Argyll and Bute Landscape Wind Energy Capacity Study

FINAL MAIN REPORT

March 2012
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Main Study Report

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Summary

Background

This study 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 Argyll and Bute.

The study considers the sensitivity of landscape character types on the mainland of Argyll and Bute to wind turbines up to 130m height. The sensitivity of larger islands and National Scenic Areas (NSAs) within Argyll and Bute has also been assessed for wind turbines up to 50m height. Four development typologies were considered in the sensitivity assessment, these principally categorised on the basis of turbine height. The assessment considers key sensitivities related to landscape character, visual amenity and on the value placed on the landscape in the form of scenic designations and other recognised interests. The NSAs are assessed on the basis of their identified Special Qualities. The sensitivity assessment considers potential cumulative issues associated with existing and consented wind farm developments.

Guidance on the constraints and opportunities for wind energy development within each landscape character type/NSA is set out in the study. Further guidance on the siting and design of small turbines below 50m height is also provided.

Main findings

- Existing wind farm developments are largely located in upland landscapes and these have relatively limited visibility from more settled loch and coastal fringes of Argyll and Bute. More recently consented wind farms, although still sited in similar upland areas, feature taller turbines and are likely to have an increased effect on views from adjacent settled landscapes.

- There is some scope to site additional wind farm development with turbines above 50m height only within the uplands of Kintyre and the upland areas either side of Loch Awe although this will be limited by potential cumulative and other landscape and visual constraints.

- There is no scope to accommodate turbines above 50m height within the smaller scale, settled coastal/loch fringes and islands due to their increased landscape sensitivity to tall turbines, including potential cumulative effects with wind farm development in adjacent upland areas.

- Some coastal and island landscapes would be highly sensitive even to turbines below 20m and these are identified in the study.

- Ongoing review of cumulative landscape and visual effects of multiple wind turbine developments will be necessary to ascertain when capacity is close to being reached. This will particularly apply to the upland landscapes of the Kintyre Peninsula and the upland areas either side of Loch Awe but may also be required for more settled coastal/loch fringes and islands where multiple smaller turbines could have cumulative landscape and visual effects.
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1. **Introduction**

**Policy background**

1.1 The Scottish Government is committed to increasing the amount of electricity generated from renewable sources. The current target is to meet 50% of Scotland’s electricity requirement from renewable sources by 2020. 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.

1.2 Most of the energy generated to meet these targets will come from large scale, commercial developments under the Renewables Obligation which requires electricity suppliers to source a specified percentage of their energy from renewable technologies. However, the Government is also keen to encourage communities and small businesses to invest in renewable energy projects. Initiatives such as the Community and Renewable Energy Scheme and the ‘Clean Energy Cashbacks’, most commonly known as the ‘Feed in Tariff’ (for generators up to 5 MW) are examples of Government support to encourage the development of these smaller scale initiatives.

1.3 Scottish Planning Policy 2010 (SPP) seeks to support the initiatives set out above. It provides for a planned approach to delivering the target through setting the overall policy for preparing spatial frameworks, including the safeguarding of areas designated for their national and international natural heritage value. It gives a clear role to local authorities in relation to local interests and designated areas, in the identification of broad areas of search for developments over 20MW and in setting policy criteria. It however allows local planning authorities to make the decision whether to provide spatial guidance on wind farms below 20MW. SPP 2010 also recognises that there will be limits to the capacity of some areas to accept the cumulative impacts of multiple wind farm developments.

1.4 SPP 2010 expects planning authorities to ‘support the development of a diverse range of renewable energy technologies, guide development to appropriate locations and provide clarity on the issues that will be taken into account when specific proposals are assessed’. They are also expected to clearly set out…‘the factors that will be taken into account in decision making on all renewable generation developments’ within their development plans, or within supplementary guidance.

1.5 The Argyll and Bute Structure Plan (approved in 2002) provides the current strategic policy framework for considering wind farm developments. The Council has developed a Windfarm Policy Map for onshore wind farms of over 20MW that shows broad areas of search, protected areas and potentially constrained areas. However, at the time of preparation it was not possible to take full cognisance of cumulative impacts of wind farm developments and as a result the extent of the Protected Areas do not take account of additional areas that could be offered additional protection and areas where there could be greater potential for the siting of new wind farms.
Study aims

1.6 The aim of this study is to identify landscape and visual sensitivities at a regional scale relative to the consideration and determination of further proposals for wind farm developments in Argyll and Bute. It is a requirement of the study brief that smaller wind turbine typologies should be considered and that appraisal is undertaken of potential cumulative landscape and visual effects, including consideration of the existing pattern of wind energy development in Argyll and Bute and whether it is appropriate to continue this. The outputs and findings of the study will inform the emerging spatial and criteria based policies of the Local Development Plan and the development management decision making process in accordance with the requirements of SPP 2010 and Scottish Government Renewable Energy Planning Advice Notes (PANs).

1.7 This capacity study considers only landscape and visual issues and a range of other environmental and technical issues also require to be considered in drawing up spatial frameworks and Supplementary Planning Guidance (SPG) for wind farm development. It is also a strategic study which identifies broad landscape and visual constraints and opportunities for a defined number of wind energy development scenarios and individual wind farm applications will therefore need to be considered on a case-by-case basis with Environmental Impact Assessment (EIA) studies, where relevant, providing more detailed information on landscape and visual issues.

1.8 The study area comprises the whole of Argyll and Bute region but also includes consideration of cross boundary landscape and visual issues within adjoining authorities. The study brief required detailed assessment of all mainland Argyll and Bute and the islands of Mull, Lismore, Islay, Jura and Bute with siting and design guidance additionally applying to smaller islands. Figure 1 shows the study area.

Other relevant studies

1.9 An earlier pilot landscape capacity study considering landscape sensitivity in relation to wind farm development was commissioned by Scottish Natural Heritage (SNH) and Argyll and Bute Council in 2002\(^1\) and helped inform Argyll and Bute Council’s wind energy strategy. The 2002 ‘LUC’ study is superseded by this current landscape capacity study which provides more up to date assessment of sensitivity of a broader range of development typologies (including smaller turbines) and cumulative issues in accordance with the requirements set out in SPP and Scottish Government guidance. This current landscape capacity study also follows the recommendations made in SNH’s recently published review of landscape capacity studies in Scotland\(^2\).

1.10 This study forms Phase Two of the study. Phase One of the study, completed in March 2011, developed and piloted a methodology for the assessment. The Phase One study has been reviewed and the methodology adapted for this second phase of the study.

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\(^1\) Assessment of the sensitivity of landscapes to windfarm development in Argyll and Bute (Land Use Consultants 2002)

Structure of the report

1.11 This Main Study Report sets out the key findings of the wind farm landscape capacity study for Argyll and Bute. An accompanying Appendix Report contains the detailed assessments of sensitivity undertaken for landscape character types and National Scenic Areas (NSA).

1.12 This main report initially summarises the methodology adopted for the capacity study and the development typologies considered in the sensitivity assessment. Operational and consented wind farm developments which form the baseline for the study are then identified, together with proposed developments within the planning system. A review of existing landscape characterisation studies follows which sets out our approach to the use of landscape character types in forming the baseline for the study.

1.13 The landscape and visual sensitivity assessments undertaken for wind farm developments within landscape character types/sub-types and NSAs are summarised in this report and these are followed by guidance on the micro-siting of smaller wind turbines. Sensitivity assessment relating to offshore wind farm developments is also included in this report. The report concludes with a summary of key findings and recommendations.

How to use the study

1.14 The study aims to inform both strategic planning for wind energy development and to provide guidance on the appraisal of individual wind farm and wind turbine proposals. This Main Study Report summarises the landscape sensitivity assessments that have been undertaken and it is therefore essential to also read the more detailed sensitivity assessment contained in the Appendix Report when considering individual wind energy developments.

1.15 The sensitivity assessments have been undertaken on the basis of defined landscape character types. Landscape character types often have ‘fluid’ boundaries where a gradual transition can occur between adjacent character types with some similar characteristics. Wind turbines are also tall structures likely to have an influence on adjoining landscape character types. It is therefore recommended that when considering individual proposals, both the landscape character type that the development lies in and immediately adjoining character types are reviewed as wider sensitivities may apply.

1.16 This study covers all of mainland Argyll and Bute and the islands of Mull, Jura, Islay, Bute and Lismore. While other islands of Argyll and Bute have not been assessed in detail, where development proposals occur on these, it is recommended that the sensitivity assessment relating to the relevant landscape character type defined in the Landscape assessment of Argyll and the Firth of Clyde (1996) should be reviewed. This will include the following landscape character types which occur on the islands of Jura and Islay as well as other islands:

- Marginal farmland mosaic (16)
- Sand Dunes and Machair (25)
- Coastal Parallel Ridges (22)
1.17 The sensitivity assessments undertaken for the above landscape character types should however be used to provide general information only on sensitivities as the detailed assessments undertaken for Jura and Islay will not take into account the specific context and local character associated with other islands. The guidance for the siting of small turbines set out in section 7 of this Main Study Report is relevant to these other islands.
2. Study Methodology

Background to landscape capacity

2.1 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’.

2.2 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) have recently issued guidance on good practice in landscape capacity studies and more detailed guidance is also provided by SNH in Siting and Designing Wind Farms in the Landscape which includes advice on strategic planning for wind farms.

2.3 Most landscape capacity studies are based on landscape character units and identify key characteristics of each landscape area or type potentially sensitive to any 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.

Definition of terms

2.4 The following definitions of terms apply to this study:

Landscape character
Landscape relates not only to the physical attributes of the land but also to the experience of the receptor. Landscape character is made up of the physical characteristics such as landform, land cover and settlement pattern (which exist whether anyone sees them or not) plus a range of perceptual responses to that landscape.

Landscape sensitivity
Sensitivity relates to landscape character and how vulnerable 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. Landscapes which are highly sensitive are at risk of having their key characteristics fundamentally altered by development. Sensitivity is assessed by considering the physical and perceptual characteristics of landscapes.

Landscape capacity
This relates to how far a landscape can accommodate development without significant adverse impacts on its character. Landscape character and sensitivity are part of this.

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3 Landscape Character Assessment: Guidance for England and Scotland, Countryside Agency and Scottish Natural Heritage (2002)
but capacity can also include visibility assessment and consideration of any values placed on the landscape (usually in the form of designations).

**General approach to the study**

2.5 Our 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 has involved the following key tasks:

- Identifying existing, consented and proposed wind farm developments in Argyll and Bute and other authorities to be considered in the study.
- Review of existing baseline landscape character studies for Argyll and Bute and adjoining areas and definition of landscape character types to be used as the basis for the study.
- Identifying wind farm and wind turbine development typologies to be assessed in the study.
- Defining the landscape and visual sensitivity criteria to be used in the assessment.
- Defining landscape values to be considered in the study in the form of designations and other recognised landscape and visual interests.
- Field work to assess the sensitivity of different landscape character types and National Scenic Areas to defined development typologies using identified sensitivity criteria.
- Developing guidance on the siting of smaller turbines informed by field work and generic guidance on the siting and design of wind energy development.
- Providing an overview of landscape and visual sensitivities across the region and recommendations on strategic landscape and visual considerations.

These key tasks are summarised in the following text with further detail provided in subsequent sections of this report and in Annex C and D.

**Operational, consented and proposed wind farms**

2.6 A number of wind farm developments have been constructed and recently consented within Argyll and Bute and in some other local authorities within 30km of the Council’s boundary. These developments, together with proposed wind farms at application stage, have been considered in the capacity study. Further detail on these developments is set out in Section 3 of this report.

**Baseline landscape character**

2.7 This capacity study has principally been based on the landscape characterisation work set out in the Landscape assessment of Argyll and the Firth of Clyde (1996) undertaken by Environmental Resources Management for SNH. Review of this study was undertaken in the field and some revisions were made to landscape character types and their classification for the purposes of this capacity study and these are detailed in section 4 of this report. Separate sensitivity assessments have been
undertaken for the National Scenic Areas (NSAs) lying wholly within Argyll and Bute in accordance with the requirements of the study brief.

Development typologies

Smaller typologies

2.8 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.

2.9 Turbines below 20m height to blade tip have been excluded from the detailed sensitivity assessment undertaken for character types within mainland areas of Argyll and Bute. This is because turbines of this size can be successfully accommodated within most landscapes subject to careful siting and design. Landscape and visual issues associated with turbines of this size have been considered within more sensitive small scale landscapes on the mainland and Bute and also within the sensitivity assessments undertaken for the islands of Mull, Lismore, Islay and Jura where woodland and settlement is generally sparse and where even relatively small vertical structures may have potential landscape and visual impacts. This size of turbine is also considered within the guidance on the siting of smaller turbines contained in section 7 of this report.

2.10 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 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 in the study based on turbines 20-35m and 35m-50m height to blade tip. These smaller typologies have not been considered in detail within more sparsely populated upland landscapes character types although a brief appraisal of key sensitivities relating to smaller typologies is included in the summary and guidance sections of the sensitivity assessments for these character types.

Larger typologies

2.11 In terms of larger developments (turbines 50m -130m) we have principally considered the height of turbine within the sensitivity assessment. 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 or NSA.

2.12 Larger typologies will not be considered within very small scale or confined landscapes where technical constraints are likely to inhibit such development. In Argyll and Bute, this applies to the ‘Hidden Glens’ (3) and ‘Mountain Glens’ (4) character types.
2.13 We have considered the following development typologies in the study:

<table>
<thead>
<tr>
<th>Typology</th>
<th>Height</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>20-35m</td>
<td>Single turbines or small groups of around 5 turbines. These smaller typologies are assessed separately in the study.</td>
</tr>
<tr>
<td>Small/medium</td>
<td>35-50m</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>50-80m</td>
<td>Single turbines/groups of turbines</td>
</tr>
<tr>
<td>Large</td>
<td>80-130m</td>
<td>Single turbines/groups of turbines</td>
</tr>
</tbody>
</table>

2.14 In addition, extensions to existing wind farm developments have been considered in the guidance provided within each sensitivity assessment with recommendations given on the appropriate height of turbines and the general extent of development that could be accommodated.

The sensitivity assessment

2.15 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 separates out landscape sensitivity, visual amenity and landscape values.

Landscape sensitivity criteria

2.16 The sensitivity assessment considers the following criteria in assessing landscape sensitivity to wind energy development:

- Landscape context
- Scale and openness
- Landform
- Land cover pattern
- Built environment
- Perceptual qualities

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

Visual amenity

2.17 The assessment considers views to and from the character type, identifying notable features such as distinct skylines or uninterrupted horizons (both land and sea). Inter-visibility with adjacent landscapes was considered, particularly where landscapes may form a distinctive backdrop, and the effect of development on key views, planned or notable vistas and on key visual foci was assessed.
The brief required the generation of a series of Zone of Theoretical Visibility (ZTV) maps showing the likely extent of visibility of operational and consented wind farm developments within Argyll and Bute. These were used, together with computer-generated visualisations from relevant Environmental Statements, where available, to inform the assessment of potential cumulative issues. A number of ‘photo wire’ visualisations illustrating a range of turbine heights from identified viewpoints were also produced to inform the sensitivity assessment in the field.

**Landscape values**

The study brief required the National Scenic Areas (NSA) to be subject to a separate sensitivity assessment and this is explained further in Annex D. The following designations and other formally recognised landscape interests have been considered in the sensitivity assessment for landscape character types and sub-types:

- Areas of Panoramic Quality (APQ)
- SNH Wildland Search Areas
- Inventory listed designed landscapes

The APQ designations are regional designations derived from the former Strathclyde Structure Plan. No detailed citations exist for the APQ designated areas and we have therefore considered the key scenic qualities of these areas during our field work and assessment. Statements of Significance for Inventory listed designed landscapes were reviewed as part of the assessment. The assessment considers the likely degree of impact of different development typologies on the key special qualities/significance of the designation (or formally valued landscape) in coming to a judgement on sensitivity. Landscape character types do not always accord with designation boundaries (which tend to span a number of character types) and this therefore prevents even 'scoring' across the whole character type in many instances. It will therefore be necessary to undertake more detailed review in relation to special qualities and potential effect on landscape values on a case by case basis when considering specific developments.

The sensitivity assessments for individual landscape character types also consider cross-boundary issues in relation to the wider setting of the NSAs and the Loch Lomond and Trossachs National Park with the original citations and the special qualities\(^5\) identified for these designated areas forming the basis for the assessment. The APQs and NSAs designated areas are shown in Figure 2.

**Sensitivity levels**

We have used a five point scale of ‘scoring’ in the assessment of each sensitivity criterion. This is also adopted in the overall sensitivity scores accorded to each landscape character type. This is interpreted in the following table relating to overall sensitivity ratings:

---

<table>
<thead>
<tr>
<th>Overall Sensitivity rating</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>The development typology relates well to key landscape characteristics and change is able to be accommodated without significant adverse impact.</td>
</tr>
<tr>
<td>Medium - low</td>
<td>Some limited sensitivities although opportunities to accommodate the development typology in most locations.</td>
</tr>
<tr>
<td>Medium</td>
<td>Some key landscape characteristics are sensitive but with some ability to accommodate development in some situations without significant character change; development typology relates to some aspects of landscape character.</td>
</tr>
<tr>
<td>High-medium</td>
<td>Most of the key landscape characteristics are sensitive and usually only smaller typologies can be accommodated or opportunities for large typologies are very limited within the character type.</td>
</tr>
<tr>
<td>High</td>
<td>The majority or all of the key landscape characteristics are vulnerable to change. Development would conflict with key aspects of landscape character with widespread and significant adverse impacts likely to arise.</td>
</tr>
</tbody>
</table>

2.23 The overall sensitivity level is judged by considering the combined weight of evidence on landscape sensitivity rather than using a numerical scoring system for each sensitivity criterion. We have separated out scores for landscape, visual and landscape values in the assessment and have considered potential cumulative landscape and visual issues prior to coming to a judgement on opportunities and constraints to different development typologies within each landscape character type.

The Islands

2.24 The study brief requires sensitivity assessments to be undertaken for the islands of Mull, Lismore, Bute, Islay and Jura. It was necessary to prioritise funding for the study to address the main development pressures identified at the time of writing the brief and to fulfill the requirements of Scottish Government planning guidance. For this reason it was decided that detailed assessment of turbines of over 50m to blade tip within NSAs and islands should not be included in the study. These assessments therefore focus on turbines up to 50m height with smaller turbines between 12-20m high also being considered.

2.25 A number of character types occur on both the mainland and these islands. These include the ‘High Tops’ (2), ‘Open Ridgeland’ (5), Craggy Upland (7), the ‘Rolling Farmland with Estates’ (13), the ‘Coastal Plain’ (19) and the ‘Coastal Parallel Ridges’ (22) landscape character types. We have undertaken separate sensitivity assessments for each of the areas of these character types occurring on the islands because of their very different context to the mainland areas of the same character types. This is explained further in section 4 of this report.
National Scenic Areas

2.26 The study brief required the National Scenic Areas (NSA) to be assessed separately for smaller turbines below 50m height to blade tip only. The sensitivity assessments for the NSAs principally consider the special qualities of each designated area. A detailed methodology for this work is set out in Annex D.

Cumulative issues and overall capacity assessment

2.27 There are two outputs from the assessments in relation to cumulative landscape and visual assessment. The first is that for each landscape type potential cumulative issues relevant to that type are listed. This includes an assessment of likely ‘cross-boundary’ issues which are likely to arise for each landscape type, and for all relevant typologies.

2.28 In addition, we have considered whether cumulative landscape and visual issues may be a significant constraint and might therefore limit further developments of over 20 megawatts generating capacity. This has taken into account the following factors:

- The presence or otherwise of operational and consented wind farms
- The proximity and distribution of operational and consented wind farms
- The inter-visibility of existing and consented wind farms relative to settlements, ‘A’ roads and tourist routes, sea-based traffic and identified viewpoints.

2.29 Potential landscape and visual cumulative impacts considered include:

- **Change in landscape character** – i.e. where an addition to existing and consented wind farms is likely to result in wind farms 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 a wind farm to multiple existing and consented wind farms;

- **Visual dominance** – i.e where an addition to existing and consented wind farms is likely to result in wind farms becoming 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.

Guidance for siting smaller turbines

2.30 Guidance on the siting of wind turbines below 50m height is provided in the study in accordance with the requirements of the brief. This work supplements SNH’s published guidance *Siting and Designing Windfarms in the Landscape* (2009).
3. **Operational, consented and proposed wind farm development**

**Introduction**

3.1 Due to the changing situation in relation to wind farm developments within the study area, a cut-off date of August 1st 2011 was set for inclusion of operational, consented and proposed developments (at application stage only) for consideration within the study.

**Operational and consented developments**

3.2 The following operational and consented wind farm and larger turbine developments are considered to form part of the baseline landscape character in the study.

<table>
<thead>
<tr>
<th>Windfarm Turbine No</th>
<th>Height to blade tip</th>
<th>Landscape character type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operational windfarms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beinn Ghlas 16</td>
<td>61m</td>
<td>Craggy Upland (7)</td>
</tr>
<tr>
<td>Clachan Flats 9</td>
<td>93m</td>
<td>Steep Ridgelands and Mountains (1)</td>
</tr>
<tr>
<td>An Suidhe 24</td>
<td>83m</td>
<td>Craggy Upland (7)</td>
</tr>
<tr>
<td>Cruach Mhor 35</td>
<td>71m</td>
<td>Steep Ridgelands and Mountains (1)</td>
</tr>
<tr>
<td>Isle of Gigha 3</td>
<td>45m</td>
<td>Coastal Parallel Ridges (22)</td>
</tr>
<tr>
<td>Deucharan Hill 9</td>
<td>76m</td>
<td>Upland Forest Moor Mosaic (6)</td>
</tr>
<tr>
<td>Beinn an Tuirc 46</td>
<td>66m</td>
<td>Upland Forest Moor Mosaic (6)</td>
</tr>
<tr>
<td>Tangy + extension 22</td>
<td>75m</td>
<td>Bay Farmland (14)</td>
</tr>
<tr>
<td>Isle of Luing 2</td>
<td>32.5m</td>
<td>Slate Islands (24)</td>
</tr>
<tr>
<td>Ardrossan 15</td>
<td>100m</td>
<td>(North Ayrshire)</td>
</tr>
<tr>
<td>Dalry/Wardlaw 6</td>
<td>125m</td>
<td>(North Ayrshire)</td>
</tr>
<tr>
<td><strong>Consented windfarms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beinn an Tuirc extension 19</td>
<td>100m</td>
<td>Upland Forest Moor Mosaic (6)</td>
</tr>
<tr>
<td>Carraig Gheal 24</td>
<td>127m</td>
<td>Craggy Upland (7)</td>
</tr>
<tr>
<td>A’ Chruach 20</td>
<td>110m</td>
<td>UFMM(6)/Craggy Upland (7)</td>
</tr>
<tr>
<td>Allt Dearg 12</td>
<td>81m</td>
<td>Upland Forest Moor Mosaic (6)</td>
</tr>
<tr>
<td>Ruaig Slibh, Tiree 1</td>
<td>75m</td>
<td>Marginal Farmland Mosaic (16)</td>
</tr>
<tr>
<td>Kilchattan 14</td>
<td>100m</td>
<td>(North Ayrshire)</td>
</tr>
<tr>
<td>Milour Hill 6</td>
<td>125m</td>
<td>(North Ayrshire)</td>
</tr>
</tbody>
</table>

**Proposed developments**

3.3 The following proposed wind farm and larger turbine developments (submitted as applications only) have additionally been generally reviewed in the study:

<table>
<thead>
<tr>
<th>Windfarm Turbine No</th>
<th>Height to blade tip</th>
<th>Landscape character type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposed windfarms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balephetrish, Tiree 2</td>
<td>59.5m</td>
<td>Marginal Farmland Mosaic (16)</td>
</tr>
<tr>
<td>Cour 10</td>
<td>112m</td>
<td>Upland Forest Moor Mosaic (6)</td>
</tr>
<tr>
<td>Shira 22</td>
<td>125m</td>
<td>North Loch Awe Craggy Upland (7c)</td>
</tr>
<tr>
<td>Isle of Gigha 2</td>
<td>44-53.5m</td>
<td>Coastal Parallel Ridges (22)</td>
</tr>
<tr>
<td>Kilchattan 16</td>
<td>81m</td>
<td>Upland Forest Moor Mosaic (6)</td>
</tr>
</tbody>
</table>

3.4 Operational and consented wind farms are shown in Figure 3 and proposed wind farms in Figure 4. The study brief also required computer-generated Zone of Theoretical Visibility (ZTV) mapping to be undertaken for operational and consented
wind farm developments and this is shown in Figures 5 to 8. A 30km cut off has been used for the ZTV mapping with all turbines shown to tip height. The 'as built' locations of turbines within operational wind farms have been used in the ZTV mapping.
The extent of visibility is shown as 30km from the development:

2 Beinn Ghlas
3 Clachan Flats
1 An Suidhe
The extent of visibility is shown as 30km from the development

Cruach Mhor
The extent of visibility is shown as 30km from the development.

2 Beinn A Tuirc 1+2
3 Deucharan Hill

1 Tangy

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Argyll and Bute Landscape Wind Capacity Study
Zone of Theoretical Visibility (ZTV), Operational windfarms and windfarms under construction - South

Fig 7
The extent of visibility is shown as 30km from the development.

1. Allt Dearg
2. A’Chruach
3. Carrag Gheal

Fig 8

Argyll and Bute Landscape Wind Capacity Study
Zone of Theoretical Visibility (ZTV), Consented Windfarms
4. **Baseline landscape character**

**The Argyll and Firth of Clyde Landscape Assessment**

4.1 The Argyll and Firth of Clyde landscape assessment was undertaken by Environmental Resources Management (ERM) in 1996 and formed part of the national programme of landscape character assessment commissioned by SNH in partnership with local authorities. This regional study identifies 25 landscape character types across Argyll and Bute. The descriptions are for generic character types as opposed to character areas. For each character type, the description is fairly brief and the character types occur in more than one place across Argyll and Bute. There is therefore only limited analysis of differences in relation to local context.

**Cross-boundary characterisation**

4.2 Separate landscape character assessments have been undertaken for the adjoining Loch Lomond and Trossachs (2002) and Lochaber (1998) area.

4.3 Review of the Loch Lomond and Trossachs landscape character assessment has found there to be an inconsistency with the approach undertaken for the Argyll and the Firth of Clyde characterisation. The Loch Lomond and Trossachs landscape character assessment was undertaken after the Argyll and Firth of Clyde study and extends beyond the boundaries of the National Park into the Argyll and Bute Council area. The Loch Lomond and Trossachs assessment adopts a more complex categorisation with detailed definition of glen sides and identification of character types principally defined by forest cover. With the aim of maintaining consistency in the sensitivity assessments undertaken for this study, we have made the decision to reinstate the 1996 Argyll and Bute characterisation within the ‘overlap’ that occurs beyond the National Park boundary.

4.4 The study brief requires landscape and visual issues to be considered within a wider study area 30km from Argyll and Bute’s boundary. In relation to the Loch Lomond and Trossachs National Park, our assessment focuses on considering the sensitivities of the special qualities of the Park (see 4.6 below) to wind farm and turbine development rather than using the 2002 landscape character assessment as a basis for the sensitivity assessment.

4.5 The nomenclature and descriptions of character types within the 1998 Lochaber landscape assessment are very similar to those used within the Argyll and Firth of Clyde Landscape Assessment.

**Other landscape characterisation and related work**

4.6 There are detailed descriptions of landscape character and scenic qualities within the Special Qualities studies prepared by SNH for each of the Six National Scenic Areas (NSAs) within Argyll and Bute. A similar assessment of special landscape qualities has also been undertaken by SNH for the Loch Lomond and Trossachs National Park. Written citations also exist for the NSAs within Scotland’s Scenic Heritage.\(^6\) There are

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\(^6\) Scotland’s Scenic Heritage, Countryside Commission for Scotland, 1978
no similar citations for the regional landscape designations, Areas of Panoramic Quality (APQ), defined by Argyll and Bute Council.

4.7 Two SNH landscape capacity studies consider seascape character in part of the Argyll and Bute study area in relation to wind farm and aquaculture development. The Landscape/Seascape Aquaculture capacity study (SNH) has been used to inform the sensitivity assessment for the Lorn, Lismore and Loch Etive area (this forming a pilot area in the study) and the Loch Fyne Aquaculture study\(^7\) has been used principally to inform key views and sensitivities in relation to the ‘Rocky Mosaic’ (20) landscape type which borders the shores of Loch Fyne.

**Detailed review of landscape character within Argyll and Bute**

4.8 During our review and field work we focused on verifying the descriptions within the Argyll and Firth of Clyde Landscape assessment against the key characteristics likely to be sensitive to wind farm development and noted the following:

- There is considerable variation in the character of the Upland Forest Mosaic (6) which comprises a very extensive tract of land. The area within the upper Loch Fyne basin forms a narrow and highly visible band of rolling hills between the loch edge and higher uplands while the Kintyre uplands are broader and also characterised by wind farm development. The Mull of Kintyre area of this character type also has different sensitivities in terms of its coastal context and wildland character.
- The ‘Craggy Upland’ (7) also forms an extensive tract of land and sensitivities differ considerably in terms of landscape context, (particularly where this type occurs in Lorn, north Loch Awe and on Mull) and the much reduced scale and more complex landscape pattern found on the coastal edge, the fringes of Loch Awe and within the settled glens in the west.
- The settled and generally small scale coastal fringes of outer Loch Etive are variously defined as Craggy Upland (7) and High Tops (2) (both predominantly large scale upland landscapes) in the Argyll and Firth of Clyde Landscape Character Assessment.
- Character types occurring on both the mainland and within different islands tend to vary considerably, particularly in terms of their landscape context. This includes the Coastal Plain (19), Basalt Lowland (17), Rolling Estates with Farmland (13) and Open Ridgeland (5).

**Alterations to boundaries/reclassifications of landscape character types**

4.9 We have largely adopted the landscape types within the 1996 Argyll and Bute landscape assessment as a basis for the sensitivity assessment but with some minor alterations to the boundaries and classification of some character types as follows:

- The small scale settled fringes of Loch Awe and Loch Etive have been reclassified as the Rocky Mosaic (20) due to their similarity with landscapes found along Loch Fyne and the Kintyre coast.

\(^7\) Loch Fyne Aquaculture Capacity Study, SNH 2005
• The ‘Slate Islands’ (24) and part of the ‘Coastal Parallel Ridges’ (22) in the Loch Craignish area have been amalgamated within a new sub-type, the ‘Craggy Coast and Islands’ (7b), due to their similar context, intimate scale and diverse landform.
• The ‘Open Parallel Ridges’ (10) in the Kilmartin area has been extended northwards to include a series of distinctive hills which provide a backdrop to southern Loch Awe.
• Extension of the ‘Low Coastal Hills’ (21) to include the small foothills of the ‘Mull of Kintyre Upland Forest Moor Mosaic’ (7b) and part of the ‘Rocky Mosaic’ (20) lying to the north-west of Southend.
• The incorporation of small areas of ‘Craggy Upland’ (7) extending beyond the boundaries of the Kyles of Bute NSA into the adjacent ‘Steep Ridgeland and Mountains’ (1) and the ‘Open Ridgeland’ (5a) within north Bute.
• The inclusion of a small area of the ‘Upland Parallel Ridges’ (10) extending beyond the eastern boundary of the Knapdale NSA into the adjacent ‘Knapdale Upland Forest Moor Mosaic’ (6b).

4.10 In addition we have defined a number of landscape character sub-types and these are detailed in the table below. Landscape character types and sub-types, used as the basis for the sensitivity assessment, on the Mainland and Bute are shown in Figure 9. Those on the islands of Mull, Islay and Jura are shown in Figure 10.

Baseline characterisation used in the study

4.11 The table below sets out how we have addressed each of the landscape character types identified in the Argyll and Firth of Clyde Landscape Character Assessment within the detailed sensitivity assessment for this study:

<table>
<thead>
<tr>
<th>No</th>
<th>Character type</th>
<th>Approach adopted for assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Steep Ridgeland and Mountains</td>
<td>Original character type boundaries reinstated to boundary of LLTNP and detailed sensitivity assessment undertaken within Argyll and Bute of this character type with special qualities of the LLTNP also considered.</td>
</tr>
<tr>
<td>2.</td>
<td>High Tops</td>
<td>Separate sensitivity assessments undertaken for the mainland area of this character type and on Mull (2a) due to different context.</td>
</tr>
<tr>
<td>3, 4</td>
<td>Hidden Glens/Mountain Glens</td>
<td>These have been amalgamated for the purposes of the study and a single sensitivity assessment undertaken</td>
</tr>
<tr>
<td>5</td>
<td>Open Ridgeland</td>
<td>Separate sensitivity assessments undertaken for this character type occurring on the mainland and on Bute (5a) due to different context.</td>
</tr>
<tr>
<td>6</td>
<td>Upland Forest Moor Mosaic</td>
<td>Kintyre peninsula retained as principal type 6 with 3 sub-types defined for Loch Fyne (6a), Knapdale (6b) and Mull of Kintyre (8b) with separate sensitivity assessments undertaken of each.</td>
</tr>
<tr>
<td>7</td>
<td>Craggy Upland</td>
<td>Principal area (7) retained either side of mid-south Loch Awe with 5 sub-types defined: Craggy Upland with Settled Glens (7a), Craggy Coast and Islands (7b), North Loch Awe Craggy Upland (7c), Lorn Craggy</td>
</tr>
<tr>
<td>Character Type</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Upland (7d) and the ‘Mull Craggy Upland’ (7e). Separate sensitivity assessments undertaken for each.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Moorland Plateau</td>
<td>Sub-division into 2 different areas: Moorland Plateau (8) and Moorland Plateau with Farmland (8a) with separate sensitivity assessments for each.</td>
<td></td>
</tr>
<tr>
<td>9 Rocky Moorland</td>
<td>Occurs in a single area on Islay. No sub-divisions with a single sensitivity assessment undertaken.</td>
<td></td>
</tr>
<tr>
<td>10 Upland Parallel Ridges</td>
<td>Southern area lies within the Knapdale NSA. Northern area extended to include pronounced small hills at head of Kilmartin Glen.</td>
<td></td>
</tr>
<tr>
<td>11 Boulder Moors</td>
<td>Occurs in a single area on Mull. No sub-divisions with a single sensitivity assessment undertaken.</td>
<td></td>
</tr>
<tr>
<td>12 High Stepped Basalt</td>
<td>Occurs in a number of areas within Mull. Large parts of this LCT lie within the Loch na Keal NSA. No sub-divisions and a single sensitivity assessment undertaken.</td>
<td></td>
</tr>
<tr>
<td>13 Rolling Farmland with Estates</td>
<td>Separate sensitivity assessments undertaken for the area on the mainland and the area on the Isle of Bute (13a) due to different context.</td>
<td></td>
</tr>
<tr>
<td>14 Bay Farmland</td>
<td>This character type only occurs in one area in south Kintyre. No sub-division and single sensitivity assessment undertaken.</td>
<td></td>
</tr>
<tr>
<td>15 Lowland Bog and Moor</td>
<td>Sub-division into 2 different areas: Lowland Bog and Moor (15) and Less Extensive Lowland Bog and Moor (15a).</td>
<td></td>
</tr>
<tr>
<td>16 Marginal Farmland Mosaic</td>
<td>Occurs in one area on Islay. No sub-divisions and single sensitivity assessment undertaken.</td>
<td></td>
</tr>
<tr>
<td>17 Basalt Lowlands</td>
<td>Separate sensitivity assessments undertaken for the area on Mull (17) and the area on Bute (17a) due to different context.</td>
<td></td>
</tr>
<tr>
<td>18 Lowland Ridges and Moss</td>
<td>This character type predominantly lies within the Lynn of Lorn NSA. A separate assessment has been undertaken for the remaining area of this LCT lying beyond the NSA.</td>
<td></td>
</tr>
<tr>
<td>19 Coastal Plain</td>
<td>Separate sensitivity assessments undertaken for the area on Kintyre (19) and on Bute (19a) due to different context.</td>
<td></td>
</tr>
<tr>
<td>20 Rocky Mosaic</td>
<td>Extended to include the settled fringes of Loch Awe and Loch Etive and a single sensitivity assessment undertaken for the character type.</td>
<td></td>
</tr>
<tr>
<td>21 Low Coastal Hills</td>
<td>Northern boundary extended – this character type is only found in the Mull of Kintyre and on the east coast of Kintyre. A single sensitivity assessment has been undertaken for both areas.</td>
<td></td>
</tr>
<tr>
<td>22 Coastal Parallel Ridges</td>
<td>On the mainland this character type predominantly lies within the Knapdale NSA. The area around Loch Craignish has been incorporated into ‘Craggy Coasts and Islands’ (7b). A single sensitivity assessment for the areas found on Islay and Jura has been undertaken.</td>
<td></td>
</tr>
<tr>
<td>23 Flat Moss and Mudflats</td>
<td>This character type predominantly lies within the Knapdale NSA apart from a small area in the Kilmartin Glen where a separate assessment has been undertaken.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Character Type</td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>24</td>
<td>Slate Islands</td>
<td>This character type has been incorporated into the new sub-type of the Craggy Upland - the 'Craggy Coast and Islands' (7b).</td>
</tr>
<tr>
<td>25</td>
<td>Sand Dunes and Machair</td>
<td>This character type occurs on Islay and in Kintyre. A single sensitivity assessment has been undertaken to cover both areas.</td>
</tr>
</tbody>
</table>
The landscape character types defined in the Argyll and Bute landscape assessment (1996) have been sub-divided for the purposes of this study. Some minor reclassification of some character types has also been undertaken. Further details are set out in section 4 of the Main Study Report.
Mull, Jura and Islay Landscape

Character Types and NSAs

Fig 10

Argyll and Bute Landscape Wind Capacity Study
Mull, Jura and Islay Landscape Character Types and NSAs
5 Sensitivity assessment of landscape character types

Introduction

5.1 Sensitivity assessments have been undertaken for each character type and any sub-types defined as explained in Section 4 of the report. The sensitivity assessment considers sensitivity of each character type to four different wind farm/turbine typologies.

5.2 An introduction to each character type is set out in the sensitivity assessments that follow. This clarifies the approach to assessment in term of whether the whole character type or sub-divisions of that type have been assessed. It also describes where any changes have been made to the boundaries or classification of character types set out in the Argyll and Firth of Clyde Landscape Assessment. Operational and consented wind farm developments, whether located within the landscape type/unit or in the surrounding area (and clearly visible from the character type being assessed) are described.

5.3 A summary of the sensitivity assessment is provided only in this main report with detailed sensitivity tables contained in a separate Appendix Report. 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 landscape sensitivity, visual sensitivity and the value placed on the landscape in terms of designations and other recognised interests. Further detail on methodology is contained in section 2 and in Annex C within this report.

5.4 Cumulative issues and key constraints and opportunities are set out for each landscape character type. The sensitivity assessment concludes with guidance on the siting of wind farm or wind turbine development.

5.5 Figures 9 and 10 show the location of character types and sub-types within Argyll and Bute. More detailed maps showing each landscape character type/sub-type and their immediate context are also provided in the following sensitivity assessments.