edge of the adjacent *Plateau Moorlands* (18a) and are highly visible from the Ayr and Nith valleys.
- The steep rugged slopes of the 'landmark' hill of Auchenroy and other complex small hills which form the western backdrop to the scenic upper Doon valley and Craigengillan designed landscape.
- The strong pattern of mixed policy woodlands on the southern slopes of the Irvine valley and extensive wetlands, scrub and water bodies within the floodplain of the Doon, and to a lesser extent within the Nith valley.
- Potential effects on the setting of settlements, designed landscapes located in some of these *Upland River Valleys* and the industrial heritage site of Waterside located within Doon Valley.
- The often open and elevated views from settlement sited on valley sides and from the A76, A70 and A71 roads which are aligned through these landscapes.
- Disturbed ground and spoil associated with current open cast mining operations within the Ayr and Doon valleys where turbines sited nearby could exacerbate visual clutter and fragmentation of the landscape.
- Cumulative effects with the operational Hare Hill, Whitelee, Galawhistle and Dersalloch wind farms and the consented Sneddon Law and South Kyle wind farms which comprise large turbines sited within 3km of the Nith, Irvine, Doon and Ayr valleys.

7.2.3 Opportunities

• Lower, gently graded hill slopes at the transition with the *Foothills with Forest* and Opencast Mining (17a) and the *Plateau Moorlands* (18a) (where these landscapes are currently less affected by nearby extensive wind farm developments) where smaller typologies (turbines <50m) could be accommodated provided key views to 'landmark' hills were conserved.

7.3 Guidance for development

This study has found there to be **no scope** for the large or medium typology (turbines >50m high) to be accommodated in this landscape character type.

There is **very limited** scope for the small-medium typology (turbines 30-50m) to be accommodated in this landscape. Turbines of this size should be located on more sparsely settled lower hill slopes of the Ayr and Nith valleys at the transition with the adjacent upland landscapes of the *East Ayrshire Plateau Moorlands* (18a) and the *Foothills with Opencast Mining* (17a) but should avoid impacting on the 'landmark' hills of Corsencon and Cairn Table seen in key views from these valleys. Turbines should avoid more obviously disturbed areas in order to avoid exacerbating visual clutter and fragmentation associated with opencast mining.

Potential cumulative effects with larger turbines sited in adjacent upland landscapes are a key constraint and turbines should be set well away from operational/consented wind farm developments and should avoid more prominent knolls and higher hill slopes, utilising a backdrop of rising ground to minimise intervisibility and cumulative impacts.

There are increased opportunities for the small typology (turbines 15-30m) to be sited in this landscape to minimise cumulative effects as turbines of this size could be sited to be partially back-dropped by low hills and would be additionally screened in places by local topography and small woodlands. All turbines should however be sited to avoid impacting on the open floodplains of these valleys which often provide a focal point in views from settlement and roads. Turbines <15m high should be visually associated with existing farms and other buildings.

All turbines should additionally be sited to avoid impact on designed landscapes and areas with a more diverse pattern including wetlands, water bodies and policy woodlands. Detailed siting and design should accord with the guidance set out in Annex F of this report.



The broad floodplain of the Doon is characterised by diverse wetlands, scrub and lochs.



Enclosed pastures and small broadleaved woodlands pattern gently rolling lower hill slopes above the narrow floodplain of the Ayr valley.



The operational Whitelee wind farm is visible on the skyline of the northern slopes of the Irvine Valley.



A strong pattern of mixed policy woodlands cover the steep southern slopes of the Irvine Valley.



The 'landmark' hill of Corsencon is prominent in views from the upper Nith



The highly scenic designed landscape of Craigengillan in the upper Doon valley (Dersalloch wind farm seen in the backdrop).

8 CHARACTER TYPE 14: UPLAND GLEN

8.1 Introduction

Glen Afton is the only *Upland Glen* located in East Ayrshire although Glen Tig and Glen App occur in South Ayrshire. All these Upland Glens are considered in this sensitivity assessment.

The detailed assessment considers both larger and smaller turbine typologies.

8.1.1 Operational/consented wind farms

There are no existing or consented wind farms or turbines located in these *Upland Glens*.

The Hare Hill operational wind farm (59 turbines, 63.5m to 91m high) is located within the adjacent *East Ayrshire Southern Uplands* (20a) character type, approximately 1.5km to the east of Glen Afton and is visible in close proximity on the skyline of the middle section of this glen. The Windy Standard I and II operational wind farm (66 turbines, 53.5m to 120m high) is also located within the same *Southern Uplands* character type but within neighbouring Dumfries and Galloway. Although this wind farm lies within 1.5km to the west of Glen Afton views to it are restricted from the floor of this glen. The recently constructed Afton wind farm (27 turbines, 100/120m) is sited on the ridge which forms the skyline at the head of this narrow glen on the western side of the Afton reservoir and significantly influences character and views within this glen.

The operational Arecleoch wind farm (60 turbines, 135m high) and the Mark Hill wind farm (28 turbines, 110m high) are located in the *South Ayrshire Plateau Moorland with Forest and Wind Farms* (18c). There are close views of the Arecleoch wind farm from Glen Tig. While there are no views of the Arecleoch wind farm from roads and settlement within Glen App, there are some partial views of turbines within the operational Glen App wind farm (11 turbines, 126.5m) from the A77 and higher ground in this glen.



Topic and summary description	Assessment of large typology	Assessment of medium typology
	(turbines 70m+)	(turbines 50-70m)
Landscape context These narrow glens are visually cut off from other landscape types, with the exception of the immediate edges of the surrounding upland character types of the <i>East Ayrshire Southern</i> <i>Uplands</i> (20a) which form the upper rim of Glen Afton, the <i>South Ayrshire Southern Uplands</i> (20b) and <i>Coastal Rolling Farmland and</i> <i>Policies</i> (22) which contain Glen App and the <i>South Ayrshire Plateau Moorlands with Forest</i> <i>and Wind Farms</i> (18c) which abut Glen Tig.	Although the strong containment of these glens by steep hill slopes would limit inter-visibility from surrounding landscapes, turbines of this size are more likely to be located on upper hill slopes and containing ridges and could detract from the more dramatic 'landmark' hills lying on the fringes of the <i>Southern Uplands</i> (20a, 20b) and in the case of Glen App, the adjacent <i>Coastal Rolling Farmland and Policies</i> (22). Sensitivity is reduced where the <i>Plateau</i> <i>Moorland</i> (18c) character type abutting Glen Tig is simpler and less scenic (although cumulative effects would arise with operational wind farm development sited in these landscapes). <i>High-medium sensitivity</i>	Although the strong containment of these glens by steep hill slopes would limit inter-visibility from surrounding upland areas, turbines of this size are more likely to be located on upper hill slopes and containing ridges and could detract from the more dramatic 'landmark' hills lying on the fringes of the <i>Southern Uplands</i> (20a, 20b) and in the case of Glen App, the adjacent <i>Coastal Rolling Farmland</i> <i>and Policies</i> (22). Sensitivity is reduced where the <i>Plateau Moorland</i> (18c) character type abutting Glen Tig is simpler and less scenic (although cumulative effects would arise with operational wind farm development sited in these landscapes). <i>High-medium sensitivity</i>
Scale These are narrow, high sided valleys with flat floors. The steep valley sides create a high degree of enclosure. The height of the valley sides is most pronounced and dramatic when flanked by the high, rugged Southern Upland hills (20a, 20b). Glen Afton and Glen App are well settled with small farms and houses and enclosed fields located on the flat glen floor and lower hill slopes. Although Glen Tig is less settled, it lies close to the well-settled Stinchar Valley.	This typology would dominate the narrow floor of these valleys and the scale of small houses and farms, small enclosed fields and woodlands sited close to narrow valley floors and on lower hill slopes. The sense of containment and the perceived towering scale of the more dramatically contained glens would be significantly diminished by the presence of this typology. <i>High sensitivity</i>	This typology would dominate the narrow floor of these valleys and the scale of small houses and farms, small enclosed fields and woodlands sited close to narrow valley floors and on lower hill slopes. The sense of containment and the perceived towering scale of some of the more dramatically contained glens would be significantly diminished by the presence of this typology. <i>High sensitivity</i>
Landform The glens are relatively narrow, with flat floors and steep side slopes rising to irregular ridgelines. Valley sides are consistently steep within Glen App, within much of Glen Tig and in	Turbines of this size would detract from the steep rugged hill slopes which contain these glens. Containing ridges seen from the glen floor are often complex and irregular and these would be sensitive to turbines visible on skylines. An	Turbines of this size would detract from the steep rugged hill slopes which contain these glens. Containing ridges seen from the glen floor are often complex and irregular and these would be sensitive to turbines visible on skylines. An

Character Type 14: Upland Glen – Sensitivity assessment for large and medium typologies

upper Glen Afton. The well-defined rugged hills of Blackcraig and Craigbraneoch Rig in Glen Afton and pronounced conical Beneraird and Carlock Hills edging Glen App form landmark features. The western side slopes of lower Glen Afton are more gently graded with occasional rolling landform and small stepped terraces.	additional effect is likely to be extensive cut and fill creating scarring if access tracks are built across steep slopes. <i>High sensitivity</i>	additional effect is likely to be extensive cut and fill creating scarring if access tracks are built across steep slopes. <i>High sensitivity</i>
Landscape pattern Rough grassland on the tops of the ridges extends down to head dykes, separating the open grass and patchy heather moor on the upper slopes from fields of enclosed semi- improved pasture on lower slopes. Narrow glen floors are often more open with smooth pastures providing a scenic contrast with more rugged and coarsely vegetated hill slopes. Glen App is well-wooded with diverse mixed policy woodlands covering south-western hill sides while Glen Tig features extensive native woodlands. Lower Glen Afton is patterned with small clumps of broadleaves although the steep hill slopes surrounding Afton Reservoir are covered with coniferous forestry.	The small size and often intricate pattern of individual features – from clumps of trees to small woodlands and small walled fields – could be easily dominated by the larger turbines of this typology. Sensitivity to this characteristic is reduced where more extensive and less visually diverse vegetation pattern occurs on upper hill slopes and at the head of some glens. <i>High-medium sensitivity</i>	The small size and often intricate pattern of individual features – from clumps of trees to small woodlands and small walled fields – could be easily dominated by the larger turbines of this typology. Sensitivity to this characteristic is reduced where more extensive and less visually diverse vegetation pattern occurs on upper hill slopes and at the head of some glens. <i>High-medium sensitivity</i>
Built environment Dispersed farms and cottages, become sparser towards the heads of the glens. Settlement is generally located as point features along the edge of the valley floor and is frequently associated with side valleys. The A77 is aligned through Glen App although a no-through single-track road provides access up Afton Glen and there are no public roads in Glen Tig. Utilitarian buildings and infrastructure are associated with Afton Reservoir at the head of Glen Afton.	This typology would overwhelm the size and setting of small farms and individual houses In more dramatic upper sections of these glens there is often a contrast between the small size of the buildings and the sheer-sided mass of the hills, which would be compromised by this typology. <i>High sensitivity</i>	This typology would overwhelm the size and setting of small farms and individual houses In more dramatic upper sections of these glens there is often a contrast between the small size of the buildings and the sheer-sided mass of the hills, which would be compromised by this typology. <i>High sensitivity</i>

Perceptual qualities Glen Tig feels the most secluded and least modified of these Upland Glens due to its sparsely settled nature, absence of roads and extensive semi-natural woodlands although the Arecleoch wind farm is visible in close proximity in places, diminishing the sense of wildness. The presence of the A77 precludes any sense of wildness within Glen App and while upper Glen Afton has a rugged upland character, views of the Afton and Hare Hill wind farm and water authority buildings and infrastructure limits a pronounced sense of wildness.	While there can be a sense of seclusion and varying degrees of naturalness perceived in these glens, they are either settled and managed with some accommodating busy roads or influenced by highly visible wind farm development and other built infrastructure. Sensitivity is therefore reduced in relation to this characteristic. <i>Medium-low sensitivity</i>	While there can be a sense of seclusion and varying degrees of naturalness perceived in these glens, they are either settled and managed with some accommodating busy roads or influenced by highly visible wind farm development and other built infrastructure. Sensitivity is therefore reduced in relation to this characteristic. <i>Medium-low sensitivity</i>
Visual amenity Views from roads often focus along the length of Glen App and Glen Afton. The heads of the glens are often the focal point for key views, and the irregular shaped skyline around the rim of the glen is visually prominent. Glen Tig is less visible from roads and settlement although a number of footpaths provide access into this more secluded glen	Turbines of this size would form visually dominant features within the strongly confined space of these glens. The irregular ridges containing these glens are also highly sensitive to development perched along the prominent skyline either within this and the adjacent <i>Southern Uplands</i> (20a and 20b) and the <i>South</i> <i>Ayrshire Plateau Moorlands with Forestry and</i> <i>Wind Farms</i> (18c).Views to the heads of the glens and to the more prominent steep-sided hills on the upland edge are especially sensitive as these form the focal points of linear views when travelling along roads and seen from settlement sited on lower slopes. These 'head of valley' views are significantly affected In Glen Afton by the Afton wind farm located on immediately containing ridges in the adjacent <i>Southern Uplands</i> (20a) <i>High sensitivity</i>	Turbines of this size would also form visually dominant features within the strongly confined space of these glens. The irregular ridges containing these glens are also highly sensitive to development perched along the prominent skyline either within this and the adjacent <i>Southern</i> <i>Uplands</i> (20a and 20b) and the <i>South Ayrshire</i> <i>Plateau Moorlands with Forestry and Wind Farms</i> (18c).Views to the heads of the glens and to the prominent steep-sided hills on the upland edge are especially sensitive as these form the focal points of linear views when travelling along roads and seen from settlement sited on lower slopes. These 'head of valley' views are significantly affected In Glen Afton by the Afton wind farm located on immediately containing ridges in the adjacent <i>Southern Uplands</i> (20a) <i>High sensitivity</i>
Cumulative effects	Turbines of this size (and particularly multiple turbines) would have cumulative impacts with	Turbines of this size (and particularly multiple turbines) would have cumulative impacts with
Hill and Afton are visible in close proximity from	operational wind farm development which lies in	operational wind farm development which lies in

Glen Tig and Glen Afton and the Glen App wind	close proximity to these glens, potentially	close proximity to these glens, potentially
farm is partially visible from higher ground in	increasing the intrusion of large turbines visible	increasing the intrusion of large turbines visible on
Glen App.	on containing skylines.	containing skylines.
	High sensitivity	High sensitivity

Topic and summary description	Assessment of small-medium typology (30-	Assessment of small typology (15-30m)
Landscape context These narrow glens are visually cut off from other landscape types, with the exception of the immediate edges of the surrounding upland character types of the <i>East Ayrshire Southern</i> <i>Uplands</i> (20a) which form the upper rim of Glen Afton, the <i>South Ayrshire Southern Uplands</i> (20b) and <i>Coastal Rolling Farmland and</i> <i>Policies</i> (22) which contain Glen App and the <i>South Ayrshire Plateau Moorlands with Forest</i> <i>and Wind Farms</i> (18c) which abut Glen Tig.	The strong containment of the glens would limit potential impacts on adjacent character types although turbines of this size sited on steep upper slopes and containing ridges could detract from more pronounced 'landmark' hills lying on the edge of the adjacent <i>Southern Uplands</i> (20a+20b) <i>Medium sensitivity</i>	This typology is more likely to be associated with settlement and therefore sited within the floor and lower slopes of these glens with the strong containment by high, steep slopes limiting effects on adjacent character types <i>Low sensitivity</i>
Scale These are narrow, high sided valleys with flat floors. The steep valley sides create a high degree of enclosure. The height of the valley sides is most pronounced and dramatic when flanked by the high, rugged Southern Upland hills (20a, 20b). Glen Afton and Glen App are well settled with small farms and houses and enclosed fields located on the flat glen floor and lower hill slopes. Although Glen Tig is less settled, it lies close to the well-settled Stinchar Valley.	This typology could easily dominate the narrow floor of these valleys and the scale of small houses and farms, fields and woodlands if sited on valley floors and lower slopes. The sense of containment and the perceived towering scale of some of the more dramatic upper glens would be diminished by the presence of this typology. <i>High sensitivity</i>	Single or very small clusters of this typology (and particularly turbines towards the lower height band <20m) could more easily be accommodated within the broader stretches of these glens as they would have a less dominant effect on small woodlands, fields and buildings and smaller landform features. <i>Medium sensitivity</i>
Landform The glens are relatively narrow, with flat floors and steep side slopes rising to irregular ridgelines. Valley sides are consistently steep within Glen App, within much of Glen Tig and in upper Glen Afton. The well-defined rugged hills of Blackcraig and Craigbraneoch Rig in Glen Afton and pronounced conical Beneraird and Carlock Hills edging Glen App form landmark	The more pronounced rugged 'landmark' hills and the often complex skyline ridges formed by the adjacent <i>Southern Uplands</i> (20a, 20b) would be sensitive to all scales of turbine development. An additional effect is likely to be extensive cut and fill creating scarring if access tracks are built across steep slopes. The less steep upper valley sides found very occasionally in Glen Tig and parts of the western edge of lower Glen Afton would be	Single or very small clusters of this typology could be accommodated along the lower glen sides where they could be sited on natural terraces or other distinct landform features or associated with side valleys. These smaller turbines are less likely to require substantial access tracks, hard standing areas and footings. The more pronounced rugged hills in the

Character Type 14: Upland Glen – Sensitivity assessment for small-medium and small typologies
features. The western side slopes of lower Glen	less sensitive to this typology.	adjacent Southern Uplands and the undulating
Afton are more gently graded with occasional	High-medium sensitivity	skyline formed by adjacent uplands would be
rolling landform and small stepped terraces.		sensitive to all scales of turbine development.
		Medium sensitivity
Landscape pattern Rough grassland on the tops of the ridges extends down to head dykes, separating the open grass and patchy heather moor on the upper slopes from fields of enclosed semi- improved pasture on lower slopes. Narrow glen floors are often more open with smooth pastures providing a scenic contrast with more rugged and coarsely vegetated hill slopes. Glen App is well-wooded with diverse mixed policy woodlands covering south-western hill sides while Glen Tig features extensive native woodlands. Lower Glen Afton is patterned with small clumps of broadleaves although the steep hill slopes surrounding Afton Reservoir are	The small size of individual features – from clumps of trees to small woodlands and fields – could be easily dominated by the larger turbines of this typology. Where more extensive and less visually diverse vegetation pattern occurs, there is likely to be more scope for this typology. <i>High-medium sensitivity</i>	There is greater scope to accommodate this typology to avoid impacting on landscape pattern or individual features. Turbines could be sited to associate with the head dyke, near watercourses or the edges of the side valleys or other topographical features. <i>Medium sensitivity</i>
Built environment	This typology could easily overwhelm small farms	There is greater scope to accommodate this
Dispersed farms and cottages, become sparser towards the heads of the glens. Settlement is generally located as point features along the edge of the valley floor and is frequently associated with side valleys. The A77 is aligned through Glen App although a no-through single-track road provides access up Afton Glen and there are no public roads in Glen Tig. Utilitarian buildings and infrastructure are associated with Afton Reservoir at the head of Glen Afton.	and individual houses, if sited close enough to dominate the setting and the scale of the existing buildings and associated features. In more dramatic upper sections of these glens there is often a contrast between the small size of the buildings and the sheer-sided mass of the hills, which would be compromised and diminished by this typology. <i>High sensitivity</i>	typology, and particularly turbines <20m, because of its potential to be associated with the scale of larger buildings, settlement groups and farms and to fit with the pattern of development on lower glen sides. <i>Medium sensitivity</i>
Perceptual qualities Glen Tig feels the most secluded and least modified of these Upland Glens due to its	While there can be a sense of seclusion in these strongly contained glens, there is only a limited sense of remoteness and naturalness as these	While there can be a sense of seclusion in these strongly contained glens, there is only a limited sense of remoteness and naturalness

sparsely settled nature, absence of roads and extensive semi-natural woodlands although the Arecleoch wind farm is visible in close proximity in places, diminishing the sense of wildness. The presence of the A77 precludes any sense of wildness within Glen App and while upper Glen Afton has a rugged upland character, views of the Afton and Hare Hill wind farm and water authority buildings and infrastructure limits a pronounced sense of wildness.	glens are either settled and managed with some accommodating busy roads or influenced by highly visible wind farm development and other built infrastructure. <i>Low sensitivity</i>	as these glens are either settled and managed with some accommodating busy roads or influenced by highly visible wind farm development and other built infrastructure. <i>Low sensitivity</i>
Visual amenity Views from roads often focus along the length of Glen App and Glen Afton. The heads of the glens are often the focal point for key views, and the irregular shaped skyline around the rim of the glen is visually prominent. Glen Tig is less visible from roads and settlement although a number of footpaths provide access into this more secluded glen	Multiple turbines of this size could quickly become visually dominant within the strongly confined space of these glens and particularly if turbines were located where they would intrude into the linear views from roads which focus along the length of the glens. Irregular containing ridges are also sensitive to development perched along prominent skylines. Views to the heads of the glens and to the pronounced 'landmark' hills are especially sensitive as these form focal points of views. <i>High sensitivity</i>	The irregular ridges are sensitive to all sizes of turbine perched along the prominent skyline and views to the heads of the glens are especially sensitive as these are the focal points of views. There would however be increased scope to site turbines towards the lower height band of this typology without impinging on key views as turbines of this size have greater potential to fit with the scale of other features in the landscape and be partially screened by woodlands and topography. <i>High-medium sensitivity</i>
Cumulative effects The operational wind farms of Arecleoch, Hare Hill and Afton are visible in close proximity from Glen Tig and Glen Afton and the Glen App wind farm is partially visible from higher ground in Glen App.	Turbines of this size (and particularly multiple turbines) could have cumulative impacts with operational wind farm development which lies in close proximity to these glens. <i>High sensitivity</i>	This smaller typology would appear clearly different in size to the larger turbines of operational wind farms thus reducing potential for cumulative impacts. Turbines of this size are more likely to be associated with farms and other building groups sited on lower glen sides. They should not be sited close to operational wind farms visible on containing ridgelines in order to avoid a cluttered effect. <i>Medium sensitivity</i>

The *Upland Glens* of Glen App, Glen Tig and Glen Afton are narrow and strongly enclosed, predominantly contained by steep sides which rise to form often irregular and highly prominent ridgelines. A number of well-defined hills on the edge of these glens form landmark features and are especially dramatic where these glens are contained by the high ground of the *Southern Uplands* (20a, 20b) character type. Land-cover is diverse with riparian woodlands and small walled pastures covering the valley floor and lower slopes and more extensive mixed policy woodlands and coniferous plantings, interspersed with semi-improved pastures and heather-flecked grass moorland, on steep upper slopes. The narrowness and enclosure of these glens create a small-scale landscape, accentuated by the presence of small buildings, woodlands and fields. Encircling ridgelines (and particularly higher and/or more complex hills lying on the edge of these glens) are sensitive to any form of built development seen on the skyline. Operational wind farms located in adjacent upland areas influences character and views in all these glens to varying extents.

The small scale of these glens and cumulative effects with wind farms prominent on containing ridges present major constraints. There would be a *High* sensitivity to the Large, Medium and Small-medium typologies (turbines >30m) and a *Medium* sensitivity to the small typology (turbines 15-30m).

8.2.1 Potential cumulative issues

The following issues may arise in association with any possible developments situated in this and adjacent landscapes:

- Inter-visibility of turbines sited in these glens and the larger turbines of
 operational and any future extensions/new developments within the adjacent *Southern Uplands* (20a and 20b) and *South Ayrshire Plateau Moorland with
 Forest and Wind Farm* (18c) character types which may increase the extent and
 prominence of wind farms already visible on sensitive skylines formed by the
 encircling hills containing these glens.
- Variations in the size and design of smaller turbines which would be appreciated in close view from settlement and roads due to the confined extent of these glens.

8.2.2 Constraints

- The small scale and narrow extent of these glens which would be quickly dominated by turbines (and especially multiple turbines) over 30m high and also by smaller but poorly sited turbines.
- The dramatic forms of steep-sided hill flanks and ridges and the high rugged peaks of 'landmark' hills including Beneraird, Milljoan Hill and Carlock Hill in Glen App and Blackcraig and Craigbraneoch Hills in Glen Afton where turbines and access tracks would significantly detract.

- The upper edge of the glens where the irregularly shaped enclosing ridgeline is visually prominent against the sky when viewed from within the glen.
- The heads of the glens which are often the focal point in views from roads the head of Glen Afton is already dominated by wind farm development sited in the adjacent *East Ayrshire Southern Uplands* (20a).
- The predominantly open glen floor which contrasts with more wooded and coarse textured hill sides, where turbines (and particularly multiple turbines) sited in these areas would be detractive and interrupt linear views from roads which are channelled along the glen.

8.2.3 Opportunities

- Lower side slopes where small terraces and other landform features, the
 pattern of settlement and small side valleys/tributary watercourses offer
 opportunities for turbines < 20m to be sited where they can be associated with
 these features in the landscape, building up a consistent pattern of
 development able to optimise successful accommodation of multiple turbines.
- More gently graded lower hill slopes on the west side of Glen Afton and at the junction between Glen Tig and the *Intimate Pastoral Valley* (13) of the Stinchar Valley where turbines >20m would be less likely to detract from dramatic steep slopes present in the more deeply incised sections of the *Upland Glens*.

8.3 Guidance for development

There is **no scope** for turbines >30m to be sited within the Upland Glens.

Small turbines (15-30m) should be located where they can reinforce the pattern of existing development, being associated with farms located at the edge of the glen floor, lower side slopes above existing built development, within side valleys or along the head dyke. Turbines above 20m should be located on more gently graded side slopes where the scale of the glen is perceived as being broader.

Turbines should avoid intrusion on key views to the often dramatic heads of the glens and should not interrupt the irregular ridges which contain these glens and form prominent skylines. The flat and predominantly open glen floor should be avoided. They should also not be sited close-by operational wind farm developments sited in adjacent upland landscapes in order to minimise cumulative effects. Detailed siting and design should accord with the guidance set out in Annex F of this report.

The *Upland Glens* are highly sensitive to intrusion from large wind turbines sited in the adjacent *Southern Uplands* (20a and 20b) and *South Ayrshire Plateau Moorland with Forest and Wind Farm* (18c) character types. Operational wind farms are visible from these *Upland Glens* and care should be taken to avoid any exacerbation of existing intrusion when considering extensions to existing developments, or any new proposals, in adjacent upland areas.



Steep wooded slopes strongly contain the flat pastures on the floor of Glen App – the skyline formed by containing hills is sensitive to turbines sited in this and adjacent upland landscapes



The lower hill slopes of these glens are often more gentle but can feature smaller scale knolls and folds sensitive to larger turbines



Small farms and occasional estate houses are associated withthe more gently undulating lower hill slopes set above the narrow floodplain of these glens



The operational Hare Hill wind farm prominent in views from Glen Afton.

9 CHARACTER TYPE 15: UPLAND BASIN

9.1 Introduction

This landscape character type only lies within East Ayrshire where it forms a lowlying basin at the headwaters of the River Nith sitting at the foot of the upland character types of the *East Ayrshire Southern Uplands* (20a), the *East Ayrshire Plateau Moorlands* (18a) and *Foothills with Forest and Opencast Mining* (17a).

The detailed assessment considers both larger and smaller development typologies.

9.1.1 Operational/consented wind farms

No operational wind farms are sited within this character type although a single operational turbine is located at High Park Farm close to New Cumnock.

The operational wind farms of Hare Hill (59 turbines, 63.5m to 91m high) and Afton (27 turbines 100/120m high) are located to the south of this character type within the *Southern Uplands* (20a) character type in East Ayrshire. The Windy Standard wind farm (66 turbines, 53.5m to 120m high) also lie within the *Southern Uplands* character type but within neighbouring Dumfries and Galloway approximately 11km to the south of this character type.

The consented South Kyle wind farm (50 turbines, 149.5m high), located in the *Southern Uplands with Forestry* (20c), will be visible on the south-western skyline of hills which contain the *Upland Basin*.



Topic and summary description	Assessment of large typology (70m+)	Assessment of medium typology (50-70m)
Landscape context This character type is limited in extent but strongly contained by the uplands of the <i>Plateau Moorlands</i> (18a), <i>Foothills with Forest and Opencast Mining</i> (17a) and <i>Southern Uplands</i> (20a). The <i>Southern</i> <i>Uplands</i> form a more dramatic backdrop to this low- lying basin than the generally more uniform and lower-lying uplands of LCTs 17a and 18a which contain this basin.	The limited extent of this landscape would result in turbines (and particularly multiple turbines) of this size dominating views to the more dramatic <i>Southern Uplands</i> (20a). There would also be cumulative effects with wind farms sited in adjacent uplands due to the openness of this landscape. <i>High sensitivity</i>	Turbines of this size would still be prominent features and could detract from more dramatic upland backdrops (and result in cumulative effects with operational wind farms located in the <i>Southern Uplands</i> (20a) if sited close-by. <i>Medium sensitivity</i>
Scale Although this landscape appears relatively open, small scale landform features in combination with small woodlands, enclosed fields, occasional trees and compact farms and houses reduce scale.	This typology would appear very large compared with the relatively low relief of small ridges and knolls and would also dominate the small buildings, woodlands and trees which pattern this landscape and provide ready scale references. <i>High sensitivity</i>	This typology would appear very large compared with the relatively low relief of small ridges and knolls and would also dominate the small buildings, woodlands and trees which pattern this landscape and provide ready scale references. <i>High sensitivity</i>
Landform A low-lying basin with flatter floodplain, wetlands and loch basins to the north-east but with low ridges and knolls (sometimes surrounded by flatter, wetter areas) and the deeply incised channel of the Nith occurring elsewhere. Gently graded hill slopes contain this basin and merge gradually with the adjacent upland landscapes. Landform is significantly modified by past and current mining with disturbed ground and spoil heaps particularly evident in the west.	This typology could relate to simpler, gently graded hill slopes and flatter areas. Smaller landform features including low ridges and knolls would be more sensitive. It may be difficult to achieve an integrated development comprising multiple turbines in more complex areas of disturbed ground. <i>Medium sensitivity</i>	This typology could relate to simpler, gently graded hill slopes and flatter areas. Smaller landform features including low ridges and knolls would be more sensitive. It may be difficult to achieve an integrated development comprising multiple turbines in more complex areas of disturbed ground. <i>Medium sensitivity</i>
Landscape pattern Land-cover is diverse in the north-eastern part of this	Turbines of this height would detract from the more diverse areas of woodlands, lochs and wetlands in	Turbines of this height would detract from the more diverse areas of woodlands, lochs and

Character Type 15: Upland Basin – Sensitivity assessment for large and medium typologies

basin where woodlands, lochs and wetlands are present. Rolling pastures, small clumps of woodland and shelterbelts are associated with small farms sited on low ridges and knolls. Pockets of wet, scrubby pasture also occur in places. Lower hill slopes at the transition with the Southern Uplands have a simpler pattern of more expansive semi- improved pasture.	the north-east. Simple, more open areas of pasture would be less sensitive. <i>Medium sensitivity</i>	wetlands in the north-east. Simple, more open areas of pasture would be less sensitive. <i>Medium sensitivity</i>
Built environment A relatively well settled landscape with New Cumnock and a number of smaller settlements located on its periphery. Access tracks, derelict built industrial infrastructure and extensive current opencast workings are evident particularly in the western part of this landscape.	This typology could exacerbate the fragmented and cluttered nature of this landscape where it is disturbed by open cast mining. <i>High-medium sensitivity</i>	This typology could exacerbate the fragmented and cluttered nature of this landscape where it is disturbed by open cast mining. <i>High-medium sensitivity</i>
Perceptual qualities This landscape is settled and accommodates major roads and railway. It is also affected by past and present mining activity although lochs, wetlands and woodlands on former spoil and worked areas can have a more natural character.	The absence of a strong sense of wildness reduces sensitivity although multiple turbines of this typology could be perceived as accentuating industrial aspects of character. <i>Medium sensitivity</i>	The absence of a strong sense of wildness reduces sensitivity although multiple turbines of this typology could be perceived as accentuating industrial aspects of character. <i>Medium sensitivity</i>
Visual amenity Settlement is often located on the lower hill slopes surrounding this basin and on low ridges and knolls with elevated and open views possible across this landscape. This basin is also seen widely from the A76 and more intermittently from the railway. Views from the A76 when travelling southwards and from footpaths, golf course in the Lochside Hotel area focus on the Southern Uplands and on the wind farms of Hare Hill and Afton sited on these hills.	Turbines of this size would be visible in relative proximity from settlement and roads. Multiple turbines of this size would be inter-visible due to the openness of this landscape. <i>High sensitivity</i>	Turbines of this size would be visible in relative proximity from settlement and roads. Multiple turbines of this size would be inter-visible due to the openness of this landscape. <i>High sensitivity</i>
Cumulative effects Although there are no existing wind farms located in this character type a single turbine is located near	This typology would be contrary to the established association of larger turbines >50m with less settled upland landscapes. Multiple turbines of this size	This typology would be contrary to the established association of larger turbines >50m with less settled upland landscapes. Multiple

New Cumnock. The operational Hare Hill and Afton wind farms are prominently sited on a pronounced bill and on the edge of the cleft of Afton Clen. The	would have significant cumulative visual effects with operational and consented wind farm development seen on the skyline of the Southern Unlands	turbines of this size would have significant cumulative visual effects with operational and consented wind farm development seen on the
operational wind farm of Windy Standard is visible although is much less intrusive. The consented	High sensitivity	skyline of the Southern Uplands. High sensitivity
South Kyle wind farm will be visible with widely spaced turbines appearing above the <i>Southern</i>		
Uplands to the south-west of the Upland Basin.		

Topic and summary description	Assessment of small-medium typology (30-	Assessment of small typology (15-30m)
	50m)	
Landscape context This character type is limited in extent but strongly contained by the uplands of the <i>Plateau Moorlands</i> (18a), <i>Foothills with Forest and Opencast Mining</i> (17a) and <i>Southern Uplands</i> (20a). The <i>Southern Uplands</i> form a more dramatic backdrop to this low-lying basin than the generally more uniform and lower-lying uplands of LCTs 17a and 18a which contain this basin.	Turbines of this size could still detract from more dramatic upland backdrops if sited close-by although there would be increased scope to site this typology to minimise effects on more scenic landscapes. <i>Medium sensitivity</i>	The smaller turbines of this typology would have minimal effects on surrounding landscapes. <i>Low sensitivity</i>
Scale Although this landscape appears relatively open, small scale landform features in combination with small woodlands, enclosed fields, occasional trees and compact farms and houses reduce scale.	Turbines of this size would still appear large in relation to more complex small-scale landform features, farms and domestic buildings and small woodlands. There is some limited scope to accommodate this typology in more sparsely settled and open hill fringes. <i>High-medium sensitivity</i>	There is increased scope to site these smaller turbines to avoid conflicts of scale. <i>Medium sensitivity</i>
Landform A low-lying basin with flatter floodplain, wetlands and loch basins to the north-east but with low ridges and knolls (sometimes surrounded by flatter, wetter areas) and the deeply incised channel of the Nith occurring elsewhere. Gently graded hill slopes contain this basin and merge gradually with the adjacent upland landscapes. Landform is significantly modified by past and current mining with disturbed ground and spoil heaps particularly evident in the west.	This typology could relate to simpler, gently graded hill slopes and flatter areas. Smaller landform features including low ridges and knolls would be more sensitive. This typology is less likely to involve significant numbers of turbines thereby reducing potential impacts associated with producing an integrated layout and access tracks in more complex rolling landform and in areas of disturbed landform. <i>Medium sensitivity</i>	These smaller turbines could fit more easily within areas with a more complex rolling landform although the tops of small knolls would be sensitive. <i>Medium-low sensitivity</i>
Landscape pattern Land-cover is diverse in the north-eastern part of this basin where woodlands, lochs and wetlands are	Turbines of this height would detract from the more diverse areas of woodlands, lochs and wetlands in the north-east. Simple, more open	This typology could be more easily accommodated without detracting from more pronounced land cover pattern although it would be important to

Character Type 15: Upland Basin – Sensitivity assessment for small-medium and small typologies

present. Rolling pastures, small clumps of woodland and shelterbelts are associated with small farms sited on low ridges and knolls. Pockets of wet, scrubby pasture also occur in places. Lower hill slopes at the transition with the Southern Uplands have a simpler	areas of pasture would be less sensitive. <i>Medium sensitivity</i>	conserve the setting of lochs and surrounding wetlands. <i>Medium-low sensitivity</i>
Built environment A relatively well settled landscape with New Cumnock and a number of smaller settlements located on its periphery. Access tracks, derelict built industrial infrastructure and extensive current opencast workings are evident particularly in the western part of this landscape.	There is increased scope to site turbines of this size to minimise effects on the setting of settlement and to be set well away from more fragmented opencast workings and disturbed ground. <i>Medium sensitivity</i>	These smaller turbines are more likely to be able to be partially screened by landform and vegetation and would have a less dominant scale thus limiting impacts on the setting of settlement. They would also be more likely to be associated with existing buildings thus avoiding more disturbed areas. Medium-low sensitivity
Perceptual qualities This landscape is settled and accommodates major roads and railway. It is also affected by past and present mining activity although lochs, wetlands and woodlands on former spoil and worked areas can have a more natural character.	The absence of any sense of wildness reduces sensitivity although multiple turbines towards the upper height band of this typology could be perceived as accentuating industrial aspects of character. Medium-low sensitivity	This small typology, which is likely to comprise single or very small groups of turbines associated with individual farms and other buildings, would have minimal effects on perceptual qualities. <i>Low sensitivity</i>
Visual amenity Settlement is often located on the lower hill slopes surrounding this basin and on low ridges and knolls with elevated and open views possible across this landscape. This basin is also seen widely from the A76 and more intermittently from the railway. Views from the A76 when travelling southwards and from footpaths, golf course in the Lochside Hotel area focus on the Southern Uplands and on the wind farms of Hare Hill and Afton sited on these hills.	Turbines of this size would extend above woodlands and would be visible from roads and settlement although there may be some scope to site turbines against a backdrop of rising hill slopes on the periphery of this basin to minimise visual intrusion. <i>High-medium sensitivity</i>	There are greater opportunities to site these smaller turbines to minimise effects on views and utilise containment by low hills and woodland. <i>Medium sensitivity</i>
Cumulative effects Although there are no existing wind farms located in this character type a single turbine is located near New Cumnock. The operational Hare Hill and Afton wind farms are prominently sited on a pronounced hill	Cumulative effects of multiple turbines of this size could be minimised by limiting this typology to the less settled lower hill slopes surrounding this basin. Turbines sited where these hill slopes merge with the <i>Foothills with Forest and Opencast</i>	This smaller typology would have a clear height differential with operational wind farms visible from this landscape. Turbines towards the lower height band of this typology are less likely to be appreciable in more distant views due to screening

and on the edge of the cleft of Afton Glen. The	Mining (17a) and the Plateau Moorlands (18a)	by landform and woodlands which would also
operational wind farm of Windy Standard is visible	would be likely to minimise cumulative effects with	minimise the cumulative effects of multiple turbines.
although is much less intrusive. The consented South	operational wind farms.	Clear association of turbines of this size with farms
Kyle wind farm will be visible with widely spaced	High-medium sensitivity	and buildings would also establish a rational
turbines appearing above the Southern Uplands to the		pattern, reducing clutter and cumulative effects.
south-west of the Upland Basin.		Low sensitivity

The *Upland Basin* (15) forms a low-lying landscape which is strongly contained by surrounding upland character types. The steep-sided *Southern Uplands* (20a), cut by the deep cleft of Afton Glen, form a particularly dramatic juxtaposition with this relatively simple basin although this is marred in places by wind farms located on the outer edges of these uplands. Although generally low-lying, close-up the landform is surprisingly varied and includes areas of flat wetland and water bodies to the east together with occasional more pronounced ridges, small knolls and the often deeply incised valley of the Nith. The landscape is fragmented by extensive current opencast mining operations to the west and small, partially vegetated spoil heaps and disturbed ground from former mining works are also evident amidst farmland. Small woodlands and shelterbelts are associated with farms and with the Knockshinnoch Lagoons nature reserve. The settlement of New Cumnock is sited at the foot of Hare Hill on the south-eastern edge of this character type and small farms and settlements are dispersed throughout, commonly located on the small knolls and lower hill slopes set above the floodplain of the Nith.

Operational and consented wind farms sited on adjacent upland areas are key constraints to larger typologies in the *Upland Basin*. There would be a *High* sensitivity to the large typology (turbines >70m) and the medium typology (turbines 50-70m). Sensitivity would be *High-medium* for the small-medium typology (turbines 30-50m) and *Medium-low* for the small typology (turbines <30m), reflecting increased opportunities for these smaller typologies to fit better with the scale of this well-settled landscape and to be sited to avoid significant cumulative effects.

9.2.1 Potential cumulative issues

The following issues may arise in association with any possible developments situated in this and adjacent landscapes:

- Inter-visibility between larger turbines which are more likely to be located in the surrounding upland areas and smaller turbines sited in this area.
- The location of further wind farm development within the *Southern Uplands* (20a) and potential new developments sited within the surrounding uplands of the *East Ayrshire Plateau Moorland* (18a) and *Foothills with Forest and Opencast Mining* (17a) (seen together with operational and consented wind farms) where they may be perceived as 'encircling' this basin and dominating skylines formed by the hills which contain this basin.

9.2.2 Constraints

• Small farms and houses, areas of enclosed farmland and woodlands which provide ready scale references.

- The deeply incised valley of the Nith and more diverse patterning of wetlands, woodland and lochs in the east which are well-used for recreation.
- Views from the A76 and other roads and settlement including open views across this landscape from New Cumnock.
- Disturbed ground and spoil associated with current open cast mining operations in the western part of this character type where turbines sited nearby could exacerbate visual clutter and fragmentation of the landscape.
- Cumulative effects with the operational and consented wind farms of of Hare Hill, Afton and South Kyle sited within the adjacent *Southern Uplands* (20a).

9.2.3 Opportunities

• Lower, gently graded hill slopes at the transition with the *Plateau Moorlands* (18a) and less disturbed hill slopes at the transition with the *Foothills with Forest and Opencast Mining* (17a) where smaller typologies (turbines <50m) could be accommodated.

9.3 Guidance for development

This study has found there to be *no scope* for the large or medium typology (turbines >50m high) to be accommodated in this landscape.

There is **very limited** scope for the small-medium typology (turbines 30-50m) to be accommodated in this landscape. Turbines of this size should be located on more sparsely settled lower hill slopes at the transition with the adjacent upland landscapes of the *East Ayrshire Plateau Moorlands* (18a) and on gently graded slopes at the transition with the *Foothills with Forest and Opencast Mining* (17a). Turbines should not be sited close to areas currently affected by opencast mining operations or obviously disturbed areas to avoid exacerbating visual clutter and the fragmentation evident in the western parts of the *Upland Basin* (15).

There are **some** opportunities for the small typology (turbines 15-30m) to be sited in this landscape to minimise cumulative effects as turbines of this size could be sited to be partially back-dropped by low hills and would be additionally screened in places by local topography and small woodlands. Turbines <15m should be visually associated with existing farms and other buildings. Detailed siting and design should accord with the guidance set out in Annex F of this report.

It will be essential to monitor the cumulative situation in relation any future developments sited in the surrounding upland landscapes of the Plateau Moorlands (18a), Foothills with Forest and Opencast Mining (17a) and East Ayrshire Southern Uplands (20a) and to ensure that these avoid a dominant 'encircling' effect on the skylines which contain this landscape.



Past mining activity is evident in partially vegetated spoil, disturbed ground and infrastructure - current opencast coal extraction occurs on the western edge of this landscape.



Small farms sheltered by clumps of broadleaves are predominantly located on low ridges and knolls set above floodplain pastures



Lower-lying pastures and disturbed ground can have an open character, allowing uninterrupted views to the backdrop provided by the Plateau Moorlands (18a) character type.



Lochs, wetlands and broadleaved woodlands add to the diversity of this basin which accommodates the headwaters of the Nith.



Landform becomes more complex and rolling, particularly where the Nith cuts an incised valley.



The Southern Uplands form a dramatic backdrop of high, steepsided hills to the south

10 CHARACTER TYPE 17A: FOOTHILLS WITH FORESTRY AND OPENCAST MINING

10.1 Introduction

This sensitivity assessment considers the *Foothills with Forest and Opencast Mining* (17a) centred on Martyrs Moss to the north-east of Dalmellington and lying wholly in East Ayrshire.

This landscape is very sparsely settled and the detailed assessment therefore focuses on turbines >70m with key constraints and opportunities for smaller turbines briefly outlined in the summary and guidance section only.

10.1.1 Operational/consented wind farms

No operational or consented wind farms are sited within this area of the *Foothills with Forestry* landscape character type.

The operational Dersalloch wind farm (23 turbines, 115m/125m high) is located within the *Foothills West of the Doon Valley* (17b) within approximately 5km from this landscape character type. The operational wind farms of Hare Hill and Afton are located approximately >9km south-east of this landscape in the *Southern Uplands* (20a).

The consented South Kyle wind farm (50 turbines, 149.5m) is located in the *Southern Uplands with Forest* (20c) approximately 4km from this landscape character type.



Topic and summary description	Assessment of Very Large typology (turbines	Assessment of Large typology (turbines
	130m+)	70m-130m)
Landscape context This upland landscape is fairly large in extent. It forms a long, low and generally even upland backdrop to the settled <i>East Ayrshire Lowlands</i> (7c) with a gradual transition occurring between the character types in the north-west. It also forms a simple containing edge to the <i>Upland</i> <i>Basin</i> (15) to the east and the <i>Upland River</i> <i>Valley</i> (10) of the upper Doon to the west, where Benquhat Hill forms a more prominent backdrop. The higher and more rolling hills of the <i>Southern Uplands with Forest</i> (20c) lie to the south of this generally simpler and lower- lying plateau.	Turbines of this size would be highly visible from the settled <i>Upland Basin</i> (15), <i>Upland River</i> <i>Valleys</i> (10) of the upper Doon and the <i>East</i> <i>Ayrshire Lowlands</i> (7c) and <i>Lowland River Valley</i> (9). While the low even backdrop provided by the northern and eastern edges of these foothills would reduce the prominence of turbines sited in this landscape to some degree, turbines closer to 200m high would be likely to have an increased impact on surrounding more sensitive settled landscapes. Turbines <150m high and located within lower-lying areas in the interior of this landscape and/or closer to more expansive uplands in the south would be more likely to minimise effects on surrounding more sensitive landscapes. <i>High-medium sensitivity</i>	Turbines of this size sited in this character type would be highly visible from the settled Upland Basin (15), Upland River Valleys (10) of the upper Doon and the East Ayrshire Lowlands (7c) and Lowland River Valley (9). The low even backdrop provided by the northern and eastern edges of these foothills to these more sensitive surrounding landscapes would however reduce the prominence of turbines sited in this landscape and sensitivity would be further reduced where the East Ayrshire Lowlands (7c) form broader gentle slopes and are sparsely settled at the transition with these foothills in the north-west. Sensitivity is also reduced to the south at the transition with the more expansive Southern Uplands (20c). Turbines set back into the core of these uplands would be likely to have less of an effect on adjacent landscapes. Medium sensitivity
Scale An expansive and gently undulating upland plateau with rounded hills rising to just over 400m. This landscape is very sparsely settled and there are few small-scale features.	This typology could fit with the expansiveness of this landscape although turbines closer to 200m would be more likely to dominate the relief of this upland landscape.	This typology would fit with the scale of this landscape. Low sensitivity
Landform This gently undulating plateau rises to form subtly rounded summits, valleys and shallow basins and occasional more pronounced steep- sided hills such as Benquhat which is prominent in views from the Doon Valley. Former opencast workings are evident in areas of spoil, excavations and ponds.	The predominantly simple, gently undulating landform of this landscape reduces sensitivity although more pronounced hill summits should be avoided. It may be difficult to achieve an integrated development comprising multiple turbines in more complex areas of disturbed ground. <i>Medium-low sensitivity</i>	The predominantly simple, gently undulating landform of this landscape reduces sensitivity although more pronounced hill summits should be avoided. It may be difficult to achieve an integrated development comprising multiple turbines in more complex areas of disturbed ground. <i>Medium-low sensitivity</i>

Character Type 17a: Foothills with Forestry + Opencast Mining – Sensitivity assessment for very large and large typologies

Landscape pattern	The relatively simple land cover pattern of this	The relatively simple land cover pattern of this
This landscape has a simple land cover pattern	landscape reduces sensitivity although remnant	landscape reduces sensitivity although remnant
dominated by grass moorland and extensive	moss and the mixed woodlands fringing them are	moss and the mixed woodlands fringing them
coniferous plantations. Remnant areas of moss	more diverse.	are more diverse.
are fringed by stunted spruce and broadleaves.	Medium-low sensitivity	Medium-low sensitivity
Built environment	Turbines and associated infrastructure could	Turbines and associated infrastructure could
There are no settlements in this landscape.	exacerbate the fragmented nature of this	exacerbate the fragmented nature of this
Access tracks, spoil and lagoons from former	landscape where it is disturbed by open cast	landscape where it is disturbed by open cast
and current opencast mining operations are	mining. Extensive wind farm development could	mining. Extensive wind farm development could
evident around the periphery of this landscape.	also undermine measures to restore and enhance	also undermine measures to restore and
	this landscape.	enhance this landscape.
	High-medium sensitivity	High-medium sensitivity
Perceptual qualities	While there would be little effect with regard to	While there would be little effect with regard to
The presence of extensive commercial forestry	wildness, extensive wind farm development could	wildness, extensive wind farm development
and areas of disturbed ground/former mine	perpetuate negative perceptions of this disturbed	could perpetuate negative perceptions of this
workings negates a strong sense of wildness.	landscape and inhibit positive landscape change.	disturbed landscape and inhibit positive
	Medium sensitivity	landscape change.
		Medium sensitivity
Visual amenity	The largely unsettled and limited access of this	The largely unsettled and limited access of this
This upland plateau is unsettled and	landscape reduces sensitivity. Turbines of this	landscape reduces sensitivity although turbines
recreational use of this landscape is likely to be	size – and particularly turbines >150m - would be	of this size sited on higher hills and outer edges
inhibited by extensive opencast operations. The	prominent especially if located on higher ground	of this upland plateau would be widely visible
B741 is aligned on its southern edge although	and close to the outer edges of this landscape.	from surrounding roads and settlement.
forestry and landform largely screens views of	Lighting of turbines >150m high would extend the	Turbines set back into the core of this plateau
this landscape from this road. This landscape	duration of effects and be widely visible from well-	and avoiding more prominent hill tops would
sits on the northern edge of an extensive very	settled surrounding areas. Turbines towards the	minimise effects on visual amenity especially as
sparsely settled upland area reducing effects on	lower height band of this typology, set back into	this landscape forms a simple low and relatively
visual amenity to the south. There are relatively	the lower-lying interior of these uplands would	even skyline in views from more densely settled
close views from surrounding settled Doon	reduce visual impact from surrounding roads and	areas to the north and east.
valley and the East Ayrshire Lowlands to the	settlement.	High-medium sensitivity
east, north and west.	High sensitivity	
Cumulative effects	Sensitivity is increased in the Upland Basin (15)	Sensitivity is increased in the Upland Basin (15)
No operational or consented wind farms are	and upper Doon valley to the east and west of this	and upper Doon valley to the east and west of
located in this landscape. The operational and	LCT where operational and consented wind farms	this LCT where operational and consented wind
consented wind farms of Hare Hill, Afton, South	are/will be prominent on containing ridges.	farms are/will be prominent on containing ridges.

Kyle and Dersalloch are located close to this LCT and already affect the surrounding settled landscapes of the <i>Upland Basin</i> (15) and the <i>Upland River Valleys</i> of the upper Doon (10).	Turbines of this size sited in this LCT would be likely to exacerbate cumulative effects on character and views from roads and settlements. Locating wind turbines on lower-lying ground set well back from the outer edges of this landscape and limiting the number of turbines could reduce cumulative effects to some extent. <i>High sensitivity</i>	Turbines sited in this LCT could exacerbate existing cumulative effects on character and views from roads and settlements. Locating wind turbines on lower-lying ground set back from the outer edges of this landscape could reduce cumulative effects. Smaller numbers of turbines of this size may additionally reduce the extent of wind farm development seen on containing ridgelines from these landscapes and reduce a domineering effect. <i>High-medium sensitivity</i>
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This landscape forms an expansive upland plateau with a generally simple landform of gently rounded hills and shallow mossy basins. Although this landscape forms a long, low and fairly even upland skyline to the north where it adjoins the *East Ayrshire Lowlands* (7c), occasional more pronounced hills lie on the south-western edge and include Benquhat Hill which is prominent in views from the upper Doon Valley. In the east, the skyline formed by these uplands to the *Upland Basin* (15) is also relatively low in comparison with the nearby *Southern Uplands* (20a) although visibly disturbed ground produces an irregular profile in places. Land cover is simple, dominated by extensive coniferous forestry and with some grass moorland and moss although excavations, large spoil heaps and lagoons from former and current mine workings are clearly evident on the outer fringes of this plateau and these give this landscape a fragmented and degraded character. These uplands are very sparsely settled and their interior is not readily visible from public roads and settlement in the surrounding area.

While the large scale and simple landform and land cover of these uplands could relate in principle to larger turbine typologies, this landscape is not without constraints, the key ones being the need to reduce cumulative landscape and visual effects on adjacent well-settled lowland landscapes and to minimise the exacerbation of the already fragmented nature of this landscape which is characterised by extensive open cast mining. There would be a *High-medium* sensitivity to the very large typology (turbines >130m) and a *Medium* sensitivity to the large typology.

10.2.1 Potential cumulative issues

The following issues may arise in association with any possible development situated in this and adjacent landscapes:

- Inter-visibility between larger turbines which are more likely to be located in this upland landscape character type and smaller turbines sited in the adjacent more settled *Upland River Valleys* (10), *Upland Basin* (15) and *East Ayrshire Lowlands* (7c).
- Exacerbation of the fragmentation of this landscape which may occur if multiple developments and/or a range of different heights and types of turbine were to be sited in this character type and seen in conjunction with past and current opencast mining operations.
- Potential perceived 'encirclement' of the *Upland Basin* (15) character type should further wind farm development be sited within this character type and the *East Ayrshire Southern Uplands* (20a), the *Southern Uplands with Forest* (20c) and the *Plateau Moorlands* (18a) and prominent on immediately containing skylines.
- Cumulative effects on the upper Doon Valley (including effects on the Craigengillan designed landscape and the setting of settlements such as

Dalmellington) if wind farms were sited within this character type and further wind farms were located in the *Southern Uplands with Forest* (20c) and the *Foothills west of the Doon Valley* (17b) and prominent on immediately containing skylines.

10.2.2 Constraints

- The more visually prominent outer slopes and pronounced hills of this landscape which form the containing edges to settled and smaller scale *Upland River Valley* (10) of the Doon valley to the south-west, the *Upland Basin* (15) to the east and the *East Ayrshire Lowlands* (7c) and *Lowland River Valley* (9) of the Lugar Water to the north-east.
- Areas of spoil and excavations from current and former mining operations where wind turbines could exacerbate clutter and fragmentation of this landscape, where it may be difficult to achieve an integrated development of multiple turbines in more complex disturbed areas and where extensive wind farm developments could inhibit restoration of the landscape.
- The less modified pockets of remnant moss and associated mixed woodlands.

10.2.3 Opportunities

• Less visually prominent lower hills and shallow basins within the core of these uplands which could provide a degree of visual containment for wind turbine development and minimise intrusion and cumulative effects on adjoining more settled smaller scale landscapes.

10.3 Guidance for development

There is **very limited** scope for the very large typology (turbines >130m) to be accommodated within this landscape. Turbines <150m high would reduce intrusion (as well as cumulative effects) on surrounding more sensitive landscapes. Turbines should be set well back from the more sensitive north-eastern, eastern and south-western edges of these foothills to avoid significant impact on smaller scale settled landscapes and to also minimise cumulative effects with operational and consented wind farms seen from the *Upland Basin* (15) and *Upland River Valley* (10) (Upper Doon Valley) landscape character types.

There is also **some scope** for the large typology (turbines 70-130m) with turbines of this size likely to have a more reduced effect on surrounding more sensitive landscapes than the very large typology provided they were subject to the same siting constraints as noted above.

Smaller turbines <70m high could be accommodated in this landscape although they could exacerbate the cluttered visual effect of disturbed ground if sited so closely inter-visible with larger turbines/wind farms. The outer edges of this landscape remain sensitive to turbines >50m because of effects on adjacent more sensitive landscapes but also, in the east and west, likely cumulative effects with operational and consented wind farms located in other upland areas.

All turbine development should be sited well away from current opencast operations or should be planned to be constructed post restoration to reduce clutter and cumulative effects between these two types of development. Where former mining operations have left a legacy of disturbed ground, remedial earth works and landscape restoration should form an integral part of any larger wind farm proposals. The more naturalistic areas of remnant moss and mixed woodlands should be avoided.



These foothills form a long and relatively low and simple skyline seen in views across East and South Ayrshire



The transition with the East Ayrshire Lowlands (7c) is less sensitive in the north-west as settlement becomes sparse and the land cover pattern is simpler



The south-western edge of this landscape features the welldefined Benquhat Hill which is prominent from the upper Doon Valley.



Past mining activity is evident in disturbed areas and current opencast coal mining operations are also a key feature of this landscape



Extensive coniferous forestry limits views to brief glimpses into the interior of these hills from the B741



Rare pockets of open ground occur within the forest and include remnant moss and some broadleaved woodland

11 CHARACTER TYPE 17B: FOOTHILLS WEST OF THE DOON VALLEY

11.1 Introduction

This assessment is for the *Foothills with Forest West of the Doon Valley* (17b) which occurs in both East and South Ayrshire. This is a sparsely settled upland landscape and the detailed assessment therefore considers larger development typologies (turbines >70m) with key constraints and opportunities for smaller turbines briefly outlined in the summary and guidance section.

11.1.1 Operational/consented wind farms

The operational Dersalloch wind farm (23 turbines, 115/125m high) is located in the southern part of this landscape within South Ayrshire.

The operational Hadyard Hill wind farm is located within the *Foothills with Forest and Wind Farm* (17c) character type in South Ayrshire. This development comprises 52 turbines, a maximum of 111m high, and lies approximately 11 km from this character type.

The consented South Kyle and Benbreck wind farms (68 turbines, 130m to 149.5m) are located within the *Southern Uplands with Forestry* (20c) within East Ayrshire and Dumfries and Galloway respectively to the south-east of this landscape. The consented Kirk Hill wind farm (8 turbines, 110m) lies in the *Maybole Foothills* (17d) in South Ayrshire, approximately 13km from this landscape.



Topic and summary description	Assessment of very large typology	Assessment of large typology
	(turbines 130m+)	(turbines 70m-130m)
Landscape context This upland landscape forms a fairly narrow band of low hills lying at the head of the Girvan Valley and on the west side of the Doon Valley. The more pronounced hills, including Auchenroy and Big Hill of the Baing, and the steep complex slopes of Kildoach Hill, lying on the outer fringes of this landscape form highly visible 'landmark' features seen from the <i>Middle Dale</i> (12), the <i>Intimate</i> <i>Pastoral Valley</i> (13) and the <i>Upland River</i> <i>Valley</i> (10). The designed landscapes of Craigengillan, Cloncaird and Blairquhan lie at the foot of these uplands. This landscape merges with the more diverse <i>Rugged Uplands with Lochs and Forest</i> (21) to the south-east in the Loch Doon area.	Turbines of this size would impact on the diverse backdrop landmark hills and the more complex outer fringes of this landscape provide to the smaller scale well-settled Girvan and Doon Valleys. They would be likely to be visible on the skyline of remaining undeveloped parts of this landscape and could adversely affect character and the setting to designed landscapes in these adjacent valleys. Additional development in the south would be likely to exacerbate the already significant effects of the operational Dersalloch wind farm on the Craigengillan designed landscape and would also be likely to significantly affect the sensitive <i>Intimate Pastoral</i> <i>Valley</i> (13) of the upper Girvan and on the sense of wildness associated with the <i>Rugged</i> <i>Uplands, Lochs and Forest</i> (21). Turbines >150m would require lighting which would extend and exacerbate effects on LCT 21 and could also affect the Dark Skies Park. While the lower simpler forested plateau to the north of the B741 provides a less scenic backdrop to adjacent valleys, turbines of this size sited in this area could significantly intrude on the setting of designed landscapes within the <i>Middle Dale</i> (12) and on the setting of Patna and Straiton. High sensitivity	Turbines sited on the outer edges of this character type, and particularly on or close-by 'landmark' hills, would impact on the diverse backdrop they provide to the smaller scale well-settled Girvan and Doon Valleys. The setting to designed landscapes in the Doon and Girvan valleys may also be affected if turbines extend on the skyline of hills which provide an immediate backdrop seen in key views. Additional turbines of this size sited in the southern part of this landscape would be likely to exacerbate the already significant effects of the operational Dersalloch wind farm on the Craigengillan designed landscape as well as intensify effects on the <i>Intimate Pastoral Valley</i> (13) of the upper Girvan. While the lower simpler forested plateau to the north provides a less scenic backdrop to adjacent valleys, large turbines could still intrude on the setting of designed landscapes within the <i>Middle Dale</i> (12) and on the setting of Patna and Straiton. <i>High sensitivity</i>
This upland plateau is lower to the north but	>150m high, would overwhelm the relatively low	landscape although it is not an extensive upland
rises to the south to form more defined hills	relief of these uplands.	area limiting the numbers of turbines that could be
around 360m high. The elevation of adjacent	High sensitivity	accommodated.

Character Type 17b: Foothills with Forest West of Doon Valley – Sensitivity assessment for very large and large typologies

valleys reduces differences in relief. Smaller scale features are rare within this sparsely settled landscape.		High-medium sensitivity
Landform The very gently undulating plateau in the north, rises to form subtly rounded hills to the south including occasional more pronounced hills with steep slopes and defined tops including Auchenroy Hill, Big Hill of the Baing and Kildoach Hill lying on the outer fringes of this landscape. The core of these uplands includes some lower-lying basins which are contained by these higher 'edge' hills.	The simple, gently undulating landform generally found in the north of this character type and lower-lying basins have a reduced sensitivity although wind turbines would detract from more pronounced hills which tend to lie on the outer fringes of these Foothills. <i>High-medium sensitivity</i>	The simple, gently undulating landform generally found in the north of this character type and lower- lying basins have a reduced sensitivity although wind turbines would detract from more pronounced hills which tend to lie on the outer fringes of these Foothills. <i>High-medium sensitivity</i>
Landscape pattern This landscape has a simple land cover pattern dominated by heather-flecked grass moorland and extensive coniferous plantations. Small broadleaved woodlands and pastures enclosed by stone walls pattern lower hill slopes.	The relatively simple land cover pattern of this landscape reduces sensitivity. <i>Medium-low sensitivity</i>	The relatively simple land cover pattern of this landscape reduces sensitivity. <i>Medium-low sensitivity</i>
Built environment These foothills are very sparsely settled. The B741 crosses the interior of this landscape. Access tracks are present within forestry and a high voltage electricity transmission line is aligned through this landscape.	This typology could be accommodated with minimal effects on this sparsely settled character type. <i>Low sensitivity</i>	This typology could be accommodated with minimal effects on this sparsely settled character type. <i>Low sensitivity</i>
Perceptual qualities The presence of extensive commercial forestry and the inter-connector transmission line limits the experience of wildness although the more open and rugged hills to the south of the B741 have a more natural character.	Although the experience of wildness is likely to be limited in this landscape, the more open hills are of increased value in a context where extensive commercial forestry, wind farm development and opencast mining are key characteristics of nearby upland areas. <i>Medium-low sensitivity</i>	Although the experience of wildness is likely to be limited in this landscape, the more open hills are of increased value in a context where extensive commercial forestry, wind farm development and opencast mining are key characteristics of nearby upland areas. <i>Medium-low sensitivity</i>

Visual amenity These foothills are very sparsely settled. The B741 is aligned through this landscape but is contained within a shallow valley thus limiting views into the upland interior. This landscape is seen in close proximity from popular hill walks to Craigengower Hill above Straiton and from the summit of Auchenroy Hill. The peripheral hills of these uplands are also highly visible from settlements and roads in surrounding valleys.	The largely unsettled nature of this landscape reduces sensitivity although turbines of this size would be likely to be visible in relative proximity to the well-settled Doon and upper Girvan valleys. Turbines of this size would be very prominent from popularly accessed hill summits and would be likely to be seen on the skyline of hills which contain the B741. Turbines >150m (which would require lighting) could exacerbate and extend visibility of wind farms in the Dark Skies Park and seen from popular hill tops in the <i>Rugged Uplands, Lochs and Forest</i> (21) in East and South Ayrshire. <i>High sensitivity</i>	The largely unsettled nature of this landscape reduces sensitivity although turbines of this size would be likely to be visible in relative proximity to the well-settled Doon and upper Girvan valleys. Turbines of this size would be prominent from popularly accessed hill summits and would be likely to be seen on the skyline of hills which contain the B741. <i>High sensitivity</i>
Cumulative effects The Dersalloch wind farm is located in the southern part of this LCT. Other wind farms which have greatest potential to incur significant cumulative effects in combination with any further development located in this LCT comprise the Hadyard Hill and Kirk Hill wind farms which lie to the west of this landscape close to the Girvan Valley and the consented South Kyle and Benbrack wind farms which lie to the south-east close to the Doon Valley.	Turbines >150m high could be noticeably larger than those in nearby operational wind farms. This could result in cumulative visual effects given the ready visibility of these narrow foothills which are seen in almost 360-degree views from adjacent well-settled valleys and hills popular with walkers. Significant cumulative effects would be likely to arise on the Girvan and Doon Valleys if additional wind farms were sited in this landscape, affecting sequential views from roads and footpaths and potentially creating a dominant effect if turbines extended on presently undeveloped ridges, given the extent of operational and consented development in surrounding upland areas. <i>High sensitivity</i>	Turbines towards of the upper height band of this typology would fit with the size of those in nearby operational wind farms. Significant cumulative effects would be likely to arise on the Girvan and Doon Valleys if additional wind farm developments were sited in this landscape, affecting sequential views from roads and footpaths and potentially creating a dominant effect if turbines extended on presently undeveloped ridges, given the extent of operational and consented development in surrounding upland areas. Very small extensions to existing development may be possible to accommodate although sensitivities associated with landscape context and visual amenity are key constraints. <i>High-medium sensitivity</i>

The Foothills with Forest west of the Doon Valley (17b) character type forms a gently undulating, relatively narrow upland band lying between the Upland River Valley (10) of the Doon Valley and the *Middle Dale* (12) of the Girvan Water valley. This character type also provides the backdrop to the highly scenic Intimate Pastoral Valley (13) of the upper Girvan Water. The landform of these uplands is generally simpler to the north, comprising a lower, gently undulating plateau with indistinct rounded hills and shallow basins which are largely masked by forestry. More pronounced hills lie on the outer fringes of the southern part of these foothills however and these form 'landmark' features seen from the adjacent well-settled valleys of the Girvan Water and Doon Valley. Land cover is simple, with coniferous forestry dominating the northern plateau and heather and grass moorland and enclosed pastures on outward-facing hill slopes on the more open hills to the south. The operational Dersalloch wind farm occupies more gently undulating ground in the southern part of these hills. This landscape is very sparsely settled although the B741 is aligned through the hills and there are popular hill walks to Auchenroy Hill and the Craigengowan Monument on the periphery of these uplands.

Although the scale and generally simple landform and land cover of these uplands could relate in principle to some larger turbine typologies, the limited extent of these uplands increases sensitivity as they lie relatively close to settled valleys and hills popular with walkers. Potential cumulative effects are also a key constraint given the extent of operational and recently consented wind farms in nearby upland areas. There would be a *High* sensitivity to the very large typology (turbines >130m) and a *High-medium* sensitivity to the large typology (turbines 70-130m).

11.2.1 Potential cumulative issues

The following issues may arise in association with any possible development situated in this and adjacent landscapes:

- Inter-visibility between larger turbines which are more likely to be located in this upland landscape character type and smaller turbines (<50m) sited in the adjacent more settled *Upland River Valley* (10) and *Middle Dale* (12).
- Simultaneous and sequential views of the operational Dersalloch and/or Hadyard Hill wind farms with any additional wind turbine developments located in the *Foothills with Forest and Wind Farm* (17c) and this landscape affecting character and views from the *Middle Dale* (12) and *Intimate Pastoral Valley* (13) of the upper Girvan.
- Dominant effects on the Doon Valley, including on the setting of settlements such as Dalmellington and Bellsbank, that would arise if wind farm development was located in this character type but also in the *Foothills with Forest and Opencast Mining* (17a) and the *Southern Uplands with Forestry* (20c) character types and prominent on containing skylines.

11.2.2 Constraints

- The more prominent steep-sided hills with well-defined summits which occur on the outer edges of these foothills and include Auchenroy Hill, Big Hill of the Baing and Kildoach Hill. These 'landmark' hills form a scenic backdrop to the settled and smaller scale *Middle Dale* (12), *Intimate Pastoral Valley* (13) and *Upland River Valley* (10).
- Potential effects on the setting of designed landscapes sited within the adjacent *Middle Dale* (12) and the *Upland River Valley* (10) including the Inventory listed Craigengillan and Blairquhan.
- Potential effects on the setting of settlements such as Dalmellington, Bellsbank, Patna and Straiton sited within the adjacent Doon and Girvan Valleys.
- The narrowness and consequent high visibility of these foothills which increases sensitivity in terms of potential effects on adjacent well-settled valleys.
- Views from Craigengower Hill above Straiton and from Auchenroy Hills which are popular with walkers.
- Potential effects of lighting of turbines >150m high on the *Rugged Uplands, Lochs and Forest* (21) which has a strong sense of wildness and on the Dark Skies Park.

11.2.3 Opportunities

 The simpler, less visually prominent densely forested lower hills and shallow basins to the north which may provide opportunities to accommodate smaller turbines to reduce effects on adjacent landscapes and on the setting of designed landscapes and settlements (although cumulative effects on the Girvan and Doon Valleys will be a major constraint to any additional development in this landscape given a rapidly changing scene of recent wind farm consents and proposals in nearby upland areas).

11.3 Guidance for development

11.3.1 Additional new development of larger turbines

No scope has been identified for the very large and large typologies (turbines >70m) as additional new wind farm development.

11.3.2 Repowering operational wind farms

There is **no scope** for repowering the operational Dersalloch wind farm (sited in this landscape character type but within South Ayrshire) using much larger turbines due to the likely increases in visibility that would occur on the Girvan and Doon Valleys and on the *Rugged Uplands, Lochs and Forests* and the exacerbation of already significant impacts on the Craigengillan designed landscape (see Annex E).

11.3.3 Guidance for accommodating turbines under 70m high

Turbines 50-70m high could be accommodated although cumulative effects with wind farms located in this and other nearby upland areas will be a major constraint. This size of turbine may be more able to be contained by landform thus minimising

intrusion on adjacent small-scale settled valleys. The simpler, more even forested plateau lying to the north of the B741 provides scope to accommodate smaller turbines while minimising effects on views from popularly accessed hills and on more diverse and sensitive skylines which backdrop the Doon and upper Girvan Valleys. Turbines should be sited to avoid significant impacts on key views to and from designed landscapes.

Turbines <50m could have significant cumulative effects with any larger typologies which may be located in this landscape due to the limited extent of these foothills. There would however be some scope to site single and small groups of turbines of this size at the transition with the *Middle Dale* (12), *Upland River Valley* (10) and *Maybole Foothills* (17d) in association with farms sited on lower, more gentle hill slopes but set well away from the more pronounced 'landmark' hills. Detailed siting and design of smaller typologies should accord with the guidance set out in Annex F of this report.



More pronounced and often rugged hills occur on the periphery of these foothills and form landmark features from adjacent valleys



Auchenroy Hill forms a landmark feature seen from the Doon Valley.



To the north, this landscape forms a lower-lying forested plateau which although simple, is not extensive and lies close to the Doon and Girvan valleys



These foothills form a rugged backdrop to Craigengillan designed landscape within the upper Doon Valley



The less diverse backdrop provided to Patna by the lower and simpler forested northern plateau



This landscape is sparsely settled with dispersed farms sited on lower hill slopes and within the valley accommodating the B741.

12 CHARACTER TYPE 18A: EAST AYRSHIRE PLATEAU MOORLANDS

12.1 Introduction

The *East Ayrshire Plateau Moorlands* occur either side of the Upper Ayr valley and form the northern backdrop to Nithsdale and the southern backdrop to the upper Irvine valley.

The detailed assessment considers larger development typologies (turbines >70m) with key constraints and opportunities for smaller turbines briefly outlined in the summary and guidance section only.

12.1.1 Operational/consented wind farms

The operational Galawhistle wind farm (22 turbines, 122m high) is located on the eastern edge of this character type. The majority of turbines within this development lie in neighbouring South Lanarkshire. The consented Lethans wind farm is also located in the south-eastern part of this landscape, close to the boundary with Dumfries and Galloway.

The operational wind farms of Hare Hill and Afton are located approximately 5km to the south of this character type within the *East Ayrshire Southern Uplands* (20a). The operational Whitelee wind farm and the consented Sneddon Law wind farm are/will be highly visible from the northern part of this landscape from Blackside Hill and more open parts of the settled hill slopes to the south-east of Galston.


Topic and summary description	Assessment of very large typology (turbines	Assessment of large typology (70m to 130m)
	130m+)	
Landscape context This landscape is relatively expansive as it also extends into South Lanarkshire and Dumfries and Galloway. It forms an upland backdrop to the settled <i>East Ayrshire Lowlands</i> (7c) and also abuts the settled <i>Upland River Valleys</i> (10) of the upper Ayr, Irvine and Nith. A number of prominent more defined hills occur within these generally undulating upland plateaux. These include Blackside, Wardlaw, Cairn Table and Corsencon Hills which form landmark features seen in close proximity from the <i>Upland River Valleys</i> (10) and <i>Upland Basin</i> (15) but also highly visible from greater distances across the <i>East Ayrshire Lowlands</i> (7c). Scale An expansive and undulating upland plateau with rounded hills rising to below 400m but with occasional hills extending above this. Relief is relatively low between surrounding valleys and lowlands and the lower hills which lie on the outer edges of this upland plateau. This landscape is very sparsely settled at its core but with dispersed farms and houses sited on lower hill slopes at the transition with the <i>East Ayrshire Lowlands</i> (7c) and	Much larger turbines sited on the outer edges of this character type or on the landmark hills would be highly visible from well settled parts of the <i>East</i> <i>Ayrshire Lowlands</i> (7c), <i>Upland Basin</i> (15) and the <i>Upland River Valleys</i> (10) and would dominate these smaller scale landscapes. Turbines of this size located on less dramatic lower and more even skylines set well back into the core of these uplands would be likely to have less of an effect on these adjoining landscapes. There are likely to be very limited areas where this typology could be sited to avoid significant impact on views to the landmark hills seen from the <i>East Ayrshire Lowlands</i> (7c). <i>High-medium sensitivity</i> This typology would fit with the more expansive scale of the interior of these uplands although they would dominate smaller scale buildings and woodlands on lower hill slopes and within valleys generally lying on the outer fringes of this upland plateau. <i>Medium sensitivity</i>	Turbines sited on the outer edges of this character type or on the landmark hills would be highly visible from well settled parts of the <i>East Ayrshire</i> <i>Lowlands</i> (7c), <i>Upland Basin</i> (15) and the <i>Upland</i> <i>River Valleys</i> (10) and could dominate these smaller scale landscapes. Turbines located on less dramatic lower and more even skylines and/or set back into the core of these uplands would be likely to have less of an effect on these adjoining landscapes. There are likely to be limited areas where this typology could be sited to avoid significant impact on views to the landmark hills seen from the <i>East Ayrshire Lowlands</i> (7c) <i>High-medium sensitivity</i> This typology would fit with the more expansive scale of the interior of these uplands although they would dominate smaller scale buildings and woodlands on lower hill slopes and within valleys generally lying on the outer fringes of this upland plateau. <i>Medium sensitivity</i>
<i>Upland River Valleys</i> (10) and within valleys such as the Greenock Water porth of Muirkirk		
Landform	While the predominantly simple, gently undulating	While the predominantly simple, gently undulating
This undulating plateau rises to form subtly	landform of this landscape reduces sensitivity.	landform of this landscape reduces sensitivity.
rounded hills and the more pronounced Blackside,	turbines of this size would significantly detract from	turbines of this size would significantly detract from
Wardlaw, Cairn Table and Corsencon Hills which	the more defined Blackside, Wardlaw, Cairn Table	the more defined Blackside, Wardlaw, Cairn Table

Character Type 18a: Plateau Moorlands – Sensitivity assessment for very large and large typologies

have steep slopes and defined ridges and summits. Shallow basins and very gently graded lower hill slopes are also present. Former and current opencast workings are evident in areas of spoil and disturbed ground fringing the outer edges of the southern area of this landscape.	and Corsencon Hills if sited on them or close-by. <i>High-medium sensitivity</i>	and Corsencon Hills if sited on them or close-by. <i>High-medium sensitivity</i>
Landscape pattern This landscape has a simple land cover pattern dominated by grass moorland. Coniferous plantations are generally located on the lower, outer fringes of these uplands. Remnant areas of moss occur in places. Lower hill slopes are more patterned with small enclosed pastures and mixed woodlands particularly a feature south-east of Galston and within the Greenock Water valley north of Muirkirk.	The relatively simple land cover pattern of this landscape reduces sensitivity although turbines of this size would detract from more diverse small woodlands and stronger field enclosure pattern on settled lower hill slopes and valleys on the periphery of these uplands. <i>Medium-low sensitivity</i>	The relatively simple land cover pattern of this landscape reduces sensitivity although turbines of this size would detract from more diverse small woodlands and stronger field enclosure pattern on settled lower hill slopes and valleys on the periphery of these uplands. <i>Medium-low sensitivity</i>
Built environment Although generally very sparsely settled, access tracks and spoil heaps from former opencast mining operations are evident on the periphery of the southern area of this landscape east of Airds Moss and north of New Cumnock.	This typology could exacerbate the fragmented and degraded nature of this landscape where it is disturbed by open cast mining if sited close-by workings. However there may be scope to site this typology to avoid inter-visibility. <i>Medium-low sensitivity</i>	This typology could exacerbate the fragmented and degraded nature of this landscape where it is disturbed by open cast mining if sited close-by workings. However there may be scope to site this typology to avoid inter-visibility. <i>Medium-low sensitivity</i>
Perceptual qualities The unsettled core of this predominantly open upland landscape currently has a distinct sense of naturalness and can feel secluded, although consented wind farm development in this and adjacent authorities will be likely to diminish perceptions of wildness. Commercial forestry and disturbed ground/former mine workings are present in some areas.	Sensitivity is generally reduced in relation to this criterion although areas less affected by consented wind farm development, forestry and mining will be more sensitive. <i>Medium-low sensitivity</i>	Sensitivity is generally reduced in relation to this criterion although areas less affected by consented wind farm development, forestry and mining will be more sensitive. <i>Medium-low sensitivity</i>
Visual amenity This upland plateau is very sparsely settled and largely inaccessible by road. The B743 provides	The largely unsettled and limited accessibility of this landscape reduces sensitivity. Turbines of this size (which will require lighting if >150m high) sited on	The largely unsettled and limited accessibility of this landscape reduces sensitivity. Turbines sited on the edges of this upland plateau and on defined hills

views into the upland interior of this landscape to	the edges of this upland plateau and on higher hills	would be prominent however. Turbines set back
the east. Narrow minor roads provide access to	would be very prominent however. Turbines set back	into the core of this plateau would have a reduced
settlement on lower hill slopes south-east of	into the core of this plateau could have a reduced	effect on visual amenity from more settled areas
Galston although views are restricted by dense	effect on visual amenity from more settled areas	although views from the more popularly accessed
woodland cover and where open tend to focus on	although views from the more popularly accessed	hills would be likely to be affected by this typology.
panoramic views to the west across lowland	hills would be likely to be affected by this typology.	High-medium sensitivity
Ayrshire and the Firth of Clyde. Blackside,	High-medium sensitivity	
Corsencon and Cairn Table Hills are particularly		
popular with walkers and offer dramatic views.		
Cumulative effects	There could be cumulative effects with the	There could be cumulative effects with the
The operational Galawhistle wind farm and the	Whitelee/Sneddon Law wind farms on the Upland	Whitelee/Sneddon Law wind farms on the Upland
consented Penbreck and Lethans wind farms are	<i>River Valley</i> (10) of the upper Irvine where turbines of	River Valley (10) of the upper Irvine where turbines
located in this LCT. Extensive operational and	this size could create a dominant 'corridor' like effect	of this size could create a dominant 'corridor' like
consented wind farm development is also located	on containing skylines seen from roads and	effect on containing skylines seen from roads and
in the nearby uplands extending into neighbouring	settlement. Cumulative effects could also arise on	settlement. Cumulative effects could also arise on
authorities.	parts of the <i>East Ayrshire Lowlands</i> (7c) where this	parts of the <i>East Ayrshire Lowlands</i> (7c) where this
	typology (and particularly extensive developments of	typology (and particularly extensive developments
	multiple turbines) would increase the extent of	of multiple turbines) would increase the extent of
	development seen on the uplands which provide an	development seen on the uplands which provide an
	often scenic backdrop to Ayrshire.	often scenic backdrop to Ayrshire.
	Sensitivity is also increased in the area of the Upland	Sensitivity is also increased in the area of the
	Basin (15) given the extent of operational and	Upland Basin (15) given the extent of operational
	consented wind farms already located in the	and consented wind farms already located in the
	Southern Uplands (20a).	Southern Uplands (20a).
	High-medium sensitivity	High-medium sensitivity

The *East Ayrshire Plateau Moorlands* (18a) form an extensive undulating upland plateau of subtly rounded hills, shallow basins and some very gently graded lower slopes but also feature the more pronounced hills of Blackside, Wardlaw, Cairn Table and Corsencon Hills which have steep slopes and defined ridges and summits. These 'landmark' hills are prominent in views from the settled lowlands of Ayrshire and some are also popular for recreation and offer fine views across Ayrshire and the Firth of Clyde. Land cover is simple, dominated by grass moorland with some coniferous forestry, although small enclosed pastures and mixed woodlands occur on the settled lower hill slopes to the south-east of Galston and within the valley of the Greenock Burn. Spoil and disturbed ground from former and current opencast workings are evident on the outer edges of the southern area of these *Plateau Moorlands* although the core of these uplands is little modified.

While the large scale, simple landform and land cover of these uplands reduces sensitivity to larger turbine typologies, the presence of the 'landmark' hills and cumulative effects with turbines sited in this and other nearby upland areas are key constraints. There would be *High-medium* sensitivity to the very large and large typologies (turbines >70m).

12.2.1 Potential cumulative issues

The following issues may arise in association with any possible developments situated in this and adjacent landscapes:

- Inter-visibility between any larger turbines located in this landscape character type and smaller turbines sited in the adjacent *Upland River Valleys* (10) and the *East Ayrshire Lowlands* (7c).
- Effects on the backdrop and skyline of uplands seen from the densely settled lowlands of Ayrshire. The Whitelee wind farm is already highly visible in these views forming an extended and even band of turbines on the long and relatively low *Plateau Moorlands with Forestry and Wind Farms* (18b) close to the north-eastern boundary of East Ayrshire. Larger turbines sited in this landscape and also in the *Foothills with Forest and Opencast Mining* (17a) could appear as a continuous band of development visible on the broad arc of uplands which contain the settled lowlands of Ayrshire which lie to the west.

12.2.2 Constraints

- The higher hills of Wardlaw, Corsencon, Cairn Table and Blackside which have steeper slopes and defined summits and form landmark features prominent in views across the densely settled lowlands and valleys of Ayrshire.
- Outer hill slopes which form immediate skylines to the more sensitive smaller scale landscapes of the *Upland River Valleys* (10) of the upper Ayr, Nith and Irvine and the *East Ayrshire Lowlands* (7c).

- The narrow and lower Avisyard Hill area which is more visually prominent due to its close proximity to settled lowlands and valleys and where tall turbines would appear out of scale with the low relief of this ridge.
- Dramatic views from the popularly accessed Cairn Table and Blackside Hills west across Ayrshire, the Firth of Clyde and to Arran.
- Disturbed ground and spoil associated with opencast mining operations which create a fragmented and degraded landscape on lower hill slopes on the periphery of the southern part of this character type.
- The smaller scale of settled lower hill slopes south-east of Galston and within the Greenock Burn valley where enclosed pastures, dispersed farms and houses and mixed woodlands provide ready scale references.
- Potential for significant cumulative effects to arise with operational and consented wind farms located in other nearby upland areas and affecting the upper Irvine Valley and *Upland Basin* (15).
- Cumulative effects with operational and consented wind farms sited in these uplands and in neighbouring South Lanarkshire affecting views from the A70 and the Ayr Valley.

12.2.3 Opportunities

- Less visually prominent lower hills and shallow basins close to the boundaries with South Lanarkshire and Dumfries and Galloway where larger turbines could be accommodated to minimise intrusion on the setting and views to and from the 'landmark' hills.
- Broad, very gently graded lower hill slopes and plateaux on the outer fringes of these uplands where smaller turbines (<50m) could be accommodated to minimise effects on the 'landmark' hills and cumulative effects with very large wind farm developments sited in the *Plateau Moorlands with Forest and Wind Farms* (18b) and fit with the scale of smaller developments sited within the *East Ayrshire Southern Uplands* (20a).

12.3 Guidance for development

There is **very limited** scope for the very large and large typologies (turbines >70m) to be accommodated within this landscape. Turbines should be set well back from the more sensitive outer edges of this landscape to avoid significant impact on smaller scale settled lower slopes and valleys within this character type and the adjacent landscapes of the *East Ayrshire Lowlands* (7c), *Upland Basin* (15) and *Upland River Valleys* (10). They should not be sited close-by, or significantly intruding on key views to and from the landmark hills of Blackside, Corsencon, Cairn Table and Wardlaw Hill.

The lower, gently undulating hills in the eastern part of this landscape, which extend into neighbouring authorities, offer opportunities to accommodate this typology. The extent of recently consented development in this area may however limit the number and size of additional turbines which could be accommodated while minimising impacts on some of the 'landmark' hills.

12.3.1 Guidance for accommodating turbines <70m high

Turbines 50-70m (which are assumed to comprise single and very small groups of turbines) could be located on lower, gently graded outer hill slopes provided they were set back from the landmark hills and also from settlement on lower hill slopes and valleys in this and adjacent character types. They should also be sited to avoid cumulative effects with operational and consented wind farms.

Turbines <50m could additionally be accommodated on the sparsely settled lower hill slopes and valleys of this landscape where they could be sited so back-dropped by gently rising ground thus minimising visual prominence. Small turbines >30m may appear out of scale with the more open and expansive core of these uplands and should be clearly associated with more settled lower hill slopes and broader valleys. Detailed siting and design for smaller turbines <50m high should accord with the guidance set out in Annex F of this report.



These uplands form a more gently sweeping plateau in the east where they extend into South Lanarkshire



Opencast mining operations occur on the fringes of this landscape in the upper Ayr valley and east of Cumnock



Occasional settled and farmed valleys occur on the edges of these uplands



The well-defined Wardlaw and Cairn Table Hills provide a diverse backdrop to surrounding valleys



Corsecon Hill lies on the edge of upper Nithsdale and is prominent in views from the Upland Basin (15).



Blackside Hill forms a landmark feature widely visible across the lowlands and valleys of East Ayrshire.

13 CHARACTER TYPE 18B: EAST AYRSHIRE PLATEAU MOORLANDS WITH FORESTRY AND WIND FARMS

13.1 Introduction

This upland landscape character type lies in the north-eastern part of East Ayrshire and extends into neighbouring South Lanarkshire and East Renfrewshire.

The detailed assessment considers larger development typologies (turbines >70m) with key constraints and opportunities for smaller turbines outlined in the summary and guidance section only.

13.1.1 Operational/consented wind farms

The operational Whitelee wind farm (215 turbines, 110m to 140m high) is located in this character type. The consented Sneddon Law wind farm (15 turbines, 130m high) is also located in this landscape.





Character Type 18b: East Ayrshire Plateau Moorlands with Forestry and Wind Farms - Sensitivity assessment for very large and large typologies

Topic and summary description	Assessment of very large typology	Assessment of large typology
	(turbines 130m+)	(turbines 70m-130m)
Landscape context This landscape is expansive, forming part of a larger upland area extending into neighbouring East Renfrewshire and South Lanarkshire to the east. This upland plateau forms a low, even and generally indistinct backdrop to the settled <i>East</i> <i>Ayrshire Lowlands</i> (7c) and the <i>Upland River</i> <i>Valley</i> (10) of the upper Irvine to the east of Newmilns.	Existing wind farm developments located in this character type are visible in close proximity from the <i>East Ayrshire Lowlands</i> (7c) although views are more limited within the more contained floor and lower slopes of the <i>Upland River Valley</i> (10) of the upper Irvine valley. Turbines of this size sited on the remaining open and fairly narrow outer edges of this character type would be likely to significantly exacerbate current intrusion on the smaller scale landscapes of the <i>East Ayrshire Lowlands</i> (7c) and may increase visibility from the more settled lower slopes/valley floor of the <i>Upland River Valley</i> (10). Turbines set back into the core of these uplands would be likely to have less of an effect (although these areas are very limited in extent within East Ayrshire given existing and consented wind farm developments). <i>High-medium sensitivity</i>	Existing wind farm developments located in this character type are visible in close proximity from the <i>East Ayrshire Lowlands</i> (7c) although views are more limited within the more contained floor and lower slopes of the <i>Upland River Valley</i> (10) of the upper Irvine valley. Turbines of this size sited on the remaining open and fairly narrow outer edges of this character type would be likely to significantly exacerbate current intrusion on the smaller scale landscapes of the <i>East Ayrshire Lowlands</i> (7c) and may increase visibility from the more settled lower slopes/valley floor of the <i>Upland River Valley</i> (10). Turbines set back into the core of these uplands would be likely to have less of an effect (although these areas are very limited in extent within East Ayrshire given existing and consented wind farm developments). <i>High-medium sensitivity</i>
Scale An expansive and very gently undulating upland plateau with broad rounded hills rising to 334m and gradually falling to the south-west within East Ayrshire to around 200m. There are few small scale features within much of this sparsely settled landscape although dispersed farms and houses are located in the Hareshawmuir valley, along the corridors of the B769 and M77 and on lower hill slopes at the transition with the <i>East Ayrshire</i> <i>Lowlands</i> (7c) and <i>Upland River Valleys</i> (10).	This typology would fit with the more expansive scale of the interior of this upland plateau although there are few remaining undeveloped areas left given the extent of operational and consented wind farms. This typology would dominate smaller scale buildings and woodlands within the more settled valleys and the outer hill fringes of this landscape where undeveloped land is present. <i>High-medium sensitivity</i>	This typology would fit with the more expansive scale of the interior of this upland plateau although there are few remaining undeveloped areas left given the extent of operational and consented wind farms. This typology would dominate smaller scale buildings and woodlands within the more settled valleys and the outer hill fringes of this landscape where undeveloped land is present. <i>High-medium sensitivity</i>

Landform A gently undulating plateau with a simple landform of broad rounded hills and flatter mosses and occasional loch and reservoir basins. The Glen Water in the south runs through a more incised valley and landform becomes more rolling at the transition with the <i>East Ayrshire Lowlands</i> (7c).	The predominantly simple, gently undulating landform of this landscape reduces sensitivity although rare incised valleys and more complex rolling landform would be sensitive to turbines sited nearby. <i>Medium-low sensitivity</i>	The predominantly simple, gently undulating landform of this landscape reduces sensitivity although rare incised valleys and more complex rolling landform would be sensitive to turbines sited nearby. <i>Medium-low sensitivity</i>
Landscape pattern The core of these uplands have a simple land cover pattern dominated by grass moorland and coniferous forestry with some poorly drained semi-improved pasture on higher ground. Occasional remnant areas of moss have more diverse vegetation with scrub and fringing broadleaved woodlands. On lower hill slopes, bright green improved pastures and broadleaved trees surround compact farmsteads, which are often located on small hills within valleys and lower hill slopes on the fringes of this character type. Policy plantings are associated with the Hareshawmuir valley and on lower hill slopes north-east of Galston.	There are few remaining undeveloped core upland areas with a simple land cover pattern. Areas of remnant moss, small mixed and semi-natural woodlands, policy features and small enclosed pastures on lower hill slopes would be sensitive to this typology. <i>Medium sensitivity</i>	There are few remaining undeveloped core upland areas with a simple land cover pattern. Areas of remnant moss, small mixed and semi-natural woodlands, policy features and small enclosed pastures on lower hill slopes would be sensitive to this typology. <i>Medium sensitivity</i>
Built environmentOperational wind farm dominates this landscape.The M77 and B769 are aligned through thislandscape and forest and wind farm accesstracks pattern the core area. There are nosettlements although sparsely dispersed housesand farms are located on outer fringes andvalleys.Perceptual qualitiesWind farm development and coniferous forestryare key characteristics of this landscape	The presence of extensive wind farm development and the sparsely settled character of this landscape reduce sensitivity. The setting of settlement within the valleys and lower slopes of this landscape is already compromised in places by existing wind farm development and turbines sited closer to these areas would exacerbate this effect. <i>Medium sensitivity</i> There is little sense of wildness within this upland landscape, reducing sensitivity to this typology.	The presence of extensive wind farm development and the sparsely settled character of this landscape reduce sensitivity. The setting of settlement within the valleys and lower slopes of this landscape is already compromised in places by existing wind farm development and turbines sited closer to these areas would exacerbate this effect. <i>Medium sensitivity</i> There is little sense of wildness within this upland landscape, reducing sensitivity to this typology.

Remnant mosses and broadleaved woodlands comprise some of the few natural features. A network of tracks provides access across this landscape.		
Visual amenity Parts of this landscape are visible from the M77, A719 and B769 as well as from minor roads and settlement within the densely settled parts of East and North Ayrshire, South Lanarkshire and East Renfrewshire. Close views are possible from the Whitelee wind farm visitor centre and from access tracks used for recreation on this site. This upland landscape generally does not form highly scenic skylines and existing wind farm development is a highly visible component in views to this landscape. There are panoramic views from parts of this landscape across Ayrshire and to the Firth of Clyde.	The presence of existing wind farm development reduces visual sensitivity to some degree as skylines are already substantially characterised by turbines. Turbines located closer to remaining open outer fringes, and particularly turbines towards 200m high however would be likely to have a dominant effect on views from nearby roads and settlement located on the western fringes of this landscape. Lighting of turbines >150m would be likely to extend effects in adjacent settled lowlands and valleys particularly where other sources of lighting (eg parts of the M77) are less of a feature. Views from the Irvine valley could also be significantly affected by turbines of this size sited on the outer edges of this landscape. <i>High sensitivity</i>	The presence of existing wind farm development reduces visual sensitivity to some degree as skylines are already substantially characterised by turbines. Turbines located closer to remaining open outer fringes and seen from roads and settlement located on the western fringes of this landscape would appear very large and prominent. Views from the Irvine valley could also be significantly affected by turbines of this size sited on the outer edges of this landscape. <i>High-medium sensitivity</i>
Cumulative effects This landscape is principally characterised by large scale wind farm development with operational turbines between 110m to 140m high clearly sited within the simpler core of these uplands. There are few similar core upland areas remaining in this landscape given the extent of operationalg/consented wind farm developments. The consented Sneddon Law wind farm is likely to have a more intrusive effect on smaller scale valleys and hill slopes on the western fringes of this landscape.	Turbines <150m high would fit with the size of existing/consented wind farm developments. This typology would need to be similarly associated with core upland areas with a simpler character in order to present a clear design rationale and minimise cumulative effects. There are few undeveloped areas with a simpler character remaining in this landscape. <i>High-medium sensitivity</i>	Turbines towards the upper height band of this typology would fit with the size of existing/consented wind farm developments. This typology would need to be similarly associated with core upland areas with a simpler character in order to present a clear design rationale and minimise cumulative effects. There are few undeveloped areas with a simpler character remaining in this landscape. <i>High-medium sensitivity</i>

This landscape forms an expansive upland plateau with a generally simple landform of broad rounded hills and flatter basins. Land cover within the upland core of this landscape is also simple, dominated by coniferous forestry and grass moorland although occasional areas of moss and lochs also occur. This landscape is very sparsely settled at its core although farms and houses are sited within valleys and lower hill slopes on outer fringes where small enclosed pastures, broadleaved woodlands and some policy features occur. Wind farm development is a key feature of this landscape.

While the large scale, simple landform and land cover of these uplands could relate to larger turbine typologies, most of the less sensitive interior of this landscape is already occupied by extensive wind farm development. This limits scope for additional development to be accommodated. A key constraint is the need to limit the exacerbation of existing visual intrusion of large wind turbines on smaller scale lower hill slopes and valleys within this character type and in the adjacent East *Ayrshire Lowlands* (7c) and *Upland River Valley* (10) character types. There would be a *High-medium* sensitivity to the very large and large typologies (turbines >70m).

13.2.1 Potential cumulative issues

The following issues may arise in association with any possible development situated in this and adjacent landscapes:

- Inter-visibility between larger turbines located in this landscape character type and smaller turbines which may be proposed within more settled lower hill slopes and valleys and within the adjacent *Upland River Valley* (10) and *East Ayrshire Lowlands* (7c).
- The significant intrusion which could occur on the Irvine valley if larger turbines were sited closer to the southern edge of this character type and also located in the adjacent *Plateau Moorlands* (18a) so prominent on skylines on both sides of the valley.

13.2.2 Constraints

- The extensiveness of operational and consented wind farm development which occupies much of the simpler moorland and forested core of this landscape.
- The outer edges of this upland plateau which form the immediate skyline to the Irvine valley and where larger typologies would dominate adjacent settlement and affect the setting of Galston, Newmilns and Darvel and the designed landscape of Loudoun Castle.
- More settled valleys and lower hill slopes within this character type where small farms and houses, woodlands and enclosed pastures provide ready scale references and where larger typologies could also result in significant intrusion

on the adjacent well-settled smaller scale *East Ayrshire Lowlands* (7c). Lighting of turbines >150m would extend effects particularly in areas where existing sources of light are relatively low.

13.2.3 Opportunities

• Sparsely settled areas of moorland and forestry within the upland core of this character type where very limited numbers of the large typology could be sited to minimise effects on adjacent settled lower hill slopes.

13.3 Guidance for development

13.3.1 Additional new development of larger turbines

There is **no scope** for additional turbines to be accommodated in this landscape due to the extent of operational and consented wind farm development already present (generally sited in the core of this upland plateau and set back from more sensitive settled landscapes to the south and west).

13.3.2 Repowering of operational and consented wind farms

Comparative ZTVs and visualisations were reviewed for the Whitelee II wind farm which already comprises turbines 140m high. While it was considered that replacing turbines with 200m high turbines would exacerbate effects on views from the settled fringes of this landscape and the eastern part of the *Ayrshire Lowlands* (7c), revisions to the layout to omit more prominent outer turbines may allow for larger turbines to be accommodated while minimising effects on adjacent more sensitive landscapes. Mitigation measures to limit the extent of lighting required on turbines >150m would need to be carefully considered.

13.3.3 Guidance for accommodating turbines under 70m high

While smaller turbines could be accommodated on the sparsely settled lower hill slopes and valleys on the outer fringes of this landscape, the small typology (turbines 15-30m) would be less likely to incur significant cumulative effects with the operational and consented turbines which are clearly visible in close proximity from these more settled areas. Detailed siting and design should accord with the guidance set out in Annex F.



The operational Whitelee wind farm seen from the settled lower hill slopes of the Plateau Moorland (18a) close to the Irvine Valley



The core of this landscape has a gently undulating landform and simple land cover of moorland and commercial forest and accommodates extensive operational wind farm development



Although similar areas with a simple landform and land cover are present, the extent of operational and consented wind farm development limits scope for additional development



Settled lower hill slopes are dominated by large turbines in places and the Sneddon Law wind farm will exacerbate intrusion as it lies closer to the outer edge of these uplands.



Small farms on lower hill slopes are often sited on low hills and ridges above gently rolling pastures – these more settled and diverse areas are sensitive to larger development typologies



Pockets of more diverse moss, broadleaved woodland and policy plantings occur on lower hill slopes and increase the sensitivity of these outer fringes.

14 CHARACTER TYPE 20A: EAST AYRSHIRE SOUTHERN UPLANDS

14.1 Introduction

This sensitivity assessment is for the *East Ayrshire Southern Uplands* character type. This landscape is unsettled and the detailed assessment therefore considers larger development typologies (turbines >70m) with key constraints and opportunities for smaller turbines briefly outlined in the summary and guidance section only.

14.1.1 Operational/consented wind farms

The operational Hare Hill wind farm (59 turbines, 63.5m to 91m high) and Afton wind farm (27 turbines, 100/120m high) are located in this character type.

The operational Windy Standard wind farm (66 turbines,53.5m/120m high) is located within the same character type but within neighbouring Dumfries and Galloway and lying close to the East Ayrshire boundary. The operational Whiteside Hill and consented Sanguhar wind farms are located within the Nithsdale landscape unit of the *Southern Uplands* character type within Dumfries and Galloway.

The consented South Kyle and Benbrack wind farms are located in the adjacent *Southern Uplands with Forest* (20c) in East Ayrshire and Dumfries and Galloway respectively.



Topic and summary description	Assessment of very large typology	Assessment of large typology
	(turbines 130m+)	(turbines 70m to 130m)
Landscape context This area of the Southern Uplands comprises higher, more defined 'landmark' hills lying east of Glen Afton and lower hills with complex interlocking ridges lying to the west of this glen. These uplands form a scenic backdrop of higher, rugged and predominantly open hills to the settled <i>Upland</i> <i>Basin</i> (15), contrasting with other lower and simpler upland areas surrounding this basin. Operational and consented wind farm development located in this LCT and the adjacent LCT 20c influences character. In particular, the operational Afton wind farm has a significant effect on the character of Glen Afton seen from both within the glen and from the <i>Upland Basin</i> (15). This landscape forms a relatively narrow band of hills but comprises part of a more extensive upland area where it borders the <i>Southern Uplands</i> and <i>Southern Uplands with Forestry</i> character types lying in East Ayrshire and Dumfries and Galloway.	Turbines of this size sited on higher and more defined hills, such as Blackcraig Hill, would be particularly prominent and detract from their landmark qualities. Although the hills west of Glen Afton are lower they still provide a scenic backdrop to the <i>Upland Basin</i> (15) because of their complexity and ruggedness. Additional wind farm development, and especially turbines of this size, located on these uplands would be located relatively close to the <i>Upland Basin</i> (15) and would have a dominant effect on this landscape. Effects on Glen Afton could also be exacerbated by additional wind farm development visible on containing skylines from within the glen. <i>High sensitivity</i>	Turbines sited on higher and more defined hills, such as Blackcraig Hill, would be prominent and detract from their landmark qualities. Although the hills west of the Glen Afton are lower they still provide a scenic backdrop to the <i>Upland Basin</i> (15) because of their complexity and ruggedness. Additional wind farm development located on these uplands would be located relatively close to the <i>Upland Basin</i> (15) and would have a dominant effect on this landscape. Effects on Glen Afton could also be exacerbated by additional wind farm development visible on containing skylines from within the glen. <i>High-medium sensitivity</i>
Scale The hills of the Southern Uplands range between 360-700m in height in this area. These uplands are not settled and are open with very few scale references.	The large scale of this open and unsettled landscape reduces sensitivity to this typology although the outer edges and lower western hills of this LCT would be sensitive to turbines of this size as they would dominate the perceived relief of these hills seen from the <i>Upland Basin</i> (15) (see Annex D). <i>High-medium sensitivity</i>	The large scale of this open and unsettled landscape reduces sensitivity to this typology although turbines >100m could affect appreciation of the vertical scale of the lower western hills within this LCT. <i>Medium sensitivity</i>
Landform Steep-sided hills contain Glen Afton. These hills are higher on the eastern side of Glen Afton and include Hare Hill and the distinctly rugged	The presence of well-defined and sometimes distinctly rugged 'landmark' hills increases sensitivity to this typology. It would be difficult to attain an integrated turbine layout in the	The presence of well-defined and sometimes distinctly rugged 'landmark' hills increases sensitivity to this typology. It would be difficult to attain an integrated turbine layout in the

Character Type 20a: East Ayrshire Southern Uplands – Sensitivity assessment for very large and large typologies

Blackcraig Hill. The north-eastern slopes of the	lower, but often complex narrow ridges found	lower, but often complex narrow ridges found
band of hills lying east of Afton Glen are generally	to the west of Afton Glen and the construction	to the west of Afton Glen and the construction
gentler. Although these hills are generally lower to	of access roads on steep and variable slopes	of access roads on steep and variable slopes
the west they are often complex, forming a series	may also result in significant impacts.	may also result in significant impacts.
of interlocking ridges deeply cut by water courses.	High-medium sensitivity	High-medium sensitivity
Landscape pattern	There is an absence of pattern which would	There is an absence of pattern which would
These uplands have a simple land-cover of grass	theoretically be less sensitive to wind farm	theoretically be less sensitive to wind farm
moorland with occasional patchy heather.	development although the predominant	development although the predominant
	openness of these uplands contrasts with the	openness of these uplands contrasts with the
	nearby densely forested Southern Uplands	nearby densely forested Southern Uplands
	with Forest (20c) and Foothills with Forestry	with Forest (20c) and Foothills with Forestry
	and Opencast Mining (17a) and additional	and Opencast Mining (17a) and additional
	development would compromise this quality.	development would compromise this quality.
	Medium sensitivity	Medium sensitivity
Built environment	Sensitivity is reduced due to the absence of	Sensitivity is reduced due to the absence of
An unsettled landscape with no public roads but	settlement. The presence of existing wind farm	settlement. The presence of existing wind farm
accommodating operational wind farm	development also reduces sensitivity although	development also reduces sensitivity although
development and access tracks.	cumulative effects are a key constraint and are	cumulative effects are a key constraint and are
	considered separately in this assessment.	considered separately in this assessment.
	Low sensitivity	Low sensitivity
Perceptual qualities	While operational and consented wind farm	While operational and consented wind farm
The presence of operational wind farm	development in and close-by this LCT reduces	development in and close-by this LCT reduces
development in these uplands and within close	the sense of wildness, additional wind farm	the sense of wildness, additional wind farm
proximity in Dumfries and Galloway, together with	development would diminish the sense of	development would diminish the sense of
nearby extensive commercial forestry inhibits a	naturalness associated with remaining open	naturalness associated with remaining open
strong sense of wildness although the openness of	areas and their contrast with nearby densely	areas and their contrast with other densely
these uplands has some natural qualities.	forested and developed uplands.	forested and developed uplands.
	Medium sensitivity	Medium sensitivity
Visual amenity	Turbines sited on the higher well-defined hills	Turbines sited on the higher well-defined hills
These uplands are unsettled although they are	would be visually prominent from the Upland	would be visually prominent from the Upland
widely visible from roads and settlement within the	Basin (15). The Upland Glen (14) of Afton Glen	Basin (15). The Upland Glen (14) of Afton Glen
Upland Basin (15) and the Upland River Valley (10)	is already significantly influenced by wind farm	is already significantly influenced by wind farm
of the Nith Valley. The steep-sided hills which	development. Turbines set back into the	development. Turbines set back into the
immediately contain Afton Glen are particularly	interior of the Southern Uplands within East	interior of the Southern Uplands within East
visible from acttlement and the minor public read	Avrehire and Dumfries and Calloway would be	Avrshire and Dumfries and Galloway would be

which is aligned through this Upland Glen (14).	less intrusive in views from this glen.	less intrusive in these views. These hills
There are walking routes to Blackcraig Hill from	These hills provide a highly visible southern	provide a highly visible southern backdrop to
Afton Reservoir and close views over these	backdrop to the settled low-lying Upland Basin	the settled low-lying Upland Basin (15) and are
uplands from this hill and from the Corbett of	(15) and are noticeably higher (and currently	noticeably higher (and currently more scenic)
Cairnsmore of Carsphairn.	more scenic) than the lower profile of the	than the lower profile of the Foothills and
	Foothills and Plateau Moorland lying to the	Plateau Moorland lying to the east and west of
	east and west of LCT 15. Turbines of this size	LCT 15. Turbines sited on landmark hills and
	sited on landmark hills and steep slopes/edge	steep slopes/edge hills which contain Upper
	hills which contain Upper Nithsdale and the	Nithsdale and the Upland Basin (15) would be
	Upland Basin (15) would be highly visible from	highly visible from settlement and roads.
	settlement and roads. Although the presence	Although the presence of operational and
	of operational and consented wind farms seen	consented wind farms seen from LCT 15
	from LCT 15 reduces sensitivity to some	reduces sensitivity on the one hand,
	degree, cumulative effects with these	cumulative effects with these developments
	developments are a key sensitivity and are	are a key sensitivity and are considered
	considered separately in this assessment.	separately in this assessment.
	High sensitivity	High-medium sensitivity
Cumulative effects	Cumulative effects already occur on views	Cumulative effects already occur on views
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other nearby uplands.	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new turbines were noticeably larger than those in	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit with the scale of turbines within operational
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other nearby uplands. In views from LCT 15, the operational Hare Hill	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new turbines were noticeably larger than those in operational schemes and/or where turbine	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit with the scale of turbines within operational wind farms situated in this LCT. Existing
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other nearby uplands. In views from LCT 15, the operational Hare Hill wind farm is prominently sited on a well-defined	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new turbines were noticeably larger than those in operational schemes and/or where turbine layouts were more irregular due to the	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit with the scale of turbines within operational wind farms situated in this LCT. Existing cumulative effects could be significantly
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other nearby uplands. In views from LCT 15, the operational Hare Hill wind farm is prominently sited on a well-defined steep-sided hill. The operational Afton wind farm is	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new turbines were noticeably larger than those in operational schemes and/or where turbine layouts were more irregular due to the increased complexity of landform in the	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit with the scale of turbines within operational wind farms situated in this LCT. Existing cumulative effects could be significantly exacerbated where turbine layouts were more
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other nearby uplands. In views from LCT 15, the operational Hare Hill wind farm is prominently sited on a well-defined steep-sided hill. The operational Afton wind farm is also prominent, being sited close to the edge of the	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new turbines were noticeably larger than those in operational schemes and/or where turbine layouts were more irregular due to the increased complexity of landform in the remaining undeveloped western part of this	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit with the scale of turbines within operational wind farms situated in this LCT. Existing cumulative effects could be significantly exacerbated where turbine layouts were more irregular due to the increased complexity of
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other nearby uplands. In views from LCT 15, the operational Hare Hill wind farm is prominently sited on a well-defined steep-sided hill. The operational Afton wind farm is also prominent, being sited close to the edge of the cleft cut by the Afton Glen. The consented South	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new turbines were noticeably larger than those in operational schemes and/or where turbine layouts were more irregular due to the increased complexity of landform in the remaining undeveloped western part of this LCT. Potential development in other upland	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit with the scale of turbines within operational wind farms situated in this LCT. Existing cumulative effects could be significantly exacerbated where turbine layouts were more irregular due to the increased complexity of landform in the remaining western part of this
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other nearby uplands. In views from LCT 15, the operational Hare Hill wind farm is prominently sited on a well-defined steep-sided hill. The operational Afton wind farm is also prominent, being sited close to the edge of the cleft cut by the Afton Glen. The consented South Kyle wind farm would additionally be visible behind	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new turbines were noticeably larger than those in operational schemes and/or where turbine layouts were more irregular due to the increased complexity of landform in the remaining undeveloped western part of this LCT. Potential development in other upland areas surrounding LCT 15 could also lead to	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit with the scale of turbines within operational wind farms situated in this LCT. Existing cumulative effects could be significantly exacerbated where turbine layouts were more irregular due to the increased complexity of landform in the remaining western part of this LCT. Potential development in other upland
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other nearby uplands. In views from LCT 15, the operational Hare Hill wind farm is prominently sited on a well-defined steep-sided hill. The operational Afton wind farm is also prominent, being sited close to the edge of the cleft cut by the Afton Glen. The consented South Kyle wind farm would additionally be visible behind the immediate skyline of LCT20a in these views	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new turbines were noticeably larger than those in operational schemes and/or where turbine layouts were more irregular due to the increased complexity of landform in the remaining undeveloped western part of this LCT. Potential development in other upland areas surrounding LCT 15 could also lead to cumulative effects if containing skylines were	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit with the scale of turbines within operational wind farms situated in this LCT. Existing cumulative effects could be significantly exacerbated where turbine layouts were more irregular due to the increased complexity of landform in the remaining western part of this LCT. Potential development in other upland areas surrounding LCT 15 could also lead to
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other nearby uplands. In views from LCT 15, the operational Hare Hill wind farm is prominently sited on a well-defined steep-sided hill. The operational Afton wind farm is also prominent, being sited close to the edge of the cleft cut by the Afton Glen. The consented South Kyle wind farm would additionally be visible behind the immediate skyline of LCT20a in these views (forming an extended band of very widely spaced	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new turbines were noticeably larger than those in operational schemes and/or where turbine layouts were more irregular due to the increased complexity of landform in the remaining undeveloped western part of this LCT. Potential development in other upland areas surrounding LCT 15 could also lead to cumulative effects if containing skylines were substantially occupied by turbines.	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit with the scale of turbines within operational wind farms situated in this LCT. Existing cumulative effects could be significantly exacerbated where turbine layouts were more irregular due to the increased complexity of landform in the remaining western part of this LCT. Potential development in other upland areas surrounding LCT 15 could also lead to cumulative effects if containing skylines were
Cumulative effects Views from the <i>Upland Basin</i> (15) are most likely to be affected by cumulative effects between wind farm developments sited in this LCT 20a, the consented South Kyle wind farm sited in LCT 20c and any potential wind farms located in other nearby uplands. In views from LCT 15, the operational Hare Hill wind farm is prominently sited on a well-defined steep-sided hill. The operational Afton wind farm is also prominent, being sited close to the edge of the cleft cut by the Afton Glen. The consented South Kyle wind farm would additionally be visible behind the immediate skyline of LCT20a in these views (forming an extended band of very widely spaced turbines).	Cumulative effects already occur on views from the Upland Basin (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Existing cumulative effects could be significantly exacerbated where new turbines were noticeably larger than those in operational schemes and/or where turbine layouts were more irregular due to the increased complexity of landform in the remaining undeveloped western part of this LCT. Potential development in other upland areas surrounding LCT 15 could also lead to cumulative effects if containing skylines were substantially occupied by turbines. <i>High sensitivity</i>	Cumulative effects already occur on views from the <i>Upland Basin</i> (15) where the operational Afton and Hare Hill wind farms are seen together due to the differences in turbine size and siting. Turbines towards the upper height band of this typology would generally fit with the scale of turbines within operational wind farms situated in this LCT. Existing cumulative effects could be significantly exacerbated where turbine layouts were more irregular due to the increased complexity of landform in the remaining western part of this LCT. Potential development in other upland areas surrounding LCT 15 could also lead to cumulative effects if containing skylines were substantially occupied by turbines.

This landscape comprises a small part of the *Southern Uplands* character type which extends into neighbouring Dumfries and Galloway. Within East Ayrshire, the *Southern Uplands* form steep-sided, rugged open hills strongly containing the *Upland Glen* (14) of Glen Afton and providing a scenic backdrop to the low-lying *Upland Basin* (15). Higher and particularly well-defined hills on the eastern edge of Glen Afton form landmark features and include the distinctly rugged Blackcraig Hill and Craigbraneoch Rig. The hills to the west of Glen Afton are generally lower but still prominent because of their complex landform. Land cover is simple, dominated by grass moorland although this accentuates the ruggedness of the landform. This landscape is not settled although it is highly visible from settlement and roads within the *Upland Basin* (15) to the north. Operational wind farm development is a key feature in the eastern part of this landscape character type with wind farms extending eastwards into Dumfries and Galloway into similar uplands bordering upper Nithsdale.

Although this landscape is large scale and extensive where it merges with adjacent similarly scaled upland character types in East Ayrshire and Dumfries and Galloway, the scenic backdrop these predominantly open uplands provide to the *Upland Basin* (15) and the presence of higher and more pronounced landmark hills limits scope for additional new developments. There would be a *High* sensitivity to the very large typology (turbines >130m) as this size of turbine would be more likely to overwhelm the relief of the lower western uplands and significantly affect the adjoining *Upland Basin* (15). Sensitivity would be *High-medium* for the large typology (turbines 70-130m) reflecting the reduced effect of turbines of this size on the scale of these uplands.

14.2.1 Potential cumulative issues

The following issues may arise in association with any possible development situated in this and adjacent landscapes:

- Inter-visibility between larger turbines which are more likely to be located in this upland landscape character type and smaller turbines sited in the adjacent more settled *Upland Glens* (14), *Upland River Valleys* (10) and *Upland Basin* (15).
- Cumulative effects between operational/consented wind farms sited in this character type together with any new wind farm developments sited in the *Foothills with Forest and Opencast Mining* (17a) and the *Plateau Moorlands* (18a) which could affect views from the *Upland Basin* (15) where turbines may extend over the skylines of these upland character types, potentially leading to a sense of 'encirclement' and dominance.

14.2.2 Constraints

- The higher well-defined hills of Hare Hill and the distinctly rugged Blackcraig Hill and Craigbraneoch Rig on the eastern edge of Glen Afton which form landmark features seen from roads and settlement within the glen and from the well-settled *Upland Basin* (15).
- Complex interlocking ridges and deeply cut narrow valleys of the lower western hills of this character type where it may be difficult to achieve an integrated layout of turbines and to minimise cut and fill of access road construction.
- Cumulative effects with the operational and consented wind farms of Hare Hill, Afton and South Kyle seen from the *Upland Basin* (15) which may limit scope for additional new wind farms because of differences in turbine size and layout given variations in landform west of Glen Afton.
- The scenic backdrop these predominantly open and rugged uplands provide to the *Upland Basin* (15), seen in views from settlement and roads including the A76.

14.2.3 Opportunities

• There may be limited potential for very small extensions to operational wind farms on areas with a less complex landform where the exacerbation of existing adverse landscape and visual effects on Glen Afton and the *Upland Basin* (15) could be avoided.

14.3 Guidance for development

14.3.1 Additional new development >70m high

There is *no scope* for the very large typology (turbines >130m) to be accommodated within this landscape. There may be *very limited* scope for the large typology (turbines 70-130m) to be accommodated as a small extension to operational/consented wind farms sited in this LCT and the adjoining *Southern Uplands with Forestry* (20c). Additional turbines should be carefully located to avoid significantly exacerbating adverse landscape and visual effects on Glen Afton and the *Upland Basin* (15). They should not be sited on or close-by the landmark hills of Blackcraig and Craigbraneoch Rig and should be set well back from the northern edge of this LCT. They should not substantially increase the extent of turbine development visible on these hills from the *Upland Basin* (15) and (where relevant) should aim to improve the layout of the original development in key views to these uplands from the north.

14.3.2 Repowering of operational wind farms

The operational Hare Hill wind farm comprises relatively small turbines ranging between 64m and 91m. Although the integration of different height turbines within the two phases of the development is satisfactory, the older part of this development is located on a pronounced steep-sided hill which significantly increases its visual prominence. The Afton wind farm is also prominently sited close to the notch cut by Glen Afton. There is **no scope** for replacing existing turbines

with larger turbines due to the substantial exacerbation of existing effects which would occur in relation to landform and views (see Annex D).

14.3.3 Smaller turbines <70m high

Smaller typologies would have significant cumulative effects with operational and consented wind farm developments if sited close-by. There may be some limited scope to site turbines at the transition with the *Upland River Valleys* (10), the *Upland Basin* (15) and on gently graded upper slopes on the western side of Glen Afton provided they were restricted to <30m and clearly associated with more settled lower hill slopes. Detailed siting and design should accord with the guidance set out in Annex F of this report.



These open uplands form a backdrop of smooth, interlocking hills to the Upland Basin (15)



The steep rugged slopes of Blackcraig Hill dramatically contain Glen Afton.



The higher and steep sided Hare Hill and Blackcraig Hills form a scenic backdrop to the Upland Basin (15) and the eastern edge to the dramatically incised Glen Afton.



Although the turbines of the operational Hare Hill wind farm are relatively small, this development is prominent in views from the Upland Basin (15) being sited on the pronounced steep-sided Hare Hill which lies on the outer edge of these uplands

15 CHARACTER TYPE 20C: SOUTHERN UPLANDS WITH FORESTRY

15.1 Introduction

The *Southern Uplands with Forestry* (20c) lie to the east of Dalmellington and extend over the East Ayrshire boundary into Dumfries and Galloway.

The detailed assessment considers larger development typologies (turbines >70m) with key constraints and opportunities for turbines below this height outlined in the guidance section only.

15.1.1 Operational/consented wind farms

The consented South Kyle wind farm (50 turbines, 149.5m high) is located in this landscape character type. The operational Windy Standard wind farm (36 turbines, 53.5m high) and its extension (30 turbines, up to 120m high) are located within the *Southern Uplands with Forestry* character type in neighbouring Dumfries and Galloway but lie close to the East Ayrshire boundary. The consented Benbrack wind farm (18 turbines, 130m high) is also located in the *Southern Uplands with Forestry* where it extends into Dumfries and Galloway.

The operational Dersalloch wind farm (23 turbines, 115/125m high) is located in the *Foothills with Forest West of the Doon Valley* (17b). The operational Afton wind farm (27 turbines, 120/100m high) and the operational Hare Hill wind farm (20 turbines, 63.5m high) and its extension (39 turbines, 70-91m high) are located in the *East Ayrshire Southern Uplands* (20a).



Topic and summary description	Assessment of very Large turbines 130m+	Assessment of large turbines 70-130m
Landscape context These uplands form a backdrop of rounded forested hills to Loch Doon and the <i>Upland River</i> <i>Valley</i> (10) of the Doon valley, including the settlement of Dalmellington. These uplands are also visible from the west side of Loch Doon, including from the Craigengillan designed landscape, where they form a relatively simple skyline of rounded forested hills, contrasting with the higher and more dramatic upland scenery of Cairnsmore of Carsphairn and the Rhinns of Kells to the south. Higher hills in the NE of this landscape form a distant forested backdrop to the <i>Upland Basin</i> (15) south of Cumnock. The hill of Cairnsmore of Carsphairn restricts visibility of this landscape from the south from roads and settlements within Dumfries and Galloway. This landscape comprises part of an extensive upland area where it borders the <i>Southern</i> <i>Uplands</i> and <i>Southern Uplands with Forestry</i> character type both in East Ayrshire and neighbouring Dumfries and Galloway.	The consented wind farm developments of South Kyle and Benbrack will have a significant effect on the setting and on views from the Loch Doon area which lies to the west of this LCT. Additional turbines of this size sited further towards the western edge of this landscape would significantly exacerbate effects on the highly sensitive upper Doon valley which includes the Craigengillan designed landscape. The setting of Dalmellington would also be dominated by additional wind turbines sited to the north- west of the South Kyle wind farm (and therefore much closer to the settlement). Cumulative effects may occur with operational and consented wind farms seen in views from the Cumnock area and the <i>Upland Basin</i> (15). <i>High sensitivity</i>	The consented wind farm developments of South Kyle and Benbrack will have a significant effect on the setting and on views from the Loch Doon area which lies to the west of this LCT. Additional turbines of this size sited further towards the western edge of this landscape would significantly exacerbate effects on the highly sensitive upper Doon valley which includes the Craigengillan designed landscape. The setting of Dalmellington would also be dominated by additional wind turbines sited to the north-west of the South Kyle wind farm (and therefore much closer to the settlement). Cumulative effects may occur with operational and consented wind farms seen in views from the Cumnock area and the <i>Upland Basin</i> (15). <i>High sensitivity</i>
Scale These uplands form an expansive undulating plateau generally between 350-500m high although a few individual peaks exceed this height. Scale is significantly reduced in tightly contained valleys including the narrow pass accommodating the A713. This landscape is very sparsely settled with occasional farms sited at the foot of valleys on the periphery of these uplands.	This typology could relate to the general expansiveness of this landscape although turbines of this size would dominate incised valleys and occasional buildings on the periphery of these uplands <i>Medium-low sensitivity</i> .	This typology could relate to the general expansiveness of this landscape although turbines of this size would dominate incised valleys and occasional buildings on the periphery of these uplands. <i>Medium-low sensitivity</i>

Character Type 20c: Southern Uplands with Forestry – Sensitivity assessment for very large and large typologies

Landform The hills are generally smooth with rounded summits although some narrow, steep-sided interlocking ridges also occur. There are few pronounced peaks but the open top of Windy Standard (537m) stands out in views from the west and south. Extensive forestry masks the underlying landform with some more incised burns, crags and steeper slopes occurring on the western edge of these uplands.	This typology could relate to broader more gently rolling slopes although much of this area accommodates consented wind farm of South Kyle. More complex, steep-sided interlocking narrow ridges and steeper slopes inhibit the adoption of more integrated clustered wind farm layouts. <i>High-medium sensitivity</i>	This typology could relate to broader more gently rolling slopes although much of this area accommodates the consented wind farm of South Kyle. More complex, steep-sided interlocking narrow ridges and steeper slopes inhibit the adoption of more integrated clustered wind farm layouts. <i>High-medium sensitivity</i>
Landscape pattern Extensive commercial forestry covers much of this landscape and although well-designed it is of limited diversity. Felling coupes and new planting add transitional textural contrasts across this landscape. Small areas of hill pasture fringe lower hill slopes and a few higher hill tops are open.	The uniformity of extensive forest cover reduces sensitivity to wind farm development. Open hill tops would be more sensitive to this typology due to their rarity and the contrast they provide to densely forested areas. <i>Low sensitivity</i>	The uniformity of extensive forest cover reduces sensitivity to wind farm development. Open hill tops would be more sensitive to this typology due to their rarity and the contrast they provide to densely forested areas. <i>Low sensitivity</i>
Built environment There is very little settlement within this character type. Operational and consented wind farm development is a key characteristic of this and similar adjoining upland landscapes.	Sensitivity is reduced due to the absence of settlement. While operational and consented wind energy developments are already present and reduce sensitivity to some degree, cumulative effects are a key issue and are considered below <i>Low sensitivity</i>	Sensitivity is reduced due to the absence of settlement. While operational and consented wind energy developments are already present and reduce sensitivity to some degree, cumulative effects are a key issue and are considered below. <i>Low sensitivity</i>
Perceptual qualities While the interior of these landscapes can feel remote due to the distance from settlement and public roads, the presence of extensive commercially managed forestry and wind farm development in the same character type within neighbouring Dumfries and Galloway precludes any sense of naturalness.	This typology would be likely to have no significant adverse effect on perceptual qualities. <i>Low sensitivity</i>	This typology would be likely to have no significant adverse effect on perceptual qualities. <i>Low sensitivity</i>
Visual amenity These uplands are sparsely settled and public access is limited. They are however particularly	Close visibility of the core of these uplands is limited due to the absence of roads, popular footpaths and settlement. The peripheral	Close visibility of the core of these uplands is limited due to the absence of roads, popular footpaths and settlement. The peripheral

	-	
visible from the <i>Upland River Valley</i> (10) of the	western hills are however highly visible from	western hills are however highly visible from
Doon Valley to the north-west and from parts of	the Doon Valley and the Loch Doon area and	the Doon Valley and the Loch Doon area and
the Loch Doon area within the <i>Rugged Uplands,</i>	turbines of this height sited on these hills and	turbines of this height sited on these hills and
Forest and Lochs (21) which is a popular	the higher hills further to the east would be	the higher hills further to the east would be
destination for recreation. Visibility into the interior	prominent. There would also be views from	prominent. There would also be views from
of these uplands is restricted from the B741 and	popular hill summits including Cairnsmore of	popular hill summits including Cairnsmore of
A713 due to forestry and landform.	Carsphairn and the Carrick Hills.	Carsphairn and the Carrick Hills.
	High sensitivity	High sensitivity
Cumulative effects	Cumulative impacts (including sequential	Cumulative impacts (including sequential
The operational Hare Hill I and II, Afton and	effects on views from the A713 and B741)	effects on views from the A713 and B741)
Windy Standard I and II wind farms are visible	would be likely to occur on views and the	would be likely to occur on views and the
from the Upland Basin (15). The operational	setting of Loch Doon and the Doon Valley if	setting of Loch Doon and the Doon Valley if
Windy Standard I and II and Dersalloch wind	additional wind turbines of this size were	additional wind turbines of this size were sited
farms and the consented South Kyle and	sited in remaining undeveloped ground in the	in remaining undeveloped ground in the north
Benbrack wind farms are visible from Loch Doon	north and western parts of this landscape.	and western parts of this landscape.
and the Doon Valley.	Cumulative impacts with the operational Hare	Cumulative impacts with the operational Hare
	Hill, Windy Standard and Afton wind farms	Hill, Windy Standard and Afton wind farms
	could also be experienced from the Upland	could also be experienced from the Upland
	Basin (15) character type if additional	Basin (15) character type if additional
	development were to be sited in the eastern	development were to be sited in the eastern
	part of these uplands.	part of these uplands.
	High sensitivity	Smaller turbines within this typology would be
		likely to conflict with the size of turbines within
		the consented South Kyle wind farm if seen
		close-by.
		High sensitivity

This landscape forms a small part of the *Southern Uplands with Forestry* character type which extends into neighbouring Dumfries and Galloway and overall forms an expansive tract of uplands. The predominantly rounded hills of this character type are largely covered with commercial coniferous forestry which masks their landform although steep-sided narrow ridges and deep valleys are present. A few of the highest hill tops are open and these are seen in views from the lower Loch Doon area and also backdrop the settlement of Dalmellington in the Doon Valley. This landscape is very sparsely settled with occasional farms sited on lower outwardfacing slopes. The B741 and A713 are aligned on the periphery of this landscape although views from these roads are restricted by landform and forestry. Operational and consented wind farms, sited in both East Ayrshire and neighbouring Dumfries and Galloway, are a key feature of this landscape.

While the large scale and generally simple landform and land cover of these sparsely settled uplands reduce sensitivity to larger wind turbines, much of the less sensitive more gently rolling hills lying at the core of this landscape will be occupied by the consented South Kyle wind farm. Remaining areas of undeveloped ground are more sensitive as they either comprise more complex landform or lie closer to the Doon Valley and Dalmellington. Cumulative effects with other operational and consented wind farms could also be associated with additional development sited in the eastern parts of this landscape.

Capacity for additional new development is considered to be close to being reached in this landscape with sensitivity concluded to be *High* for the Very Large and Large typologies (turbines >70m).

15.2.1 Potential cumulative issues

The following issues may arise in connection with any possible development situated in this and adjacent landscapes:

- Inter-visibility between larger turbines which are more likely to be located in this upland landscape character type and smaller turbines sited in the adjacent more settled *Upland River Valley* (10) of the Doon Valley.
- Cumulative effects on the setting of Dalmellington and the Doon Valley if larger turbines were located in this landscape character type, the *Foothills with Forestry and Opencast Mining* (17a) and with any additional wind farm development in the *Foothills with Forest west of Doon Valley* (17b) and visible on containing skylines.
- Potential 'encirclement' and perceived domination of the settled *Upland Basin* (15) where the operational Hare Hill I and II wind farm, Afton and South Kyle wnd farms and any development sited in the *Foothills with Forestry and*

Opencast Mining (17a) and *East Ayrshire Plateau Moorland* (18a) would be seen on containing skylines.

15.2.2 Constraints

- The prominent western slopes and hills of this landscape which form the containing edges to the settled *Upland River Valley* (10) of the Doon Water and the Craigengillan designed landscape.
- The backdrop provided by the steep-sided rounded hills on the north-western edge of this landscape character type to Dalmellington, particularly prominent in views from the A713 on the approach to the settlement when travelling southwards from Patna.
- Areas of more complex landform comprising steep-sided narrow interlocking ridges present in the eastern parts of this landscape which would inhibit a visually integrated turbine layout.
- The close proximity of the scenic Loch Doon to the west of these uplands where the consented wind farms of South Kyle and Benbrack will have a major adverse impact on views from its shores and where repowering with larger turbines and/or any extensions to development on the western edges of this LCT would be likely to significantly exacerbate these effects.
- The potential for cumulative effects to arise if additional development were to be located in the eastern part of this landscape with the operational and consented wind farms of Afton, Hare Hill I and II, Windy Standard I and II and South Kyle experienced from the *Upland Basin* (15) character type.

15.2.3 Opportunities

• No opportunities have been identified for additional new wind farm development in this landscape.

15.3 Guidance for development

15.3.1 Additional new development of larger turbines

There is *no scope* for additional new development of larger turbines within this landscape.

15.3.2 Repowering of operational and consented wind farms

Annex D of this report considers scope for repowering the consented South Kyle wind farm which lies in this landscape in East Ayrshire. Increases in turbine height to 200m were concluded as being likely to significantly exacerbate effects on the setting and views from the Loch Doon area. Turbines of this height would also be likely to incur cumulative effects with the nearby consented Benbrack wind farm (assuming this retains consented turbines of 130m height).

15.3.3 Smaller turbines <70m high

Turbines <70m high would be likely to increase visual clutter when seen in conjunction with the majority of much larger operational and consented wind farm

developments which are a key characteristic of this landscape (including its extension into Dumfries and Galloway). There may be some very limited scope to site single turbines <50m high on lower slopes on the periphery of these uplands and associated with farms and other buildings although this will be dependent on the degree of inter-visibility with the consented South Kyle wind farm.



Lower hill slopes are more open and farmed - the interior of these hills is not visible from surrounding roads.



These uplands form a prominent backdrop to Dalmellington seen from the Doon valley.



Loch Doon looking east towards the Southern Uplands with Forest (20a) - the consented South Kyle and Benbrack wind farms will be prominent in these views.

16 CHARACTER TYPE 21: RUGGED UPLANDS WITH LOCHS AND FOREST

16.1 Introduction

This sensitivity assessment is for the *Rugged Uplands with Lochs and Forests* character type which lies in the Carrick Forest and Loch Doon area within East and South Ayrshire. The craggy granite hills which lie at the core of this landscape extend southwards into Dumfries and Galloway and culminate in the dramatic high hills of Merrick and the Rhinns of Kells.

This landscape is very sparsely settled and the detailed assessment therefore focuses on larger development typologies (turbines >50m) with key constraints and opportunities for smaller turbines briefly outlined in the summary and guidance section only.

16.1.1 Operational/consented wind farms

There are no operational or consented wind turbines within this character type.

The operational Windy Standard II wind farm and the consented South Kyle and Benbrack wind farms are located within the *Southern Uplands with Forestry* (20c) character type, located in both East Ayrshire and neighbouring Dumfries and Galloway. These developments will cumulatively present an extensive band of turbines (98 turbines between 120m and 149m high) to the east of Loch Doon.

The operational Mark Hill, Arecleoch and Kilgallioch wind farms are located in the nearby *South Ayrshire Plateau Moorland with Forest and Wind Farms* (18c) landscape character type and together form a very extensive array of 185 turbines between 110m and 146m. The consented Chirmorrie wind farm lies between the Kilgallioch and Arecleoch wind farms.

The operational Hadyard Hill wind farm (52 turbines, 111m high) located within the *Foothills with Forest and Wind Farm* (17c) and the Dersalloch wind farm (23 turbines 115/125m) located in the *Foothills West of Doon Valley* (17b) character types, both in South Ayrshire.

These wind farms are especially visible from the higher hills within this character type (generally seen at distances of between 5km and 20km) although other wind farm developments sited within neighbouring Dumfries and Galloway are also visible.



Topic and summary description	Assessment of large typology (70m +)	Assessment of medium typology (50-70m)
Landscape context This character type is generally remote from more settled lowland areas although lower rugged hills in the north of this landscape provide an integral part of the setting to the diverse Upland River Valley (10) of the Doon Valley which accommodates Craigengillan House and its designed landscape. The higher hills lying at the core of this landscape form a rugged mountainous backdrop in distant views from elevated roads within the more open parts of the Foothills (17c) and Plateau Moorland (18c) landscapes of South Ayrshire. This landscape forms part of an expansive upland area which extends southwards into Dumfries and Galloway.	This typology would detract from the dramatic mountainous backdrop these uplands provide to the upper Doon Valley and the Craigengillan designed landscape. Some parts of this character type are less visible however and the extensiveness of these uplands and their distance from the smaller scale settled lowlands reduces sensitivity in relation to landscape context. <i>Medium sensitivity</i>	This typology would detract from the dramatic mountainous backdrop these uplands provide to the upper Doon Valley and the Craigengillan designed landscape. Some parts of this character type are less visible however and the extensiveness of these uplands and their distance from the smaller scale settled lowlands reduces sensitivity in relation to landscape context Medium sensitivity
Scale Relief ranges from around 300m with higher hills between 500 and 768m. Although the hills have a large vertical scale they commonly have confined pronounced summits. The complex form of this landscape creates myriad narrow valleys and loch basins which are strongly contained and of a smaller scale.	Occasional broader open basins and hill slopes would be less sensitive. Complex small knolly hills, narrow valleys, small loch basins and confined summits would be of increased sensitivity to turbines of this size. <i>High-medium sensitivity</i>	Occasional broader open basins and hill slopes would be less sensitive. Complex small knolly hills, narrow valleys, small loch basins and confined summits would be of increased sensitivity to turbines of this size. <i>High-medium sensitivity</i>
Landform Exposed crags and boulders give a notably 'Highland' appearance to steep-sided north/south orientated granite ridges. The landform of the western <i>Southern Uplands</i> is less craggy but still features steep-sided interlocking rounded hills and the dramatic cleft of the Nick of the Balloch. Some smoother and gentler hill slopes occur on the edge of loch basins although generally the scenery is rugged and dramatic.	Turbines would significantly detract from the distinctive craggy, irregular landform of these uplands and it would be difficult to attain a cohesive layout for larger developments due to the complexity of landform. Turbines of this size (which may comprise wind farms) sited on occasional smoother gentler hill slopes would detract from nearby more complex landform. <i>High sensitivity</i>	Turbines would significantly detract from the distinctive craggy irregular landform of these uplands. There may some very limited scope to site single or very small groups of turbines towards the lower height band of this typology on occasional smoother lower slopes and ridges yet minimise effects on adjacent more complex landform features. <i>High-medium sensitivity</i>

Character Type 21: Rugged Uplands with Lochs and Forests – Sensitivity assessment for large and medium typologies
Landscape pattern	Turbines, access roads and other ancillary	Turbines, access roads and other ancillary
While vegetation cover is simple, largely	development would detract from the	development would detract from the
comprising grass moorland with patchy heather,	predominantly complex pattern of this	predominantly complex pattern of this
the landscape is strongly patterned in places with	landscape. Broader, smoother hill slopes	landscape. Broader, smoother hill slopes
exposed rock. A number of lochs, of which Loch	covered with a simpler pattern of moorland or	covered with a simpler pattern of moorland or
Doon is the largest, are located on the lower	coniferous forestry would be less sensitive in	coniferous forestry would be less sensitive in
northern edge of the more pronounced granite	this respect although there could be impacts	this respect although there could be impacts
peaks and these add to the diversity of this	on the setting of landmark hills and lochs.	on the setting of landmark hills and lochs.
landscape. Coniferous forestry extends into some	High-medium sensitivity	High-medium sensitivity
of the valleys on lower hill slopes and fringing		
lochs.		
Built environment	The sparsely settled nature of this landscape	The sparsely settled nature of this landscape
This landscape is very sparsely settled with small	reduces sensitivity although the setting of	reduces sensitivity although the setting of
farms and occasional estate houses sited on the	archaeological features may be a constraint.	archaeological features may be a constraint.
west side of Loch Doon and with some	Medium-low sensitivity	Medium-low sensitivity
archaeological features on small knolly hills. A		
public road is aligned on the west side of Loch		
Doon and the Carrick Forest Drive links with this		
and the minor road south of Straiton. Forest tracks		
are present on lower hill slopes.		
Perceptual qualities	Wind farm development, and particularly	Wind farm development, and particularly larger
The very sparsely settled nature of this landscape	larger typologies, would significantly diminish	typologies, would significantly diminish the
and difficulty of access, particularly to the higher	the strong sense of naturalness and	strong sense of naturalness and remoteness
and more rugged hills extending north from	remoteness which is more likely to be	which is more likely to be experienced in the
Merrick, can give a strong sense of seclusion. The	experienced in the upland core of this	upland core of this landscape.
rugged landform and lochs (where not impounded)	landscape.	High sensitivity
have strong natural qualities although commercial	High sensitivity	
coniferous woodland diminishes this in places.		

Visual amenity This landscape is popular with walkers and cyclists. The Merrick and Rhinns of Kells in Dumfries and Galloway, Cornish Hill and Shalloch on Minnoch offer elevated views and there are a number of footpaths in the area west of Loch Doon. There are few public roads and views are generally limited from these by landform and forestry although the Straiton to Newton Stewart Road offers more open views in the Carrick Forest area.	Although the interior valleys and basins within this landscape are less visible from external view, the popularity of the higher hills with walkers increases sensitivity to wind farm development even in more visually contained areas. Turbines sited on hill tops and ridges within this character type would be prominent in views from lochs and footpaths within this character type and in views from more elevated roads in the surrounding area. <i>High sensitivity</i>	Although the interior valleys and basins within this landscape are less visible from external view, the popularity of the higher hills with walkers increases sensitivity to wind farm development even in more visually contained areas. Turbines sited on hill tops and ridges within this character type would be prominent in views from lochs and footpaths within this character type and in views from more elevated roads in the surrounding area. <i>High sensitivity</i>
Cumulative effects There are no operational or consented wind farm developments in this landscape character type. Extensive wind farm development is/will be a key feature in the nearby uplands of <i>Southern Uplands</i> <i>with Forestry</i> (20c) and the <i>South Ayrshire Plateau</i> <i>Moorlands with Forest and Wind Farms</i> (18c) and is clearly visible from the open hills within this landscape.	Wind farm development sited in this landscape could have cumulative effects on the setting and views from the Loch Doon area in combination with the existing and consented Windy Standard developments. <i>High-medium sensitivity</i>	This typology is more likely to comprise single or very small groups of turbines and as such it would present a clear contrast with the more extensive wind farms sited in nearby upland areas. Cumulative effects could occur however on the setting and views from the Loch Doon area in combination with operational and consented developments sited in the <i>Southern</i> <i>Uplands with Forest</i> (20c) in East Ayrshire. The use of turbines towards the lower height band of this typology would minimise cumulative effects. <i>Medium sensitivity</i>

16.2 Summary of sensitivity

This character type extends south into Dumfries and Galloway encompassing an extensive upland tract which includes the high hills of Merrick and the Rhinns of Kells. The dramatic craggy mountainous scenery, which is a feature of the granite hills lying at the core of this landscape, is enhanced by a band of smoother, more rounded but steep-sided hills lying to the west and Loch Doon and other smaller lochs which lie within a rough basin of moorland, wetland and forest to the east. The complex landform and land cover, including the varied pattern of lochs and mature woodland and heather moor, is more reminiscent of a typically Highland landscape and this character type is highly scenic and a popular destination for recreation. This landscape is also very sparsely settled and, although it features some commercial forestry and impounded lochs, a strong sense of seclusion and naturalness can be experienced, particularly within the rugged hills lying at its core.

These scenic and rugged hills, lochs and forests are important within East Ayrshire in providing a little modified landscape which is highly valued for recreation. There would be an overall *High* sensitivity to both the large and medium wind turbine typologies (turbines >50m).

16.2.1 Potential cumulative issues

The following issues may arise in association with any potential developments sited in adjacent landscapes:

• Incremental effects of multiple wind farm developments located in surrounding upland landscapes on key views from this character type, including those from the higher, popularly accessed hills such as the Corbett Shalloch on Minnoch and from Loch Doon, and on the perception of wildness.

16.2.2 Constraints

- The strong enclosure provided by the complex craggy landform and the often smallscale landform features including narrow valleys, lochans, knolls and confined hill summits.
- The dramatic rugged hills of this landscape which form a scenic western backdrop to Loch Doon, the upper Doon Valley (including Craigengillan House and its designed landscape) and are also visible from the more open parts of the *Foothill* (17b and 17c) landscapes within South Ayrshire.
- The complexity of the topography which features craggy and steep-sided hills and an intricate pattern of lochs and diverse vegetation cover.
- The distinct sense of wildness that can be experienced within the more difficult to access core hills, accentuated by the sparse settlement and naturalness of open rough ground and unmodified lochs (these qualities also contribute to the 'Dark Skies' designation).
- The popularity of this landscape for recreational pursuits including walking and cycling and its role in providing respite from nearby more developed landscapes within East Ayrshire.

16.2.3 Opportunities

 Smoother lower hill slopes on the outer fringes of this character type and within forest clearings where the small typology (turbines 15-30m) could be sited in association with existing buildings providing turbines did not intrude on key views.

16.3 Guidance for development

There is *no scope* for turbines >50m high to be accommodated in this landscape.

The detailed sensitivity assessment considers larger typologies only. Smaller turbines <50m would not fit with the more expansive scale of the higher hills of this landscape. They would also have a similarly detractive effect on the often complex landform of this landscape and would impact on wildland qualities, particularly experienced within the more rugged core hills. There would however be some very limited scope to site small turbines <20m so associated with more settled lower hill slopes. Turbines should avoid being sited between the public road and the shore of Loch Doon in order to minimise visual intrusion. Detailed siting and design should accord with the guidance set out in Annex F of this report.



The smoother but steep-sided hills which contain Nick o' the Balloch



Loch Doon and the backdrop of high craggy hills lying at the core of this landscape seen from the A713



Loch Doon with its naturalistic scrub and wetland margins and diverse form forms the largest of the lochs which are a key characteristic of this landscape.



The spine of high craggy granite hills extend southwards to Merrick in Dumfries and Galloway

ANNEX A: REFERENCES

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Visual material within various <u>Environmental Statements for wind farm developments</u> including those for South Kyle, Benbrack, Enoch Hill, Overhill and Lethans.

ANNEX B: LANDSCAPE CHARACTER CLASSIFICATION

This capacity study has been informed by the landscape characterisation set out in the Ayrshire Landscape Assessment (LUC 1998). The landscape character types set out in the 1998 study have been reviewed in the field. Some minor changes have been made to the boundaries and classification of some landscape character types **within East Ayrshire** as follows:

- The lower-lying Airds Moss to the east of Auchinleck has been reclassified as the *East Ayrshire Lowlands* (7c) character type because of its close relationship to the more settled lowlands and river valleys.
- A narrow strip of the *Plateau Moorland with Forestry* character type lying on the south-eastern edge of the *East Ayrshire Plateau Moorlands*, close to the boundary between East Ayrshire and Dumfries and Galloway, has been incorporated into the *East Ayrshire Plateau Moorlands* (18a) character type. This is because the landform, scale and context of this landscape are similar to the adjacent *East Ayrshire Plateau Moorlands* and these characteristics form key criteria for the assessment of sensitivity to wind energy developments rather than simply one aspect of land cover (forestry in this case).
- A new landscape character type has been classified in the south-eastern part of East Ayrshire (and extending into South Ayrshire) called the *Rugged Hills, Lochs and Forest.* This landscape character type comprises an amalgamation of the *Rugged Granite Uplands, Rugged Granite Uplands with Forest,* the *Southern Uplands, Southern Uplands with Forestry* and the *Foothills* character types defined in the 1998 Ayrshire Landscape Character type form the northern extent of the *Rugged Granite Uplands* which lie at the core of this new character type form the northern extent of the *Rugged Granite Uplands* which extend southwards into Dumfries and Galloway and culminate in the dramatic high hills of Merrick and the Rhinns of Kells

The landscape character types identified in the 1998 Ayrshire Landscape Assessment have been renumbered (with a number of sub-types identified which have been individually assessed in this study) as shown in the table below:

Original name and reference in 1998 Ayrshire Landscape Assessment	New Ref	Landscape character type used in current wind capacity study	Location
A. Raised Beach Coast	1a	North Ayrshire Raised Beach Coast	NA
	1b	Arran Raised Beach Coast	NA
	1c	Raised Beach Coast with Flat Fields and Headlands	SA
	1d	Raised Beach Coast with Rocky Shore	SA
B. Lowland Coast	2a	Coastal Lowlands with Industry	NA
	2b	Coastal Edge	NA/SA
C. Coastal Fringe with Agriculture	3a	Arran Coastal Fringe with Agriculture	NA
	3b	Cumbraes Coastal Fringe with Agriculture	NA
	3c	Rugged Island Core	NA
D. Coastal Headlands	4a	Arran Coastal Headlands	NA
	4b	Brown Carrick Hills	SA
E. Coastal Valley with Policies	5	Coastal Valley with Policies	SA
F. Coastal Lowland Moor	6	Coastal Lowland Moor	NA
G. Ayrshire Lowlands	7a	North Ayrshire Lowlands	NA

	7b	Small Rolling Hills	NA
	7c	East Ayrshire Lowlands	EA
	7d	South Ayrshire Lowlands	SA
H. Broad Valley Lowland	8a	Broad Valley Lowland	NA
•	8b	Rolling Hill Slopes	NA
	8c	South-western Rolling Hill Slopes	NA
I. Lowland River Valley	9	Lowland River Valley	NA/SA/EA
J. Upland River Valley	10	Upland River Valley	EA
K. Lower Dale	11	Lower Dale	SA
L. Middle Dale	12	Middle Dale	SA
M. Intimate Pastoral Valley	13	Intimate Pastoral Valley	SA
N. Upland Glen	14	Upland Glen	EA/SA
O. Upland Basin	15	Upland Basin	EA
P. Lowland Hills	16	Lowland Hills	SA
Q. Foothills	17a	Foothills with Forest and Opencast Mining	EA
	17b	Foothills with Forest west of Doon Valley	EA/SA
	17c	Foothills with Forest and wind farm	SA
	17d	Maybole Foothills	SA
	17e	Coastal Foothills	SA
R. Plateau Moorlands	18a	East Ayrshire Plateau Moorlands	EA
	18b	East Ayrshire Plateau Moorlands + Forestry	EA
		+ wind farms	
	18c	South Ayrshire Plateau	SA
		Moorlands/Forestry/wind farms	
S. Rugged Moorland	19a	Loch Thom area	NA
Hills+Valleys			
	19b	Duchal Moor	NA
	19c	Upland Core	NA
	19d	Blaeloch and the Crosbie Hills	NA
	19e	Haupland Muir	NA
	19f	Arran Rugged Moorland Hills+Valleys	NA
T. Southern Uplands	20a	East Ayrshire Southern Uplands	EA
	20b	South Ayrshire Southern Uplands	SA
	20c	Southern Uplands + Forestry	EA ⁴
U. Rugged Granitic Uplands	21	Rugged Uplands, Lochs and Forest ⁵	EA/SA
	21a	Arran Rugged Granitic Uplands	NA
New character type	22	Glenapp Coastal Farmland and Policies ⁶	SA

⁴ A small area of the 'Southern Uplands and Forestry' identified in South Ayrshire in the 1998 Ayrshire Landscape Assessment has been reclassified as the 'South Ayrshire Plateau Moorlands with Forestry' LCT.

⁵ This character type has been expanded to include an area of 'Southern Uplands', 'Southern Uplands with Forestry' and 'Foothills' identified in the 1998 Ayrshire Landscape Assessment and lying in the Loch Doon/Carrick Hills area

⁶ This area was originally classified as 'Plateau Moorland' and 'Southern Uplands' in the 1998 Ayrshire Landscape Assessment

ANNEX C: SENSITIVITY CRITERIA

Sensitivity	Factors considered and relevance of criteria to wind turbines
criteria	
criteria Context	 The role of adjacent character types in contributing to the overall character of the type being assessed. This includes consideration of where adjacent or nearby landscape character types may provide containment, a backdrop or skyline, increase or reduce the experience of scale or complexity or combine to provide a notably scenic whole. Assessment of the potential effects of development on adjacent character types and vice versa. This includes assessment of intervisibility and potential effects on nearby landscapes. Landscape types that are more closely juxtaposed and contrast strongly with surrounding landscapes may be especially sensitive. Sensitivity is also likely to be increased where there is a complex interplay, for example, coastal peninulas, sea lochs and islands or
	 where there is a high degree of inter-visibility between adjacent landscapes and/or seascapes. Landscape types which are large in extent, or which have a similar scale or vegetation pattern to neighbouring landscapes may have more scope for larger typologies.
Scale	 Consideration of the scale of the landscape taking into account the degree of relief, amount of topographical containment, degree of openness and enclosure and the extent of land visible. Identification of areas of containment and factors that create enclosure where scale reduces. Identification of features against which the size of a turbine might be easily referenced. Consideration of how the size of the development might impact on the understanding of scale of the landscape. Assessment of how the development would relate to the scale of the landscape including whether they would be likely to dominate or appear compatible in scale in terms of the relative scale of landform, landscape pattern and individual features, including buildings, in the landscape. Consideration of how development would affect expansiveness and the sense of distance. In general, the more open the landscape and the larger the scale of the landscape the greater the ability to relate to larger development typologies.
Landform	 Consideration of the overall topographical shape and the degree of complexity of landform including identification of any distinct 'landmark' features. Assessment of how development, including ancillary works, would impact on or relate to landform and whether it would intrude or detract if close to distinctive landform features. In general, the simpler and more gently graded the landform the better the visual relationship with the simple form of turbines, and more gentle gradients are likely to better accommodate the

 Land cover Consideration of the degree of complexity and diversity of land cover pattern (field enclosure, woodlands, water courses and locks) and whether pattern is strong or distinctly repeated, displays integrity or where it is fragmented. Assessment of the degree of diversity, and the importance of this in informing the distinctiveness of the landscape character. In general, a landscape with simple land cover pattern, for example grass moorland or more uniform commercial forestry, would be of reduced sensitivity to development while a more intricate pattern of woodlands or strong field enclosure pattern would be more sensitive. Assessment of how development could relate to pattern; whether it would disrupt or dominate strong pattern or undermine well balanced diversity, interrupt or fragment integrity of pattern, fit with areas where pattern is simpler or increase visual confusion where pattern is very fragmented or ground disturbed by minnig or other activities. Consideration of potential effects on landmark features, such as hill top copses, designed landscapes and features, water bodies. Built Consideration of the pattern, density and character of settlement, its relationship to topography or other natural features and its setting, roads and other built structures. Consideration of historic features word stens and archaeology would generally be of increased sensitivity. Assessment of how development might impinge on these characteristics; where there may be scope to attain some visual separation to minimise effects on settlement and its association with topography or other natural features. Where larger scale industrial buildings and built structures such as pylons, masts and existing wind farms are present, the relationship of turbine development to these is considered. Historic and archaeological features which contribute to landscape character are assessed in t		platforms and roads associated with larger turbines.
Built • Consideration of the pattern is setting. Landscapes with notable historic features and sites and their pattern is setting. Landscape setting and avoid fragmentation of the pattern is setting. Landscape setting and avoid fragmentation of the pattern is setting and avoid fragmentation of the pattern setting and avoid fragmentation of the setting with setting with setting with setting with setting with setting with the setting. Landscape setting and avoid fragmentation to mitire and archaeology would generally be of increased in terms of setting with setting with the setting with the setting. Landscapes with notable historic features and the pattern of built development and its association with the pattern is setting. Landscapes with notable historic features and setting wind farms are present, the relationship of turbine development to built structures such as pylons, masts and existing wind farms are present, the relationship of turbine development might impling on these characteristics; where there may be scope to attain some visual separation to minitings and built structures such as pylons, masts and existing wind farms are present, the relationship of turbine development to utal features. Perceptual qualities • Consideration of the pattern of built development and its association with topography or other natural features. • Where larger scale industrial buildings and built structures such as pylons, masts and existing wind farms are present, the relationship of turbine development to utal affects on setting and avoid fragmentation of the degree of modification by human intervention (such as roads, settlement, forestry, where larger scale industrial buildings and built structures such as pylons, masts and existing wind farms are present, the relationship of turbine development to utal affects on setting. <th>Land cover</th> <th>Consideration of the degree of complexity and diversity of land</th>	Land cover	Consideration of the degree of complexity and diversity of land
Built • Consideration of potential effects on landmark features, such as pylons, masts and achaeology would generally be of increased sensitivity. Built • Consideration of the pattern of built structures. Built • Consideration of the pattern of built structures such as pylons, masts and existing wind farms are present, the relationship of turbine by considered. • Perceptual qualities • Consideration of the degree of modification by human intervention (such as cost of turbines), consideration of the pattern of built development and the relationship of turbines), consideration of the pattern is simpler or increase visual confusion where pattern is very fragmented or ground disturbed by mining or other activities. • Consideration of potential effects on landmark features, such as hill top copses, designed landscapes and features, such as hill top copses, designed landscapes with notable historic settlements and archaeology would generally be of increased sensitivity. • Assessment of how development might impinge on these characteristics, where there may be scope to attain some visual separation to minimise effects on settlement setting and avoid fragmentation of the pattern of built development and its association with topography or other natural features. • Where larger scale industrial buildings and built structures. • Where larger scale industrial builtings and sould fragmentation of the setting while contribute to landscape with contribute to landscape while and avoid fragmentation of the degree of modification by human intervention (such as roads, settlement, forestry, masts and existing wind farms are present, the relationship of turbine development to udue features which contribute to landscape built st		cover pattern (field enclosure, woodlands, water courses and
 integrity or where it is fragmented. Assessment of the degree of diversity, and the importance of this in informing the distinctiveness of the landscape character. In general, a landscape with simple land cover pattern, for example grass moorland or more uniform commercial forestry, would be of reduced sensitivity to development while a more intricate pattern of woodlands or strong field enclosure pattern would be more sensitive. Assessment of how development could relate to pattern; whether it would disrupt or dominate strong pattern or undermine well balanced diversity, interrupt or fragment integrity of pattern, fit with areas where pattern is simpler or increase visual confusion where pattern is very fragmented or ground disturbed by mining or other activities. Consideration of potential effects on landmark features, such as hill top copses, designed landscapes and features, water bodies. Built Consideration of the pattern, density and character of settlement, its relationship to topography or other natural features and its setting, roads and other built structures. Consideration of historic features and sites and their setting. Landscapes with notable historic settlements and archaeology would generally be of increased sensitivity. Assessment of how development might impinge on these characteristics; where there may be scope to attain some visual separation to minimise effects on settlement setting and avoid fragmentation of the pattern of built development and its association with topography or other natural features. Where larger scale industrial buildings and built structures such as pylons, masts and existing wind farms are present, the relationship of turbine development to these is considered. Historic and archaeological features which contribute to landscape character are assessed in terms of any potential effects on setting. Perceptual Considera		lochs) and whether pattern is strong or distinctly repeated, displays
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these percentions. Identification of landscapes where the number		these percentions. Identification of landscapes where the number
and distinctiveness of archaeological or historic features can give		and distinctiveness of archaeological or historic features can give

	a strong sense of history or 'timelessness'. Identification of
	opportunities related to more developed and modified landscapes.
Visual amenity	 The extent of likely visibility (including considerations of whether the landscape is well settled and easily accessible or not) and types of views. The degree of openness or enclosure which influences visibility, including the amount of screening created by topography and woodland. In general, well-settled landscapes with many roads and footpaths are likely to be more sensitive in visual terms than sparsely settled landscapes distant from transport routes although some remote upland landscapes can be highly visible from surrounding lower-lying landscapes thus increasing sensitivity. The type of views, including elevated, extensive views which are sustained, framed views to focal points or glimpse views, or views experienced as part of a sequence or as revealed views creating a sense of arrival into the landscape type. Consideration of the significance of skylines and visual horizons. Key vistas or backdrops associated with historic landscapes or other features.
Cumulative effects	 Consideration of any conflicts which may occur between the established pattern and size of operational and consented wind farms and turbines in the LCT and surrounding area with any additional development. The established association of wind farm development with specific landscape characteristics and any divergence from this is also judged. Identification of where visual confusion may result from congestion and overlap of turbines within different developments in key views. Simultaneous views of multiple developments and potential effects on the appreciation of underlying landscape characteristics, potential cumulative effects on prominent skylines, on the setting of settlements and affecting views from hills popular with walkers. Sequential cumulative effects on views from roads and other transport routes, including from the sea where relevant.

ANNEX D: REPOWERING BACKGROUND STUDY

Background

The size of wind turbines within new wind farm developments has significantly increased over the last 10 years. While one of the earliest wind farms in Ayrshire comprises turbines of 64m to blade tip, the majority of currently operational commercial wind turbines are between 100-140m high. Some recently consented and proposed wind farms comprise turbines of 176m high.

As well as new wind farm developments, proposals for much larger turbines can also be associated with 'repowering' of existing wind farms and turbines. Repowering involves the replacement of operational wind turbines coming to the end of 25-year planning permissions with more efficient, and usually larger, turbines. Other repowering options may be considered by operators on existing development sites including extending the blades of turbines and other measures, such as on-site energy storage, to increase efficiency and energy output.

An assessment has been undertaken to consider opportunities for two development typologies comprising turbines of around 150m and around 200m high to blade tip. The assessment has been informed by computer-generated visibility mapping and visualisations based on representative operational wind farms located in a variety of lower sensitivity upland landscapes across Ayrshire and showing replacement of existing turbines with larger turbines.

More detailed sensitivity assessment of turbines over 130m high will also be undertaken for landscape character types/areas where some scope for the Large typology (turbines 70m+) was identified in the 2013 Ayrshire Landscape Wind Capacity Studies and/or which already accommodate operational/consented wind farms. These landscapes are listed in Table 1 below and shown in Figure 3 of the report:

East Ayrshire
Foothills with forest + opencast mining (17a)
Foothills with Forest west of Doon Valley (17b)
East Ayrshire Plateau Moorlands (18a)
East Ayrshire Plateau Moorlands with Forestry and Wind Farms (18b)
East Ayrshire Southern Uplands (20a)
Southern Uplands with Forestry (20c)
South Ayrshire
Foothills with Forest and Wind Farms (17c)
Foothills with Forest west of Doon Valley (17b)
South Ayrshire Plateau Moorlands with Forest and Wind Farms (18c)
North Ayrshire
Rugged Moorland Hills and Valleys – Blaeloch and Crosbie Hills (19d)
Rugged Moorland Hills and Valleys – Haupland Muir (19e)
Coastal Lowlands with Industry (2a)

Table 1: List of landscape character types for more detailed review

Methodology

A series of Zone of Theoretical Visibility (ZTV) maps have been produced showing existing theoretical visibility of 12 operational and consented wind farms and the increased extent of visibility that could occur if the existing/consented turbines were replaced with larger turbines 150m and 200m high to blade tip. The 150m height was selected as recent applications for wind farm developments have been close to this height while the largest onshore wind turbines currently available are around 225m high. It has only been possible to consider a selection of wind farms across Ayrshire because of the constraints of the budget for the study. The aim has been to select wind farms occurring in different landscape character types to gauge effects on key characteristics such as scale, landform and context in the field assessment.

A cut-off of 20km is shown on the ZTV maps. While this does not accord with SNH guidance on producing ZTV for wind farms which usually extend to 35km and beyond, the aim has been to focus on identifying any significant landscape and visual effects that may be associated with much larger turbines within the constraints of the budget for the study.

The ZTV maps have been modelled using existing turbine positions. Repowering of existing wind farms may adopt a different layout and contain fewer turbines than the original although this will depend on whether the original layout has any built-in flexibility to allow for potential repowering and/or extensions. Potential expansion of an existing wind farm site to accommodate more widely spaced larger turbines may additionally contribute to increased visibility and this has not been taken into account in the ZTV maps.

Simple 'photo-wire' computer-generated visualisations have been produced from 10 representative viewpoints across Ayrshire showing operational/consented turbines and turbines 150m and 200m high. The photo-wires have been generated as illustrative tools only to inform discussions in the field and the appraisal of likely landscape and visual effects associated with increasing turbine size. Visualisations from recent wind farm applications, comprising substantially larger wind turbines than those already operational, have also been reviewed.

Field assessment was undertaken by two landscape architects experienced in the landscape and visual impact assessment of wind energy developments.

Analysis of Zone of Theoretical Visibility mapping

The ZTV maps are based on operational and consented wind farms located in Ayrshire and show differences in the extent of visibility if turbines were increased to 150m (purple) and 200m (red) to blade tip. The ZTV maps are based on bare-ground data and do not take into account the potential screening effects of woodland and buildings. Hyperlinks to the individual ZTV maps have been added to the wind farm names in the table. Analysis of the ZTV maps is set out in the following table:

Wind farm	Existing	Areas of theoretical new visibility associated with
	height	150m and 200m turbines
Ardrossan	100m	There would be little increase in the extent of visibility associated with 150m and 200m high turbines. Principal areas of new visibility would occur beyond 15km of the wind farm, potentially affecting parts of the Firth of Clyde where operational wind farms such as Kelburn and the Hunterston turbines are already clearly visible. A greater extent of visibility may also be possible along the coastal edge between Ardrossan and West Kilbride. In terms of more populated areas, some additional visibility may be introduced on the northern fringes of Largs (where this development may be seen in conjunction with the Kelburn wind farm) and on the south-western edge of Dalry (where Kelburn and Dalry wind farms are already theoretically visible). Small increases in visibility are indicated within parts of the Muirshiel – Waterhead Moor Wild Land Area (WLA) although there are relatively close views of the Kelburn and Dalry wind farms already from a
Dalry	125m	large part of this WLA. Some increased visibility would occur on Great Cumbrae but in areas where there are already views of the Kelburn and Ardrossan wind farms and the 177/193m Hunterston turbines. Increases in visibility associated with turbines >150m high along the coast north of Largs would overlap with potential views of the existing Ardrossan wind farm.
Kelburn	100m	There would be some small new areas of visibility mainly in the Firth of Clyde at distances >15km. New visibility is indicated along the coast between Largs and Hunterston, an area where there is no visibility of other wind farms apart from the two (177/193m) demonstration turbines at Hunterston which have a short-term consent. Turbines >150m would extend visibility into the Ardrossan Harbour area, overlapping with visibility of the Ardrossan (and also Dalry and Sorbie) wind farms in views from this area.
Dersalloch	115/125m	Increasing turbines to 150m and 200m would extend close (<5km) visibility of the wind farm within the southern part of Straiton, the upper Girvan Valley and on Craigengower Hill which is popular with walkers. The lower SE facing slopes of the Girvan Valley would also be affected. Visibility would extend across floodplain meadows west of Dalmellington and Loch Doon, increasing effects on the Craigengillan designed landscape. Between 10-15km, there would be some increases in visibility within the Galloway Hills (and Merrick WLA). Beyond 15km, new visibility would occur across the settlements of Dalrymple and Drongan and the less populated Martyrs Moss area to the east.

Table A: Analysis of ZTV maps based on operational and consented wind farms

Wind farm	Existing	Areas of theoretical new visibility associated with
	height	150m and 200m turbines
Whitelee II	140m	The ZTV map shows differences in increasing the height of turbines to 200m only. There would be little increase in visibility generally within the 20km cut-off shown on the map. New visibility is shown to the east of the wind farm across East Renfrewshire, although the original Whitelee I wind farm is already visible in this area. Within East Ayrshire, there may be additional visibility within 5km in the Darvel/Newmilns area and within 10km, in the Sorn and Catrine area. Beyond distances of 15km visibility would be extended into areas east of Auchinleck, Tarbolton and the southern slopes of the Ayr Valley.
South Kyle	146.5m	The ZTV map shows differences in increasing the height of turbines to 200m only. There would be very little new visibility with this mainly affecting less populated and/or sensitive areas. Some small pockets of increased visibility would be likely to occur along and near the A713 road south of Dalmellington. In general, impacts associated with increased visibility would be unlikely to be significant.
Arecleoch	135m	At distances of around 5km a wind farm in this location with turbines increased to 150m and 200m may be more visible within the Duisk valley (and potentially from Barrhill). Increased visibility may also occur in the lower Stinchar Valley potentially affecting properties on south- facing lower valley sides between Poundland and Knockdolian (see Viewpoint 6 in Table B). Around 10km distance there may be increased visibility from the A77 (but not from the sensitive coastal edge) with some overlap with the Glen App wind farm. Between 15-20km there would be intermittent new visibility from the A75 in the Glenluce area although this wind farm would be seen in a context where existing wind farms are significantly closer thus limiting effects. Visibility would also be increased on the northern tip of the Rhins in Galloway.
Kirkhill	110m	The most significant increases in visibility associated with 150m and 200m high turbines are likely to be experienced along the coast between Turnberry Point and Culzean where the wind farm would be seen at relatively close distances of around 5km. Small and less significant increases would occur between 5-10km and beyond 10km new theoretical visibility would largely occur within less settled forested areas to the south.
Mark Hill	110m	Increases in theoretical visibility within 5km is indicated on the more settled lower slopes of the Duisk Valley between Pinwherry and Barrhill although the well-wooded nature of the valley may limit views. Between 5-10km there could be increased visibility across northern slopes of the Stinchar Valley between Barr and the A76; existing wind

Wind farm	Existing	Areas of theoretical new visibility associated with	
	height	150m and 200m turbines	
		farms are already seen in very close proximity in this area. There would also be increased visibility within the lower Stinchar valley in the Colmonell area (which is likely to overlap with visibility of the Arecleoch wind farm). Minimal effects are likely to occur to the south and east beyond distances of 10km because the differences in extent of visibility would largely affect sparsely settled forested areas. Minimal new visibility would be introduced into the Merrick WLA (although larger turbines may exacerbate existing effects on wild land qualities).	
Assel Valley	110m	Within 5km there would be increased visibility associated with turbines of 150m and 200m along sections of the A714 between Girvan and Pinwherry. The southern side of the Stinchar valley may be affected by increased visibility as would an area east of Girvan. Little increase in visibility is likely to occur between 5-10km from the wind farm although beyond distances of 10km some new visibility is indicated along the coast SW of Lendalfoot (potentially affecting areas where wind farms are currently not visible). In the Culzean area, more turbines and turbines above hub height (currently only a few turbines break the skyline) may be visible if increased in height.	
Glen App	126.5m	Increasing the height of the Glen App turbines would principally extend visibility within parts of Galloway potentially affecting the Castle Kennedy/Luce Sands area. There could be increased visibility in close views from the A77 within the scenic Glen App area, potentially exacerbating present views of turbine blades seen on sensitive skylines. At distances of around 10km turbines of 150m and 200m would introduce new visibility along the South Ayrshire coast north of Ballantrae and along the eastern coast of Loch Ryan in Galloway.	
Hadyard Hill	110m	There could be significant increases in visibility within 5km of the wind farm in the Dailly area. Parts of the upper Stinchar valley (including the B734) could have new visibility. Increased visibility could occur from Craigengower Hill and SW of Maybole around 10km distance. Between 10-15km new areas of visibility largely occur within less settled forested areas to the south and east. There would be some increases in visibility within the Merrick WLA but at distances of almost 20km from the wind farm.	
Hare Hill	64m and 70-91m	This development is already extensively visible across the Lugar/Nith Valleys due to its prominent position. Increasing turbines >150m would result in some visibility in nearby Glen Afton and around Cumnock although in general new areas of visibility affect less settled uplands.	

Analysis of sample visualisations

Visualisations from ten representative viewpoints across Ayrshire have been generated and reviewed in the field. The viewpoints have been selected following review of Environmental Statements of viewpoints commonly used in LVIA of recent wind farm applications. The visualisations generally show fewer and more widely spaced turbines as turbines increase in size. It is expected that detailed design of turbine layout would be undertaken if any of these sites were to be repowered and that some of the effects identified in this assessment could potentially be mitigated to some degree. Nonetheless, the visualisations and conclusions identify key landscape and visual issues which can inform strategic policy formulation and provide a tool in Development Management decision making.

The Civil Aviation Authority require steady red lights to be fixed to turbines >150m height (and also, in some situations, to turbines under 150m). Lighting of this nature has the potential to extend landscape and visual impacts of a wind energy development into periods of low light levels at dawn and dusk and overnight. Impacts will be different to those experienced during the day and will be influenced by the character of the landscape within which the development is located (and also its wider context) and the nature of views of the development (principally related to the number and extent of turbines visible, the apparent 'jumping' of lights caused by rotation of turbine blades which can exacerbate effects ⁷ and their location in relation to other sources of lighting).

This assessment provides some general commentary on potential landscape and visual issues associated with repowering existing wind farms. The detailed sensitivity assessments consider the effects of lighting where the very large typology (turbines >130m high) has been assessed.

The assessment from sample visualisations is set out in Table B which follows. The location of these viewpoints is shown on Figure 1. The comparative visualisations can be accessed by the individual hyperlinks in the table below.

⁷ This effect has been observed during dusk at the Hill of Glaschyle wind farm in Moray in 2017 (the lighting has since been removed).

Viewpoint	Wind farm(s) seen in the view	Existing height of	Effects of increasing height of turbines
		turbines	
1: Cumbrae, Glaid	Kelburn	100m	Both the Ardrossan and Kelburn wind farms occupy lower sections of the skyline
Stone viewpoint, North	Ardrossan	100m	of the Clyde Muirshiel uplands and, while still prominent features from this
Ayrshire	Hunterston test site	177m/193m	viewpoint, this reduces their impact to some degree. While increasing the size of
			the Ardrossan turbines to 150m would incur relatively few effects in this view
			(unlike Viewpoint 3 where nearby smaller scale coastal settlement is visible),
			200m high turbines would appear to overwhelm the size of the lower hills to the
			south that this development is sited upon. Increased turbines to 150m high
			within the Kelburn site could be accommodated due to the partial containment of
			the turbines by the basin landform within which the wind farm is sited (which
			limits the vertical extent of development visible in this view). There would
			however be a more marked contrast between 200m high turbines within the
			Kelburn site and the scale of Kaim Hill (which is particularly pronounced) and
			other nearby hills and the more patterned lower western slopes of the Clyde
			Muirshiel uplands which feature fields, small woodlands and settlement around
			Largs. The Hunterston test turbines (seen in the middle ground to the right of the
			photograph/visualisation) are close to 200m high and have a short- term consent
			so have been excluded from this assessment.
2: Highfield, NW of	Kelburn	100m	This viewpoint is located on National Cycle Route 7 in the Garnock Valley
Dalry, North Ayrshire	Ardrossan	100m	looking towards the Clyde Muirshiel Uplands and four operational wind farms.
	Dalry/Millour Hill	125m	The Ardrossan wind farm is more distant and associated with the smaller hills at
			the southern end of these uplands. The Dalry, Millour Hill and Kelburn wind
			farms appear as a single development in this view. Increasing the Ardrossan
			turbines to 150m and above would overwhelm the relief of the smaller hills on
			which this development is sited (see also Viewpoint 3). 150m high turbines could
			potentially be accommodated within the Dalry/Millour and Kelburn grouping as

Tahla R'	Viewnoint anal	lusis of increas	ing size of turbines	within operational	and consented wind farms
I ADIE D.		19313 01 11101003	any size or turbines		

Viewpoint	Wind farm(s) seen in	Existing	Effects of increasing height of turbines
	the view	turbines	
			the hills here are larger although there would be some increase in the scale contrast that exists between wind turbines and the settled and farmed hill slopes seen in the middle view. Increasing turbines within this grouping to 200m would however have a dominant effect on the relief of these hills seen in this view and a more significant effect on landscape character and views from both the Garnock valley (and also on the western side of the Clyde Muirshiel uplands, as seen in Viewpoint 1). A significant increase in landscape and visual effects may also occur on the less developed core of these uplands which includes the Wild Land Area if much larger turbines were used in the Dalry, Millour Hill and Kelburn developments. Lighting of turbines >150m high could additionally impact on wild land attributes.
3: Ardrossan Harbour, North Ayrshire	Ardrossan Dalry	100m 125m	Increasing the Ardrossan turbines to 150m and especially to 200m high would overwhelm the relief of the low knolly hills they are sited in. There are many scale indicators in this view and turbines of this size would dominate nearby settlement. It is considered that the optimum height is around 100m as existing and substantially increasing the height of turbines would not be appropriate in landscape and visual terms. The introduction of much larger turbines on the Ardrossan site could also exacerbate cumulative effects likely to be associated with the 104m high consented Sorbie wind turbines which would be located nearby.
4: B741, NE of Dailly, South Ayrshire	Kirk Hill	110m	It was considered that turbines any larger than the 110m high turbines of the consented Kirkhill wind farm would dominate the scale of the relatively low relief of the <i>Maybole Foothills</i> (17d) LCT within which this development is sited. 150m high turbines, and especially 200m high turbines would appear to be approximately three times the height of Dalquharran Castle in this view, dominating the settlement, small woodlands and field pattern in the Girvan Valley. The narrowness of the <i>Maybole Foothills</i> would result in similar effects being experienced from settled coasts and lowlands to the north.
5: A77, Girvan Mains,	Hadyard Hill	110m	Two operational wind farms are seen in different sectors of this view and the

Viewpoint	Wind farm(s) seen in the view	Existing height of	Effects of increasing height of turbines
		turbines	
South Ayrshire	Assel Valley	110m	consented wind farms of Tralorg and Kirkhill will also be visible. Views from the A77 tend to be fleeting although there are also more sustained views from settlement close to Girvan. Approximately 12 turbines within the operational Hadyard Hill wind farm are visible behind the Maxwellston and Hadyard Hills. Increasing the height of the Hadyard Hill turbines to 150m, and especially to 200m, would overwhelm the scale of these landmark hills and increase the visual intrusion. 200m high turbines would also be likely to dominate the more diverse and well-settled Girvan valley in views further NE (not readily visible in this viewpoint). Four blades are seen of the Assel Valley wind farm in this view (although there is greater visibility of this development from the southern end of Girvan). While increasing turbines to 150m would incur minimal change in this view, an increase to 200m would result in a greater number and extent of the turbines visible and a more dominant effect at this distance. Views from the A77, coast and settlement south of Girvan are likely to be significantly affected by increases in turbine height within the Assel Valley wind farm. The narrowness of the <i>Foothills with Forestry+ Wind Farms</i> (17c) LCT within which these wind farms are located would result in views from both the coast and the Girvan and Stinchar valleys either side of the uplands being adversely affected by increased turbine height.
6: B734, Stinchar Valley, Knockdolian, South Ayrshire	Arecleoch	135m	The operational Arecleoch wind farm is visible from parts of the lower Stinchar valley and from sections of the B734. Relatively few turbines (and mainly blade tips) are seen from the road and from settlement on the skyline of the uplands which contain the valley to the south-east. Arecleoch wind farm is located in the expansive <i>Plateau Moorlands with Forestry and wind farms</i> (18c) LCT (which extends into neighbouring Dumfries and Galloway) and visibility affecting principal areas of settlement is limited to intermittent and partial views in the lower Stinchar Valley, higher ground in the Glen App area and from the A714 east of Barrhill. Increasing turbine height to 150m would result in minimal change to existing views from this area (it would also achieve greater

Viewpoint	Wind farm(s) seen in	Existing	Effects of increasing height of turbines
	the view	height of	
		turbines	compatibility with the operational turbines within the Killgallioch wind farm in views from the A714). Increasing turbine height to 200m could be more significant however as more turbines would be visible above hub height in this view resulting in a dominant effect on the smaller scale features within the Stinchar valley although the horizontal extent of the development would be relatively limited. Redesign of the wind farm could potentially reduce landscape and visual effects by omitting some of the more prominent turbines closer to the outer edges of the uplands. Lighting of turbines >150m high could contribute to adverse effects on the sense of seclusion associated with the sparsely settled Stinchar valley
7: Duisk valley, Barrhill, South Ayrshire	Mark Hill (operational)	110m	This viewpoint is located just off the A714 on the minor road to the railway station at Barrhill. The Mark Hill wind farm is generally only seen intermittently from the A714. The wind farm is located within an extensive forested plateau (LCT 18c) which presents a simple skyline in this view. While increasing the size of turbines to 150m high would impact to some degree on the pattern of woodlands evident on upper slopes, the more diverse and settled lower slopes of the valley are less visible thus reducing sensitivity from this viewpoint. This size of turbine could potentially be accommodated assuming some redesign of the layout to avoid overlapping and setting back more dominant turbines lying closer to the Duisk Valley well into the upland area. 200m high turbines would however appear to overwhelm the depth of the valley and the broader pattern of woodlands on its upper slopes. Lighting of turbines >150m high could contribute to adverse effects on the Duisk Valley with cumulative effects additionally occurring if other wind farms sited on the southern side of the valley were repowered to include turbines >150m potentially creating an illuminated 'corridor' effect.
8: Loch Doon, East Ayrshire	Dersalloch (operational) South Kyle (consented)	115/125m 149.5m	The Dersalloch wind farm and the South Kyle wind farm are visible in different sectors of this view. Only six blades of the Dersalloch turbines are visible from this viewpoint and they are located on a low dip on the skyline, minimising their

Viewpoint	Wind farm(s) seen in	Existing	Effects of increasing height of turbines
	the view	height of	
		turbines	
			impact. Increasing these turbines to 150m high would make them more
			noticeable, although turbines of 200m height would have a much more
			significant effect making them a prominent feature on the skyline seen from Loch
			Doon. Views of the Dersalloch wind farm are more critical from the northern end
			of Loch Doon where this development is seen in conjunction with Craigengillan
			Designed Landscape, from the Girvan Valley to the west and from the Rugged
			Uplands, Lochs and Forest LCT (21) where any increases in height are likely to
			severely exacerbate existing effects. Lighting of any turbines >150m on the
			Dersalloch site may also additionally impact on the sense of wildness associated
			with LCT 21 (and the Dark Skies Park). The turbines within the consented South
			Kyle wind farm are close to 150m high. The consented Benbrack wind farm,
			located in neighbouring Dumfries and Galloway and not shown in the
			visualisations, will be sited on Benbrack Hill (a bare hill seen with a cover of
			snow to the right of the South Kyle turbines in the visualisation VP8 – ii). The
			greater prominence of 200m high turbines within the consented South Kyle wind
			farm is likely to result in a significant exacerbation of the effects already likely to
			occur on views from this part of Loch Doon. There may also be significant
			cumulative effects arising with the consented 130m high turbines of the
			Benbrack wind farm in views from Loch Doon.
9: A713, Dalmellington,	South Kyle	149.5m	The consented South Kyle (also the Benbrack wind farm not shown on the
East Ayrshire	Dersalloch	115/125m	visualisation) and the operational Dersalloch wind farm will be seen in different
			sectors of this view. The South Kyle wind farm comprises turbines close to
			150m, forming a long array on the skyline of the Southern Uplands + Forestry
			(20c) LCT to the left of the settlement of Dalmellington. 200m high turbines
			within the South Kyle wind farm would significantly increase the vertical extent
			but less so the horizontal extent of turbines seen in this view. This is likely to
			substantially exacerbate effects on views from the Doon Valley and on the
			setting of Dalmellington – there would also be increased effects on Loch Doon
			(see Viewpoint 8). Only three turbines of the Dersalloch wind farm are visible to

Viewpoint	Wind farm(s) seen in the view	Existing height of	Effects of increasing height of turbines
		turbines	
			the west from this viewpoint. Increasing these turbines to 150m would result in a greater vertical extent visible although this would not be significant, given the limited visibility of this development in this view. 200m high turbines would however be more significant in terms of effects on the scale of settlement and farmland within the Doon Valley and could also exacerbate cumulative effects with the South Kyle wind farm. Views from the west in the Girvan valley area and lowlands of South Ayrshire and from the northern end of Loch Doon are more critical in terms of the height increase of turbines within the Dersalloch wind farm due to its location in an area of upland of relatively limited extent (the <i>Foothills with Forest west of Doon Valley</i>) and close proximity to more settled and sensitive valleys.
10: A719, Horsehill near Waterside	Whitelee II	140m	The comparative visualisations illustrate the effect of increasing turbines to 200m high as the existing turbines are 140m high and therefore close to the 150m typology. This view is seen in the context of a busy A road with traffic travelling at reasonable speed although it allows consistent views of Whitelee I and II wind farms. The existing developments can appear cluttered with much overlapping due to the large number of turbines within the two schemes and the foreshortened nature of views. Whitelee II lies closer to the <i>East Ayrshire Lowlands</i> where farms, settlements and a strong pattern of small fields and woodlands provide nearby scale indicators. The contrast in scale between turbines and the Ayrshire Lowlands is particularly pronounced when seen from the many minor roads lying to the west of the A719 and A77/M77 as these tend to be slightly more elevated and reveal a greater extent of the more settled and smaller scale foreground. Increasing turbines to 200m high from this viewpoint would result in a more marked contrast between the agricultural and settled foreground although it may be possible to redesign the scheme to reduce the number of turbines and remove more prominent turbines.

Viewpoint	Wind farm(s) seen in	Existing	Effects of increasing height of turbines
	the view	height of	
		turbines	
11: Lochside Hotel,	Hare Hill I and II and	64m/70-	The operational Hare Hill wind farm comprises relatively small turbines ranging
New Cumnock	Afton ⁸	91m (Hare	between 64m and 91m. Although the integration of different height turbines
		Hill)	within the two phases of the development is satisfactory, the older part of this
			development is located on a pronounced steep-sided hill which increases its
		100/125m	visual prominence. Increasing turbine heights to 150m would significantly
		(Afton)	increase prominence and visual intrusion while turbines of 200m would
			additionally overwhelm the relief of the hill upon which this wind farm is located.
			The Afton wind farm is also prominently sited as it lies close to the notch cut by
			Glen Afton clearly visible from the Upland Basin (15) in the north. This recently
			constructed development appears 'perched' on the rim of the Southern Uplands
			(20a) above the glen. Although this wind farm is more distant from the viewpoint
			than Hare Hill, increasing turbines to 150m high and especially 200m high would
			similarly significantly exacerbate visual intrusion and dominate the relief of the
			landform.

⁸ The data used to generate comparative visualisations for Afton wind farm comprises consented turbine locations and the as built locations (adjusted when micro-siting) vary slightly from these when seen in the field.

Summary and conclusions

The assessment has considered a selection of operational and consented wind farms and key views with the aim of identifying constraints and opportunities for accommodating much larger turbines in the less sensitive upland areas of Ayrshire.

Review of comparison height ZTVs

The study of ZTVs showing increases in turbine height demonstrates that the *extent of increased visibility* (within the 20km cut-off set for the study) is not dramatic in most cases. However, the following landscape and visual issues are likely to be associated with substantial increases in turbine size due to the potential introduction of new visibility into the following areas:

- The coastal area between Turnberry and Culzean where visibility associated with larger turbines within the consented Kirkhill wind farm site may increase.
- Increasing turbine sizes within the Glen App wind farm could exacerbate existing effects, increasing the extent of development potentially visible on prominent skylines from the A77 within the sensitive Glen App and potentially also along the South Ayrshire coast north of Ballantrae. Larger turbines within this development could also adversely affect sensitive coastal locations in neighbouring Dumfries and Galloway.
- Increases in turbine size within the Mark Hill and Dersalloch wind farms could increase visibility of wind farms (and increase existing intrusion) within the Merrick WLA in neighbouring Dumfries and Galloway.
- New visibility of wind farms may be introduced into the well-settled Girvan valley if turbines within the Dersalloch and Hadyard Hill wind farms were increased in size. In addition, larger turbines within Dersalloch could also affect a greater extent of the Craigengillan Inventory listed Designed Landscape and popular visitor destinations such as Craigengower Hill.
- Larger turbines within the Mark Hill, Arecleoch and Hadyard Hill wind farm sites could increase visibility within the Stinchar valley. The Duisk valley could also be affected by additional visibility associated with larger turbines within the Arecleoch and Mark Hill wind farms.
- Increasing turbine sizes within the Assel Valley wind farm could introduce new visibility along the coast south of Girvan and affect views from the A714.

Review of height comparison visualisations from representative viewpoints

Our assessment from representative viewpoints in the field concluded that the degree of impact or intrusion associated with increased height of turbines would be principally influenced by the distance of the viewpoint from the wind farm, its siting

and the vertical and horizontal extent of turbines visible and the landscape context of the view.

The study identified the following key issues that are likely to be associated with increasing turbine size within operational and consented wind farm sites:

- Increasing turbine size within the Ardrossan and Kirkhill wind farms would overwhelm the low relief of the hills within which both these developments are sited and would significantly affect the setting of settlements.
- While there may be some scope to increase the size of turbines within the Kelburn, Dalry and Millour Hill wind farms to around 150m, turbines closer to 200m would significantly exacerbate effects on more settled coasts and islands and the Garnock valley. Any increases in existing turbine size in the Clyde Muirshiel Uplands may also adversely affect the more remote core of these hills, part of which is defined as a WLA.
- The Hadyard Hill and Assel Valley wind farms lie in a relatively narrow band of hills and any increases in turbine height are likely to adversely affect character and views within the Girvan Valley, and in the case of the Assel Valley wind farm, along the coast south of Girvan.
- It is not possible to increase the height of turbines within the consented Kirkhill wind farm due to effects on the scale of the *Maybole Foothills* (17d) LCT within which this development is sited and effects on the sensitive Girvan Valley which is well settled and accommodates a number of designed landscapes.
- The Dersalloch wind farm already affects the Craigengillen GDL and increasing turbine height would be likely to significantly exacerbate these effects as well as increasing visibility and intrusion on views within the upper Girvan valley area.
- There may be some scope to increase the height of turbines to 150m within the Arecleoch and Mark Hill wind farms due to their location within the more extensive *Plateau Moorland with Forestry* (20c) LCT. Larger turbines are likely to cause additional effects on the adjacent lower Stinchar Valley and the Duisk Valley NW of Barrhill although this could potentially be mitigated through redesign and reducing the number of turbines. The Arecleoch wind farm is set further back into this upland area and therefore potentially offers more scope for turbines up to 200m to be accommodated, although a significant exacerbation of effects on the highly sensitive Stinchar Valley and cumulative effects with the nearby Glen App, Stranoch and Kilgallioch wind farms are likely to form major constraints to repowering with turbines of this height.
- The Whitelee II wind farm turbines are already 140m high and increases to 150m are likely to have little discernible difference in terms of landscape and visual effect. Increasing turbines to 200m could exacerbate the scale contrast with the small field pattern and buildings within the East Ayrshire Lowlands although omission of already prominent turbines lying on the outer edges of the uplands may reduce effects.

- Hare Hill and Afton wind farms occupy prominent locations within the *Southern Uplands* (20a) and increasing turbine heights would significantly exacerbate visual intrusion and effects on landscape character particularly experienced from settlement and roads to the north.
- Increasing turbine height within the consented South Kyle wind farm would significantly extend the spread of development seen from the popular Loch Doon area and exacerbate likely effects on the setting of Dalmellington seen from the Doon Valley.

Lighting of wind turbines >150m high

The effects of lighting of wind turbines >150m high has been considered in more detail in the sensitivity assessments undertaken for much larger turbines in relevant upland areas. Key sensitivities are the Dark Skies Park in parts of South and East Ayrshire and effects on the Merrick Wild Land Area in Dumfries and Galloway and on more secluded and sparsely settled valleys.

Mitigation measures currently being investigated by wind farm developers include technical innovation to limit the extent of time when lighting is needed on turbines >150m (proximity activated lighting mitigation). However, in the areas noted above, even intermittently and relatively short periods of lighting would still be likely to incur landscape and visual effects and this would need to be carefully considered as part of the detailed impact assessment.

Conclusions

Some of the *Foothill* landscape character types which already accommodate wind farm development form relatively narrow bands between well-settled valleys, resulting in close views of turbines from either side of the upland area. Other wind farms lie within more extensive upland plateaux and this tends to reduce intrusion as turbines are often more distant from surrounding settled lowlands and valleys.

This assessment concludes that there are very few locations where turbines up to 200m high could be accommodated in Ayrshire with potential scope being limited to the Arecleoch and Whitelee wind farms. These wind farms lie within more expansive (and generally simpler) upland plateau landscapes. Some redesign would be necessary to omit more prominent turbines seen from adjacent valleys and lowlands.

There could be some limited scope to increase turbines to up to 150m within the Mark Hill wind farm and the Kelburn, Dalry and Millour Hill wind farm sites. Landscape and visual effects on the core of the Clyde Muirshiel Uplands and Wild Land Area and cumulative effects would however need to be considered in more detail for the closely located Kelburn, Dalry and Millour Hill developments.

Other wind farms in Ayrshire are considered to already comprise turbines at maximum height in relation to landscape and visual effects with no scope for substantially increasing size although other repowering measures such as variations in blade length, power storage etc may be appropriate.

Redesign of wind farm developments as part of the repowering process, including altering the layout/number of turbines, may offer some scope to minimise landscape and visual effects.

This assessment has been based on ZTV mapping and visualisations prepared from a very limited range of viewpoints within Ayrshire. Detailed assessment informed by a more comprehensive range of visualisations would be necessary to fully consider landscape and visual impacts for specific proposals.

ANNEX E: LANDMARK HILLS

Auchenroy Hill This rugged, steep-sided hill is prominently sited on the west side of the Doon Valuey, Its natural appearance contrasts with the extensive conferous forest and disturbed ground of opencast mining evident elsewhere in the Doon Valley, between Dalmellington and Patna. Auchenroy Hill les within the Inventory listed Craigengillan designed landscape, An extensive native woodland has been recently planted on the hill and this will enhance the landscape of the Doon Valley. Popular with walkers, the summit features views to the Galloway Hills, Ailsa Craig and Arran. This hill is also important in containing views of the operational Dersalloch wind farm from parts of the Doon Valley. Benquhat Benquhat lies within an upland landscape disturbed by mining and is one of the few intact natural features in this area. Its distinctive form of long northem slopes and a steeper scare slope to the south is particularly noticeable in views from the Doon Valley north of Damellington and from the B741 when travelling east from Straiton. It is also seen as a distinct high point on the long and generally even backdrop formed by the Foothils with Forest and Opencast Mining in views south from the Iowands of East Ayrshire. Blackcraig and Craigbraneaoch Rig These hills lackcraig is one of the highest hills in the Southern Uplands lying within East Ayrshire and neighbouring Dumfries and Galloway. It is a rugged open within the order and area. Craigbraneaoch Rig Blackside, Cairn These hills even the Southard and has a similar form of smooth heather and grassy steep slopes broken by occasional crags. It provides strong containment to Glen Afton and is largely seen from this valley. Blackside, Cairn These hills are on the		
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ANNEX F: GUIDANCE ON SITING OF SMALLER TURBINES

Introduction

The height of turbines relative to other structures in the landscape is a key consideration in terms of landscape 'fit'. With this in mind, three types of 'smaller' turbines are considered in the following guidance as follows:

- Micro-small wind turbine Below 15m to blade tip
- Small wind turbine 15m 30m to blade tip
- Small-medium wind turbine 30m 50m to blade tip

Guidance for micro-small wind developments (up to 15m to blade tip)

The 15m 'cut off' for turbine height was selected because of the small size of many of the farm buildings in Ayrshire. Turbines up to 12m in height relate well to the size of existing buildings in the landscape, including smaller farm buildings. 12m high turbines are just over twice the height of a single storey house, while a two storey house is about 9m high to roof pitch. Some farm buildings are higher than this.

A well mature forest broadleaved or conifer tree will be about 15m in height. Turbines up to 15m in height will therefore generally relate well to the size of farm buildings and forest trees. They are also similar to small telephone masts and tall telegraph poles.

This size of turbine has not been considered in detail in the landscape sensitivity assessment although the appropriateness of this typology to some landscapes is noted, where relevant, in the guidance section of the assessments.

In Ayrshire, the following issues have been identified as being particularly influential in terms of detailed siting of this typology within character types identified as being appropriate for this typology:

- Turbine height in relation to the scale of the landscape
- Development pattern
- Visibility
- Potential cumulative issues

16.3.1 Turbine height in relation to the scale of the landscape

Understanding scale, and the relative proportions of features in the landscape, is important in siting this typology. Landscape scale is made up of two factors, the scale of the landform and the scale of the pattern of land use.

Assessing the scale of the landform involves assessing the perceived vertical height and horizontal expanse of the topography, as well as the degree of openness and containment created by topographical relief.

The pattern of land use creates an additional layer of possible enclosure, for example where woodland, hedges and field walls provide containment. Conversely, low-growing vegetation, such as moorland, can reinforce openness. In addition, while we often assess sense of scale relative to ourselves within the landscape, individual elements, from trees to pylons, can provide reference points against which the scale of the landscape or size of other elements is perceived and understood.

A single turbine of this height is most likely to be used to contribute to the energy needs of a residential house, farm or other rural based small business. The size means that it is relatively easy to accommodate in a settled landscape, if sited to be associated with such a building cluster. It is therefore likely that any assessment of landscape sensitivity will conclude that this size of turbine could be readily accommodated – perhaps, at the most, subject to siting considerations to encourage the turbines to be located where they can be visually seen to be part of a group of buildings, or clearly linked to an individual house, as shown in Image 1.



Image 1: Scale in relation to buildings: A turbine illustrated at an indicative 2x the height of the house from this view. The turbine is well scaled in relation to the size of other individual features. It is also located on the side of the hill, rather than the hill top, where it can be 'read' in conjunction with the farm buildings. This forms a 'cluster' of development, which reduces landscape and visual impact.

While generally, with careful siting, the landscapes of Ayrshire can accommodate this size of turbine, there are two key sensitivities to consider for siting this height of turbine:

- The first is that the tops of coastal features, such as raised beaches and headlands are as sensitive to this height of turbine as any other, due to the visual prominence of skylines of this type of landform.
- It is also recognised that turbines of up to 15m may have cumulative effects on the landscape, especially where farms are located close together.

Nevertheless, their general ability to be absorbed within the scale of the landscape means that they have been excluded from detailed assessment within the sensitivity assessments.

16.3.2 Development pattern

When siting turbines in a farmed landscape, such as the lowlands, valleys or the dales character types, it is desirable to support the existing pattern of built development. Turbines of a similar size are consistently associated with a commonly occurring detailed landform or built features associated with the farms or small settlements in an area. Note that proximity to 'regularly occupied' buildings will also need to be balanced with a noise buffer zone.



Image 2 – Poor relationship with settlement pattern. Here a turbine is located in between two farms, and is not associated with either. It appears to 'drift' unattached in the landscape as it does not reflect the existing pattern of built development. Instead, the turbine is setting up a new pattern of development which conflicts with the existing well-established pattern.



Image 3 – Strong relationship with settlement pattern. The same landscape, with a turbine sited to each of the farms, close to the buildings, each of which now form 'building clusters'. Here the turbines reflect the existing pattern of settlement, emphasising this, rather than starting a new built pattern which conflicts with the existing pattern. Micro-siting will need to balance creating a development cluster with the need to apply a recommended 'noise buffer' zone.



Image 4 – Settlement pattern on extensive low-lying farmed landscapes: Micro-small turbines can be located relatively close to buildings, to form 'clusters of development' consistently placed across more expansive farmland areas. Consistent siting and association with existing farms will limit negative cumulative landscape effects. Micro-siting will need to balance creating a development cluster with the need to apply a recommended 'noise buffer' zone.

16.3.3 Visibility

Unsurprisingly, these micro-small turbines are likely to be less visible than the larger ones over a wider area. Turbines which are 15m or less in height are more likely to be able to be screened or partially hidden by low ridges and more undulating landform. Tree cover, including sometimes extensive woodland, also limits visibility.

Hiding turbines per se is not more important than choosing a turbine of the right size in relation to landform or other landscape features, or than good micro-siting in relation to landform and settlement pattern. However, reducing sustained visibility of turbines helps limit potential cumulative visual impacts.

Siting turbines on the sides of ridges and low hills, rather than on their summits and high points overall reduces visual cumulative effects – turbines are partially screened from some viewpoints to the lee of the hill and slopes in these locations. If several turbines are visible in an area, broad consistency of turbine design, height and location can help mitigate potential visual impacts.

16.3.4 Potential cumulative issues

Given the current incentives, these micro-small turbines may become a frequent and common occurrence in farmed landscapes. Key cumulative issues for small turbines are likely to relate strongly to potential clutter in the landscape. Issues may include:

• Several individual, or small groups of turbines, could begin to dominate local character;
- The landscape could appear 'cluttered' if single or groups of turbines were associated with the majority of land holdings, especially where holdings are small and therefore closer together;
- Lack of a clear siting strategy could lead to fragmentation of an existing robust, recognisable, consistent and characteristic pattern of settlement, especially if turbines do not relate well to existing buildings and established pattern of built development;
- While one turbine breaching a skyline may be a focal point, a number of diverse structures, all spinning at different speeds – or even several of the same type of turbine – or appearing at irregular intervals along a prominent or important skyline will become a visual distraction from other landscape features or from perceived visual amenity, especially from key viewpoints;
- The variety of potential different types of wind turbines within the landscape could lead to clutter with different styles, sizes of structures and speeds of blade movement dotted across a landscape;
- There may be the added complication of increased visual clutter created by a wide range of different heights of turbine within a farmed landscape with micro-, small and small/medium sized turbines;
- Potential clutter may also be exacerbated if there are other masts, such as telecoms masts, overhead wires and pylons within the same vicinity.

Periodic review will need to be undertaken to assess the cumulative situation in areas where there is a concentration of operational, consented and proposed turbine developments. Adherence to the siting principles set out in this guidance will minimise potential cumulative landscape and visual effects.

16.4 Guidance for small turbines (15m – 30m to blade tip)

The sensitivity of the landscape to this development scenario has been included in all assessments carried out in settled and farmed lowland, valleys, foothills and coastal character types.

Less settled upland landscape character types were not assessed for this size of development, as applications are unlikely to come forward for this size of turbine in areas where there are no farms or other settlement.

16.4.1 Background

In Ayrshire, the following issues have been identified as being particularly influential in terms of detailed siting of this typology within character types identified as being appropriate for this typology:

- Turbine height in relation to the scale of the landscape
- Landform shape
- Settlement and land use pattern and features
- Visibility
- Potential cumulative issues

16.4.2 Turbine height in relation to the scale of the landscape

Turbines of between 15m and 30m are going to be one of the tallest structures in most Ayrshire landscapes. They are going to be taller than many buildings and most trees. They are still, however, similar in height to some taller pylons and communications masts.

Understanding scale, and the relative proportions of features in the landscape, is important in siting this typology. Landscape scale is made up of two factors, the scale of the landform and the scale of the pattern of land use.

Assessing the scale of the landform involves judging the perceived vertical height and horizontal expanse of the topography, as well as the degree of openness and containment created by topographical relief.

The pattern of land use creates an additional layer of possible enclosure, for example where woodland, hedges and field walls provide containment. Conversely, low-growing vegetation, such as moorland, can reinforce openness. In addition, while we often assess sense of scale relative to ourselves within the landscape, individual elements, from trees to pylons, can provide reference points against which the scale of the landscape or size of other elements is perceived and understood.

16.4.3 Scale: Topography

In Ayrshire, the scale of the landform is a significant factor in defining landscape character. More enclosed and wooded river valleys, glens and smaller dales, small scale hummocky landforms and very low hills, raised beaches as well as more complex landform along some of the foothills and valley sides, create areas of relatively small scale character.

More expansive slopes, medium sized hills, long undulating ridges and the foothills create a more medium scale landform, while sweeping plateaux and much higher relief create the larger scale of the upland areas.

Relatively expansive but undulating landscape, sometimes folded into more complex rounded landform of low relief, is more characteristic of the lowland farmed plains. These lowlands landscape types offer potential for this typology because of the overall expansiveness of the landscape, although some of the small rounded complex landforms may be sensitive even to this height of turbine.

Taller turbines within this typology are more likely to able to take advantage of the higher degree of relief along the broad slopes of foothills and lower fringes of upland areas, the lower side slopes of valleys or the sides of undulating ridges to be found in the dales character types. This is shown in Image 5 below.



Image 5 – Landscape scale and size of features: A taller turbine of the 'small typology' range located on a low-lying ridgeline set back from, but still associated with the pattern of settlement. In this location, the turbine is linked to the scale of the landform and there are no features in the immediate proximity against which to judge turbine height. It is sited at a slight dip in the ridge, and back-dropped in this view by higher ground. It is located away from the low farm buildings to avoid overwhelming the buildings in terms of scale.

16.4.4 Scale: Farmland

Trees and woodland, field pattern, settlements and farms are located across the farmed lowlands and extend onto the lower fringes of the uplands. They are also a characteristic of the valleys and dales. The consistent and recurring presence of these elements creates a pattern that reduces the landscape scale in these areas, and the individual elements provide scale reference points against which height can be judged.

Care should be taken to site 15m - 30m high turbines where they do not dominate individual buildings, trees or other features, although some association with broad settlement pattern is still considered appropriate. Turbines in the lower range of this height (15m - 20m) are still likely to be small enough to be sited where they can be closely associated with larger buildings and trees to form the type of development cluster illustrated in Image 6 below.



Image 6: Scale in relation to buildings: A turbine illustrated at an indicative 2x the height of the house from this view, or a taller turbine located behind the ridge to reduce overall height from this view. The turbine is well scaled in relation to the size of other individual features. It is also located on the side of the hill, rather than the hill top, where it can be 'read' in conjunction with the farm buildings. This forms a 'cluster' of development, which reduces landscape and visual impact.

As shown in Image 6 above, although they may sometimes be bigger than these elements, a turbine of this size is unlikely to be more than three times the size of any building or tree, and within a wider landscape setting, this size relationship can usually be accommodated unless there are site-specific scale sensitivities.

Taller turbines (20m - 30m) may require to be located further away from smaller buildings and trees, so that they do not overwhelm them in terms of size, as shown in Image 6. This is a particular issue in Ayrshire as many of the farm buildings are low.

16.4.5 Scale: Coast

On the coast, landform relief tends to be low. A particular feature are the low but well defined raised beaches that frequently form a backdrop to level fields, or the convex slopes of foothills hills forming a containing skyline. Views from the sea are a particular consideration on this busy sea. Even where higher cliffs, headlands and more pronounced landform is present, the scale is sensitive, as a turbine of any height can easily diminish the perceived sense of height and drama.

As a result, the landscape sensitivity assessments for the coastal character types conclude that there is only very limited scope for turbines of less than 30m to blade tip in the coastal character types. No opportunities were found for even these small turbines on raised beaches and more complex landforms, or along the prominent skylines of headlands.

All turbines should be set well inland from raised beaches, promontories, cliffs, headlands or other key landform features. They should avoid being located close to, or directly on, the skyline. The visual drama of these topographical features often depends on their perceived scale, and this can easily be diminished by turbines sitting on top of these features.



Image 7 – Coastal landscapes: This turbine is poorly sited. It is perched on top of the raised beach and although it is quite small, instantly dominates the view and overlooks, or appears to 'hover above', the coast.



Image 8 – Coastal landscapes: This turbine is better sited. It is set back from the immediate coastal edge, associated with buildings and has a less intrusive impact on the coast.

To conclude, turbines of this height (15m - 30m to blade tip) are likely to be difficult to accommodate within very small scale and complex topography, areas of very low relief, or where there are small farm buildings or other small features.

The larger size of turbines in this range are better located where they can be accommodated by landform scale which is more evident in more open landscapes, or larger buildings.

For this typology, if there is doubt about the potential impact of a turbine on the scale of the landscape, a photomontage or wireline of the turbine taken from a key viewpoint will help the assessment of potential impacts.

16.4.6 Landform shape

Turbines of this height (15m - 30m) are most likely to be located within the farmed lowlands, lower hill slopes and valley floors. The narrow coastal plains are flat, while the more extensive lowlands are gently undulating, often with areas of more complex, interlocking rounded landform created by deposits which can also appear in the dales.

Turbines of this size are most easily accommodated on the more open side slopes of low hills or ridgelines and along the simple gradients along the sides of the dales or in the lowland hills and foothill types. Other opportunities include the rising ground which provides the transition between the uplands and the farmed lowland areas and river valleys, as the higher hills form a backdrop to the turbines.

Most landforms, including low hills, are gently rounded, and valley sides vary from convex slopes to more abrupt concave slopes along the coast. Valley sides can offer natural terraces and changes in gradient, often associated with deposits.

These terraces, narrow ledges, folds and subtle hollows and distinct changes in gradient associated with rising slopes or dips within undulations, have the potential to create natural platforms for siting turbines in this height range.

Turbines should not be located on the tops of low hills or knolls. Side slopes of low hill and ridges, and terraces or places where there is a marked change in gradient offer good opportunities.



Image 9 – Turbines associated with change in gradient: These turbines are located where there is a change in gradient or ridge of rocky land – a landform feature which already exists on the side slopes of the hills

Distinct changes in gradient associated with rising slopes, well defined dips within undulations or more expansive concave landforms, long ridges and interim hills along the lower edges of the foothills, as well as the edges of more expansive plateaux all provide potential opportunities for micro-siting turbines of this size.



Image 10 – Landform shape and scale: A cluster of turbines towards the larger height of the small typology turbine range located on the side of a hill. Here there is a distinct, relatively level ridge and at a low point in the landform. The turbines have been located where they are not likely to interrupt key views of the more rugged 'landmark hills' to the right. They are also in scale with the landform, although they are at the upper end of this typology in terms of size.

16.4.7 Settlement and land use pattern and features

In Ayrshire, there is frequently a clear link between settlement and landform, for example, on the edges of the uplands, buildings may be located at a natural break in slope, the side slopes of the valleys and dales or associated with watercourses.

Across the farmed lowlands, farm buildings may be relatively evenly dispersed across the landscape. The farm acreage is often small, and the steadings can be close together, creating quite a dense pattern of dispersed settlement, but with small buildings. Along the coast, farms and smaller settlements are often set back from the shore, although larger towns are clustered around harbours. A frequent location for housing is tucked against the raised beaches, but farms are more often set further inland, in sheltered locations.

There are larger farm buildings and industrial buildings occasionally located in the lowlands and also on the fringes of larger towns or on the coast. These building groups can include tall stacks or other masts.

This height of turbine (15m - 30m height to blade tip) is larger than most buildings found in rural areas. They therefore should be sited where they can more readily be accommodated by landform scale, and avoid overshadowing or small fields and settlement, including the small farmsteads typical of some of the lowlands areas.

These small sized turbines are better accommodated if located on low ridges, the side slopes of hills and dales and set slightly apart from farms or settlements.

Developing a recognisable pattern of development – for example, locating turbines at a similar elevation, and/or on similar topographical features across a landscape type will help create a pattern of development which will appear less cluttered and will also develop a distinctive and consistent landscape characteristic over time. Proximity to 'regularly occupied' buildings will need to be balanced with a noise buffer zone.



Image 11 – Developing a landscape pattern: These turbines are located at a similar elevation on this hillside between lowlands and hills. This similarity in size, location and elevation helps to maintain the unity of the landscape pattern. Consistent association with watercourses, side slopes of similar gradient, breaks in slope, head dykes or other features will help increase unity in the landscape and reduce negative cumulative landscape effects.

It is important to assess and understand the existing settlement pattern at the outset, and consider how a number of turbines could be sited in a landscape. Careful and consistent siting will limit potential negative cumulative effects on landscape character.

16.4.8 Visibility

Small turbines, of between 15m and 30m in height, are likely to appear above trees and buildings. Clearly, the taller the turbine the more likely it is to be more widely visible.

Hiding turbines per se is not more important than choosing a turbine of the right size in relation to landform or other landscape features, or than good micro-siting in relation to landform and settlement pattern. However, reducing sustained visibility of turbines helps limit potential cumulative visual impacts.

Siting turbines on the sides of ridges and low hills, rather than on their summits and high points overall reduces visual cumulative effects – turbines are partially screened from some viewpoints to the lee of the hill and slopes in these locations. If several turbines are visible in an area, broad consistency of turbine design, height and location can help mitigate potential visual impacts.

16.4.9 Potential cumulative issues

Given the current incentives, these small sized turbines may become a frequent and common occurrence, especially in farmed landscapes. Key cumulative issues are likely to relate strongly to potential clutter in the landscape and the visual relationship with other wind turbines. Issues are similar to those identified in the analysis of micro-small wind turbines, but because of the larger size of these turbines the issues are likely to occur more quickly and may include:

- Several individual, or small groups of turbines, could begin to dominate local character;
- Lack of a clear siting strategy could lead to fragmentation of an existing robust and recognisable landscape pattern where possible, it is important to site turbines on similar landforms, at similar elevations and with a similar relationship to the existing settlement pattern;
- Diverse designs of turbine, all spinning at different speeds or even several turbines of the same type – strung along a prominent or important skyline could become a visual distraction from other landscape features or from perceived visual amenity, especially from key viewpoints;
- The larger the turbine, the harder it is likely to be to accommodate a number of them in a single view or recognisable tract of landscape without them becoming the dominant feature. It is also harder to accommodate the turbines in a sequence of views experienced, for example, when travelling along a road;
- The variety of potential different types of wind turbines within the landscape could lead to clutter with different styles, sizes of structures and speeds of blade movement dotted across a landscape;
- Potential clutter may also be easily created if there are other masts, such as telecoms masts, overhead wires and pylons within the same vicinity;
- There may be the added complication of increased visual clutter created by a wide range of different heights of turbine within a farmed landscape with micro-, small and small/medium sized turbines;
- An additional complication may be the visual interrelationship with larger wind farms of large and medium sized turbines, especially along the upper edge of farmland adjacent to upland character types.

Periodic review will need to be undertaken to assess the cumulative situation in areas where there is a concentration of operational, consented and proposed turbine developments. Adherence to the siting principles set out in this guidance will minimise potential cumulative landscape and visual effects.

16.4.10 Other landscape issues associated with this typology

Undergrounding electricity cables to a suitable off-site location to connect with the grid should also be undertaken in order to avoid a clutter of disparate built elements in the landscape.

16.5 Guidance for small-medium turbines (30m – 50m in height to blade tip)

The sensitivity of the landscape to this development scenario has been included in all assessments carried out in settled lowland landscape and coastal character types. Less settled upland landscape character types, however, were not assessed in detail for this size of development, as applications are unlikely to come forward in areas where there are no farms or other settlements.

16.5.1 Background

In Ayrshire, the following issues have been identified as being particularly influential in terms of detailed siting of this typology within character types identified as being appropriate for this typology:

- Turbine height in relation to the scale of the landscape
- Landform shape
- Settlement and land use pattern and features
- Visibility
- Cumulative issues

16.5.2 Turbine height in relation to the scale of the landscape

Turbines of between 30m and 50m are going to often be the tallest structures in any Ayrshire rural landscape. They are going to be taller than buildings and trees. They will also be taller than most communication masts and pylons, although there are some very tall structures associated with the coastal industrial developments at Hunterston and near Irvine.

Understanding scale, and the relative proportions of features in the landscape, is therefore important in siting this typology. Landscape scale is made up of two factors, the scale of the landform and the scale of the pattern of land use.

Assessing the scale of the landform involves assessing the perceived vertical height and horizontal expanse of the topography, as well as the degree of openness and containment created by topographical relief.

The pattern of land use creates an additional layer of possible enclosure, for example where woodland, hedges and field walls provide containment. Conversely, low-growing vegetation, such as moorland, can reinforce openness. In addition, while we often assess sense of scale relative to ourselves within the landscape, individual elements, from trees to pylons, can offer reference points against which the scale of the landscape or size of other elements is perceived and understood.

16.5.3 Scale: Topography

In Ayrshire, the scale of the landform is a significant factor in defining landscape character. More enclosed and wooded river valleys, glens and smaller dales, small scale hummocky landforms and very low hills, raised beaches as well as more complex landform along some of the foothills and valley sides, create areas of relatively small scale character. More expansive slopes, medium sized hills, long undulating ridges and the foothills create a more medium scale landform, while sweeping plateaux and much higher relief create the larger scale of the upland areas.

Relatively expansive but undulating landscape, sometimes folded into more complex rounded landform of low relief, is more characteristic of the lowland farmed plains. These Lowlands types can accommodate some turbines of this height, but largely associated with the edge of the more level and open farmed areas and moor, avoiding more complex landform.

Low hills, and prominent landmark hills are sensitive to this typology, because their perceived scale can be diminished. The containment of the narrower glens, valleys and the dales is a further sensitivity for this typology, where only limited scope was identified.

Turbines of this height (30m - 50m) can therefore be accommodated most readily by relating the height of the turbines to the scale of the landform in those areas where landform is a more dominant feature than the landscape pattern.

If well sited, turbines of this size, even in small groups of up to three turbines, may be able to take advantage of the degree of relief created by medium scaled landforms. Examples include the broad slopes of larger scale foothills and fringes of extensive upland areas and plateaux or the transition between smaller scale farmed lowlands and the edge of larger scale upland landscapes of higher relief and simple vegetation pattern. This is shown in Image 12 below.



Image 12 – Landscape scale and topography: A 'medium-small' turbine located where it is readily associated with the scale of the landform rather than individual features within the low-lying farmland. This size of turbine is more easily accommodated if it is not located close to farms and trees, but can be seen in the context of landform and more simple vegetation pattern, such as moorland and larger woods, for example at the transition between upland and lowland landscapes. This turbine has also been placed where it avoids the hilltop, and at a break in slope along the ridgeline.

16.5.4 Scale: Farmland

Trees and woodland, field pattern, settlements and farms are located on the lower fringes of the uplands, within the glens and across the farmed plains. The consistent and recurring presence of these elements creates a pattern which reduces the scale in these areas, and the individual elements provide scale reference points against which height can be judged.

On more marginal farmed landscapes, buildings and tree cover are likely to be sparse and often are smaller in size than more fertile lowland farmlands. Trees may also be limited in height by exposure or poor soils and buildings are often low, either due to exposure, or due to the poorer quality farmland. In some lowland areas, there is a dense pattern of small farms, with buildings which are often one and a half, or sometimes a single storey high.

In settled and farmed landscape types, the relationship between small-medium turbines (30m - 50m) and individual smaller scale elements is likely to be very sensitive, as this size of turbines could easily overwhelm the size of individual elements, such as farms, other buildings, trees, small woods and policy features which are key characteristics of these landscapes.

Turbines of this height (30m – 50m) can therefore be accommodated most readily by relating the height of the turbines to the scale of the landform on more open areas, where fields are larger, or where simpler vegetation such as moorland dominates, where settlement pattern is more dispersed, well away from the immediate setting of farms, other buildings, trees and woodland. This can be found at the edges of farmed areas, where farmland forms a transition with the hill land such as shown in Image 12 above and in more open lowland areas, with larger, more simple field patterns and associated with lowland moor, as shown in Image 13 below.





For this typology, if there is doubt about the potential impact of a turbine on the scale of the landscape, a photomontage, wireline or photowire taken from a key viewpoint will help the assessment of potential impacts.

16.5.5 Scale: Coast

On the coast, landform relief tends to be low. A particular feature are the low but well defined raised beaches that frequently form a backdrop to level fields, or the convex slopes of foothills hills forming a containing skyline. Views from the sea are a particular consideration on this busy sea way. Even where higher cliffs, headlands and more pronounced landform is present, the scale is sensitive, as a turbine of any height can easily diminish the perceived sense of height and drama. As a result, the landscape sensitivity assessments for the coastal character types conclude that there is no scope for turbines of more than 30m to blade tip in this area.

16.5.6 Landform shape

This size of turbine (30m - 50m to blade tip) is likely to be more readily accommodated in medium scaled landscapes or the transition between farmed or settled landscapes and the edge of larger scale upland landscapes. In these locations, they are more likely to fit with the landscape if they are sited to clearly relate to a specific landform. Turbines of this size could be accommodated on the side slopes of low hills or ridgelines which provide the immediate backdrop to the farmed lowland areas, especially if they, too, are back-dropped by larger hills or more sweeping plateaux.

Distinct changes in gradient associated with rising slopes, well defined dips within undulations, natural terraces or more expansive concave landforms, long ridges, the side slopes of interim hills and foothills, as well as the edges of more expansive plateaux all provide potential opportunities for micro-siting turbines of this size.



Image 14 - Landform shape: An indicative medium-small turbine located on a natural ledge of land at the transition between farmed land and steeper hillsides. The natural breaks in slope along this transition can be exploited to site turbines in the landscape. The more strongly a turbine of this size is associated with hillsides and simple vegetation pattern, the easier it will be to site it where it minimises possible impacts on landscape scale

16.5.7 Settlement and land use pattern and features

Wherever possible, this size of turbine will 'fit' in the landscape more successfully if it is located away from small individual features such as small farms. This will mean locating this typology away from the immediate setting of individual farms and buildings and woodland features, although larger industrial buildings may offer a useful scale reference for the smaller size of this typology.

This size of turbine (30-50m) is most readily accommodated where the pattern of built development becomes sparse, for example in the upland fringe (see Image 14), or where farm holdings are large with very dispersed settlement pattern set within more open, large scale fields or lowland moors (see Image 13). Other opportunities include where the pattern of fields gives way to more extensive forestry, open hills and moorland, or in coastal foothills.

The alignment of tracks and location of other infrastructure, as well as the turbines themselves, are also more likely to be an issue than with smaller turbine sizes.

Developing a recognisable pattern of development – for example, locating turbines at a similar elevation, and/or on similar topographical features across a landscape type will help create a pattern of development which will appear less cluttered and will also develop a distinctive and consistent landscape characteristic over time.

16.5.8 Visibility

Turbines of this height are likely to be widely visible, as they are difficult to screen with smaller landform. Good siting is therefore very important, as the relationship with landform and wider landscape setting will be very visible.

16.5.9 Cumulative issues

Given the current incentives, these small-medium sized turbines may become a more common occurrence. Key cumulative issues are likely to relate strongly to potential clutter in the landscape and the visual relationship with wind farms of larger turbines or individual and small groups of small turbines. Cumulative issues may include:

- Several individual, or small groups of turbines, could begin to dominate local character;
- Diverse designs of turbine, all spinning at different speeds or even several turbines of the same type – strung along a prominent or important skyline could become a visual distraction from other landscape features or from perceived visual amenity, especially from key viewpoints;
- Lack of a clear siting strategy could lead to fragmentation of an existing robust and recognisable landscape pattern where possible, it is important to site turbines on similar landforms, at similar elevations and with a similar relationship to the existing settlement pattern;
- The larger the turbine, the harder it is likely to be to accommodate a number of them in a single view or recognisable tract of landscape without them becoming the

dominant feature. It is also harder to accommodate the turbines in a sequence of views experienced, for example, when travelling along a road;

- The variety of potential different types of wind turbines within the landscape could lead to clutter with different styles, sizes of structures and speeds of blade movement dotted across a landscape;
- Potential clutter may also be easily created if there are other masts, such as telecoms masts, overhead wires and pylons within the same vicinity this is likely to be a bigger problem with these small turbines than larger ones;
- There may be the added complication of increased visual clutter created by a wide range of different heights of turbine within a farmed landscape with micro-, small and small/medium sized turbines;
- Other complications may be the visual interrelationship with larger wind farms of large and medium sized turbines, especially along the upper edge of farmland adjacent to upland character types.

Periodic review will need to be undertaken to assess the cumulative situation in areas where there is a concentration of operational, consented and proposed turbine developments. Adherence to the siting principles set out in this guidance will minimise potential cumulative landscape and visual effects.

16.5.10 Other landscape issues associated with this typology

More complex landform, such as the areas of small-scale deposits and knolls will be particularly sensitive to the construction of access tracks for this size of wind turbine development. The construction of new access tracks should be minimised by careful siting of turbines to use existing tracks and to avoid more difficult or steep terrain. Care should also be taken in the alignment and design of any access tracks to ensure that sensitive landform and vegetation is not adversely affected and that intrusion on key views is avoided.

Undergrounding electricity cables to a suitable off-site location to connect with the grid should also be undertaken in order to avoid a clutter of disparate built elements in the landscape.

ANNEX G: SENSITIVITY SUMMARY TABLES

Landscape character type	Sensitivity				
	Very large (130m+)	Large (70-130m)	Medium (50-70m)	Small-medium (30-50m)	Small (15-30m)
East Ayrshire Lowlands (7d)		High	High-medium	Medium	Medium-low
Lowland River Valleys (9)		High	High	High	Medium
Upland River Valley (10)		High	High	High-medium	Medium-low
Upland Glen (14)		High	High	High	Medium
Upland Basin (15)		High	High	High-medium	Medium-low
Foothills with Forest and Opencast Mining (17a)	High-medium	Medium			
Foothills with Forest West of Doon Valley (17b)	High	High-medium			
East Ayrshire Plateau Moorlands (18a)	High-medium	High-medium			
East Ayrshire Plateau Moorlands with Forest and Wind Farms (18b)	High-medium	High-medium			
East Ayrshire Southern Uplands (20a)	High	High-medium			
Southern Uplands and Forestry (20c)	High	High			
Rugged Uplands, Lochs and Forest (21)		High	High		



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