Easter Melrose Wind Energy Project

Landscape and Visual Impact Assessment

Revised May 2012

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Summary

Turbine Selection

The project has been designed around a 800 kW scale wind turbine, with a 55m tower and a 48m diameter rotor. The actual turbine to be used by the project will not be selected until nearer the construction date, however the maximum tip height of 79m will not be exceeded. This report demonstrates that the visual impact of the turbines is not adversely significant and the machines are appropriate for the proposed location.

Impact on Landscape Elements

The proposed turbines are to be located on an area defined as Coastal Farmland by SNH, a recommended wind energy development area, with the project assessed to have Medium and Low significant effects on the landscape elements around the area. There are Negligible significant effects upon any Scheduled Ancient Monuments and Historic Gardens and Designed Landscapes in the area surrounding the development.

The Deveron valley and the Buchan Areas of Special Landscape Value have been considered, and although sensitive areas, there are only very minor impacts upon these landscapes by the project, giving overall landscape impacts of moderate significance. The project does not dominate the landscape and does not affect the integrity of these Areas of Special Landscape Value.

The project is positioned partially within a locally designated Area of Landscape Significance, however the landscape is contiguous across all three turbine positions, suggesting that the boundary of the ALS has not been clearly defined; the project does not have a significant impact upon the ALS.

Impacts on Visual Resource of the Area

Maps produced to predict Zones of Theoretical Visibility and wireframe topographic studies indicate that the development would be well screened from the towns and villages in the area, with the turbines only just visible from the communities located either side of the project. Views from the main roads would be mainly of a peripheral nature, with the minor road between Macduff and Gardenstown having the greatest sequential impacts; direct views to the turbines occur only on this section of the road.

The impact upon Banff has been more thoroughly explored, with two new viewpoints, however this has not altered the conclusion that the wind turbines have largely Low to Medium significance of impact upon neighbours to the development.

Cumulative Impacts

Aberdeenshire is becoming an area where views of wind turbines are common, with the projects tending to be located on Agricultural Heartlands or Coastal Farmland landscape character types. Further cumulative analysis has been undertaken, revealing that this area is not dominated by wind energy development, with the project fitting well with the exposed and rolling farmland landscape; the elevated and undulating open landscape in this part of Aberdeenshire appears to be suitable for these moderate-scaled wind turbines.
1 Introduction

1.1 This report is an assessment of the landscape and visual impact of a wind energy project to be located in farmland between the communities of Macduff and Gardenstown. The project consists of three wind turbines located near the north coast of the Banff and Buchan part of Aberdeenshire, each with a tower of 55m, and a rotor diameter of 48m, giving a height of just under 79m.


1.3 The methodology used has been developed in line with the Guidelines for Landscape and Visual Impact Assessment[10], and has the following approach:

- Collection of relevant background information;
- The creation of maps showing the Zones of Theoretical Visibility;
- The use of wireframe and photomontage images to help assess the overall significance of the impact of the proposed development;
- The establishment of viewpoints around the farm;
- A baseline study of the existing landscape and the visual resource;
- The assessment of the significance of the development on the landscape and visual resource;
- A study into the scale and extent of the development;
- The assessment of any potential cumulative impacts.

1.4 The site for the proposed turbines is defined by SNH as Coastal Farmland and lies at an elevation of approximately 170m, with the turbines located in gently sloping arable fields. The area is bounded by Gamrie to the east, the B9031 to the north, Macduff to the west and the A98 to the south.
2 The Project

2.1 The proposed site is part of the Easter Melrose farm, and the project consists of three wind turbines on the site, each with a hub height of 55m and a rotor diameter of 48m, making an overall height of 79m. Access to the site is off a minor road between the B9031 and the A98, with the project located on either side of the road. Underground cables will follow a track between the turbines to a switchgear house located between the turbines and the existing overhead cables; these will be moved or buried.

2.2 The turbines will stand on concrete foundations, all of which will be below ground level, with only stone hardstanding visible around the turbine base. The track to the turbines will be 4m wide and is routed directly to the turbine locations. The track will have a compacted stone finish and will not have a top layer of tarmac. All stone for the project will come from the existing Melrose quarry; there will not be borrow pits.

2.3 The construction phase of the development will take place over a matter of weeks, and will require various construction vehicles and cranes. The operational phase of the project will be over 20 years, and this assessment considers the impact upon the landscape and the subsequent visual effects over this period. At the end of the project all materials above ground will be removed and the land will revert to agricultural use.

2.4 The visual impact of the development has been demonstrated by using photomontage, wireframe and Zones of Theoretical Visibility techniques; this has been provided as an A2 document to allow a full and clear understanding of the relationship of the turbines with the landscape. Cumulative and sequential impacts are further assessed, considering the intervisibility of the Easter Melrose turbines with other commercial scale developments within 20km of the site; expanded cumulative wireframes and maps showing cumulative ZTV have been provided.

2.5 This area has relatively few wind energy projects compared with Formartine and other more densely populated parts of Aberdeenshire. The nearest large development is the Boyndie windfarm west of Banff, with a smaller project at Strath of Brydock to the south of Banff and a five turbine development at Hill of Fishrie to the south; these projects use the larger E70 2MW wind turbines.

2.6 There are a significant number of smaller developments scattered around this part of Aberdeenshire, with a tendency for farms to install small turbines to provide power primarily for the farm rather than for exporting to the grid.
3 Scale of the development; determining turbine size

3.1 Turbine dimensions

When considering the scale of the wind turbine that is appropriate for the area, there has to be a balance between the numbers of wind turbines that a given site can accommodate, compared with the dimensions of the chosen turbine. The local grid capacity and proximity of neighbours also restrict development, as there is little point in designing a project that is too large for the site.

Wind turbines have been increasing in scale, primarily to increase the amount of energy that can be extracted from the site; the industry is developing an offshore sector, with turbines increasing in scale to justify the increased cost of civil engineering at sea. As a consequence medium scale turbines are extremely difficult to obtain, with one manufacturer, Siemens, refusing to supply their 1.3MW machine to anything other than large scale projects. There are only two relevant machines available with tip heights of 80m or less; the Vestas V52 850kW or the Enercon E48/E44. Both of these models of wind turbine have been installed in Aberdeenshire, along with the much larger Enercon E70.

3.2 Design Elements

From a design and visual perspective there are three aspects of turbine design to consider; height, rotor speed and proportion:

- The overall height of grid-connected wind turbines in the UK varies from 75m to over 100m for onshore wind turbines. The smaller turbines are all less than 1MW in generation capacity, and the largest component dimension is less than 30m, allowing delivery to any site which has access from an ‘A’ class road. As turbine sizes increase, delivery becomes much more problematic; the largest land based wind turbine, the 2.75MW NM92, has a 45m long blade and can only be delivered to a relatively few locations. In contrast mainland Europe has much taller towers, although blade lengths tend to be similar to those installed in the UK.

- Increasing the size of the wind turbine rotor tends to result in slower rotational speed. The rotor speed of the Vestas V52 and Enercon E48 have a maximum speed of 30rpm and the Enercon E70 2.3MW rotates at 19rpm. These slower speeds tend to be more acceptable from a visual perspective, enhancing the sculptural aspects of wind turbine developments. The newer designs of wind turbine are also variable speed, rotating at much lower speeds in lower wind conditions. This results in a more relaxed appearance and a much quieter wind turbine, particularly in days when the windspeed is less than optimum.

- The relative geometry or proportion of the wind turbine is a comparison of the blade length and tower height. A wind turbine with an overly large blade on a short tower is perceived as being
out of proportion, and as a consequence can appear to be ponderous and overbearing. Similarly a wind turbine with a relatively tall tower and small rotor can sometimes appear spindly, as can be seen in Figure 1; the Vestas V66 is located at Dummuie, near Huntly. Note that the three smaller turbines all have 80m tip heights, yet the visual impact from each model is quite different.

- The human eye looks for proportion and symmetry, and when considering a structure like a wind turbine, an optimum dimensional ratio of 0.618 is looked for. As the human eye is looking for proportion, there is little to be gained by positioning an overly large blade on a shorter tower, as shown in the schematic of the Vestas V66. Given that wind turbines in Aberdeenshire are being positioned on undulating ground, the viewer will simply assume that there is a dip in the ground, and that the towers are the “correct”, longer length anyway.

![Figure 1: Comparison of blade and tower lengths](image)

### 3.3 Assessment of wind turbines in Aberdeenshire

To determine the appropriate scale of wind turbine, an assessment of the developments within 30km of the site has been considered. The following projects are in the planning system, and have a maximum tower height of 50m and above. These encompass wind turbines in the range of 250 to 2300 kW, and have either been built, are under construction, have had planning consent or are pending a decision. The size of wind turbine varies considerably, and is related to grid capacity, location of neighbours and environmental constraints. The radar systems across the north-east of Scotland also have an impact on the scale of the developments, given that the aviation authorities will object to developments that impinge upon air traffic management. A more readable version is included in the revised photomontage volume.
Figure 2: 80m+ wind turbines within 30km of Easter Melrose
Figure 2 shows that there are significant variations in the scale of wind energy projects consented in Aberdeenshire, with both wind farms and single turbines becoming quite common. Considering projects located on Agricultural Heartlands, it can be seen that maximum tip heights of around 80m are appropriate. The Easter Melrose project is located in a landscape similar to the Upland Ridges of the Easterton project, and accordingly a turbine similar to the ones used by this project could be appropriate.

3.4 Landscape Relationship

The design of the Easter Melrose Wind Energy Project has followed an iterative process, and when considering potential impact upon the landscape, the project has attempted to determine the most appropriate scale of development. The general area is defined as Coastal Farmland in the Banff and Buchan Landscape Character Assessment (SNH), Figure 3, and consists of gently undulating fields draped over the underlying ancient metamorphic Dalradian bedrock. This gently rolling landform allows open views of the surrounding landscape. It should also be considered that the location chosen for the turbines is partially within an Aberdeenshire Area of Landscape Significance, however the boundary of this ALS is poorly defined; the landscape is flowing and contiguous across all three turbine positions.

Figure 3: Coastal Farmland landscape type (taken from Banff and Buchan LCA, SNH)
3.5 Designing for the Landscape

The LCA discusses the scale of wind energy projects that would be appropriate for the area, indicating that sparse populations and the open landscape in this part of Banff and Buchan will result in pressure to construct windfarms. In part 7.19 it is recommended that clusters of projects should be located in the open, larger scale parts of areas 4, 6 and 7; these are all Coastal Farmland areas, Figure 4. In part 4.44 of the LCA it is indicated that the relatively flat landscapes of north Aberdeenshire can emphasise industrial developments, with high voltage pylons and both the St Fergus Gas terminal and Peterhead Power Station locally prominent. It is further indicated that the crisply designed geometries of these structures are acceptable in the Buchan landscapes, suggesting that tall structures are appropriate in this type of landscape.

_The Coastal Farmland landscape type may therefore be favoured for windfarm development due to relatively high wind speeds, low population density, open spaces and the presence of existing powerlines within some areas, and accordingly well designed clusters of wind turbines may be accommodated in this part of Banff and Buchan._

Figure 4 is the LCA map, broadly showing the various types of landscape in north Aberdeenshire, with further details shown in Figure 4.

3.6 SNH Revised Guidance 2012

Scottish Natural Heritage have revised their guidance for the scale of development being proposed for the Easter Melrose site. This new guidance has been produced to help local authority planners and developers make good development happen in the right places. It covers siting, design and assessment issues associated with small scale wind energy developments, and also helps applicants and planners assess the extent to which a development could affect protected areas for birds, and provides a steer on assessing the cumulative impact of onshore windfarms.

The new guidance sets out the roles of the different parties involved and explains when SNH needs to be consulted. It promotes a plan-led and consistent approach to considering development proposals across Scotland, recognising that in some situations different levels of assessment will be required.

The new guidance recognises that it would be impractical for SNH to get involved in all applications, and given the demand on SNH’s resources from larger scale renewable energy development, the guidance is more selective and targeted, and accordingly SNH have determined that detailed advice is only required for large applications and developments that require environmental impact assessment and a habitats regulations appraisal.
3.7 Relevance of the revised SNH Guidance

The new guidance has more clearly defined when SNH need to be consulted, and has provided information on the types of project that are more likely to have a significant impact on the environment. A copy of the new guidance is appended to this report.

- The guidance indicates that projects of one to three turbines up to 100m tall should be considered to be ‘small-scale wind energy’.
- SNH should only be consulted if Environmental Impact Assessment is necessary and Habitat Regulations Appraisal is required.
- Projects should avoid nationally important environmentally sensitive and protected areas.
- SNH should be consulted if a project is within a National Scenic Area.
- For a small scale development with wind turbines over 50m in height, a Zone of Theoretical Visibility map should be provided out to a distance of 20km.
- A number of viewpoints should be established in consultation with the local authority – no more than five or ten should be required.
- An assessment of the sensitivity of the landscape, magnitude of change and residual impacts should be completed.
- A base plan of all other wind turbine proposals in the public domain up to a distance of 20km should be produced. The assessment should focus on the likely key landscape and visual interactions of the proposal with other constructed, consented or applied-for windfarms, and other significant man-made structures within a 20km radius of the site.
- Where sequential impacts with other developments may be a key issue, it may be appropriate to extend the study area but this should not be necessary for a project the scale of Easter Melrose.

From the above it can be seen that the siting and design of the Easter Melrose wind energy project has ensured that it should not be necessary to consult with SNH regarding the development. The development is ‘small-scale wind energy’, as defined by SNH, the project originally considered a Base Plan out to a distance of 20km, now expanded to 30km, and originally used a 25km ZTV map, now increased out to a radius of 60km. Regarding viewpoints, the development has used 18 views to demonstrate the impact of the development, far in excess of the new guidance, and has fully assessed the magnitude and significance of impact. It is felt therefore that the Easter Melrose project is fully compliant with the new SNH guidance.
Figure 4: Banff and Buchan Landscape Character Assessment (SNH)
Figure 5 – Sub-Sections of the Banff and Buchan LCA (SNH)
4 Planning Legislation and Aberdeenshire Council Wind Energy Policy

4.1 Section 25 of the Town and Country Planning (Scotland) Act 1997 requires all planning applications to be determined in accordance with the relevant provisions of the 'development plan' unless material considerations indicate otherwise. The Development Plan currently comprises the Aberdeenshire Local Plan adopted in 2006 and the more recently approved Aberdeen City and Shire Structure Plan as approved by Scottish Ministers in August 2009. The Structure Plan is assumed to accord with the relevant Government Planning Policy Guidance extant at the time of approval.

4.2 The most relevant Aberdeenshire Council policy statement in the City and Shire Structure Plan: 2009 in support of Sustainable Development and Climate Change, (page 16), is that the City region's electricity needs will be met from renewable sources by 2020. This target seeks to ensure that within less than 8 years the entire electricity demand from the City of Aberdeen and Aberdeenshire will be met from renewable sources. This is a higher target than that found in national Government Planning Guidance, and aligns with Scottish Government long term aims.

4.3 This most recent commitment from Aberdeenshire to renewable energy generation follows on from earlier positive statements found in the Council's Renewable Energy Strategy including:

- “The future promoted by the renewable energy strategy is one where, over time, renewable energy production makes an increasingly significant contribution to the support and development of sustainable communities, environmentally, socially and economically.”

- “Aberdeenshire Council will encourage the Aberdeenshire community to work towards generating its own energy requirements using renewable energy technologies, and to make a net contribution to national and global energy needs through the use of renewable energy sources, for the benefit of the environment, the economic health of the area and to promote sustainable communities.”

- “a positive planning framework is a significant step in pursuit of the goal of increasing the proportion of energy generated from renewables.” and “.... that the actions of the Council as a regulator of land use do not unduly inhibit the development of renewable energy generation.”
5 Planning Designations

5.1 Designated areas

There are no National Scenic Areas in this part of Aberdeenshire, and the nearest areas of Special Landscape Value are the Deveron valley, and the coastal fringes between Macduff, Fraserburgh and Peterhead. There are pockets of bog and fen some 5km to the east of the turbine site, and the nearest Sites of Special Scientific Interest are coastal features between Macduff and Pennan, and the Geordie Crags Devonian fossil beds at the Den of Findon, 2km east of the site. Figure 6 is a summary of nationally designated landscapes in the north-east.
5.2 Landscape planning designations

- Historic Gardens and Designed Landscapes: There are four properties listed in the Inventory of Historic Gardens and Designed Landscapes (HGDL) in the Banff and Buchan part of Aberdeenshire; Duff House, Fyvie, Craigston and Old Manse of Marnoch. Duff House is 9km to the west of the site, and Craigston is 10km to the south; the map showing the high resolution Zone of Theoretical Visibility in the report appendix shows that the turbines cannot be seen from these properties.

- Areas of Special Landscape Value: The coastline of Buchan from Macduff to Gardenstown, Fraserburgh, Peterhead and south to Cruden Bay is an extended Area of Special Landscape Value (ASLV). The turbines are located on the boundary of the ASLV near Gardenstown; however the SNH LCA specifically recommends that small clusters of turbines should be located in this area. There is also an ASLV between Turriff and Banff, along the Deveron Valley, however this ASLV is low lying and the wind energy project is over 10km away at the nearest point; negligible impact is predicted.

- Listed Buildings and Scheduled Ancient Monuments: A sifting exercise was undertaken to identify all Listed Buildings and Scheduled Ancient Monuments in the immediate surroundings of the turbine site, followed by removal of locations that cannot see the turbines. The following is a list of the relevant locations that can theoretically see the wind energy project and accordingly could have an indirect impact, with Crovie potentially having a significant impact due to the number of listed buildings in the village, however only one turbine can be seen by the various properties, and the overall impact is low.

<table>
<thead>
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<th>Site</th>
<th>Categories and #</th>
<th>Recorded NGR</th>
<th>Dist km</th>
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</thead>
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<tr>
<td>Cleaved Head, promontory fort</td>
<td>SAM 11021</td>
<td>NJ 721/647</td>
<td>5.4</td>
</tr>
<tr>
<td>Longman Cairn, long barrow, Longman Hill</td>
<td>SAM 341</td>
<td>NJ 737/620</td>
<td>3.9</td>
</tr>
<tr>
<td>Law of Melrose, cair</td>
<td>SAM 11022</td>
<td>NJ 756/642</td>
<td>2.1</td>
</tr>
<tr>
<td>Gamrie (former) Parish Church and burial ground</td>
<td>LB-B 10574</td>
<td>NJ 79280/62680 (from GPS)</td>
<td>1.4</td>
</tr>
<tr>
<td>Crovie composite for village</td>
<td>53 LB-B and LB-C(S), CA</td>
<td>NJ 608/656 (centred)</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Table 1: Listed Buildings and Scheduled Ancient Monuments
5.3 Project Setting

The area is undulating farmland and the development site is part of the working landscape. Rectangular field patterns, wooded areas, scattered housing and contrasting colours are key features of the area. The wind turbines have been located next to a line of electricity poles and away from prominent viewpoints, with the infrastructure at the location designed to fit the landscape; access is via the public road and existing field boundaries.

5.4 Existing Infrastructure

The minor roads within the area largely traverse the undulating landscapes and the views from them are thus constantly changing with changes of direction. The surrounding land rises to provide hills and barriers, creating open locations; most significant views of the project are from the B9031, the minor road between Macduff and Gardenstown. This area is a working landscape with farming beginning to be supplemented by wind turbines, with small wind energy developments beginning to appear; large scale windfarms are unlikely due to the prominence of scattered low density housing and farmsteads throughout the area.

5.5 Landscape Character Assessment

The project is in Aberdeenshire, and this assessment has considered the Banff and Buchan Landscape Character Assessment (LCA)\(^{[14]}\). The wind turbines are in Buchan, with the landscape defined as ‘Coastal Farmland’, an undulating landscape of low hills, with views over open farmland, populated with scattered dwellings and small villages. There is a long history of cultivation in this area, with little in the way of natural or semi-natural habitats. This part of the cultivated rolling farmlands of Banff and Buchan appears to be appropriate for wind energy projects of the scale proposed for Easter Melrose, with a good capacity to absorb the changes imposed by the development.

5.6 Zone of Theoretical Visibility

The Zone of Theoretical Visibility was established using the WindFarm programme along with Ordnance Survey gridded topographic ‘Panorama’ data. These maps are presented in differing scales, showing the impact within 15km on a 1:50,000 backdrop, cumulative impact up to 40km and an extended 60km assessment on a 1:250,000 map. Maximum tip height plots have been completed, in line with the recommendations in Visual Assessment of Windfarm: Best Practice\(^{[12]}\), though it should be considered that in very clear conditions the site may be seen from open areas beyond these boundaries. No account has been taken of the reduction of views through obstruction by forestry and local townships and communities.
6 Impact upon Landscape Character and Visual Resource

6.1 Landscape Context

The wider landscape has a simple, open, character, with a scattered rural community lying around the farmed landscape. The Easter Melrose site has a sloping elevation of 150 – 170m, and has the appearance of elevated fields running parallel to the public roads in the area. The land gradually slopes down to the north, reaching the sea with a series of dramatic cliffs between Macduff and Gardenstown. To the south and east of the site there is no evidence that this is a coastal area, as the sea cannot be seen; instead there are rolling hills typical of the agricultural heartlands of Aberdeenshire. The relationship of the site to the landscape therefore has two faces; to the north the sea provides a sudden and abrupt termination, whereas to the south and east we have rolling farmland. This is a working landscape consisting mainly of farms, isolated houses and small communities.

6.2 Methodology

The significance of the impact of the proposed development on the landscape character was considered by assessing the sensitivity of the landscape character and the degree or magnitude of the predicted changes to it, and by assessing the significance of impact by means of a matrix which relates sensitivity to magnitude. The same matrix was also used to determine the visual effects assessing the significance of the impact. Viewpoint sensitivity is considered along with the magnitude of change predicted to occur at each location.

6.3 Viewpoints

Views were determined by considering the quality of the landscape, whether or not there are any discordant or prominent features, the type and number of possible viewers and any historical context. Only viewpoints within the ZTV have been considered. Both digital and analogue cameras have been used, with the field of view set at 40° to ensure that the images are similar to that seen by the human eye. One slightly wider angle of view has been used to demonstrate the maximum extent of the project from the closest viewpoint. The viewpoints have been revised to ensure clear views of the site.

6.4 Landscape and Visual Sensitivity

Landscape and visual sensitivity is an indication of the capacity to absorb change. The factors used to assess sensitivity included the quality of the landscape and views, the value and importance of the landscape through national or local designations and archaeological, historical or cultural associations, the presence of discordant features, the rarity of the landscape, the number of viewers, and the ability of the landscape to absorb change.
6.5 Grading of Landscape and Visual Sensitivity

**VERY HIGH** sensitivity is used to describe an area or view with the following criteria:

- The landscape and views are of very high quality - intact, coherent and harmonious;
- The landscape and views are very highly valued - distinctive and considered scenically beautiful and of high importance;
- The landscape contains no or very few discordant features;
- It is a very rare landscape character type;
- This type of development may cause major degradation to the landscape quality;
- The development is seen by a very large number of viewers.

**HIGH** sensitivity is used to describe an area which meets the following criteria:

- The landscape and views are of good quality - largely intact, coherent and harmonious;
- The landscape and views are very highly valued - considered attractive and valued nationally and locally;
- The landscape may contain only minor discordant or intrusive elements;
- It is a moderately rare landscape character type;
- The development may cause moderate degradation to the landscape quality;
- The development is seen by a large number of viewers.

**MODERATE** sensitivity is used to describe an area which meets the following:

- The landscape and views are of average quality - less intact, coherent and harmonious,
- The landscape and views have lower values or valued only locally,
- The landscape may contain a number of confusing, discordant or intrusive elements,
- It is a moderately common landscape character type,
- The landscape can absorb the development with minor degradation to values;
- The development is seen by a moderate number of viewers.

**LOW to NEGLIGIBLE** sensitivity is used to describe an area which meets most of the following criteria:

- The landscape and views are of low quality, that is despoiled or degraded;
- The landscape and views are not valued locally;
- The landscape may contain many confusing, discordant or intrusive elements;
- It is a very common landscape character type;
- The landscape could easily absorb this type of development;
- The development is seen by only a very low number of viewers.
6.6 Magnitude of Change to Landscape Character

The degree or magnitude of change to the landscape character was assessed by primarily considering the location, size and scale of the turbines in relation to the size and scale of the surrounding landform. The magnitude of change also considered the extent of effects predicted by the development, the compatibility of the development within the landscape character, including a fit with the landform and the identification of any conflicts or synergies with vertical elements. The loss of key landscape features and the permanence of effects have also been assessed, along with the cumulative effect of adjacent wind projects in the same landscape.

6.7 Magnitude of Change to Visual Amenity

The degree of change to the visual resource was assessed by considering a range of factors. The proximity of the development, the scale and number of wind turbines in the area and the compatibility with the existing landscape character, visual conflicts with discordant features, the composition and balance of the development, the direction and elevation of the view, the distance over which the view is seen, the percentage of the view taken up by the development, the permanence of the change and any cumulative effects.

6.8 Grading of Magnitude of Effect

1: **VERY HIGH** magnitude is used to describe a major change to baseline conditions, resulting in complete alteration of landscape character, composition and quality. The development would dominate the view;

2: **HIGH** magnitude is used to describe an easily discernible and noticeable change to some aspect of the landscape character, composition and quality. The development would be conspicuous and distinct;

3: **MEDIUM** magnitude is used to describe a moderate, but still discernible change to some features of baseline conditions, resulting in a moderate change to the view and landscape character, composition and quality. The development would be apparent;

4: **LOW** magnitude is used to describe a minor change such that the baseline conditions remain largely unchanged. The development would be inconspicuous;

5: **NEGLIGIBLE** magnitude is used to describe a change of such indiscernible nature that the baseline conditions remain fundamentally unchanged. The development would be scarcely visible.
6.9 Significance Matrix

Significance is a relative term; a landscape could be highly sensitive to change, but if the magnitude of change is very low then the overall significance would only have medium effects. The significance of the impact on the landscape character brought about by the proposed development is a combination of the sensitivity of the landscape character and the magnitude of the change affecting it, and similarly the significance of the impact on the visual resource is a combination of the sensitivity of the view and the magnitude of change. In line with the recommendations given in section 6.4 of Visual Assessment of Windfarm [12], a 20-cell matrix has been created to determine the likely significance of the impact upon both the landscape character and the visual resource, with eight impact categories created. These categories are then used to determine the overall significance of the development.

<table>
<thead>
<tr>
<th>MAGNITUDE</th>
<th>SENSITIVITY</th>
<th>1: VERY HIGH</th>
<th>Medium/High</th>
<th>High</th>
<th>High/Very High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
<td>LOW/EV</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MODERATE</td>
<td></td>
<td>H</td>
<td>Medium/High</td>
<td>High</td>
<td>High/Very High</td>
<td></td>
</tr>
<tr>
<td>HIGH</td>
<td></td>
<td>M</td>
<td>Low</td>
<td>Medium</td>
<td>Medium/High</td>
<td>High</td>
</tr>
<tr>
<td>MEDIUM</td>
<td></td>
<td>L</td>
<td>Negligible/Low</td>
<td>Low</td>
<td>Medium</td>
<td>Medium/High</td>
</tr>
<tr>
<td>LOW</td>
<td></td>
<td>N</td>
<td>Negligible</td>
<td>Negligible/Low</td>
<td>Low</td>
<td>Medium</td>
</tr>
</tbody>
</table>

6.10 Landscape effects

The LCA identifies 12 different landscapes, Figure 7, and five different landscape areas have been identified that are either where the project is sited or adjoin the area, Table 3.
Table 3: Impact upon landscape elements

<table>
<thead>
<tr>
<th>Landscape Areas</th>
<th>Sensitivities</th>
<th>Magnitude of Effects</th>
<th>Significance of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Cliffs of the North and South-East Coasts</td>
<td>The cliffs and coastal landscape form the most dramatic scenery in the area, and many of the sheer cliff faces are designated as SSSIs, important for both their nature conservation and geological interest: High Sensitivity.</td>
<td>The turbines are largely hidden by folds in the topography, the distances to the project are 2 to 10 km from the cliffs, with the intervening landforms creating visual blocks: Low Magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td>4 Coastal Farmland East of Macduff</td>
<td>This agricultural landscape forms the main part of the coastal farmland of north Aberdeenshire, and generally consists of gently undulating plateaux, along with a patchwork of open farmland and small geometric fields: Moderate Sensitivity</td>
<td>The turbines are of moderate scale when viewed from within this landscape type, and the area does give some capacity to absorb change. Large scale development of the area should be avoided, and clusters will likely be acceptable: Medium Magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td>5 Sandstone Ridges and Valleys South of Troup</td>
<td>Open hilltops and enclosed valleys. Sensitive glaciated landscape of ridges and incised broad valleys, with large areas of woodland at the Tore of Troup: High Sensitivity.</td>
<td>The project is largely screened by woodland and elevated landforms, with visibility from the flanks of Windyheads Hill and from the elevated land above Pennan: Low Magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td>10 Agricultural Heartlands</td>
<td>Open fields of mixed farming and large areas of woodland. A large part of the region typifying the agricultural landscape of Banff and Buchan, encompassing the villages of Turriff, New Deer and Cuminestown: Low Sensitivity</td>
<td>The turbines are of moderate scale when viewed from this landscape, and this scale of wind energy project is now typical in these agricultural areas. This part of Aberdeenshire is appropriate for wind turbines and can absorb the resultant change: Medium Magnitude</td>
<td>Low</td>
</tr>
<tr>
<td>12 Deveron and Upper Ythan Valleys</td>
<td>Meandering river valleys flanked by broad and rolling ridges, Highly sensitive, special areas with varied woodland and the occasional prosperous town, with three Grade A listed castles; Delgatie, Hatton and Towie Barclay: High Sensitivity</td>
<td>The turbines are over 8km from the Deveron at the nearest point, and the ZTV suggests that no part of the development will be seen in the Deveron valley floors, nor that of its tributaries, with only marginal impact upon east facing slopes.: Low Magnitude</td>
<td>Medium</td>
</tr>
</tbody>
</table>
6.11 Visual Impact Significance

A range of viewpoints was established to determine the overall visual impact of the turbines, Table 4, with photomontages and wireframes completed in each case. The viewpoints cover a range of different views, including monuments, nearby communities and roads, at varying distances and directions from the turbines. The photomontages and wireframe images were created using ‘Windfarm’ and show how the impact would be perceived from 18 viewpoints; longer distance views are not included, as these moderate scale turbines have a much diminished nature beyond 15km. The magnitude/sensitivity matrix shown above has been used to help determine visual impact significance at each viewpoint and cumulative visual assessment is considered in part 7 of the report.

Table 4: Significance of impact upon viewpoints

<table>
<thead>
<tr>
<th>VIEWPOINT</th>
<th>SENSITIVITIES</th>
<th>MAGNITUDE OF EFFECTS</th>
<th>SIGNIFICANCE OF IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MELROSE</td>
<td>Coastal Farmland, Area of Landscape Significance: Typical undulating agricultural landscape of north Aberdeenshire, common between north coast towns, with a patchwork of undulating fields and occasional sea views, valued locally: High Sensitivity</td>
<td>Nearest Turbine 1.1km: All three wind turbines presented as a linear development following a slight ridge in a working landscape, giving a moderate but easily discernable change to the view. The project is clearly visible: Medium Magnitude</td>
<td>Medium/High</td>
</tr>
<tr>
<td>2 GREENSKARES</td>
<td><strong>Revised Viewpoint</strong> Coastal Farmland: Road user and neighbour viewpoint. Typical agricultural landscape, with a patchwork of undulating fields, hedges and fences, a common view: Moderate Sensitivity</td>
<td>Nearest Turbine 530m: This view represents the scale of impact upon the nearest neighbours to the project, with an easily discernable change to the view. The turbines are conspicuous and distinct: High Magnitude</td>
<td>Medium/High</td>
</tr>
<tr>
<td>COTTAGES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 DARFASH</td>
<td><strong>Revised Viewpoint</strong> Coastal Farmland: Open landscape viewpoint. Typical agricultural landscape of north Aberdeenshire, with a patchwork of fields and contrasting woodland, attractive and valued locally: Moderate Sensitivity</td>
<td>Nearest Turbine 3km: This view represents the impact upon road users travelling on an exposed minor road to the east, with a moderate and easily discernable change to the view. An open view: Medium Magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td>4 CUSHNIE</td>
<td>Sandstone Ridges and Valleys: Minor road heading south from Gardenstown, at the edge of an undulating landscape, reflecting a less common underlying geology. Medium quality of view: Moderate Sensitivity</td>
<td>Nearest Turbine 2.4km: A rise in the land to the west of Gardenstown, showing farmland with a moderate but easily discernable change to the view; the project is clearly visible and apparent: Medium Magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td>Location</td>
<td>Scenic Feature</td>
<td>Sensitivity</td>
<td>Turbine Distance</td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
<td>-------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Gamrie</td>
<td>Sandstone Ridges and valleys: Nearest community to the east of the project, with a moderate number of viewers. Undulating fields, occasional deep cut valleys and pockets of woodland:</td>
<td>Moderate Sensitivity</td>
<td>Nearest Turbine 2.3km: An agricultural working landscape. A moderate but easily discernable change to the view, with the project clearly visible and apparent above incised valleys: Medium Magnitude</td>
</tr>
<tr>
<td>Troup Head</td>
<td>Cliffs of the North Coast: Prominent headland with dramatic cliffs to the east and west. The view to the south and towards the project is less important, showing the typical undulating agricultural landscape of the site:</td>
<td>Moderate Sensitivity</td>
<td>Nearest Turbine 5.8km: Exposed headland with a plateau nature to the south. The project is visible as a simple linear development subservient to the landscape, giving a moderate but discernable change to the view: Low Magnitude</td>
</tr>
<tr>
<td>Royal Tarlair Golf Course, Macduff</td>
<td>Revised Viewpoint Coastal Farmland: Popular golf course the west of the project, with a moderate number of viewers. Fine coast and sea views to the north, more typical farmland to the south, valued locally:</td>
<td>Moderate Sensitivity</td>
<td>Nearest Turbine 6km: Working farmland, with a contrasting view of fields and sea. Few vertical elements, with the turbines visible as a compact cluster, giving a moderate but discernable change to the viewpoint quality: Low Magnitude</td>
</tr>
<tr>
<td>Banff Harbour</td>
<td>Revised Viewpoint Town to the west of the site, with limited views; the project can be seen above the skyline, with existing buildings and pylons providing mitigation:</td>
<td>Moderate Sensitivity</td>
<td>Nearest Turbine 8.7km. Compact group of three turbines, visible above the Macduff townscape, with the turbine blades glimpsed between gaps in houses and other structures: Low Magnitude</td>
</tr>
<tr>
<td>East of the A947, Keihill</td>
<td>Revised Viewpoint Agricultural Heartlands: Minor road south of Macduff and Banff, an elevated viewpoint, showing fields, hedges and pockets of woodland:</td>
<td>Moderate Sensitivity</td>
<td>Nearest Turbine 6.1km: The project is visible on the horizon, with the turbines fully visible above an agricultural landscape, giving a moderate but discernable change to the view: Low Magnitude</td>
</tr>
<tr>
<td>Hill of Overbrea</td>
<td>Sandstones Ridges and Valleys: Rural view, low number of viewers. Common landscape, a patchwork of undulating fields and pockets of woodland:</td>
<td>Moderate Sensitivity</td>
<td>Nearest Turbine 4.3km: A linear development in an agricultural landscape. A moderate and discernable change to the view, with the project clearly visible and apparent: Medium Magnitude</td>
</tr>
<tr>
<td>Cleaved Head</td>
<td>Cliffs of the North Coast: Dramatic views from the west, with the turbines visible to the south. Popular cliff walk with a moderate to high number of viewers:</td>
<td>Moderate/High Sensitivity</td>
<td>Nearest Turbine 5.3km: The turbines are visible in the distance behind the cliffs but subservient to the scale of the foreground, giving a discernable change to the view: Low Magnitude</td>
</tr>
<tr>
<td><strong>12 Longman Cairn</strong></td>
<td>Historic site with occasional visitors. Minor viewpoint to the south of the project, with an elevated landscape and a low number of viewers. Patchwork of fields and pockets of woodland, valued locally: Moderate Sensitivity</td>
<td>Nearest Turbine 3.8km: A rise in the land to the north of the cairn, showing farmland with a moderate but easily discernable change to the view; the project is clearly visible and apparent: Medium Magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td><strong>13 Melrose Law</strong></td>
<td>Coastal Farmland: Historic site with few visitors. Agricultural landscape to the south, with cliffs to the north, and patchwork of fields and isolated dwellings: Moderate Sensitivity</td>
<td>Nearest Turbine 1.9km: Working farmland, with the Easter Melrose turbines visible against open skyline to the south, with a moderate but easily discernable change to the view: Medium Magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td><strong>14 Gamrie Church</strong></td>
<td>Coastal Farmland: Nearest community to the east, with a moderate number of viewers, showing the turbines above the churchyard. Undulating fields with occasional incised valleys and pockets of woodland: Moderate Sensitivity</td>
<td>Nearest Turbine 1.4km: A rise in the land to the west of Gardenstown, showing farmland with a moderate but easily discernable change to the view; the project is clearly visible and apparent as a compact group: Medium Magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td><strong>15 Crovie</strong></td>
<td>North Coast Cliffs: Remarkable village, with many listed buildings. Dramatic views of cliffs and sea, with one of the turbines visible above the hills behind nearby Gardenstown. A moderate number of viewers: High Sensitivity</td>
<td>Nearest Turbine 3.6km: A single turbine only is visible to the south-west, with the rest of the site hidden. The turbine is subservient to the topography giving a moderate but discernable change to the viewpoint quality. : Low Magnitude</td>
<td>Medium</td>
</tr>
<tr>
<td><strong>16 East of Fintry</strong></td>
<td>Agricultural Heartlands: Common landscape of north Aberdeenshire, with a patchwork of fields and pockets of woodland, attractive and valued locally: Moderate Sensitivity</td>
<td>Nearest Turbine 9.3km: The project is just visible, with the turbines seen on the skyline in the distance giving a minor and slightly discernable change to the view: Low Magnitude</td>
<td>Low</td>
</tr>
<tr>
<td><strong>17 A98 at Crudie</strong></td>
<td>Agricultural Heartlands: Main road between Macduff and Fraserburgh. Typical view of rural farmland, attractive and valued: Moderate Sensitivity</td>
<td>Nearest Turbine 5.8km: The project is visible as a simple linear development to the north, giving a minor and slightly discernable change to the view: Low Magnitude</td>
<td>Low</td>
</tr>
<tr>
<td><strong>18 Banff Academy</strong></td>
<td>Revised Viewpoint Town to the west of the site, Location with open views, with the project seen on the horizon above rolling agricultural land, attractive and valued view: Moderate Sensitivity</td>
<td>Nearest Turbine 9km: Compact group of three turbines, clearly visible to the south of Macduff in the distance giving a minor and slightly discernable change to the view: Low Magnitude</td>
<td>Low</td>
</tr>
</tbody>
</table>
7 Cumulative effects

7.1 Assessment of Cumulative Landscape Effects

Cumulative landscape effects can include both direct and indirect effects on landscape elements as a consequence of a new development in an area, with potential impacts upon landscape character, condition and value. Wind turbines are vertical structures, and in central and north Aberdeenshire are mainly positioned on Agricultural Heartlands or Coastal Farmland landscape character; the Easter Melrose project continues this pattern. This type of landscape appears to have a good capacity to absorb the change brought about by wind turbine developments, due to the undulating nature of the countryside and the barrier effects from pockets of woodland.

It should be noted that the Easter Melrose project does not have significant cumulative effects upon the landscape as there are relatively few turbines located in the coastal farmland, and moreover the rolling and undulating nature of the topography acts to reduce the extent of open views. Nevertheless further assessment of the potential impacts upon this type of landscape has been conducted.

An expanded Base Plan has been formulated to help identify other projects in close proximity to the Easter Melrose site; a copy is provided in the revised Photomontage document. Aberdeenshire Council provided a copy of a development spreadsheet, identifying all commercial scale wind turbines within 30km of the site. This spreadsheet was then sorted in order of turbine height, identifying all projects with overall height greater than 48m; this encompassed a range of projects with turbines rated at between 0.1 and 2.3MW, 115 developments in total. The spreadsheet identifies all existing developments, all approved developments, along with proposals awaiting determination. Each of these developments was then plotted on to a map of the area, regardless of the project status, giving an easily accessible plan. It should be noted that this plan identifies clusters of wind energy projects, particularly in Formartine and near Boyndie, and by comparison demonstrates that the Easter Melrose area has more isolated projects and has not seen significant wind development, Figure 8. The choice of 30km radius for the Base Plan is based on the new and most up to date guidance from SNH, with a 60km radius Zone of Theoretical Visibility map produced to provide analysis of the potential impact beyond the 30km range. It should also be noted that beyond 30km, the visual impact of the Easter Melrose development is almost exclusively upon unpopulated, elevated and forested landscapes to the west and south, with the turbines providing negligible impacts, Figure 9.
Figure 8: Base Plan extract, showing clustered developments
Note that there are significant topographic barriers in this part of Aberdeenshire, isolating the Easter Melrose development from most of Buchan and the main population centres of Fraserburgh and Peterhead. There is elevated land south of Gardenstown and east of Keith, thus the visual impact of the Easter Melrose development is almost exclusively to the south-west of the site, and within a radius of 30km.
7.2 Assessment of Cumulative Visual Impacts

A systematic approach has been taken to explore the potential for cumulative impacts with other developments in the area; three aspects of cumulative visual effects have been assessed:

- Combination, where more than one project can be seen from the same viewpoint at the same viewing angle;
- Succession, where more than one project can be seen from same viewpoint, but from different viewing angles;
- Sequential, the changing view of developments as seen during a journey along a transport corridor.

The project has assessed a range of other projects that are likely to have a degree of cumulative impact, focussing on commercial scale wind energy developments located within 20km of the Easter Melrose wind development. Due to the nature of the wind energy industry, and a requirement to consider projects of indeterminate status, it should be recognised that cumulative assessment can only represent a snapshot of an area at any given time. The Easter Melrose project has been in the planning system for a year, and in that time planning applications for further wind energy projects have been submitted to Aberdeenshire Council. It should also be considered that other projects in the area have since been refused, although they could still be subject to appeal.

The cumulative assessment has considered adjacent projects within the Easter Melrose zone of theoretical visibility, Appendix A. There are two wind turbines in the immediate surroundings of Easter Melrose, Easter and Lower Cushnie, a further five developments located at distances of 5 to 8 km from the site, with the remainder located over 10km away from the project. The project at Muirake is over 20km from Easter Melrose and accordingly cumulative aspects of this development have not been included.

- Lower Cushnie; 2.5km
- Easter Cushnie; 3km
- Newton of Foulzie; 6km
- Wester Blakeshouse; 6km
- Hill of Fishrie; 7km
- Little Byth; 7.5km
- Gairnieston Farm; 8km
- Cairnhill; 10km
- Castle of Auchry; 12km
- Strath of Brydock; 13km
- Newstead; 14km
• Boyndie; 15km
• Little Blairshinnoch; 15km
• Backhill of Culbirnie; 15km
• Little Culbirnie; 15km
• Gellybrae/Royston; 17km

When considering the above projects 15km or more from Easter Melrose, only Boyndie is currently operational; the remainder have not yet been determined.

### 7.3 Cumulative Visual Significance

The project viewpoints have been used to establish cumulative visual effects, and an assessment has been made of the cumulative effects from these views; cumulative wireframes and cumulative zones of theoretical visibility have been used to assess each of the above surrounding developments. The projects used to determine cumulative effects are developments in the public domain, and include adjacent operational windfarms, those that have planning consent but have not yet been constructed, and projects that have been submitted for planning but are of indeterminate status. Cumulative visual significance has been determined at each viewpoint, using wireframe images to provide a clearer description and annotation of the existing developments.

A systematic approach has been used when identifying the potential impacts, with the projects established as wireframes within the landscape. At each viewpoint the directions North, East, South and West are assessed in sequence, using 90° viewing angles to ensure all parts of the landscape are identified. Clearly viewpoint locations at the coast will have no turbines in the northerly direction, however all directions have been included to ensure a complete 360° assessment.

Please note that the project database includes all turbine positions within a 20km radius of Easter Melrose; where a wind project within the scope of the cumulative assessment will not be visible due to hills and other topographic barriers, the viewpoint wireframe uses a line and site marker to show the relative position of the development. This technique allows a consideration of perceived effects, and helps to identify those areas which are starting to become recognised as having wind farm clusters; the area around Easter Melrose does not have a high density of commercial-scale wind energy projects.
7.3.1 Melrose: This is a view of coastal farmland, showing the undulating agricultural landscape of north Aberdeenshire, with a patchwork of undulating fields and occasional sea views. The view north directly towards the project has only the Easter Melrose turbines in the fields of view, with no other projects visible in this orientation. When looking east there is a cluster of smaller turbines at Cushnie, with Hill of Fishrie and Little Byth forming a cluster visible on the eastern horizon. The Wester Blakeshousie, Castle of Auchry, Cairnhill, Brydock, Gairnieston projects are visible in succession to the south, with Boyndie and the Culbirnie projects forming a cluster to the west. There are no projects visible in combination with Easter Melrose at this viewpoint. Moderate Sensitivity combined with Medium Cumulative Magnitude, giving Medium Significance.

7.3.2 Greenskares Cottages: View from the nearest neighbour, showing a typical agricultural landscape. From this location, the Easter Melrose turbines are very prominent, positioned around 530m to the south of the road, however the viewpoint is low-lying and accordingly no project can be seen either in combination or succession. The only other project than can theoretically be seen is Boyndie, located on the western horizon at a distance of 15km: Moderate Sensitivity combined with Low Cumulative Magnitude giving Low Significance.

7.3.3 Darfash: View from an elevated minor road to the east. From this location there are no wind energy developments visible towards the north or east, with only Hill of Fishrie and Little Byth forming a cluster to the south-east. When looking westwards Easter Melrose is seen in combination with Boyndie in the far distance. It should be noted that Boyndie is almost 20km from this viewpoint, and is located below the horizon. Moderate Sensitivity combined with Low Cumulative Magnitude giving Low Significance.

7.3.4 Cushnie: View from a minor road heading south from Gardenstown, at the edge of an undulating landscape reflecting a less common underlying geology. The Easter Cushnie turbine is prominent to the north, nothing visible to the east, Castle of Auchry and Cairnhill form a cluster to the south and Boyndie, Lower Cushnie and Easter Melrose are seen in combination to the west. Boyndie is again insignificant due to the distances involved. Moderate Sensitivity combined with Medium Cumulative Magnitude to give Medium Significance.
7.3.5 Gamrie: View from the nearest community to the east of the project, with a moderate number of viewers. Undulating fields with deep cut valleys. Only Easter Melrose is visible from this location, with all other windfarms in each direction obscured by rises in the topography. Moderate Sensitivity combined with Negligible Cumulative Magnitude to give Negligible/Low Significance.

7.3.6 Troup Head: Prominent headland with cliffs to the east and west. The view to the south and towards Easter Melrose shows a typical agricultural landscape. The viewpoint is quite prominent however the projects are largely hidden by topography, with only Easter Cushnie, Easter Melrose, Brydock and Boyndie visible in succession along the south-western horizon. Brydock and Easter Melrose are also seen in combination from this viewpoint. Moderate Sensitivity combined with Medium Cumulative Magnitude to give Medium Significance.

7.3.7 Royal Tarlair: Attractive and popular golf course to the west of the project, with coast and sea views to the north, more typical farmland to the south. Coastal viewpoint with a contrasting view of fields and sea. The Easter Melrose turbines are visible as a compact cluster 6km to the east, with the Boyndie project theoretically visible on the western horizon, 9km to the west. There developments are seen neither in combination nor in succession, and all other projects are hidden by the topography: High Sensitivity combined with Low Cumulative Magnitude to give Medium Significance.

7.3.8 Banff Harbour: Town to the west of the site, with limited views of the development; the project can be seen above the skyline, with existing buildings providing mitigation. The Easter Melrose turbines are visible as a compact cluster 8km to the east, with the Boyndie project visible on the western horizon, 7km to the west. These developments are seen neither in combination nor in succession, and all other projects are hidden by the topography: Moderate Sensitivity combined with Low Cumulative Magnitude to give Low Significance.

7.3.9 Keilhill: A minor road south of Macduff and Banff, with an elevated viewpoint showing fields, hedges and pockets of woodland. There are two aspects to consider from this viewpoint, with a range of projects particularly visible to the East. The view is dominated by the Newton of Foulzie turbines, with Easter Melrose visible towards the north east. From this viewpoint almost all the projects are seen in succession to the east, with the exception of Boyndie and Brydock, visible in combination to the north-west. Moderate Sensitivity combined with High Cumulative Magnitude to give Medium/High Significance.
7.3.10 **Hill of Overbrae**: Rural view and a low number of viewers, a common landscape with a patchwork of undulating fields. Easter Melrose is visible as a linear development due north of the viewpoint. When considering the other wind turbines, the Cushnie turbines can be seen in combination with Easter Melrose, with Boyndie visible in succession to the northwest, and the blades of the Little Byth project appear above the southern horizon in combination with the Hill of Fishrie project; no other development can be seen: Moderate Sensitivity with Medium Cumulative Magnitude to give **Medium Significance**.

7.3.11 **Cleaved Head**: Dramatic views from the west, a popular cliff walk with a moderate to high number of viewers. The Easter Melrose turbines visible as a compact cluster 6km to the east, with the Boyndie project theoretically visible on the western horizon; the two developments are 180° apart, and are seen neither in combination nor sequence. All other projects are hidden by the topography: High Sensitivity combined with Low Cumulative Magnitude to give **Medium Significance**.

7.3.12 **Longman Cairn**: Historic site and an elevated viewpoint to the south of the project site, with panoramic views. Easter Melrose is seen slightly isolated to the north-east, along with the Cushnie, Hill of Fishrie and Little Byth projects seen in succession to the east and south-east. The Newstead, Cairnhill, Castle of Auchry and Gairnieston developments are seen in succession to the south and west, with the Culbirnie, Brydock and Boyndie developments seen in combination to the north-west. This location was clearly selected for its prominent and highly visible nature when the Cairn was constructed: Moderate Sensitivity combined with High Cumulative Magnitude to give **Medium/High Significance**.

7.3.13 **Melrose Law**: Historic site, agricultural landscape to the south, with cliffs to the north. The Easter Melrose turbines visible as a compact cluster to the east, with the Brydock, Culbirnie and Boyndie projects visible in succession on the western horizon; all other projects are hidden by the topography: Moderate Sensitivity combined with Low Cumulative Magnitude to give **Low Significance**.
7.3.14 **Gamrie Church**: The Easter Melrose turbines are visible above the churchyard, in an area of undulating fields with occasional incised valleys. Easter Melrose appears above a hill 1.4km to the west of the viewpoint, and the Cushnie turbines are nearer and more prominent to the south-east. To the southern horizon the Castle of Auchry, Cairnhill and Wester Blakeshouse projects can be seen in succession; no other development is visible. Moderate Sensitivity combined with Low Cumulative Magnitude to give Low Significance.

7.3.15 **Crovie**: Dramatic views of cliffs and sea, with one of the Easter Melrose turbines visible above the hills behind nearby Gardenstown. The Easter Melrose project is largely hidden by the topography, with only a single turbine visible above the cliffs to the west. The Boyndie project appears in succession towards the north west, but at a much longer distance; no other project is visible. High Sensitivity combined with Low Cumulative Magnitude to give Medium Significance.

7.3.16 **East of Fintry**: Typical Aberdeenshire landscape, with a patchwork of fields and woodland. Open and exposed panoramic viewpoint, dominated by the Cairnhill project. Boyndie, Brydock and Culbirnie projects appear in combination in the distance as a cluster to the north, with Easter Melrose, Wester Blakeshouse and the Cushnie developments appearing in sequence on the northern horizon, leaving the Hill of Fishrie and Little Byth developments in combination to the east. Moderate Sensitivity combined with Moderate Cumulative Magnitude to give Medium Significance.

7.3.17 **A98 at Crudie**: Main Road between Macduff and Fraserburgh. A typical Aberdeenshire landscape, with a patchwork of fields and woodland. Open and exposed landscape, with the Boyndie, Brydock and Culbirnie projects in combination to the north, with Easter Melrose and the Cushnie developments appearing in sequence on the northern horizon, The Hill of Fishrie and Little Byth developments are in combination to the east. Moderate Sensitivity combined with Moderate Cumulative Magnitude to give Medium Significance.

7.3.18 **Banff Academy**: College to the west of the site, with open views of the landscape to the east. The Easter Melrose, Cushnie, Hill of Fishrie, Little Byth, Newton of Foulzie and Newstead projects are seen in succession to the east, with the Brydock development theoretically seen in isolation to the west. All other projects are hidden by the topography: Moderate Sensitivity and High Cumulative Magnitude give Medium/High Significance.
7.4 Cumulative Zones of Theoretical Visibility

The Zone of Theoretical Visibility of the Easter Melrose wind turbines was compared with the combined ZTV of the other existing, consented and proposed windfarms in north Aberdeenshire, in an attempt to find the places from where the turbines could be seen in combination or isolation with other developments. This was found to be a confusing and unsatisfactory mechanism for analysis, mainly due to the broad spread and scale of existing projects, making it difficult to identify cumulative effects.

To more clearly understand potential cumulative effects, the Zone of Theoretical Visibility of each of the projects located within 20km of Easter Melrose has been calculated. Each was then combined with the ZTV of the Easter Melrose project to give separate Cumulative Zones of Theoretical Visibility. This in turn made it possible to identify locations at risk of significant cumulative impact.

- CZTV 1 Lower Cushnie; 2.5km
- CZTV 2 Easter Cushnie; 3km
- CZTV 3 Newton of Foulzie; 6km
- CZTV 4 Wester Blakeshouse; 6km
- CZTV 5 Hill of Fishrie; 7km
- CZTV 6 Little Byth; 7.5km
- CZTV 7 Gairnieston Farm; 8km
- CZTV 8 Cairnhill; 10km
- CZTV 9 Castle of Auchry; 12km
- CZTV 10 Strath of Brydock; 13km
- CZTV 11 Newstead; 14km
- CZTV 12 Boyndie; 15km
- CZTV 13 Little Blairshinnoch; 15km
- CZTV 13 Backhill of Culbirnie; 15km
- CZTV 13 Little Culbirnie; 15km
- CZTV 14 Gellybrae/Royston; 17km

associated cluster
CZTV 1: The Lower Cushnie turbine is a small development just over 2km from the Easter Melrose project, and is located within a dip in the landscape. As a consequence the ZVT of Lower Cushnie is a subset of the more extensive visual impact of Easter Melrose; if Lower Cushnie is seen, then the Easter Melrose development will also be seen. There appears to be no location where Lower Cushnie can be seen in isolation, whereas Easter Melrose will be seen in isolation at the open and elevated locations east of Macduff and west of Banff.

CZTV 2: The Upper Cushnie turbine is located on a prominent location, with the Easter Melrose and Upper Cushnie ZVTs covering much the same area. It should be noted that Easter Melrose has more of an impact to the west, with Upper Cushnie seen more commonly in the east. The Easter Melrose project is seen in isolation from Banff and from locations along the minor road between Macduff and Gardenstown, whereas Upper Cushnie is more visible to the east of New Pitsligo.

CZTV 3: The Newton of Foulzie project is 6km from Easter Melrose, with Longman Hill acting to separate the two developments. The Easter Melrose project is seen in isolation to the north, from Gardenstown and Crovie, with Newton of Foulzie more visible from stretches of the A947 Macduff – Turriff road. This CZVT provides evidence of the shielding nature of the rolling topography, with Easter Melrose well hidden by the landscape 5km west of the site.

CZTV 4: Wester Blakeshouse is a single turbine located 6km due south of Easter Melrose, with the topography again providing locations where both projects are seen in isolation. Easter Melrose is more prominent, and is seen over a more extensive area. The development is seen in isolation towards the north, whereas Wester Blakeshouse is seen in areas to the south-east of the site. The projects are seen together from Alvah, Fintry and Cuminestown.

CZTV 5 and CZVT 6: Little Byth and Hill of Fishrie are adjacent to each other and have near-identical zones of theoretical visibility. It should be noted that these developments are located on a prominent landform, with extensive visibility from the east, south and west. Easter Melrose by contrast is well shielded by the same topography, and as a consequence is not readily visible from the east; the Easter Melrose ZVT is a subset of the Little Byth/Hill of Fishrie ZVT. Easter Melrose is seen in isolation between Gardenstown and Banff, whereas the other projects are much more prominent from viewpoints around Fraserburgh, Rosehearty and much of Buchan.
CZVT 7: Gairnieston Farm is located 8km south of Easter Melrose, on a similar rolling landscape. The Easter Melrose turbines are more visible when viewed from the north, whereas the Gairnieston project has more of an impact when viewed from the south. The two projects can be seen together from elevated viewpoints south of Turriff, and from locations west of the River Deveron.

CZVT 8 and CZVT 9: The Cairnhill and Castle of Auchry developments are located close to each other, and both have a similar relationship with Easter Melrose, 10km to the north. At this distance the rolling Aberdeenshire topography is beginning to have a significant effect, with few locations where the developments can be seen together. The developments have a much more separated relationship, with more viewpoints where the projects are seen in isolation; the Easter Melrose project is more visible from the elevated landscape south of Portsoy, whereas Cairnhill and Castle of Auchry are much more prominent to the east of Turriff.

CZVT 10: Strath of Brydock is 13km due west of Easter Melrose. The two developments have similar Zones of the Theoretical Visibility, and although well separated from each other, the two developments are visible from many of the same locations. The Cumulative ZVT map shows the almost bowl-like nature of the surrounding topography; the two projects are mainly visible from a somewhat restricted area between Portsoy, Banff, Macduff, Turriff and Gardenstown. Beyond these communities the landscape rises to curtail visibility. Easter Melrose is seen in isolation largely towards the east, whereas Strath of Brydock is more visible from low lying locations either side of the Deveron.

CZVT 11: Newstead is a low-lying project 14km due south-east of Easter Melrose. This project is positioned east of the elevated landscape that encompasses Windyheads Hill and Hill of Fishrie, and accordingly is quite isolated from Easter Melrose; to the west of this landmass Easter Melrose is seen in isolation, whereas Newstead is dominant at viewpoints between New Byth and New Deer. There are few places, if any, where the two projects can be seen from the same time, with very little in the way of cumulative effects; the projects are geographically isolated.
**CZVT 12:** Boyndie is the largest windfarm in the area, located 15km west of Easter Melrose. Although Boyndie has much larger scale turbines, the site is somewhat low-lying, and accordingly the rolling topography of the area provides significant barriers between the two developments. Easter Melrose is seen in isolation at locations west of the Deveron and at elevated viewpoints south of Turriff, whereas Boyndie is seen in isolation at elevated locations between Portsoy and Aberchirder. The ZVT of both projects is abruptly cut off by the line of hills that stretches south of Cullen, including Bin of Cullen, Lurg Hill, Knock Hill, and the hills at the Glens of Foudland. This elevated landmass curtails the visual impact of all the projects in the area, restricting the visual impact of the Easter Melrose development 30km from the site. The two projects can be seen together from locations east of Cullen and from Crovie looking westwards, however the distance between the two developments minimises cumulative effects.

**CZVT 13:** There are three single turbines planned for Little Blairshinnoch, Backhill of Culbirnie and Hill of Culbirnie, and although under separate ownership the development has been coordinated and is an associated cluster. These turbines are proposed for land immediately south of the Boyndie project, and it can be seen that the zone of theoretical visibility of both projects is very similar. The relationship between these turbines and Easter Melrose is somewhat similar to the cumulative effects of the Boyndie development, however there are fewer locations where the two developments can be seen in tandem, and again the distances between the developments and the nature of the undulating landscape reduces cumulative effects.

**CVT 14:** The Royston/Gellybrae development is located 17km south-east of Easter Melrose. The cumulative zone of theoretical visibility of the two developments clearly shows the bowl-like nature of the topography due south of Easter Melrose, with the elevated land encompassing Windyheads Hill and Fishrie Hill providing a distinct barrier to the east, and the Bin of Cullen, Lurg Hill and Knock Hill blocking views to the west. It should be noted that there is almost complete isolation between Easter Melrose and Gellybrae, with very few, if any, viewpoints where both developments can be seen in combination. It should also be considered that 17km is likely to be the maximum distance where cumulative effects can occur in this landscape, evident from the cumulative wireframe analysis; only two of the Easter Melrose viewpoints can see the Gellybrae turbines: VP1 – Melrose and VP12 - Longman Cairn. In both cases the Easter Melrose development is viewed to the north, with Gellybrae to the south.
7.5 Cumulative Sequential Effects

Sequential impact is the changing view of development as seen during a journey along a transport corridor. It assesses the changes in the experience of that journey caused by the development. Cumulative sequential effects occur when a project is viewed in combination or succession with other developments. The Easter Melrose project is within a relatively isolated coastal part of Aberdeenshire, with wind turbine positions located well way from major population centres or major transport routes.

Assessment of the impact upon the transport routes in the area was conducted by using Windfarm software in conjunction with Ordnance Survey gridded topographic ‘Panorama’ data, at a scale of 1:50000. The project was placed within a virtual landscape then the viewer was moved along the transport route, while conducting analysis of visual effects upon wireframe images, using the 90° viewing angles discussed above. This was then followed up with a drive along the route to compare the virtual landscape with the actual route. The methodology considered the following aspects:

- Direction of travel;
- Directness of view;
- Proximity of the development;
- Duration of the view;
- Elevation of the viewer;
- Variation in landscape;
- Changes in direction;
- Presence of screening elements;
- Existence of other structures;
- Scenic quality of the road.

The Easter Melrose development is located within 2km of the north coast of Aberdeenshire, and accordingly there are no developments north of the site. The roads in the area interconnect the main population centres, and tend to follow low-lying sheltered routes; the nearest trunk roads are the A947 Macduff to Turriff road, and the A98 Macduff to Fraserburgh road. It should be noted that the Easter Melrose development is not clearly visible from either of these two roads; Viewpoint 17 on the A98 at Crudie is the only viewpoint where the Easter Melrose development can be clearly seen when travelling west. When considering minor transport routes in the area, the road linking Macduff, Gardenstown and Pennan runs roughly east – west, with a likelihood of sequential cumulative impact from the wind energy developments that are located south of Easter Melrose. The sequential assessment has identified two routes for assessment, Figure 10.
1: B9031 Pennan to Macduff. When travelling westwards out of Pennan, there are occasional glimpses of sea and cliffs north of the road, viewed between folds in the land, giving interesting contrast to the more homogenous nature of the farmland to the south. The Easter Melrose project is in the direct field of vision between Pennan and Gardenstown, but is seen only very rarely due to the convoluted nature of the topography. The first commercial scale development is the 67m tall 900kW turbine proposed for Jacobshall, located immediately west of Pennan. This is then followed by a moderately prominent project of smaller scale turbines west of Gardenstown; a cluster of two smaller turbines at Cushnie, visible as a twin project on the southern side of the road. These projects and the Easter Melrose development become clearly visible from the high point on the road at Troup Head above Gardenstown, however the underlying geology in this area is quite complex, and accordingly the road follows a convoluted path at Gardenstown, giving glimpses of the Easter Melrose turbines only at the more open locations; V5 and V14 are typical. The project is seen fully for the first time once the curved sections of road at the Den of Findon above Gardenstown are passed, with the turbines prominent on the southern side of the road until the farm of Greenskares is passed. At this location Easter Melrose is no longer seen and the Boyndie and Brydock projects begin to have more prominence, glimpsed as multi-turbine developments on the far horizon beyond Macduff: Low Cumulative Sequential Significance.

2: A98 Macduff to Fraserburgh. Travelling eastwards out of Macduff the wind turbines in the area are largely hidden by the topography; there are no turbines directly in view, and the Easter Melrose project is glimpsed only rarely, beyond the golf course to the east of the road; V10. Easter Melrose is visible to the north of the road, at a distance of 5km, and at the more elevated parts of the route, the other projects can be seen as distinct developments on the surrounding horizon; V12 and V17. Travelling eastwards along the A98 a sequence of wind turbines are experienced; there are two 800kW turbines proposed for either side of the road near Kind Edward, followed by a proposal for two 2.3MW scale turbines at Milton of Fishrie. The road leads on past the proposed location for an 800 kW turbine at Wester Blakeshouse, continuing on to the larger scale development encompassing the Little Byth and Hill of Fishrie projects. It should be noted that the Easter Melrose project is not readily visible due to the low-lying nature of this road, and can no longer be seen once the elevated location at Little Byth has been passed; the Zone of Theoretical Visibility demonstrates that Easter Melrose has virtually no visual impact beyond 10km east of the site, due to the elevated land that runs south from Troup Head: Medium Cumulative Sequential Significance.
8 Conclusions

8.1 The Easter Melrose project is located in a part of Aberdeenshire that has not seen significant wind energy development, with few existing wind farms in the immediate surroundings.

8.2 The project is located upon elevated fields in an area of open coastal farmland, a type of landscape that appears to be suitable for a renewable energy project of the scale proposed for the site.

8.3 The undulating nature of the topography, along with high land masses to the east, south and west of the site provide significant visual barriers; the project is not seen from the main Aberdeenshire population centres of Fraserburgh and Peterhead.

8.4 The visual impact upon Gardenstown, Macduff and Banff is not significant. Macduff and Banff have views of the project from exposed locations within the townscapes; however the distance to the site ensures low magnitude of impact. The impact upon the nearest communities of Gardenstown and Crovie is negligible, due to the low lying and secluded nature of the villages.

8.5 Cumulative aspects of the development in conjunction with other projects in the area have been considered, and in this instance the effects are not significant.
References and bibliography

Easter Melrose Wind Energy Project

Appendix A

High Resolution Zones of Theoretical Visibility
Easter Melrose Wind Energy Project

Appendix B

Scottish Natural Heritage
Revised Visual Impact Guidance March 2012
Guidance

Assessing the impact of small-scale wind energy proposals on the natural heritage

March 2012

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1. Introduction

Scottish Natural Heritage (SNH) recognises the contribution of small-scale wind energy developments to managing climate change. Our role is to help these developments happen in the right places. We cannot provide the level of engagement described in our Renewable Energy Service Level Statement for all small-scale wind energy proposals due to constraints on our resources. We are therefore seeking more strategic and selective engagement in small-scale wind energy proposals.

This guidance aims to help planning authorities and applicants consider the natural heritage implications of these developments and describes when we should and should not be consulted on individual proposals.

The guidance describes the level of natural heritage impact assessment that we think is appropriate for small-scale renewable energy developments. Ultimately, it is for the Planning authority to determine the level of assessment required and we recognise that in some locations different levels of assessment will be required. The guidance seeks to promote a consistent level of assessment. We only need to be consulted in certain circumstances and these are summarised in Annex 1.

2. Scottish Planning Policy – encouraging a spatial approach to windfarm development

In line with the recommendations of Scottish Planning Policy (SPP, 2010), we strongly encourage planning authorities to plan spatially for small-scale wind energy projects. We will support this strategic work through staff engagement and capacity building. Where necessary and resources allow, we will fund specialist capacity studies if these will deliver benefits for the natural heritage. Spatial planning should build on the work done to plan for larger windfarms, with further work undertaken to consider how small-scale development can sit alongside them.

Given the rapidly expanding development of small-scale wind energy, good spatial planning will be critical to achieving a balance between social, economic and natural heritage objectives. A spatial plan for small-scale wind should, in addition to the requirements set out in SPP:

- provide an indication of the scale of turbines considered most appropriate in different areas;
- provide design guidance in relation to turbine form and location;
- identify those areas where interaction with larger scale wind energy developments requires more careful consideration to address concerns about cumulative impacts on bird and landscape interests.

3. What do we mean by small-scale wind energy?

To date, most wind energy development has taken the form of larger windfarms located in our upland landscapes. Changes in the economic market and the introduction of the Feed in Tariff (FiT) have led to a new pattern of smaller scale wind energy development. This generally includes both smaller numbers of turbines,
smaller scale turbines and development in lowland and often more populated landscapes. Individual turbines can still, however, be of large scale, with applications for turbines of over 100m becoming common.

We view groups of more than three turbines to be a windfarm. We view groups of 3 or fewer to be 'small-scale wind energy' even when the turbines themselves might be quite large. **This guidance therefore applies to groups of three turbines or fewer.** We should continue to be consulted on developments of more than three turbines to determine the appropriate level of assessment required.

We view even smaller wind energy development of less than 50kw, to be micro-renewables and our guidance on micro-renewables should be referred to.

4. Assessing the impact of small-scale wind energy developments

Each type of development raises its own issues and should be considered by the planning authority on a case-by-case basis. However, key issues for small-scale developments include:

- **proximity** to areas of population, residential properties and transport routes, which can lead to adverse landscape and visual impacts;
- the **character of low land landscapes**, which can be sensitive to larger turbines, and require careful landscape and visual assessment, particularly in terms of cumulative impacts;
- locations which can have particular **bird species** present e.g. geese on agricultural land;
- locations close to buildings, woodlands and other habitats that may increase **risks to bats**;
- **cumulative effects** with other small and large-scale developments.

**Does the project require Environmental Impact Assessment (EIA)?**

The first step when considering small-scale wind development and the potential impacts on the natural heritage is to establish whether an EIA is required. Under the **Environmental Impact Assessment (Scotland) Regulations (2011)**, certain developments require a formal EIA. Guidance on the requirement for EIA can be found in **Planning Advice Note 58 and Planning Circular 3 2011.** It is the responsibility of the planning authority to determine if a formal EIA is required and the developer’s responsibility to undertake the assessment.

The planning authority has a statutory obligation to consider whether or not EIA is required for any wind energy project of more than 2 turbines or for turbines of more than 15m to hub height. Wind energy developers should approach the planning authority for a formal opinion on whether EIA is required for each project at the earliest opportunity.

The Scottish Government has developed a useful [screening checklist](#) to help determine if an EIA is required. **We strongly encourage planning authorities to use this (or their own adapted versions) to determine whether an EIA is**
required. This will, for example, ensure that effects on protected areas and protected species are properly considered.

If the need for an EIA has been established we are a statutory consultee. We would encourage developers and planning authorities to consult our ‘onshore wind energy’ page for further guidance on the likely scope of assessment required before contacting us.

Does the project require Habitat Regulations Appraisal (HRA)?

A Habitat Regulations Appraisal (HRA) is required where a plan or project could affect a Natura site. The process of HRA is quite separate from EIA and is required by the Habitats Regulations.

Thus, in addition to screening for EIA, planning authorities must also determine whether an HRA might be required. The key question is whether a proposal could have a likely significant effect on a European (Natura) site (a Special Protection Area (SPA) or a Special Area of Conservation (SAC)). In line with Scottish Planning Policy, proposed European sites (pSPAs and cSACs) should be treated as if they were designated when considering the potential effects of proposals.

If it is determined that a proposal could have a likely significant effect on a European site (please refer to Section 5 below), SNH should be consulted by the planning authority to confirm this and determine the level of information required to conduct an appropriate assessment. Guidance on HRA is available on both the Scottish Government and SNH websites.

5. Undertaking an initial desk study to determine whether EIA or HRA are required

All developers of small-scale wind developments should undertake a basic desk study to ascertain if their proposal is likely to affect any protected area. The onus is on the developer to collate relevant information, to conduct a preliminary assessment and to present this to the planning authority.

In addition, it will be necessary to establish if there are other wind energy proposals or existing developments in the vicinity which may contribute to cumulative impacts and, if so, whether these cumulative effects require further assessment. The purpose of the desk study is to help the developer and planning authority assess the level of risk to the natural heritage from the proposed development. This will facilitate the assessment of any likely impacts and allow for more informed consultation with SNH (if deemed it necessary). The EIA screening checklist referred to above should greatly assist this process.

Protected areas
Establishing whether or not a proposal is within a protected area is relatively straightforward. Our SNHi Information Service and SiteLink tools provide a quick and

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1 The phrase 'likely significant effect' has a very specific meaning in the context of HRA and developers / planning authorities should refer to our more detailed guidance on HRA
easy search tool to establish which protected areas are in the vicinity. Associated infrastructure such as access roads and grid connection should also be considered.

Establishing whether or not a proposal outside a protected area could affect the protected area requires further consideration. Again, the EIA screening checklist is a useful starting point. The key question to be answered is whether the proposal could affect the protected area through any pathway or connectivity, for example by:

- runoff or dust from construction works;
- noise during construction and operation;
- effects on species which use the protected area but move outside this area to feed or for other activities.

To help developers and planning authorities, we have narrowed down the 'connectivity' situations requiring further consideration to: impacts on birds (collisions, disturbance or displacement in feeding/oraging areas) and impacts on freshwater sites (engineering works/pollutants etc. affecting water courses).

For bird interests, the connectivity ranges should be considered as a first step in assessing the risks. Further survey work may be required following submission of this information and data to the planning authority. 

Annex 2 provides further guidance on this process.

We have provided a Matrix in Annex 3 to assist in the recording of this information for presentation to the planning authority. Where the proposal has a likely significant effect on an SPA a Habitats Regulations Appraisal is required.

For freshwater sites, if the development proposal is likely to have a hydrological connection with a protected area then it is important that any application contains a construction method statement detailing how the works will avoid impacts on the water quality, quantity or associated water dependant habitats. We further recommend that any construction works undertaken upstream of the protected site are carried out in compliance with SEPA's Pollution Prevention Guidelines and any authorisations required under the Water Environment (Controlled Activities)(Scotland) Regulations 2005 (CAR 2005). For example, watercourse crossings require careful assessment. We are statutory consultees in the CAR process and will be consulted on applications which may impact on an SAC. Consideration must also be given to any impacts upstream of the works, if the watercourse or flow is likely to be altered.

Once this screening process has been completed we only required to be consulted on a proposal that may still affect a protected area. In most cases the effects will be manageable and should not prevent the development progressing. However, the effects require careful assessment to identify appropriate mitigation.

In order to establish all potential scenarios where there could be an impact on a protected area from a development, we recommend that the planning authority require that the developer check for all protected areas within a 20km radius around the proposal’s location using SNHi.
National Scenic Areas
Where a wind turbine of greater than 12m (to tip) in height is proposed within a National Scenic Area (NSA) the planning authority is required to consult SNH under Scottish Government Planning Circular 9/1987.

6. When planning authorities should consult SNH

If the proposal does not require an EIA or HRA planning authorities should not need to consult SNH. This does not mean that there will be no impacts on the natural heritage, but that the planning authority should be able to deal with these without direct input from SNH (please refer to Section 7).

Unless consultation with SNH is mandatory (for example where a protected area may be affected or an EIA is required) we normally expect the planning authority to process the application without having to consult SNH. However, if there is doubt about whether we need to be formally consulted or the level of assessment required, we encourage planning authorities to contact us informally first, preferably at the pre-application stage.

Please refer to Annex 1 for a flowchart which summarises when planning authorities should consult SNH.

7. Assessing the risk to the natural heritage when EIA or HRA are not required

Small-scale wind projects which do not require EIA or HRA will still require a basic level of assessment to determine the risk to the natural heritage. Whilst it is the responsibility of the planning authority to determine the appropriate level of assessment required, we recommend that four key issues are considered:

- Assessing potential impacts on landscape through use of a landscape appraisal;
- Assessing potential impacts on protected species, habitats and ecosystems (both during and post construction) to ensure compliance with the Wildlife and Countryside Act 1981 (as amended);
- Assessing potential impacts on bats by following good practice guidance;
- Assessing impacts at the construction stage.

Conducting a basic landscape appraisal
Poorly located wind turbines can have a significant impact on landscape and visual/amenity interests. The impacts can be particularly significant if the turbines are too large for the receiving landscape. To assess the potential impact, planning authorities should consider Scottish Planning Policy which states: “The design and location of any windfarm development should reflect the scale and character of the landscape. The location of turbines should be considered carefully to ensure that the landscape and visual impact is minimised.” (SPP paragraph 187). This is directly applicable to small-scale wind energy development and is especially relevant in lowland, populated landscapes.
We acknowledge that a simplified form of assessment is more appropriate for small-scale of development. Whilst the level of assessment required will vary depending on the sensitivity of the location of the turbines, we recommend three indicative levels of assessment based on different wind turbine heights (to blade tip) as described below. An appropriate study area should be identified on a case-by-case basis, based on a clear rationale derived from the Zone of Theoretical Visibility (ZTV) map. Further guidance on this can be found in Visual representation of windfarms (which is currently under review).

(i) Turbines of less than 15m in height
For turbines of less than 15m outwith National Scenic Areas (NSAs), a formal landscape and visual impact assessment is less likely to be required. However, detailed information on the location and design of the proposal should be provided to the planning authority. It is then for the planning authority to determine whether any additional supporting information for the planning application is necessary. Basic Zone of Theoretical Visibility studies, photomontages and/or wireline drawings may be helpful in certain locations. We would not normally wish to be consulted on applications at this scale, outwith NSAs.

(ii) Turbines of between 15m and 50m height
A basic level of Landscape and Visual Impact Assessment (LVIA) is likely to be required for the planning authority. The precise detail should be agreed by the planning authority but, as a minimum, we recommend:
- a ZTV map covering an area up to 15km (radius) from the turbine/outermost turbines; and
- wireline drawings and/or photomontages from a limited number of key viewpoints.

We would not normally wish to be consulted on applications at this scale, outwith NSAs.

(iii) Turbines over 50m in height
For turbines of this scale, a more detailed LVIA is likely to be required. We recommend that the LVIA, as a minimum, should include:

- a ZTV map out to 20km (may need to be larger radius for very large turbines);
- visualisations and photomontages, focusing on key viewpoints. The number and location of viewpoints should be proportional to the scale of the development and the sensitivity of the location, and should be agreed with the planning authority. In most locations between 5 and 10 viewpoints should be sufficient;
- an assessment of the sensitivity of the landscape, magnitude of change and residual impacts;
- a base plan map of all other wind turbine proposals in the public domain to 20km.

The height thresholds are not absolute. For example, a 100m turbine in a low sensitivity location will require less assessment than a 55m turbine in a more sensitive landscape. Therefore, the above requirements are an indication of the level likely to be required, but this should be tailored to the height of the turbine.
and the sensitivity of the location. The assessment should focus on the likely key landscape and visual interactions of the proposal with other constructed, consented or applied-for windfarms, and other significant man-made structures within a 20km radius of the site. In certain circumstances, for example where sequential impacts with other developments may be a key issue, it may be appropriate to extend the study area but this is less likely to be required for small developments. Our guidance on cumulative effects provides further information. We have also published guidance on Siting and design for small turbines of between 15 and 50m which will aid in the assessment process.

The majority of projects will require grid connection and may require wider infrastructure (such as substations, access tracks, anemometers, etc). The impact of this infrastructure must be considered as part of the assessment described above.

**Conducting a basic assessment of the potential impacts on habitats and protected species in the wider countryside**

The need to consider effects on protected areas is discussed above. When it is established that a protected area is not affected by a proposal we encourage planning authorities to require applicants to submit sufficient information to provide an understanding of the nature of likely impacts on habitats and protected species. The onus should be on the developer to collate relevant information, to conduct a preliminary assessment of the risks to habitats and species and to present this to the planning authority.

This assessment is recommended in order to comply with legislation protecting bird species as listed on Annex 1 to the Birds Directive (regularly occurring migratory species), and Schedule 1 of the Wildlife & Countryside Act 1981 (as amended in Scotland). It is also important to note that a level of knowledge and experience is required to undertake surveys for certain species and the surveyor may need to be licensed to avoid an offence being committed. This will allow a developer to remain compliant with existing legislation to protect aspects of the natural heritage, for example the Wildlife and Countryside Act 1981 (as amended in Scotland), which offers a level of protection to all wild birds within the UK and certain other species. Please refer to our website for further information on protected species.

A basic assessment would require:

- a brief description of the site, its context and the habitat, plants and species present;
- identification of the presence of any protected species, description of any potential impacts and any required mitigation.

The need for further assessment should be determined by the planning authority following the submission of findings from a desk study and reconnaissance visit to the development site by the developer and a competent consultant. When undertaking further, potentially more intensive survey work, it may be useful for developers to consider adapting existing guidance for large scale developments, as found on our website.
Bats
All species of bats are European protected species. The Bat Conservation Trust’s Good Practice Guidelines - Surveying for Onshore Wind Farms (2nd edition, 2011) provides useful guidance and we recommend that developers follow this approach. However, the level of effort should still be tailored to the sensitivity of the site. If there is a good case to do less than the recommended survey effort (for example where the habitat is less likely to support bats) we suggest that you seek our advice over any deviation from the good practice guidelines. Any such request for advice on survey effort should be made well in advance of the planned submission of any application to ensure that sufficient time remains available to carry out any surveys that may be deemed necessary.

Impacts Arising at the Construction Stage
The construction stage of a small-scale wind development may lead to a number of impacts on the natural heritage, depending on scale and location. It is the planning authority’s responsibility to address any impacts and if necessary to consult SNH, while working with the developers to reduce or remove the risks of impacts. To identify potential impacts and promote the use of current good practice techniques please refer to the ‘Good practice during Windfarm Construction’ guidance which has been produced jointly between SNH, SEPA, FCS and the windfarm industry. In most cases construction effects will be manageable through appropriate design, mitigation and, where necessary, planning conditions.

9. Sources of Further Information and Advice

- SEPA Pollution Prevention Guidelines
- SEPA Controlled Activities Practical Guide
- SNH Onshore wind guidance
- Scottish Government Planning

For further information on this guidance contact Kenny Taylor, Scottish Natural Heritage, The Beta Centre, Innovation Park, University of Stirling, Stirling FK9 4NF. Telephone: 01786-435387. Email kenny.taylor@snh.gov.uk
Annex 1 - When Planning Authorities should consult SNH

Is the proposal for more than 3 turbines?

Yes → Consult SNH

No

Has the PA determined that a HRA is required?

Yes → Consult SNH

No

Is an EIA required?

Yes

Consult our web pages for guidance on the scope of the EIA, in the first instance, then consult SNH

No

Could the project affect species with special protection and protected habitats in the wider countryside?

Yes

Can the LPA deal with these in line with the guidance outlined above?

Yes → You do not need to consult SNH

No → Consult our web pages for guidance, in the first instance

No

You do not need to consult SNH
Annex 2 - Establishing connectivity with an SPA

The first step in the assessment is to establish if there is ‘connectivity’ between the proposal and an SPA. The tables below provide information on foraging / alternative nest site distances for a range of bird species which, as qualifying interests of SPAs, may interact with a small-scale wind energy proposal. This information can be used to quickly identify if there is likely to be connectivity between the proposal and a particular SPA.

For those SPAs found within the 20km search radius and where the proposal is within the range of the qualifying interest, these should be recorded in the matrix provided in Annex 3 and submitted to the PA. Further guidance on this can be found in our Connectivity Guidance on our ‘onshore wind energy’ page.

<table>
<thead>
<tr>
<th>Table 1 – Foraging range from nest site during breeding season</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species</strong></td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Red-throated diver</td>
</tr>
<tr>
<td>Black-throated diver</td>
</tr>
<tr>
<td>Red kite</td>
</tr>
<tr>
<td>Hen harrier</td>
</tr>
<tr>
<td>Goshawk</td>
</tr>
<tr>
<td>Golden eagle</td>
</tr>
<tr>
<td>Osprey</td>
</tr>
<tr>
<td>Merlin</td>
</tr>
<tr>
<td>Peregrine</td>
</tr>
<tr>
<td>White-tailed eagle</td>
</tr>
<tr>
<td>Short-eared owl</td>
</tr>
<tr>
<td>Black grouse</td>
</tr>
<tr>
<td>Golden plover</td>
</tr>
<tr>
<td>Greenshank</td>
</tr>
<tr>
<td>Dunlin</td>
</tr>
<tr>
<td>Curlew</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2 – Foraging distances during winter season</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species</strong></td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Whooper swan</td>
</tr>
<tr>
<td>Greylag goose</td>
</tr>
<tr>
<td>Pink-footed goose</td>
</tr>
<tr>
<td>Greenland white-fronted goose</td>
</tr>
<tr>
<td>Barnacle goose</td>
</tr>
</tbody>
</table>
**Table 3** – Distance between alternative nest sites

<table>
<thead>
<tr>
<th>Species</th>
<th>Range</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-5km</td>
<td>6-10km</td>
<td>11-15km</td>
<td>16-20km</td>
</tr>
<tr>
<td>Red-throated diver</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black-throated diver</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red kite</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hen harrier</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goshawk</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Golden eagle</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Osprey</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merlin</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peregrine</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White-tailed eagle</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Black grouse</td>
<td>X</td>
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<td></td>
</tr>
</tbody>
</table>
Annex 3 – Example SPA MATRIX
To help identify connectivity with an SPA a simple matrix can be used to record the assessment. Having identified the SPAs within the **20km** search area, list these in column A. In column B insert the list of qualifying interests for each SPA, along with their foraging ranges (from Annex 2) in column C. If the proposal is within the range of any of the qualifying interests record this in column D - and this should be explored further. In many cases this will not be significant, but potentially significant effects should be assessed through this process.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protected Area name</strong></td>
<td>Qualifying interests</td>
<td>Maximum range</td>
<td>Is the application within the range for any of the qualifying interests?</td>
</tr>
<tr>
<td>Name of SPA</td>
<td>Whooper Swan</td>
<td>5km</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Golden Eagle</td>
<td>10km</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Osprey</td>
<td>20km</td>
<td>Yes</td>
</tr>
</tbody>
</table>