# The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011

# Scoping Opinion of South Ayrshire Council for the proposed development at Crostonhill Moor, Kirkoswald

**Contents**

## 1. Introduction

South Ayrshire Council received a request under Regulation 14(1) of The Town and Country Planning (Environmental Impacts Assessment) (Scotland) Regulations 2011 ('The Regulations') for a scoping opinion in respect of a proposed development at Crostonhill Moor, Kirkoswald. The purpose of this scoping opinion is to provide the applicant with details of what information the Council consider should be contained within the environmental statement.

As part of the process of preparing this scoping opinion the Council has consulted with a wide range of agencies (both statutory and non-statutory). Each of the consultees has provided a response relating to their own particular remit and they are attached to the scoping opinion for your information. Please note that the responses submitted by the consultation authorities form part of the scoping opinion and should therefore be read in full.

As is evidenced by the wide range of consultees, there are a number of issues associated with this proposal which require to be addressed within the environmental statement. This cover note summarises what the Council consider to be the main issues, and therefore on which the environmental statement should focus.

## 2. Description of the development

The proposed development is located on an area of land to the southeast of Kirkoswald. The site is currently used for commercial forestry and agricultural purposes.

The proposed development consists of 7 turbines, with a total estimated generating capacity of 18.2MW. Each turbine has a blade tip height of 130m and will be fixed by a foundation measuring approximately 20m in diameter.

## 3. Planning policy context

In developing the proposal and preparing the environmental statement, particular regard should be afforded to the relevant provisions of Scottish Planning Policy (SPP), PAN 45: Renewable Energy Technologies, the EIA Regulations, PAN 1/2013: Environmental Impact Assessment as well as other relevant national policy guidance; the provisions of the development plan, comprising the approved Ayrshire Joint Structure Plan (AJSP) and the adopted South Ayrshire Local Plan (SALP); Addendum to the Ayrshire Joint Structure Plan Technical Report TR03/ 2006: Guidance on the Location of Windfarms within Ayrshire, South Ayrshire Landscape Wind Capacity Study, the South Ayrshire Proposed Local Development Plan; and other material planning policy considerations.

Within the proposed development site there is a section of a wildlife site, an archaeological trigger zone, part of the locally designated scenic area and the Scottish Gas high pressure pipeline. Within the surrounding area there is a scheduled monument, several listed buildings, two conservation areas, the Culzean historic designed landscape (also containing an A-listed building) and the internationally recognised Turnberry Golf Courses.

The wide variety of natural and built heritage designations within and around the site means that there are several relevant planning policies within the development plan which would be used in the assessment of this proposal at the planning application stage. The following policies will be particularly relevant to an evaluation of the environmental impacts of the proposed development (this list is not exhaustive):

Ayrshire Joint Structure Plan

**STRAT2**

The three Ayrshire Councils, working in conjunction with public and private sector agencies, will seek to increase the attraction of Ayrshire as a place to live, work, visit and invest by (inter-alia):

E) Supporting Rural Areas through measures that seek to diversify the rural economy and facilities appropriate new rural business and industry.

**ECON6**

Proposals for the generation and utilisation of renewable energy should be promoted and will conform to the plan in standalone locations and as integral parts of new and existing developments where it can be demonstrated there will be no significant adverse impact, including adverse cumulative impact or infrastructure constraints, and where the design of the development is sensitive to landscape character, biodiversity and cultural heritage.

**ECON7**

"A) In the Areas of Search proposals for large and small scale wind farm development will be supported subject to specific proposals satisfactorily addressing all other material considerations.

B) Areas designated for their national or international natural heritage value, and green belts, will be afforded significant protection from large scale wind farms;

C) The integrity of national and international designations should not be compromised.

D) Cumulative impact will be assessed in all relevant cases, taking into account existing wind farms, those which have permission and those that are the subject of valid but undetermined applications. The weight to be accorded to undetermined applications will reflect their position in the application process. Where the limit of acceptable cumulative impact has been reached the area will be afforded significant protection.

E) Outside the Areas of Search: all wind farm proposals will be assessed against the following constraints, any positive or adverse effects on them and how the latter can be overcome or minimised:

1) Historic environment;
2) Areas designated for their regional and local natural heritage value;
3) Tourism and recreational interests;
4) Communities;
5) Buffer zones;
6) Aviation and defence interests;
7) Broadcasting installations.

F) Proposals affecting Sensitive Landscape Character Areas shall satisfactorily address any impacts on the particular interest that the designation is intended to protect but the designation shall not unreasonably restrict the overall ability of the plan area to contribute to national targets.

G) In all cases, applications for windfarms should be assessed in relation to criteria including, as appropriate, grid capacity, impacts on the landscape and historic environment, ecology (including birds), biodiversity and nature conservation, the water environment, communities, aviation, telecommunications, noise and , shadow flicker.

**ENV2**

In the National Scenic Area and the Sensitive Landscape Character Areas, the protection and enhancement of the landscape shall be given prime consideration in the preparation of local plans and the determination of development proposals.

**ENV6**

Development proposals considered to have an adverse effect on the following heritage resources shall not confirm to the structure plan.

A) listed buildings of architectural and historic interest;

B) designated conservation areas;

C) historic gardens and designated landscapes; and

D) archaeological locations and landscapes.

Local Plans shall prepare policies to protect and enhance built heritage resources.

South Ayrshire Local Plan (SALP)

**STRAT4**

Development within the Rural Diversification Area will require to be justified, to the satisfaction of the Council, in terms of being (inter-alia):

a) A non-residential use requiring a rural location due to its inappropriateness within a settlement; or
b) A non-residential development with long term economic benefit.

**ENV2**

The Council will presume in favour of safeguarding the integrity of the following sites of local natural heritage value:

a) Local nature reserves; and
b) Sites containing species protected by the Habitats Directive, Wildlife and Countryside Act 1981 or the Badgers Act 1992; and
c) Wildlife sites and provisional wildlife sites; and
d) Ornithological sites.

**ENV3**

The Council will require development proposals to have regard to safeguarding features of nature conservation value including woodlands, hedgerows, lochs, ponds, watercourses, wetlands and wildlife corridors in accordance with the Wildlife Strategy.

**ENV8**

The acceptability of proposal located within, or having an impact on, scenic area will be considered using the following criteria:

a) the significance of impacts and cumulative impacts on the environment, particularly landscape and visual impacts; and, where relevant
b) the extent of any economic benefit; or
c) specific, justified requirement for a rural location.

**BE2**

The Council will presume in favour of protecting listed buildings and their settings, especially from inappropriate development and will actively encourage the sensitive maintenance, restoration and re-use of all such properties.

**BE3**

All development within, or affecting the setting of, a conservation area shall be required to preserve or enhance its character and appearance.

**BE6**

The Council will seek to protect scheduled ancient monuments including their setting and archaeological sites and encourage sympathetic proposals for their promotion for educational or recreational purposes.

**BE7**

Where the Council is convinced that the benefits of proposed development outweigh the benefits of preserving archaeology resources where known or considered likely to be present, the Council will ensure that provision is made by the developer for the proper excavation and recording of possible remains.

**SERV3**

The Council will presume in favour of proposals for renewable energy production developments where it is demonstrated, through the provision of an environmental impact assessment, to be acceptable in terms of environmental, infrastructure and community impacts.

**SERV8**

The Council will seek the provision, improvement and protection from loss of detriment of pedestrian routes, footpaths, cycleways and cycle parking facilities throughout South Ayrshire and will seek their inclusion in new or redevelopment sites, especially in town centre and at community facilities.

**SERV9**

The Council will protect disused railway lines, riverside walks, and recognised rights of way which are currently of recreational value, or which contribute to an established footpath or cycleway network, and will seek to protect others for potential future footpath/ cycleway provision.

**IMP1**

The Council will expect planning application for the development of sites to include within them provision for the infrastructure consequences. Such provision may include:

a) on-site facilities directly related to the proposed use in the interests of comprehensive planning; and
b) off-site facilities necessary as a result of the development in order to avoid placing an additional burden on the existing community.

Where appropriate, it may be necessary to view individual applications collectively in assessing off-site infrastructure requirements.

**South Ayrshire Proposed Local Development Plan**

This document is a material planning consideration at present, however, in assessing current planning applications, the majority of the weight lies with the existing development plan. The relevant polices are considered to be:

- Spatial Strategy
- Sustainable Development
- Landscape Quality
- Protecting the Landscape
- Preserving Trees
- Central Scotland Green Network
- Water Environment
- Flooding and Development
- Air, Noise and Light Pollution
- Renewable Energy
- Wind Energy

- Historic Environment
- Archaeology
- Natural Heritage
- Outdoor Public Access and Core Paths

The PSALDP can be viewed on the Council's website via www.south-ayrshire.gov.uk.

## 4. Consideration of alternatives

Schedule 4, paragraph 2 of the Town and Country Planning Environmental Impact Assessment (Scotland) Regulations 2011 require that all Environmental Statements should include information on the main alternatives studied and indicate the main reasons for choosing the selected option, with reference to the environmental effects. Consideration of alternatives will therefore be required in relation to turbine specification, site layout and other design considerations.

## 5. Landscape/seascape implications

Wind farms can be highly prominent features within the landscape. The environmental statement should include a full assessment of the visual implications of the proposed development. The assessment methodology should be consistent with the approach promoted by the Landscape Institute and Institute of Environmental Management and Assessment ('Guidelines for the Assessment of Landscape and Visual Impacts', 3rd edition, 2013).

In terms of the portrayal of visual and landscape impacts within environmental statements, guidance has also been developed, jointly by SNH and the Scottish Renewables Forum, on 'Visual Representation of Wind Farms – Good Practice Guidance' (SNH, 2007). Published at: http://www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/. Also of relevance in this regard is SNH's document: Siting and Designing Wind farms in the Landscape (SNH Version 1 December 2009).

Visual information should be presented in a way which communicates, as realistically as possible, the actual visual impact of the proposal. The format of the images and the focal length of the lens will have to be taken into consideration.

The viewpoints from which photographs are taken and wireframe images generated should be agreed with the Council and SNH prior to the submission of the environmental statement.

The environmental statement should include a detailed description of the landscape as it currently exists, including reference to the special features of the landscape and how it will be affected by the proposed development. In this regard, particular cognisance should be given towards impacts upon the locally designated scenic area.

The proposed development site is located within the Maybole Foothills landscape character type. The hills in this location are important as they form a highly visible backdrop and skyline to the coast, including Culzean Castle. A recent study undertaken on behalf of the Council (South Ayrshire Landscape Wind Capacity Study) indicates that there would be high sensitivity to large turbines within this area. Given that the scoping report indicates that the turbines would have a maximum blade tip height of 130m there are clear and fundamental concerns relating to the landscape implications of the proposed development. It therefore translates that this should form one of the main focuses of the environmental statement.

In terms of viewpoints relating to built and cultural heritage features, reference should be made to Historic Scotland's consultation response set out within Annex 1 to this document.

The applicant may wish to refer to the Council's Landscape Wind Capacity Study (available on the Council's website) for further guidance in terms of the landscape considerations for the proposed development. This document highlights Craigdow Hill as being one of the 'landmark hills' within South Ayrshire, making a considerable contribution to the landscape within the immediate locality and beyond. Given the sensitivities which the document applies to landmark hills and the fact that the proposed development is situated towards the bottom of one such hill,

the applicant will wish to carefully consider the wider landscape implications of the proposed development.

The viewpoints from which the photographs are taken should be agreed with the planning authority and SNH. The horizontal field of view should be shown on a map so that the images can be used accurately on site.

## 6. Cumulative effects

The environmental statement should include an assessment of the cumulative effects of the proposed development. Of particular concern in this regard are the cumulative visual effects of the proposed development, in conjunction with other wind farm developments, including those proposed, consented and operational (notably Hadyard Hill Wind Farm). Cumulative ecological impacts should also be given thorough consideration within the environmental statement.

SPP introduces new requirements in relation to considering cumulative impacts through the development plan process. Where relevant, proposals should identify how they comply with the development plan. Cognisance should also be given of the SNH guidance note 'Cumulative Effect of Wind Farms' (version 2 revised 13/04/05). A cumulative assessment should include other existing wind farms in the vicinity of the proposal, any wind farms which have been consented but have still to be constructed, and any which are the subject of undetermined consent applications.

Guidance can be found at www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/.

It should be noted that the Council has recently received a request for a scoping opinion in respect of a proposed wind farm at a site immediately adjacent to the Crostonhill Moor proposal. The proposed development is referred to as Kirk Hill Wind Farm and is for 10 turbines. Given proximity to the Crostonhill site, this would essentially appear as a single wind farm within the landscape, thus increasing the extent of visual impacts within the immediate and surrounding area. Careful consideration must be given as to how the Crostonhill proposal will interact with the Kirkhill proposal and the cumulative implications of these proposals.

## 7. Aviation

Wind turbine developments are of significant concern to the aviation industry for two main reasons; they can be physical obstructions and they can interfere with radar systems. The Council regularly consult with the Ministry of Defence, Civil Aviation Authority, National Air Traffic Services and Glasgow Prestwick Airport on aviation issues relating to wind turbine developments in order to establish any potential impacts and to agree suitable mitigation measures. The responses of each of the consultation authorities with aviation remits are set out below.

**NATS EN Route Plc ("NERL")** is responsible for the safe and expeditious movement in the en-route phase of flight for aircraft operating in controlled airspace in the UK. To undertake this responsibility NERL has a comprehensive infrastructure of radars, communication systems and navigational aids throughout the UK, all of which could be affected by wind turbines. In this respect, NERL is responsible for safeguarding this infrastructure to ensure its integrity to provide the required services to Air Traffic Control. In order to discharge this responsibility NERL assess the potential impact of every wind farm development in the UK which have applied for planning approval.

At the scoping stage there are two options for developers; utilise the free self assessment maps to determine whether there is likely to be an impact upon NATS infrastructure; or go through their pre-planning assessment protocol (for which there is a charge). NATS advise that the self assessment maps are used in the first instance in order to determine if there would be any impacts upon their infrastructure. Where this is the case, applicants should engage in the pre-planning assessment. Further details of these services can be obtained by visiting www.bwea.com/aviation/nats.html.

**The Defence Infrastructure Organisation (DIO), which forms part of the Ministry of Defence (MOD)** have two main concerns relating to wind turbine developments; they create physical obstacles which generates safety concerns, particularly in low-flying area; and they can cause radar interference. The MOD seek early engagement in the planning process so that they can advise prospective developers early on in the development process, ensuring any issues are highlighted and addressed at an early stage. Their pre-planning consultation form can be found at www.bwea.com/aviation/proforma.html. This should be completed and returned to DIO-safeguarding-wind@mod.uk.

**The Civil Aviation Authority** wish to be consulted as early as possible in the process in order to identify any relevant issues. The best means by which to initiate the aviation related consultation process is via the completion and submission of an associated aviation pre-planning proforma in line with the process described within the DTI/BERR guidance document 'Wind Energy and Aviation Interests – Interim Guidelines'. Generic CAA policy and guidance on wind turbines is set out within Civil Air Publication 764, available at www.caa.co.uk/docs/33/Cap764.pdf.

Furthermore, applicants should demonstrate that a solution to potential aviation issues is either agreed or well advanced, prior to submission of the planning application.

**Glasgow Prestwick Airport** has advised that they would object to the proposed development on the basis that it would be visible to the primary surveillance radar for the airport and because it would be located within airspace which is considered critical to air traffic control services.

## 8. Design Principles

The layout of the site should be designed so as to minimise the impact of the development upon key environmental features, significant views and sites designated for their ecological, historical, cultural or scenic qualities. The principles to be adopted in the design process should be made explicit, and could take the form of a Design Statement as advocated in PAN 68.

## 9. Nature Conservation Designations

A small section of the site encompasses a provisional wildlife site known as Craigdow Loch. The site is designated for being a species-rich upland loch of ornithological and botanical value, with adjoining mire and wet heath. It is noted that none of the proposed turbines are to be located within this area. However, given the nature of the proposal, the potential for run-off and the wildlife site, the environmental statement should contain details of survey work undertaken and the potential impacts upon this site and its associated interests.

It is suggested that all ecological survey methods conform to the best available standard methods for each habitat and species, and follow guidance published by SNH where this is available. Where standard methodologies do not exist, developers should propose and agree an appropriate methodology with SNH specialist advisers. The Council also requires that all ecological survey data collected during ES survey work should be made available by the applicant to the Council and SNH, in a form which would enable them to make future analysis of the effects of wind farms, if appropriate.

## 10. Soils

The red line site encompasses an area of land where there are known peat resources. Peat is a valuable natural resource for its carbon storage capabilities. The ES should include information on the exact location of peat resources within the proposed development site, how the proposal will impact upon these resources and what mitigation measures will be applied.

## 11. Forestry

The scoping report indicates that two of the turbines are to be located within an area of woodland. The applicant should be aware of the Ayrshire and Arran Forestry and Woodland Strategy and the requirements for compensatory planting set out therein.

## 12. Short-term Impacts

The consequence of construction works should be assessed and addressed by means of a method statement, environmental management plan, mitigation programme, reinstatement measures and monitoring regime. These techniques should deal with the timing of works in relation to ornithological interests and site restoration proposals following decommissioning. There will be a need to protect all watercourses, tributaries and river catchments. The advice of the Scottish Environmental Protection Agency will be of particular importance in this respect.

The effects of construction activities on water quality should be assessed, to avoid in particular, sedimentation and accidental spillages. This will apply to turbine base formation, access road construction and borrow pit extraction operations. Consideration should be given to the need for silt traps and possibly a settlement lagoon and, dependent on effluent quality, discharge consent from SEPA may be required. Any private water supplies should be protected during and after construction. The development should maximise the use of secondary aggregates or recycled materials and the production of waste materials should be minimised.

## 13. Built and cultural heritage resources

The ES should assess the direct and indirect impacts of the proposed development (individually and in association with other existing and proposed windfarms) upon heritage resources and their settings within the zone of visual influence of the development, including scheduled monuments, unscheduled archaeological sites, listed buildings, conservation areas and gardens and designated landscapes and describe the mitigation proposed to avoid or reduce impacts to a level where they are not significant.

The proposed development site contains an archaeological trigger zone and therefore the views of West of Scotland Archaeology Service as the Council's archaeology consultant, will be relevant. The settlement of Kirkoswald is located within 3km of the proposed development site. Kirkoswald contains several listed buildings (two of which are A-listed) and a conservation area. The Historic Designed Landscape of Culzean (containing an A-listed building) is also located within 5km of the site. The environmental statement should provide detailed information in terms of how the proposal will impact upon the setting of these features. Consideration may be given to the inclusion of wireframes within the ES, showing views from particularly sensitive locations, including Culzean.

Additionally, Maybole is located approximately 4.5km to the northeast of the site. This settlement contains several cultural heritage designations including a conservation area and several listed buildings, some of which is listed at category A. The environmental statement should address impacts upon this settlement and the designated cultural heritage features within it.

## 14. Tourism/ Recreation and Public Access Resources

The ES should address the consequences of the development for users of the countryside and its direct and indirect impacts on tourism and recreational interests and resources in the vicinity.

Culzean is one of the most important tourism attractions within South Ayrshire and it is therefore important to maintain and protect the setting of the Estate and the Category A-listed Culzean Castle, situated within the Estate. It is noted from Figure 7 of the scoping report that there are no viewpoints from within the Estate. It is unclear from the ZTV within Figure 6 whether the turbines would be visible from the Estate. It is therefore advised that an additional viewpoint is included within the Estate to ensure that this issue is fully addressed. It may also be worthwhile to consider views from the Firth of Clyde, particularly where the turbines could provide a backdrop to Culzean when viewed from the west.

The proposed red line site encompasses a section of core path SA34. The ES should contain details of this route, identify how the route will be accommodated within the proposed development and the extent of any impacts upon this route.

Turnberry Golf Course is located approximately 5.5km to the west of the proposed development site. This is an internationally recognised course which is one of the venues for The Open Championship. It makes a considerable contribution to the local economy through attracting visitors from all over the world and is therefore a highly valued local resource. The ES should assess the visual impacts upon this location and give consideration to including this as one of the viewpoints.

**15. Access issues**

In deciding upon the most appropriate access route, the applicant should provide details of all routes considered and the methods used in selecting the preferred access route. The applicant should provide details of what the route will be used for i.e. for transportation of turbine components, delivery of construction materials, use for maintenance purposes etc. The applicant should submit details of which access routes are temporary and which will be required for the duration of the development.

The applicant should be aware of useful guidance on, inter alia, minimising the environmental impacts of constructing access tracks associated with wind farm developments. Such guidance can be found in "Forests and Water Guidelines" Fifth Edition (2011) which can be obtained from the forestry commission via www.forestry.gov.uk/forestry/infd-8bvgx9 and "Control of water pollution from linear construction projects" (CIRIA C648, 2006) which can be obtained from CIRIA. Additional guidance is also available in 'Constructed tracks in the Scottish Uplands' (2006) published by SNH and available at www.snh.org.uk/pdfs/publications/heritagemanagement/constructedtracks.pdf.

**16. Traffic and transportation**

The ES should assess the impact of the construction and operational phases of the proposed development on the public road network in terms of the effects of the additional vehicular traffic generated, particularly heavy good vehicles and abnormal loads comprising turbine components, on traffic management, road safety, road layout and road condition.

The ES should contain details of the routes considered for the delivery of the turbine components and impacts upon the road network. The ES should address access issues, particularly those impacting upon the trunk road network, in particular, potential stress points at junctions, approach roads, borrow pits, bridges, site compound and batching areas etc.

**17. Telecommunications**

The impact of the proposed development on domestic television reception in the area and on any civil or military broadcast linkages traversing the site should be assessed and any necessary mitigation measures identified.

**18. Consultation responses**

An extensive consultation process has been conducted with all of the consultees considered to be relevant. All of the responses received are included as an appendix to this document. The issues raised within each of these responses should be carefully considered and addressed within the Environmental Statement. Please find attached the responses from the following organisations and services:

- West of Scotland Archaeological Service
- Scottish Environmental Protection Agency
- Civil Aviation Authority
- Glasgow Prestwick Airport
- South Ayrshire Council Environmental Health
- South Ayrshire Council Traffic and Transportation
- Scottish Natural Heritage
- Scottish Water
- Royal Society for the Protection of Birds

- National Air Traffic Services
- Historic Scotland
- Ministry of Defence
- Health and Safety Executive
- Ayrshire Rivers Trust
- Forestry Commission Scotland

## 19. Conclusions

The proposed development clearly presents a number of issues which must be addressed within the ES. It is apparent that two of the issues identified are critical to the progression of the proposal; the aviation issues and the visual impact issues and associated concerns. The ES should include details of how these issues will be addressed and the outcome of any discussions that have taken place with relevant consultees. Annex 1 provides all of the consultation comments which have been received from the relevant bodies and these form part of the scoping opinion.

## Annex 1 – Comments received by consultation authorities

## Statutory consultee comments

## SEPA

### 1 Carbon balance

1.1 Scottish Planning Policy (SPP) states (Paragraph 133) that "the disturbance of some soils, particularly peat, may lead to the release of stored carbon, contributing to carbon emissions. Where peat and other carbon rich soils are present, applicants should assess the likely effects associated with any development work." We note that SPP (paragraph 230) also states "All areas of peatland that retain a high level of natural heritage conservation interest, archaeological interest or are of value as carbon stores should be protected through development plans and development management decisions." The ES or planning submission should include preventative/mitigation measures to avoid significant drying or oxidation of peat through, for example, the construction of access tracks, drainage channels, cable trenches, or the storage and re-use of excavated peat. A detailed peat management scheme setting out these measures may be required through a planning condition to ensure that the carbon balance benefits of the scheme are maximised. We do not validate carbon balance assessments for windfarm planning applications, but our advice on peat management options may need to be taken into consideration when you consider such assessments.

### 2 Disruption to wetlands including peatlands

2.1 If there are wetlands or peatland systems present, the ES or planning submission should demonstrate how the layout and design of the proposal, including any associated borrow pits, hard standing and roads, avoid impact on such areas.

2.2 A Phase 1 habitat survey should be carried out for the whole site and the guidance A Functional Wetland Typology for Scotland should be used to help identify all wetland areas. National Vegetation Classification should be completed for any wetlands identified. Results of these findings should be submitted, including a map with all the proposed infrastructure overlain on the vegetation maps to clearly show which areas will be impacted and avoided.

2.3 Groundwater dependent terrestrial ecosystems, which are types of wetland, are specifically protected under the Water Framework Directive. The results of the National Vegetation Classification survey and Appendix 2 (which is also applicable to other types of developments) of our Planning guidance on windfarm developments should be used to identify if wetlands are groundwater dependent terrestrial ecosystems.

2.4 The route of roads, tracks or trenches within 100 m of groundwater dependent terrestrial ecosystems (identified in Appendix 2) should be reconsidered. Similarly, the locations of borrow pits or foundations within 250 m of such ecosystems should be reconsidered. If infrastructure cannot be relocated outwith the buffer zones of these ecosystems then the likely impact on them will require further assessment. This assessment should be carried out if these ecosystems occur within or outwith the site boundary so that the full impacts on the proposals are assessed. The results of this assessment and necessary mitigation measures should be included in the ES.

2.5 For areas where avoidance is impossible, details of how impacts upon wetlands including peatlands are minimised and mitigated should be provided within the ES or planning submission. In particular impacts that should be considered include those from drainage, pollution and waste management. This should include preventative/mitigation measures to avoid significant drying or oxidation of peat through, for example, the construction of access tracks, dewatering, excavations, drainage channels, cable trenches, or the storage and re-use of excavated peat. Detailed information on waste management is required as detailed below. Any mitigation proposals should also be detailed within the Construction Environmental Management Document, as detailed below.

## 3 Disturbance and re-use of excavated peat

3.1 Where the proposed infrastructure will impact upon peatlands, it is now best practice for developers to produce a Peat Management Plan within the Environmental Statement which sets out the principles as to how any surplus peat will be managed within the site. It is important this is done prior to the application gaining consent to ensure all opportunities to minimise peat disturbance are considered within the site design and that acceptable proposals to re-use the surplus peat can be accommodated within the site layout without significant environmental impact.

3.2 The Peat Management Plan can then form a basis for any detailed peat management proposals required within the Construction Environmental Management Plan. The Peat Management Plan should include:

a) A detailed map of peat depths (this must be to full depth) with all the built elements overlain so it can clearly be seen how the development avoids areas of deep peat. The peat depth survey should include details of the basic peatland characteristics, including a break down of acrotelmic, catotelmic and amorphous peat. This information is often already required as part of any peat slide risk assessment.

b) A table showing where surplus peat will be generated and what the quantities will be.

c) A table showing what quantity of this surplus peat will catotelmic and what quantity will be acrotelmic;

d) A map showing where any temporary peat storage areas will be located and how these storage areas, along with any associated access roads, avoid any watercourses, groundwater dependant terrestrial ecosystems or other sensitive areas. In addition details should be submitted of how the storage areas will be constructed, calculations demonstrating the need for these storage areas, how thick the peat will be stored, what types of peat will be stored and how the peat will be maintained fit for re-use. This information may also be of interest to geotechnical engineers assessing the peat stability proposals. Please note that any soils or peat stored for greater than 3 years will require a permit under The Landfill (Scotland) Regulations 2003.

e) A table demonstrating the principles of where catotelmic peat will be re-used and approximately how much will be re-used including details of width and thickness;

f) A table demonstrating the principles of where acrotelmic peat will be re-used and approximately how much will be re-used including details of width and thickness;

3.3 We would expect all these proposals to be in accordance with Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and Minimisation of Waste and our Regulatory Position Statement – Developments on Peat.

3.4 An example of a peat balance table is enclosed in Appendix 1 of this letter however this is just an example and the applicant may have a better way of illustrating the required peat information. The use of a table often illustrates where further peat minimisation is necessary and where best to re-use any surplus peat.

3.5 In our experience there a number of common issues which we often query within Peat Management Plans and therefore we wish to take the opportunity to highlight these below so that they can be addressed in the Peat Management Plan.

a) Any proposals for road shoulders should follow the best practice guidance detailed in Pages 14 and 15 of the Scottish Renewables Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and Minimisation of Waste, Page 27 of the Scottish Natural Heritage (SNH) and Forestry Commission (FCS) Floating Roads on Peat guidance and Pages 38 and 39 of SEPA, SNH and Scottish Renewables and FCS

guidance Good practice during windfarm construction. Please note that only fibrous peat is likely to be suitable for battering road verges. Any landscaping or road batters should be limited to the areas of ground already disturbed.

b) Details of where alternate construction techniques have been used such as piling or floating roads should be submitted and then this should be detailed within the Peat Management Plan as it shows how the disturbance of peat has been minimised where possible. For example this could be simply shown on a map showing the location of floating or upgraded roads and piled turbine bases alongside a peat balance table.

c) Where peat is re-used details of how the hydrology and drainage will be managed to maintain the peat integrity should be detailed. For example how will peat turves be used, how will hydrology be maintained to prevent drying out and subsequent oxidisation?

d) Where it is proposed to re-use peat for any borrow pit restoration or peat land restoration works, details of the target National Vegetation Community and how the drainage will be designed to achieve and maintain this vegetation should be submitted.

e) Please note that current good practice is that any crane hardstanding areas should be left in place with no peat cover to allow access for maintenance. In addition the aggregate layer of the hardstanding may act as a drain and peat can dry out.

3.6 By adopting an approach of minimising disruption to peatland, the volume of excavated peat can be minimised and the commonly experienced difficulties in dealing with surplus peat reduced. The generation of surplus peat is a difficult area which needs to be addressed from the outset given the limited scope for re-use.

3.7 There are important waste management implications of measures to deal with surplus peat as set out within our Regulatory Position Statement - Developments on Peat. Landscaping with surplus peat (or soil) may not be of ecological benefit and consequently a waste management exemption may not apply. In addition we consider disposal of significant depth of peat as being landfilled waste, and this again may not be consentable under our regulatory regimes. Experience has shown that peat used as cover can suffer from significant drying and oxidation, and that peat redeposited at depth can lose structure and create a hazard when the stability of the material deteriorates. This creates a risk to people who may enter such areas or through the possibility of peat slide and we are aware that barbed-wire fencing has been erected around some sites in response to such risks.

3.8 It is therefore essential that the scope for minimising the extraction of peat is explored and alternative options identified that minimise risk in terms of carbon release, human health and environmental impact. Early discussion of proposals with us is essential, and an overall approach of minimisation of peatland disruption should be adopted. If it is proposed to use some excavated peat within borrow pits or bunding then details of the proposals, including depth of peat and how the hydrology of the peat will be maintained, should be outlined in the ES or planning submission. Our Planning and Energy webpage provides links to current best practice guidance on peat survey, excavation and management.

## 4 Forest removal and forest waste

4.1 We would support the approach of key-holing wherever possible as large scale felling can result in a peak release of nutrients which can affect local water quality. We may, however, be supportive of clear felling in cases where planting took place on deep peat and it is proposed through a Habitat Management Plan to reinstate peat-forming habitats. This should be specifically referenced in the ES.

4.2 We would be especially interested in and are likely to have significant concerns relating to any proposals to fell to waste where the waste generated by the process will be managed by techniques such as chipping, mulching or spreading. This is because where material is classed as waste then appropriate waste management options require consideration and, where appropriate, adoption. In such cases we would wish the ES to include information

which explains how the waste hierarchy has been applied in a way which delivers the best overall environmental outcome and if this is not demonstrated we are likely to be object to the application.

4.3 It has previously been argued that using waste on the site could yield an ecological improvement and so has been considered as an exemption under waste management licensing. However, this approach is now being questioned as the results of early research show there is a lack of clarity and evidence to support the claim that this practice delivers overall ecological improvement for the main target vegetation types (blanket bog or wet heath).Currently, this restoration practice is being tested and researched at a number of sites across Scotland. This research will provide greater clarity on the benefits and risks associated with the practice. If ecological benefit from use of waste is to be claimed, then reliable site-specific evidence must be provided. For avoidance of doubt, where it is sought to claim ecological benefit from deposition of forestry waste a) the ecological benefit must relate to the land to which the waste is applied rather than off-site benefits and b) there must not be an ecological harm also associated with the deposition of the waste. Note that if there are likely to be significant amounts of surplus forestry material without a clear use, and if scope for an exemption under waste management is unclear, then unfortunately we may need to object to an application due to our inability to advise on consentability under our regulatory regime and hence it is essential that these issues are addressed at an early stage.

4.4 Nationally we are working with our SEARS partners to agree common principles for considering the use of forest material / waste wood on peatland sites for restoration projects. This work is currently being agreed and will soon be published on our website as *Principles for Use of Forest Residue for Peatland Restoration.* The draft principles within it which should be applied are as follows:

- Full justification for using the material on-site must be provided. Evidence must be provided to show that all options for use of the material off-site have been considered;
- The proposed use of the material must be beneficial in reaching the objectives of the Habitat Management Plan (HMP) as agreed by the local authority in consultation with statutory agencies (SNH and SEPA). Detailed monitoring proposals should be included in the HMP;
- Material used on site should not have any negative impact on the water environment or other sensitive receptors (e.g. protected species);
- Details of the size, volume, and depth of material to be used on site must be provided. A detailed map showing areas where the material will be used and extent of cover should also be provided;
- A clear specification for contractors is required to ensure the correct machinery is used, and that any material left on site is used in line with the HMP. The quality of the material is an important factor; maximum chip size (or other criteria) should be defined and agreed with the contractor. A maximum depth of material should also be agreed with the contractor.

4.5 Where the ecological benefit proposed by the fell to waste activity does not relate to improvement of peatland habitats, then the expected environmental benefit must be set out and fully justified in the ES.

## 5 Existing groundwater abstractions

5.1 Roads, foundations and other construction works associated with large scale developments can disrupt groundwater flow and impact on groundwater abstractions. To address this risk a list of groundwater abstractions both within and outwith the site boundary, within a radius of i)100 m from roads, tracks and trenches and ii) 250 m from borrow pits and foundations) should be provided.

5.2 If groundwater abstractions are identified within the 100 m radius of roads, tracks and trenches or 250 m radius from borrow pits and foundations, then either the applicant should ensure that the route or location of engineering operations avoid this buffer area or further information and investigations will be required to show that impacts on abstractions are

acceptable. Further details can be found in Appendix 2 (which is also applicable to other types of developments) of our Planning guidance on windfarm developments.

## 6 Engineering activities in the water environment

6.1 In order to meet the objectives of the Water Framework Directive of preventing any deterioration and improving the water environment, developments should be designed to avoid engineering activities in the water environment wherever possible. The water environment includes burns, rivers, lochs, wetlands, groundwater and reservoirs. We require it to be demonstrated that every effort has been made to leave the water environment in its natural state. Engineering activities such as culverts, bridges, watercourse diversions, bank modifications or dams should be avoided unless there is no practicable alternative. Paragraph 211 of SPP deters unnecessary culverting. Where a watercourse crossing cannot be avoided, bridging solutions or bottomless or arched culverts which do not affect the bed and banks of the watercourse should be used. Further guidance on the design and implementation of crossings can be found in our Construction of River Crossings Good Practice Guide. Other best practice guidance is also available within the water engineering section of our website.

6.2 If the engineering works proposed are likely to result in increased flood risk to people or property then a flood risk assessment should be submitted in support of the planning application and we should be consulted as detailed below.

6.3 A site survey of existing water features and a map of the location of all proposed engineering activities in the water environment should be included in the ES or planning submission. A systematic table detailing the justification for the activity and how any adverse impact will be mitigated should also be included. The table should be accompanied by a photograph of each affected water body along with its dimensions. Justification for the location of any proposed activity is a key issue for us to assess at the planning stage.

6.4 Where developments cover a large area, there will usually be opportunities to incorporate improvements in the water environment required by the Water Framework Directive within and/or immediately adjacent to the site either as part of mitigation measures for proposed works or as compensation for environmental impact. We encourage applicants to seek such opportunities to avoid or offset environmental impacts. Improvements which might be considered could include the removal of redundant weirs, the creation of buffer strips and provision of fencing along watercourses. Fencing off watercourses and creating buffer strips both helps reduce the risk of diffuse water pollution and affords protection to the riparian habitat.

## 7 Water abstraction

7.1 Where water abstraction is proposed we request that the ES, or planning submission, details if a public or private source will be used. If a private source is to be used the information below should be included. Whilst we regulate water abstractions under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), the following information is required at the planning stage to advise on the acceptability of the abstraction at this location:

- Source e.g. ground water or surface water;
- Location e.g. grid reference and description of site;
- Volume e.g. quantity of water to be extracted;
- Timing of abstraction e.g. will there be a continuous abstraction;
- Nature of abstraction e.g. sump or impoundment;
- Proposed operating regime e.g. details of abstraction limits and hands off flow;
- Survey of existing water environment including any existing water features;
- Impacts of the proposed abstraction upon the surrounding water environment.

7.2 If other development projects are present or proposed within the same water catchment then we advise that the applicant considers whether the cumulative impact upon the water environment needs to be assessed. The ES or planning submission should also contain a

justification for the approach taken.

## 8 Pollution prevention and environmental management

8.1 One of our key interests in relation to major developments is pollution prevention measures during the periods of construction, operation, maintenance, demolition and restoration. The construction phase includes construction of access roads, borrow pits and any other site infrastructure.

8.2 We advise that the applicant should, through the EIA process or planning submission, systematically identify all aspects of site work that might impact upon the environment, potential pollution risks associated with the proposals and identify the principles of preventative measures and mitigation. This will establish a robust environmental management process for the development. A draft Schedule of Mitigation should be produced as part of this process. This should cover all the environmental sensitivities, pollution prevention and mitigation measures identified to avoid or minimise environmental effects. Details of the specific issues that we expect to be addressed are available on the Pollution Prevention and Environmental Management section of our website.

8.3 A Construction Environmental Management Document is a key management tool to implement the Schedule of Mitigation. We recommend that the principles of this document are set out in the ES outlining how the draft Schedule of Mitigation will be implemented. This document should form the basis of more detailed site specific Construction Environmental Management Plans which, along with detailed method statements, may be required by planning condition or, in certain cases, through environmental regulation. This approach provides a useful link between the principles of development which need to be outlined at the early stages of the project and the method statements which are usually produced following award of contract (just before development commences).

8.4 We would refer you to best practice advice prepared by SNH, SEPA and the windfarm industry Good Practice During Windfarm Construction. Additionally, the Highland Council (in conjunction with industry and other key agencies) has developed a guidance note Construction Environmental Management Process for Large Scale Projects.

## 9 Borrow pits

9.1 Detailed investigations in relation to the need for and impact of such facilities should be contained in the ES or planning submission. Where borrow pits are proposed, information should be provided regarding their location, size and nature. In particular, details of the proposed depth of the excavation compared to the actual topography and water table should be submitted. In addition details of the proposed restoration profile, proposed drainage and settlement traps, turf and overburden removal and storage for reinstatement should be submitted.

9.2 The impact of such facilities (including dust, blasting and impact on water) should be appraised as part of the overall impact of the scheme. Information should cover, in relation to water; at least the information set out in Planning Advice Note PAN 50 Controlling the Environmental Effects of Surface Mineral Workings (Paragraph 53). In relation to groundwater, information (Paragraph 52 of PAN 50) only needs to be provided where there is an abstraction or groundwater dependent terrestrial ecosystem within 250 m of the borrow pit. Additional information on groundwater is provided above.

## 10 Flood risk

10.1 The site should be assessed for flood risk from all sources in line with Scottish Planning Policy (Paragraphs 196-211). Our Indicative River & Coastal Flood Map (Scotland) is available to view online and further information and advice can be sought from your local authority technical or engineering services department and from our website.

10.2 If a flood risk is identified then a Flood Risk Assessment should be carried out following the

guidance set out in our "Technical flood risk guidance for stakeholders" and (if relevant) "Technical Guidance Revision Note 1 - the Estimation of Coastal Sea Levels" both of which can be found on the planning and flood risk section of our website.

## 11 Regulatory advice for the applicant

11.1 Details of regulatory requirements and good practice advice for the applicant can be found on our website at www.sepa.org.uk/planning.aspx. If you are unable to find the advice you need for a specific regulatory matter, please contact a member of the operations team in your local SEPA office at:

Ayr Office
31 Miller Road
Ayr
KA7 2AX
Tel: 01292 294000

## SNH

It is our view that under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 the scoping document should provide a draft outline of the Environmental Statement (ES) for the development proposal. It should give an indication of what are considered to be the main issues, in order to provide a focus for the determining authority's considerations. SNH expects the SR to comprehensively address the issues which are to be covered in the Environmental Impact Assessment (EIA).

### SNH's Comments on Issues to Include in Environmental Impact Assessment

The EIA should address all aspects of the proposed development including, for example, temporary construction infrastructure, compounds and construction material stockpiles, main access and on-site tracks, borrow pits, water crossings, crane hard standings, turning points and passing places associated with access tracks, meteorological mast, transformers, cabling, grid connection, control/metering/switching building and proposals for site restoration on decommissioning.

This scoping response highlights SNH's key areas of concern which we consider should be scoped into any Environmental Impact Assessment (EIA) for this wind farm proposal.

1. Strategic Locational Guidance
2. Nature Conservation Designations
3. Landscape and Visual Assessment
4. Ecology (excluding birds)
5. Bird Ecology
6. Hydrology, hydrogeology and geology
7. Recreation and Access

### Project Design

There is considerable uncertainty of the scale of this proposal. SNH advises that a 'worst case scenario' should be the basis of the EIA , and therefore the scope of the ES should address the maximum height, the maximum number of turbines, borrow pits, track and all other associated infrastructure.

We note the grid connection will be subject to a separate application to the network operator, Scottish Power Distribution Limited. SHN advise that the grid connection is associated with this application and thus the EIA should at least include indicative proposals for this element.

SNH suggests contact is made with the following organisations re this application:

- Ayrshire Rivers Trust
- Ayrshire Bird recorder
- British Trust for Ornithology
- Raptor Study Group
- Ayrshire Bat Group
- Historic Scotland
- SEPA

**Designated sites**

**South Threave** Site of Special Scientific Interest (SSSI), lying 2.0km South West of the Crostonhill Moor proposed site, is designated for its geological features.

**Roughneuk Quarry** Site of Special Scientific Interest (SSSI), lying 1.1km south east of the Crostonhill Moor proposed site, is designated for its geological features.

**Landscape and Visual Impact**

**1.1 Introduction**

An assessment of the likely **effects on the landscape resource** includes consideration of likely changes to:

- individual elements – trees, hedges, buildings;
- characteristics – elements or combinations of elements (physical as well as perceptual) which make a particular contribution to the character of an area;
- character – distinct and recognisable pattern of elements (key characteristics) which create a particular sense of place; and
- landscape value – as described by statutory landscape designations, locally valued landscapes; condition and rarity of landscape elements.

An assessment of **visual effects** describes:

- likely changes in the available views resulting from the development; and
- changes in the visual amenity of the visual receptors.

The design process and design iterations should be clearly explained in a design statement or chapter in the submitted Environmental Statement (ES).

**1.2 Available Guidance**

The following guidance (most of which is available from the Scottish Natural Heritage (SNH) website presents good practice for the design and siting of wind farm development, and for carrying out a Landscape and Visual Impact Assessment (LVIA).

- Ayrshire Landscape Assessment (ASH Consulting Group, 1999)

- Visual Representation of Wind farms Good Practice Guidance (2006)
- Assessing the Cumulative Impact of Onshore Wind Energy Developments (SNH March 2012)
- Siting and Designing Wind farms in the Landscape (SNH Version 1 December 2009)
- Scottish Government web-based renewables advice (supercedes PAN 45)
- PAN 68 – Design Statements

**1.3 Specific Issues for the LVIA to Address**

Based on the information provided within the scoping report the issues noted below are likely to be significant. They should therefore be addressed in greater detail within the Environmental Statement (ES). They are location specific comments, in addition to the need to follow the provisions of the 'Guidelines for Landscape and Visual Impact Assessment' (GLVIA) Third edition 2013 by the Landscape Institute & the Institute of Environmental Management and Assessment.

SNH highlights the following landscape and visual matters as requiring particular attention in respect of the LVIA for this proposal.

- the off-site impacts of improving the public roads to allow access i.e. the landscape and visual impacts of any road straightening, widening, levelling, tree and hedgerow removal and the upgrading of junctions.
- Access tracks and borrow pits should be included in relevant visualisations less than 10km from site.
- It is preferable for the transformers to be contained within the turbines.
- The options for any felling requirements.
- Should there be a need to install aviation obstruction lighting to some or all of the wind turbines, its visual impact at night will have to be assessed in the ES.

We consider that the scheme in its current outline form may have significant landscape and visual impacts. This is based upon;

- The height (132m to blade tip) and layout of the turbines adding to increased likelihood of visibility as well as diminishing the scale of the relatively low relief of the landform – though we understand this is not set, and subject to detailed design.
- Turbines of this size sited on the prominent skyline of the Maybole Foothills within the Foothills Landscape Character Type (LCT) have the potential to impact upon the setting of the Girvan and Doon valleys.
- Potential impacts on dramatic views from the popularly accessed Kildoon and Mochrum Hills and from minor roads and settlement within these foothills to the coast, the Firth of Clyde, Ailsa Craig and Arran.
- Potential for cumulative effects to arise with the operational/consented wind farms of Hadyard Hill, Mark Hill, Arecleoch and Kilgallioch, and the scoping stage scheme of Kirk Hill which is located adjacent this proposal.
- Potential impacts on key views from the A719 south of the Electric Brae to Culzean Castle and its designed landscape where these foothills form an integral part of its wider setting.
- The potential impacts on settlements within a 15km radius of the proposal site.
- Potential impacts on the South Ayrshire Scenic Area.
- Potential impacts on the National Cycle Route No. 7.
- Potential impacts on the Merrick Core Area of Wild Land – we would expect an assessment of potential impacts to be carried out as per our interim guidance note 'Assessing the Impacts on Wild Land' (February 2007).

Clearly these points are made at an early stage and with reference to the ZTV and location plan only. It will therefore be up to the applicant to demonstrate how these constraints are addressed within the assessment and by the design of the wind farm itself.

**1.4 Study Area**

We consider that a study area of 35km is appropriate for the LVIA for this proposal.

Our guidance *Assessing the Cumulative Impact of Onshore Wind Energy Developments (SNH March 2012)* advises that a cumulative assessment should be based on a 30/60km study area.

**1.5 Visual Impact Assessment and Selection of Viewpoints (VPs)**

We suggest when the ZTV is produced at a more detailed level, it would be useful to overlay landscape character and designation data onto the ZTV to establish representative key viewpoints.

SNH reserves its position on the initial choice of viewpoints until the production of detailed ZTVs at 1:100,000, and welcomes the opportunity to contribute to further discussion on the selection of key viewpoints. SNH consider it is also important to identify which views will form part of the cumulative impact assessment, and which are fixed/sequential viewpoints

The LVIA submitted as part of the EIA should present wirelines for all selected viewpoints and photomontages for all viewpoints that are within 15km of the proposed development site.

We consider that any viewpoint with a view of the proposed wind farm + another wind farm(s) should also be assessed as a cumulative viewpoint.

**1.6 Cumulative Effects**

Consideration of cumulative effects will be an important aspect of the LVIA for this proposal. This proposal is located in close proximity to a number of other wind farm developments / proposals, and sensitive receptors that experience a number of other wind farm developments / proposals. See Appendix D of SNH's guidance on the *Cumulative Impact of Onshore Wind Energy Developments (SNH March 2012)* for our recommended approach to considering likely cumulative effects upon landscape and upon views and visual amenity.

The cumulative LVIA should consider the impact of the additional contribution of the proposed development to the baseline of other existing, consented and application wind farms. It should include, and specifically should distinguish between the following, as defined in the guidance:

- Cumulative landscape effects
- Cumulative visual effects
- Static combined effects
- Static successive effects
- Sequential effects - routes to be assessed should be selected and verified following consideration of the cumulative ZTVs

The cumulative landscape assessment should consider the impact of an additional wind farm scheme upon landscape character. The cumulative visual assessment should consider how various wind farm developments would be seen together from key viewpoints.

It will be very important for the proposal to be planned and designed in the context of existing / consented development. Every additional proposal within an area makes the overall pattern of wind farm development more complicated and the developers have an increasingly difficult task to make a project 'fit' with other development. Our guidance *Siting and Designing Wind farms in the Landscape(Version1, December 2009)* should be consulted and followed in this respect.

**1.7 Cumulative baseline schemes**

We recommend that you liaise with South Ayrshire, East Ayrshire and North Ayrshire, Dumfries and Galloway and South Lanarkshire Councils for a current list of all known wind farms that are in the public domain, which are within the cumulative study area (which may include authorities out with the South Ayrshire area) to prepare a cumulative base plan of other wind farm schemes. We consider it important to include the Kirk Hill wind farm scoping stage scheme as it is located adjacent this

proposal. We can provide more detailed advice on the wind farms that it may be most important to consider in terms of their cumulative effects once an up-to-date and accurate cumulative base plan based on data collected from the relevant planning authorities is submitted.

**APPENDIX 1**

For reference, to help provide a national overview of wind farm development in Scotland, SNH produces a quarterly wind farm footprint map. Recent versions of the map are available from:

www.snh.gov.uk/planning-and-development/renewable-energy/research-data-and-trends/trendsandstats/windfarm-footprint-maps/
Please note that the wind farm footprint map provides a strategic national overview only; we endeavour to keep the map as up-to-date as possible but please be aware of the caveats detailed on our website.

**1.8 Cumulative viewpoints and ZTVs**

The choice of cumulative viewpoints for the illustration of these effects should be based upon the Zone of Theoretical Visibility (ZTV) produced for the proposal in combination with other key wind farms.

Please note that paired/cumulative ZTVs should show for the whole study area (and ideally to the edge of the map sheet presented):

a. Theoretical visibility of wind farm A only;
b. Theoretical visibility of wind farm B only; and
c. Theoretical visibility of wind farm A plus wind farm B.

These ZTVs should be coloured logically – e.g. blue (a), yellow (b) and green (c)

**Ecology (excluding birds)**

**General**

**Surveys should be sufficient, fit for purpose and adhere to SNH guidelines. SNH may not accept results if surveys are not carried out at the correct time of year, or if they do not meet survey requirements for individual species/habitats.**

In relation to all species surveys, details of the surveyors, methodologies, results and proposed mitigation measures should be clearly presented in the ES. The surveys should take into account the disturbance and habitat loss/ modification that are likely to be caused by the proposed development, and present details of any proposed mitigation measures clearly in the ES. Where mitigation measures are proposed, details of how the applicant will monitor the effectiveness of these measures should also be included in the ES.

**European Protected Species (bats and otter)**

Bats and otters may be present on site. These species are European Protected Species (EPS), listed on Annex IV of EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the 'Habitats Directive'). This means that Regulations 39 and 40 of the Habitats Regulations (as amended) apply.

Our website contains information on the legal framework for protected species http://www.snh.gov.uk/protecting-scotlands-nature/protected-species/legal-framework/, including EPS -http://www.snh.gov.uk/protecting-scotlands-nature/protected-species/legalframework/habitats-directive/euro/.

The applicant should check that these surveys cover all areas affected by the proposal, and please note our advice on the spatial scope of otter surveys for wind farms at http://www.snh.gov.uk/about-scotlands-nature/wildlife-and-you/otters/assessing/.

Our advice for survey of bats is set out in our guidance Bats and Wind Turbines guidance, which can be found on our website -http://www.snh.gov.uk/planning-anddevelopment/renewable-energy/onshore-wind/general-advice-and-information/. This contains a link to the 2012 Bat

Conservation Trust (BCT) survey guidance which should be followed.

Should evidence of potential impacts on otter or bats be found, then a draft species protection plan should be included as part of the ES. We would then provide further advice to you as part of the ES consultation.

You are reminded that if the anticipated application is approved without consideration of this information, then the development could result in an offence under Regulation 39/43 of the Habitats Regulations 1994 (as amended).

**Other protected species**

Surveys will be required to establish presence of protected species, the locations/distribution and mitigation which may be required in response to this proposed development. More information is available on our website:

http://www.snh.gov.uk/protecting-scotlands-nature/protected-species/which-and-how/mammals/

http://www.snh.gov.uk/planning-and-development/advice-for-planners-and-developers/protected-animals/

Licence(s) may be required if the proposal is likely to cause disturbance to a protected species. More information is available on our website:
http://www.snh.gov.uk/protecting-scotlands-nature/species-licensing/

As discussed in relation to EPS, should evidence of potential impacts on legally protected species be found, then a draft species protection plan should be included as part of the ES. We would then provide further advice to you as part of the ES consultation.

You are reminded that if the anticipated application is approved without consideration of the required information, then the development could result in an offence under the Wildlife & Countryside Act (1981, as amended in Scotland).

**Deer management**

Deer species may use the proposed development area. An assessment of how the proposed development would affect deer movements and use of the site (during construction and operation), plus a fit for purpose deer management plan should be included as part of the ES submission. Guidance on deer management is available via http://www.snh.gov.uk/land-andsea/managing-wildlife/managing-deer/ and also from the Best Practice Guides website http://www.bestpracticeguides.org.uk/planning_dmps.aspx. Deer management plans should take into account the management of deer on neighbouring land to ensure that the objectives are complimentary.

The key to these deer management plans for wind farms is that deer control continues within the site area during the construction process, based on an understanding that deer stalking, when carried out properly, is of low concern to the health and safety of people involved stalkers and construction staff.

**Bird Ecology**

We would draw the applicant's attention to the guidance on SNH's web site, this clarifies what information is suitable for the EIA and why we believe this is necessary. The document is titled 'Recommended bird survey methods to inform impact assessment of onshore wind farms' (SNH, 2013) and it is found on the 'Wind Farm impacts on birds guidance' page of our website, the link is http://www.snh.gov.uk/planning-and-development/renewableenergy/onshore-wind/windfarm-impacts-on-birds-guidance/

Experience has shown that submission of robust and qualified ornithological assessments reduces the time taken for SNH to provide advice to the consenting authority. We therefore wish to stress the

importance of employing a suitably qualified ornithologist. Results should be reported in as much detail as possible, presented clearly and in a transparent manner, since this allows their consideration by SNH and the consenting authority without recourse to additional requests for detail, incurring unnecessary delay.

Full survey details including raw data, workings for calculations and flight maps with labelled flightlines referenced to a table of flight data, etc, should be presented in the ES. Information on direct and indirect impacts, along with details of any mitigation should be presented. Specifically, relating to survey methodology, SNH recommend that the guidance (SNH, 2013) is followed and any deviation from the standard methodology is explained and justified.

Assessment of the cumulative impacts will be required. Please refer to our recent guidance on assessing cumulative impacts – at Appendix 2.

We have identified biogeographical zones within Scotland that can be used for such an assessment – Natural Heritage Zones (NHZs). These are also referred to as Natural Heritage Futures (NHFs). The proposal lies within NHZ number 17, West Central Belt. Information on this NHZ can be found on our website http://www.snh.gov.uk/about-snh/what-we-do/nhf/ where the original NHF prospectus (2002 document) can be downloaded, along with the 2009 update to this. There are a growing number of wind farm proposals affecting this NHZ which increases the risk of an adverse effect on the favourable conservation status of certain species within the NHZ. This will therefore require careful assessment of cumulative impacts as part of the EIA process.

More information is available of our website:
http://www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/windfarmimpacts-on-birds-guidance/

**Hydrology, hydrogeology and geology**

Much of the proposed sites lies on areas of deep peat over 1m, due to the presence of peat on site, we would expect that these areas should be clearly mapped (depth, nature, hydrology and condition) and used to inform the routing of proposed tracks (whether excavated or floated), and the siting of proposed turbines and other infrastructure. We advise that areas of deep peat are avoided. We also strongly recommend early engagement with SEPA with regard to excavated peat reuse and disposal.

SNH would strongly recommend that the whole of the proposed site should be surveyed in line with new guidance for developments on peatland. The guidance titled: Developments on Peatland: Site Surveys is on our SNH web site at: http://www.scotland.gov.uk/Resource/Doc/917/0120462.pdf .

The results of survey undertaken in line with this guidance should be used to inform the initial site layout design, and direct siting of tracks, turbines and all associated infrastructure on this site. This would help to avoid deep peat removal and disturbance. We strongly advise that the above survey is undertaken to help mitigate the impacts that could arise from the outset at this site. As the access tracks are the elements that will result in the greatest land take, habitat fragmentation and, potentially hydrological disruption, it is important that the track construction methods are clearly described in the ES, the rationale for their type and location articulated and all direct and indirect impacts assessed.

**Habitat Ecology**

The vegetation should be surveyed, described and mapped to Phase 1 standard, with any nationally or internationally important habitats being mapped to NVC. Any nationally or internationally important plant species should be identified and their locations avoided during the construction phase. **Surveys should be undertaken at an appropriate time of year to maximize species identification potential, probably June to September**. Habitat and species importance should be evaluated, and direct and indirect impacts identified and quantified, pre-and post-mitigation. The ES should include an outline Habitat Management Plan which will include proposals to mitigate any habitat and, where appropriate, species, loss and damage. We have recently published advice on what to include and consider in Habitat Management Plans (http://www.snh.gov.uk/docs/B1159444.pdf) which may be helpful.

**Surface Water Hydrology, Flood Risk, Water Quality, Water Resources, Hydrologeology and Soils**

As blanket bog appears to occupy a significant proportion of the site a peat surface study should be undertaken. This should be in accordance with Scottish Government guidance and used to inform the infrastructure layout and design.
http://www.google.co.uk/url?q=http://www.scotland.gov.uk/Resource/Doc/917/0120462.pdf&sa=U&ei=PosjUa2gDoWg0QWSioDQCA&ved=0CBsQFjAA&usg=AFQjCNF8K3fiQwXDfxD7J6lqaVSSIYK57Q

It is also likely that the Peat Landslide Risk Assessment will be required and should follow Scottish Government good practice
http://www.google.co.uk/url?q=http://www.scotland.gov.uk/Publications/2006/12/21162303/1&sa=U&ei=5YojUfKcAvKR0QXo7ICYBA&ved=0CBsQFjAA&usg=AFQjCNG5p_3JYMrJ0C3lg7LQ5dTnzKwpgA

This should consider the potential impact of peat slides on features of ecological interest as well as on wind farm infrastructure, and the findings should also be used to inform site layout and design.

The ES should also include a Peat Management Plan to demonstrate how peat arising from construction will be reused on site or otherwise disposed.

In relation to the restoration of any new borrow pits, the EIA should demonstrate not only that this is technically possible but also a commitment to doing it. For construction, we refer the applicant to our guidance -Good Practice during Windfarm Construction (2010)
http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1618.

**Freshwater**

This site has a number of natural watercourses in it, and is adjacent to Craigdow Loch. We strongly recommend that the advice of Scottish Environment Protection Agency (SEPA) is sought regarding water crossings and the adequacy of any hydrological work undertaken as part of the EIA.

We recommend that ecological surveys are carried out to identify if species such as salmonids, eels, etc are present, so that any potential impacts can be avoided or minimised as part of the design process. We recommend that SEPA guidance for hydro schemes informs the river habitat and fish survey methods, as set out in the hydro guidance available via http://www.sepa.org.uk/water/hydropower.aspx.

**Restoration and Decommissioning**

SNH recommend full site restoration and reinstatement details at both post windfarm construction and decommissioning stages are included in the ES. Careful consideration should be given to mitigation measures.

**Lighting**

If there is a need to install aviation obstruction lighting to some or all of the wind turbines, its visual impact at night will have to be assessed in the ES.

**Recreation and Access**

Areas that are important for recreation should be represented in the choice of viewpoints used for LVIA. We recommend that the ES overall should deal with the temporary and permanent effects of the proposal on recreation and access. SNH would expect that an assessment will be made of how current and future recreational use is likely to be affected during construction and subsequent operation of the wind farm, as well as undertaking an assessment of impacts on recreational experience.

As this area is used recreationally for walking and fishing etc we advise that the developer identifies the current recreational activities within the study area and ascertain the significance of any positive and negative impacts that will occur upon such activities as a consequence of the development proposals.

The impact on those using recreational facilities around the wind farm should be considered in relation to the setting and experience of these places and the changes in view from these facilities and recreational resources. We recommend consultation with local recreational bodies.

We advise that as well as focusing on the tourism and recreational facilities within an inner core of 5km around the proposed site, detailed consideration is also given to the impacts on recreation associated with wild land (including the SAWL) and the Galloway Forest Park. We also advise that the scope of the assessment of potential impacts should be widened to include operational as well as construction phases. Commercial wind farms can potentially have negative impacts on Scotland's wilder landscapes, and on the experience and appreciation (including perceptual responses) of wild land qualities. The assessment of recreational impacts would therefore draw upon the assessment of impacts on wild land.

The dark skies observatory at Craigengillan is an important facility, and there needs to be suitably robust assessment in relation to impacts on this.

It is important that the potential for increased recreational use of the site and any need for restrictions during and post-construction are considered as part of the ES.

Our advice is, with reference to the Land Reform (Scotland) Act 2003, that the applicant must pay due regard to the potential use of the area for recreation by the general public when designing and planning the proposed development and associated construction works. Regard should be given not only to the proposed development sites but also the proposed access routes and additional tracks, which may increase the perceived recreational value of the area. The assessment should identify ways of dealing with this increase including possible car parking provision. Access should not be restricted unless necessary for health and safety or other overriding reasons. Where access requires to be restricted at any time, clear signage following the Scottish Outdoor Access Code branding guidelines is strongly recommended (http://www.outdooraccess-scotland.com/branding/

## Grid connection and decommissioning

### Grid connection

With regard to grid connection, we recommend that if the applicant has confirmed details of all or part the grid connection at the time of ES submission, these details are provided in the ES along with assessments of the impacts of the grid connection on the natural heritage (in particular, the nearby protected areas). As there may be impacts on the natural heritage from the grid connection, we would be happy to advise the relevant authority in due course on any grid connection.

### Decommissioning

With regard to decommissioning, as it is anticipated that there would be some 25 years between construction and decommissioning / re-powering, we recommend that the decommissioning section of the ES is brief. It should be subject to review and approval by the planning authority five years prior to the year of decommissioning. This is because environmental conditions, laws and techniques will invariably change over that time period. However, as decommissioning and redevelopment of the site are both potential options, the EIA process should consider the implications and assess the likely impacts of both, as these are likely to be very different and may influence how the current proposal is developed.

## Further advice

### Contents and format of the ES

Full survey details including raw data, workings for calculations, and for birds the viewshed maps and

flight maps with labelled flightlines showing the flights banded into below, at and above collision risk height and referenced to a table of flight data, etc, should be presented in the ES. Information and assessment of direct and indirect impacts (including cumulative), along with details of any mitigation should also be presented.

We recommend that the ecological chapters are split into protected areas, species (avian, non-avian), habitats (terrestrial, freshwater), etc. Sensitive species information can be presented in a confidential annex with restricted circulation. Advice on how to deal with sensitive information can be found via http://www.snh.gov.uk/docs/A285693.pdf

We request four full copies of the ES (including confidential annexes) on cd (with file sizes of <10MB per pdf), plus a duplicate hard copy. This is so that we can be sure that LVIA visualisations in particular are presented as the applicant intends, and can circulate the files to the relevant specialist SNH advisors around Scotland.

**Provision of further advice**

We offer to provide further pre-application advice to the applicant in line with our Service Level Statement. We ask that the applicant allows sufficient time in their project plan to accommodate our advice, which may take some time to compile. (Our customer care response deadline is 20 working days or sooner, but on some occasions statutory casework will take priority and cause delays in responding to requests for advice.)

**Concluding remarks**

Our comments are given without prejudice to a full and detailed consideration of the impacts of the proposal if it is submitted for formal planning consultation.

**Appendix 2**

**SNH POLICY AND GUIDANCE FOR WIND FARM DEVELOPMENT**

The renewables pages of SNH's website are a useful source of information and they provide all our relevant policy and guidance in respect of onshore windfarm development. Go to www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/ in the first instance and from there you can navigate to the key guidance some of which is listed below.

**Renewable Energy Service Level Statement (2010)** – the Service Level Statement (SLS) has been prepared (and updated in May 2010) to clarify the stages at which SNH can be expected to input into the process of developing and consulting upon renewable energy proposals and the level of advice that we will offer at each stage. This statement is intended to guide the interaction between SNH, developers, and consent authorities in the process of developing a renewables project.

**Strategic Locational Guidance for Onshore Windfarms (2009)** – this policy guidance (updated in March 2009) sets out a number of principles to guide the location of onshore wind farms so as to minimise their effects on the natural heritage. It provides SNH's broad overview of where there is likely to be greatest scope for wind farm development, and where there are the most significant constraints, in natural heritage terms.

Guidelines on the Environmental Impacts of Windfarms and Small Scale Hydro Electric Schemes, SNH (2002);

**Cumulative Effect of Windfarms (2005)** – this guidance is important to consider in situations where your proposal is in proximity to existing or consented wind farms, or those that are submitted as planning applications. It addresses cumulative landscape and visual impacts (please see Appendix 5 in particular) and also cumulative impacts in respect of birds. *Please be aware that this guidance is currently being updated.*

**Survey Methods for Use in Assessing the Impacts of Onshore Wind farms on Bird Communities (2005) is replaced by Recommended bird survey methods to inform impact**

**assessment of onshore wind farms (August 2013)** – this guidance sets out how to scope and plan your impact assessment in respect of bird interests. It also provides the survey methodologies to use dependent on the bird species potentially affected, as well as providing advice on the variety of potential effects. ***Note*** *that other guidance in respect of bird interests is available on the SNH website, including how to assess the significance of impacts, as well as how to undertake collision risk modelling (if this is needed).*

**Visual Representation of Wind Farms: Good Practice Guidance (February 2007)** – this Good Practice Guidance focuses upon Visual Impact Assessment – the process by which the potential significant effects of a proposed development on the visual resource are methodically assessed. This is only one element of the overall Landscape and Visual Impact Assessment (LVIA), part of the wider process of Environmental Impact Assessment (EIA). Please note, that while the text is available on the website, hard copies of this guidance will need be purchased from SNH publications and should be referred to for the larger illustrations.

**Siting and Designing Windfarms in the Landscape (December 2009)** – helps to guide windfarms towards those landscapes best able to accommodate them and advises on how windfarms can be designed to best relate to their setting and minimise landscape and visual impacts. This guidance replaces in parts our earlier publication –"Guidelines on the Environmental Impacts of Wind farms and Small Scale Hydroelectric Schemes" (2001).

Our site has information on best practice survey methods for a range of legally protected species such as otters; '**Otters and Development'**,'**Badgers and Development'** as well as links to BTO publication '**Bat Surveys Good Practice Guidance** and information on water vole, red squirrel etc survey guidance. We expect best practice as described in these publications to be followed to inform the ES and aid decisions on the proposed application

To assess the impact or scale of peat loss using Scottish Government guidance which is found on SNH's website: Site Surveys for Developments on Peatland. This is part of Scottish Government guidance '**Wind Farms and Carbon Savings on Peatlands'** which presents a method to calculate carbon emission savings associated with wind farm developments on Scottish peatland'

**LEGAL REQUIREMENTS: EUROPEAN PROTECTED SPECIES**

**European Protected Species**

European Protected Species (EPS) are given protection under the Conservation (Natural Habitats &c.) Regulations 1994 (as amended). This means it is illegal to:

- deliberately kill, injure, disturb or capture/take European Protected Species
- damage or destroy the breeding sites or resting places of such animals

It does not have to be deliberate, reckless or intentional for an offence to have been committed. Where it is proposed to carry out works which will affect EPS or their shelter/breeding places, whether or not they are present, a licence is required from the licensing authority. Further information on bats and development can be found in the former Scottish Executive document *European Protected Species, Development Sites and the Planning System: Interim guidance for local authorities on licensing arrangements* (October 2001) via the Scottish Government publications website:

- http://www.scotland.gov.uk/library3/environment/epsg.pdf

As highlighted in the Interim Guidance, three tests must be satisfied before the licensing authority can issue a licence under Regulation 44(2) of the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) to permit otherwise prohibited acts. An application for a licence will fail unless all of the three tests are satisfied. The three tests involve the following considerations:

- **Test 1** -The licence application must demonstrably relate to one of the purposes specified in Regulation 44(2) (as amended). For development proposals, the relevant purpose is likely to be Regulation 44(2)(e) for which Scottish Government is currently the licensing authority. This regulation states that licences may be granted by Scottish Government only for the purpose of "preserving public health or public safety or other imperative reasons of overriding public interest

including those of a social or economic nature and beneficial consequences of primary importance for the environment.

- **Test 2** -Regulation 44(3)(a) states that a licence may not be granted unless Scottish Government is satisfied "that there is no satisfactory alternative".

- **Test 3** -Regulation 44(3)(b) states that a licence cannot be issued unless Scottish Government is satisfied that the action proposed "will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range" (Scottish Government will, however, seek the expert advice of Scottish Natural Heritage on this matter).

Consideration of European protected species must be included as part of the planning application process, not as an issue to be dealt with at a later stage. Any planning consent given without due consideration to these species is likely to breach European Directives with the possibility of consequential delays or the project being halted by the EC.

## Scottish Government Consultees

## Historic Scotland

**Proposed Development**

I understand from the submitted information that the proposal consists of the erection of 7 no. wind turbines with associated works on land at Crostonhill Moor, approximately 3.75 km to the SW of Maybole. The proposed wind turbines will have a blade tip height of 132m.

**Our Views on the Principle of this Proposal**

We have concerns regarding the potential adverse impact of the proposed development on the setting of certain assets within our statutory remit. This relates in particular, to those listed below, under '*Potential Indirect Impacts'*. We would expect the Environmental Statement to contain a full appreciation of the setting of these heritage assets and a detailed assessment of likely impacts on their settings. In light of our concerns, we would appreciate consultation with the applicant as the proposal progresses.

**Potential Direct Impacts**

In this case we confirm that there are no assets within our statutory remit within the proposed site boundary.

**Potential Impacts on Setting**

A number of assets are located in the vicinity of the development proposal and should be assessed in any ES produced. In particular, the assessment should focus on:

*Scheduled Monuments*

- Hallowshean Camp, fort (Index no. 2194)
- Kildoon Fort (Index no. 2176)
- Crossraguel Abbey (Index no. 90087) (PIC)
- Drummochreen, house (Index no. 5387)
- Dalquharran Castle (Old Castle) (Index no. 316)

*Category A Listed Buildings*

- Crossraguel Abbey (PIC) (HB no. 7589)
- Dalquharran Castle (HB no. 125)
- Souter Johnnie's cottage (HB no. 7586)
- Baltersan Castle (HB no. 7588)  Dalquharran Castle (Ruin) (HB no. 1142)

- Drumburle (HB no. 1119)
- Kilkerran House (HB no. 1114)
- Bargany House (HB no. 1171)

*Gardens and Designed Landscapes*

- Culzean Castle
- Kilkerran
- Bargany

Any ES to be produced for this development should consider impacts upon these assets and any others in the wider area which may experience significant impacts. We would expect a detailed consideration of the significance of these assets and their setting in any ES.

We would request that photomontage and wire frame visualisations be produced to inform the assessment of potential impacts resulting from the proposed development (see detailed comments below). We would be keen to have sight of provisional visualisations before any planning application and ES are submitted and would be happy to comment on these.

**Crossraguel Abbey (Index no. 90087) (PIC)**

This monument's predominantly rural modern setting is similar to that when the abbey was first constructed and, despite the A77, this remains crucial to how it is appreciated and understood today. Turbines of the height proposed, within the northern part of the development area, could appear on the skyline when viewed from within the abbey complex, from the northeast along the main approach road, and/or from the upper floor of the gatehouse – which provides an excellent elevated position for viewing the abbey complex within its setting. The turbine layout and height should be carefully considered in the design process to avoid any impacts upon these views. Impacts on these sensitive views may be of a significance to warrant an objection from Historic Scotland. Wireframes and photomontages, showing cumulative impacts, from all three viewpoints should be provided to enable proper consideration of any visible elements of the proposed wind farm.

**Hallowshean Camp, Fort (Index no. 2194)**

This monument was deliberately placed where it would have wide, open views, particularly over the lower lying ground and routeways to the south and east. These turbines, especially if placed in the southwest of the development area, have the potential to become a dominant feature in the backdrop to these views, and thereby have a significant and detrimental impact upon the monument's setting. The design process should consider avoiding and/or mitigating any such impacts. A wireframe and photomontage should be provided from the eastern ramparts of the fort, looking towards the proposed wind farm and these visualisations should also include cumulative impacts.

**Kildoon, Fort (Index no. 2176)**

This monument was placed at the eastern end of a high ridgeline where it would dominate its surroundings and be provided with wide, outward views. These include sweeping views to the north, east and south, but extend westwards along the main access route and over the ridgeline. A wireframe and photomontage should be provided from the fort and include cumulative impacts.

**Dalquharran Castle (Old Castle) (Index no. 316)**

From the information provided, the potential impacts on this asset maybe of a lesser degree than for the three monuments listed above. However, the potential impacts should be considered further as the turbine layout is finalised, and visualisations provided where impacts are predicted to inform the conclusions reached.

**Culzean Castle (HB no. 7595) and GDL**

Culzean Castle (1777) by Robert Adam occupies a prominent, dramatic location on the cliff edge overlooking the sea. Together with the outstanding ornamental landscape on its estate, Culzean is a

masterpiece of the Picturesque movement. The Zone of Theoretical Visibility would appear to indicate that the turbines would not be visible from the castle. The assessment should provide confirmation of this and the potential impact of turbines on the castle's setting when viewed from the sea needs to be considered and assessed. The assessment should be accompanied by a wire frame visualisation taken from a point offshore from the castle to illustrate the potential view approaching the castle from the sea.

**Dalquharran Castle (HB no. 125)**

Designed by Robert Adam in 1782-5, the castle occupies an elevated site with commanding views of the Girvan valley as it narrows to the east of Dailly. Its south front is conspicuously designed to be a dominant feature in the wider landscape.

It is unlikely that turbines would be visible from Dalquharran Castle. They would however appear to have the potential to impact on the setting of the Castle when viewed from the south. When viewed from south of the Water of Girvan the proposed turbines would potentially be significant features in the landscape, occupying the hillside that rises behind the castle to the north west.

**Kilkerran House (HB no. 1114) and GDL**

Kilkerran House (1730), designed by James Smith with later 18th and 19th century additions, is a Classical 18th century mansion house in a landscape setting. From the entrance elevation the house looks out over parkland, then farmland, terminating on the hill ridge beyond. Turbines in the proposed development area would likely be visible from Kilkerran House. As such, we would request that a photomontage be taken from Kilkerran House to inform the assessment of impacts on the setting of this category A listed building and to assist with the consideration of potential mitigation measures. The photomontage produced should also present cumulative impacts with other wind farms and single turbines proposed or consented in the vicinity.

**Bargany House (HB no. 1171) and GDL**

Bargany is an outstanding designed landscape laid out by W.S. Gilpin, forming a spectacular setting for a category A listed house and making a major contribution to the local scenery. Bargany House stands at the edge of the woodland garden in parkland on the south bank of the Water of Girvan and views are gained from the south across the park. In order to reach a view on the impact of the proposed development on this Inventory site, it would be helpful to see a photomontage showing the view from the house across the park towards the proposed development.

Our website provides general information on a number of issues the applicant may find helpful. This includes our role in the Environmental Impact Assessment (EIA) process, advice about pre-application consultations and general recommendations about the Scoping and Environmental Statement stages. It also includes information on policy and guidance, with links to the *Scottish Planning Policy* (2010), the *Scottish Historic Environment Policy* (2011) and our *Managing Change* setting guidance. EIA frequently asked questions can be found at:
http://www.historic-scotland.gov.uk/index/heritage/policy/environmentalassessment/eiafaqs.htm

**Transport Scotland**

**Development Proposals**

We understand from the scoping report provided by the applicant that the proposed development is to erect approximately 7 wind turbines with a maximum tip height of 132m, along with an electrical substation and related infrastructure on land approximately 4km east of Kirkoswald and 3.75km south-west of Maybole in South Ayrshire. We also understand that the proposed development will have a generating capacity of approximately 18.2MW.

It is noted that the site sits to the south of the A77which is the closest trunk road to the site and the route that would provide strategic access for vehicles wishing to access the development.

**Access Strategy**

It is noted that very little information has been provided at this stage with regard to access, traffic and transport. It is understood that access to the proposed development site has not yet been established but from the plans submitted it would appear that access options are available from the local road network to the south of the A77. The local roads connect to the A77 trunk road just to the north of the site and as such both construction traffic and the delivery of turbine components would be via the A77 before accessing the site from the local road.

In these circumstances, Transport Scotland will require the development impact to be considered in some detail at the A77 trunk road. We would also ask that if any of the A77 / Local Road junctions are to be modified in any way, that detailed proposals are provided as part of the ES package of information.

We note that the proposed Port of Entry for turbine components is likely to be from the Port of Ayr. Traffic would exit the port and then route to site via the A77 southbound. We would recommend that a Route Assessment Report should be undertaken to ensure that abnormal loads can be transported safely to the site.

The report should include swept path analysis and also detail any accommodation measures required including the temporary removal of street furniture, junction widening, traffic management etc to show that the transportation of abnormal loads will not have any detrimental effect on structures within the route path.

**Assessments of Impacts**

With regard to the potential environmental impact of the development on receptors adjacent to the trunk road network, there are a number of issues which should be taken into consideration when assessing the merits of the site.

The Environmental Statement should provide more detailed information with regard to the construction stage including the preferred route options for the movement of heavy loads, and any anticipated construction staff movements via the trunk road network during the construction period along with an estimate of vehicle trip generation from the site and an indication of distribution / assignment of these trips.

In addition, information should be supplied identifying potential environmental impacts on the trunk road once the development is operational.

We note from the scoping report that the assessment of environmental effects of road traffic will be undertaken in accordance with the guidance set out within the Institute of Environmental Assessment (IEA) publication “Guidelines on the Environmental Assessment of Road Traffic (Guidance Note 1)”, 1993. The IEA guidelines generally advises that further assessment should be undertaken on:

- “Highway links where traffic flows will increase by more than 30% (or the number of HGV’s will increase by more than 30%); and

- Any specifically sensitive areas where the traffic flows have increased by 10% or more.”

Potential trunk road related environmental impacts such as noise, air quality, driver delay, pedestrian amenity, safety etc should be considered and assessed where appropriate (i.e. where IEA thresholds for further assessment are exceeded). In the case of the Environmental Statement the methods adopted to assess the likely traffic and transportation impacts on traffics flows and transportation infrastructure should comprise:

- Determination of the baseline traffic and transportation conditions, and the sensitivity of the site and existence of any receptors likely to be affected in proximity of the trunk road network;

- Review of the development proposals to determine the predicted construction and operational requirements; and

- Assessment of the significance of predicted impacts from these transport requirements, taking into account impact magnitude (before and after mitigation) and baseline environmental sensitivity.

We would also advise that useful guidance is also provided within Planning Advice Note 1/2013 on the EIA process and the preparation of Environmental Statements.

**Noise and Vibration**

Impacts to sensitive receptors associated with noise and vibration arising from the proposed development during the construction and operational phases should be considered.

Operational traffic noise and construction traffic noise should be assessed by considering the increase in traffic flows and following the principles of CRTN. Design Manual for Roads and Bridges (DMRB) Vol.11 states:

*"In the period following a change in traffic flow, people may find benefits or disbenefits when the noise changes are as small as 1dB(A) – equivalent to an increase in traffic flow of 25% or a decrease in traffic flow of 20%. These effects last for a number of years."*

PAN1/2011 advises that a change of 3dB(A) is the minimum perceptible under normal conditions, and a change of 10dB(A) corresponds roughly to halving or doubling the loudness of a sound.

Therefore, the Environmental Statement should consider potential impacts to identified trunk road receptors, in terms of:

- Predicted noise levels from construction traffic; and

- Any increases to road traffic attributed to the Proposed Development.

**Air Quality**

The scoping report seeks to scope out the effects of air quality. If this is to be scoped out of the ES, then the reasons should be documented in the final ES. Where a significant change in road traffic characteristics has been identified as a result of the proposed development, changes in air quality at a worst case sensitive receptor adjacent to the trunk road will require further assessment. The criteria considered to identify significant traffic changes with the potential to affect air quality are reproduced below.

The first criteria for identifying roads with a significant traffic change is the defined in the Environmental Protection UK "Development Control: Planning for Air Quality" publication:

**A change in annual average daily traffic (AADT) flows of more than 5% or 10% (depending on local circumstances) on a road with more than 10,000 Annual Average Daily Traffic (AADT).**

The second set of criteria is taken from the Design Manual for Roads and Bridges Air Quality Screening Criteria:

- Road alignment will change by 5m or more; or
- Daily traffic flows will change by 1,000 AADT or more; or
- Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more; or
- Daily average speed will change by 10 kilometres per hour (km/hr) or more; or
- Peak hour speed will change by 20 km/hr or more.

In the assessment, a conservative approach should be utilised and traffic changes screened against both sets of criteria; if a road link triggers any of the criteria it should be assessed further. Where significant changes in traffic are not noted for any link, no further assessment need be undertaken.

## Scottish Water

A review of our records indicates that there are no Scottish Water, water abstraction sources, which are designated as Drinking Water Protected Areas under the Water Framework Directive, that may be affected by the proposed development within the site boundary or immediate vicinity. Scottish Water no longer abstract from Craigdow Loch, Loch Spouts Reservoir or Glenside Reservoir.

## Non Statutory Consultees

## Forestry Commission

In Section 4.2 Forestry Commission Scotland (FCS) is not listed as a body who will be consulted, despite that fact that approximately one third of the site is comprised of woodland. I assume this is an oversight on the part of the developer and would wish to see that amended.

I note that the developer has identified that an assessment on forestry matters will be included within the ES. I welcome this, but note that no further detail is included in the scoping report on the approach which will be used. In that regard, I would recommend that the developer refers to the Scottish Governments Energy Consents Unit guidance on this as a template to structure the format of this section. The link to this document is here, and the relevant section is 9.4.

http://www.scotland.gov.uk/Resource/0039/00392174.pdf

I would welcome early engagement with the developer, or their agent, in respect to this forestry section of the ES as it is being drafted.

## NATS

NATS have a policy of early engagement with developers, particularly in the area of wind turbines and wind farm developments. Since NATS is processing an unsustainable number of scoping opinion requests received from developers and Local Planning Authorities (LPAs), the decision has been made to provide some clarification on this matter.

NATS have offered pre-planning services to developers since 2005, however, in 2010, it revised and launched its pre-planning consultancy service. This provides an early, yet formal indication to developers of the anticipated impact of their proposed development upon NATS' infrastructure. The service subsequently allows developers and applicants to engage in dialogue with NATS in order to identify and discuss any potential mitigation. This allows identified solutions to be discussed and potentially agreed, at an early stage, *before the formal planning process*.

In order to promote a consistent nationwide approach, NATS has determined that all pre-planning enquiries and scoping opinion requests received from planning authorities or directly from applicants should be treated in the same manner. To this end we provide two options: our free self-assessment maps, and the chargeable pre-planning application.

As such we kindly request that developers and applicants use either of these tools to determine whether an impact on the NATS infrastructure is anticipated or not.

If your request is for scoping, we advise you to use our self assessment maps to determine whether a planned application is likely to have an impact. Instructions for using our maps are included below. Should a planned application fall within an area of radar coverage or other safeguarded zone, our advice would be to undertake our pre-planning assessment in order to engage with us early. Should an application fall outside the radar or other safeguarded zone, it is unlikely that NATS would object during the planning process.

**Please note that NATS will continue to meet its statutory obligations and comment on all formal planning applications received by local planning authorities.**

## Instructions for the use of NATS self assessment maps.

To ascertain whether your development is likely to have an impact or not, you will need to use our self-assessment maps. You will also require a GIS/mapping package to plot your turbines (ARCGIS etc or GOOGLE "Forestry GIS" (fGIS™) which is freeware). All turbine heights are tip heights.

- You should be able to visualise your turbine(s) position(s) on the GIS map. For most packages you can create a text file with the NGR Eastings and Northings, to plot the turbine position.

- Download our self assessment maps free from our website.

- Add the relevant map for the turbine height to the GIS map, i.e. the height equal to the turbine height, or just below it if the exact height is not listed. e.g. 60m map for a 60m turbine, 40m map for a 50m turbine, 80m map for a 90m turbine etc.

- You should now be able to see both the radar coverage map AND the turbine position.

- You can now determine whether your turbine is visible to radar. Ideally a radar will not cover the turbine's position at all, or coverage will be at heights greater than the turbine height.

*For example, if you have a 60m turbine, ideally the radar will not cover that area at 60m. i.e. although there may be cover over that position at 100m and 80m, when selecting the 60m map, the cover is reduced leaving the turbine outside radar cover. Conversely if you have a 100m turbine, and the radar can see down to 100m over the turbine location, that turbine is visible to radar.*

By using the different maps, you should then be able to look at radar cover in different areas at different heights. This can be a useful tool for assessing a specific area and in some cases can be used to determine which positions are more likely to be an issue than others. It can also be used to determine a maximum acceptable turbine height.

*e.g a potential location is visible to radar at 120m and 100m but not 80m hence a 120m and a 100m turbine would be visible to radar (possible objection) whereas an 80m turbine would be acceptable.*

Once you've assessed your turbine location against primary radar cover, the same must be done for secondary radar (SSR), navigation aids and radio stations by downloading and adding the SSR, AGA and NAV maps. These have 15km/15nm circles representing safeguarded areas for these assets. When you have carried out your self-assessment, you will have determined whether your proposed turbine(s) falls in an SSR/NAV/AGA safeguarded or radar cover area:

If the turbine is outside all these areas, it is unlikely that NATS would object as there should be no technical impact.

If your proposed development is within a safeguarded or radar cover area, while this does not automatically mean an objection, it is recommended that you take out our pre-planning assessment whereby NATS undertakes further studies and provides you with a formal statement on the turbine's impact.

More generic information can be found on our website together with the details of our pre-planning assessment.

## Ministry of Defence

The principal safeguarding concerns of the MOD with respect to the development of wind turbines relate to their potential to create a physical obstruction to air traffic movements, and cause interference to air traffic control and air defence radar installations.

### Air Traffic Control (ATC) Radar & Range Control Radar

Where wind turbines are visible to ATC radars they have been shown to have detrimental effects on radar performance. These effects include the desensitisation of radar in the vicinity of the turbines,

and the creation of "false" aircraft returns which air traffic controllers must treat as real. The desensitisation of radar could result in aircraft not being detected by the radar and therefore not presented to air traffic controllers. Controllers use the radar to separate and sequence both military and civilian aircraft, and in busy uncontrolled airspace radar is the only sure way to do this safely. Maintaining situational awareness of all aircraft movements within the airspace is crucial to achieving a safe and efficient air traffic service, and the integrity of radar data is central to this process. The creation of "false" aircraft displayed on the radar leads to increased workload for both controllers and aircrews, and may have a significant operational impact. Furthermore, real aircraft returns can be obscured by the turbine's radar returns, making the tracking of conflicting unknown aircraft (the controllers' own traffic) much more difficult.

**Precision Approach Radar (PAR)**

The MOD's PAR is a very accurate radar used by air traffic controllers to guide aircraft down in inclement weather (although the procedure is practised in all weather conditions). The accuracy and integrity of this radar is critical as air traffic controllers must control the aircraft in descent and very close to the ground. Wind turbines constructed in line of sight of the PAR can cause localised "track seduction", leading to aircraft disappearing from the radar. A further possible effect is the overload of the radar's processor, in that wind turbines generate "false plots" which use up processing ability. Once its threshold is reached the radar may be unable to detect smaller targets, which are likely to be aircraft in head-on profile. Technical aspects of the PAR are covered by international arms traffic regulations, and therefore cannot be released by the MOD, but on these grounds the MOD will object to any wind turbine constructed within the PAR's coverage.

**Air Defence (AD) radar**

Trials carried out in 2005 concluded that wind turbines can have detrimental effects on the operation of radar which include the desensitisation of radar in the vicinity of the turbines, and the creation of "false" aircraft returns. The probability of the radar detecting aircraft flying over or in the vicinity of the turbines would be reduced, and the RAF would be unable to provide a full air surveillance service in the area of the proposed wind farm.

**Secondary Surveillance Radar (SSR)**

SSR relies on co-operative transmission from aircraft carrying equipment known as transponders. For this reason confusion between returns from aircraft and from other objects is highly unlikely and many of the effects caused to normal radars will not occur. However reflection of transmissions could be caused by wind turbines particularly if they are in close proximity to an SSR site. In this eventuality misidentification or mislocation of aircraft could occur. This could have potential flight safety implications.

**Meteorological Office radar**

Wind turbines can interfere with Met Office Radars in similar ways to Air Traffic Control Radars as detailed above and impair their ability to detect weather phenomena.

**Low Flying**

The whole of the UK may be used for military low flying operations. The proliferation of obstacles is not only a safety hazard but also severely impacts on its utilisation for essential low flying training.

The MOD will often request that turbines be fitted with aviation warning lights.

**Area Air Traffic Control (ATC) radar**

There are 12 National Air Traffic Services (NATS) radars under contract to provide the MOD with airspace monitoring services throughout the UK.

**Physical Safeguarding**

Turbines constructed within statutory safeguarding zones have the potential to cause physical obstructions which could interfere with the safe operation of defence assets.

**Eskdalemuir Seismological Recording Station**

This might be applicable to development in the North of England or the South of Scotland.

Following research jointly commissioned by DTI (now the Department of Business, Innovation and Skills), BWEA (now RenewableUK) and MOD, it has been confirmed that wind turbines of current design generate seismic noise which can interfere with the operational functionality of the array. In order to ensure the UK complies with the Comprehensive Nuclear-Test-Ban Treaty, a noise budget based on the findings of the research has been allocated to a Safeguarding Zone around the array. At present the reserved noise budget has been reached, so the MOD must object to further applications if they are not accompanied by a MOD approved mitigation scheme.

The allocated noise can alter on a regular basis as new schemes reach planning and others do not obtain consent. We recommend you contact us regularly to ascertain current allocation levels. Any schemes to which the MOD does not object, which subsequently do not gain planning consent, will have their noise quota added back to the available noise budget.

Calculations are based on current turbine designs. If future technological solutions can be applied to turbines and be scientifically proven to reduce or remove the noise generated, the MOD will reassess its policies.

**Threat Radar**

This might be applicable to development in the North of England or the South of Scotland.

RAF Spadeadam, in north Cumbria, is home to an Electronic Warfare Tactical Range which provides vital training, using threat radars and targets, to prepare aircrews for operations which they are likely to face in contemporary warfare. This type of military flight training activity is conducted in air space extending across northern England and Southern Scotland interacting with Threat Radar sites which are scattered across the same region. In 2010 MOD conducted a trial that concluded that threat radar systems were subject to degradation from wind turbines.

**Long Range Very Low Frequency (VLF) Transmitters**

This might be applicable for developments in the vicinity of Carlisle and Penrith.

VLF radio is a very specialised area of electronics, and the effects of wind turbines have been subject to only limited scientific study. However, there are a number of known means by which wind turbines can adversely affect the characteristics of VLF transmission. It is probable that turbine constructed in the vicinity of an VLF transmitter would have a discernable adverse impact on transmission through one of these means. The MOD is currently undertaking various studies to further understand the effects of wind turbines on VLF transmission.

Planning guidance establishes that wind energy developers should assess the affects of their proposed development upon aviation and defence interests and that they should engage in dialogue with the MOD at an early stage to identify concerns and potential mitigation to support of their application.

Accordingly the applicant should take account of MOD aviation and radar operations in completing the EIA particularly in identifying a suitable site for development and the dimensions of the turbines that are to be installed.

We therefore ask that the MOD be consulted about all wind turbine developments with a height of 11m or more or a rotor diameter of 2m or more by the developer at the earliest possible time in the development process in accordance with “Wind Energy & Aviation Interests Interim Guidelines”. http://www.bwea.com/pdf/Wind-Energy-and-aviation-interim-guidelines.pdf . This is so that the

development can be fully assessed and any MOD concerns be made known to the developer at an early stage of the development process.

We also ask that MOD be consulted by Consenting Authorities regarding all applications for wind turbine developments with a height of 11m or more or a rotor diameter of 2m or more so we can ensure that our concerns are taken into account in the decision making process.

In order to assess a proposed development, we need the following information:

1. Accurate grid coordinates for each turbine to the nearest metre,
2. The height of the turbines to blade tip, hub height and rotor diameter,
3. The number of rotor blades,
4. The wind farm generation capacity,
5. The number of turbines

MOD Safeguarding wishes to be consulted and notified about the progress of planning applications and submissions relating to this proposal to verify that it will not adversely affect defence interests.

I hope this adequately explains our position on the matter. If you require further information or would like to discuss this matter further please do not hesitate to contact me.

Further information about the effects of wind turbines on MOD interests can be obtained from the following websites:

***MOD*:** http://www.mod.uk/DefenceInternet/MicroSite/DIO/WhatWeDo/Operations/ModSafeguarding.htm

## Civil Aviation Authority

Having reviewed the Scoping Report for the proposed Crostonhill Moor Wind Farm, the Civil Aviation Authority confirms appropriate aviation consultees have been identified. However, the official position of all aviation stakeholders regarding the proposed development should be established. The report correctly discusses the potential impact that wind turbines have on the communications, navigation and surveillance infrastructure and also that turbines can cause a physical obstruction to aviation stakeholders which should be taken into account.

I offer the following further information with regards to the Scoping Request:

Scoping Opinion

When considering aviation effects, there are typically two aspects to consider; obstacles and electromagnetic impact including radar. Different aviation stake holders will be affected in different ways. Applicants should be made aware that several consultees act on a national basis and, therefore, leaving consultations until just before an application is submitted negates the purpose of the scoping process and will lead to delays.

Sometimes a developer or agent will claim that due to a development's small size, aviation is not an issue. This is not necessarily the case; indeed to date no evidence has been supplied to substantiate these claims and, for example, there are a number of instances where small wind turbines are detected by radar. Research is being undertaken to identify whether there is a set of dimensions and materials that would have no substantial impact.

Identifying Statutory Consultees

Both NATS (which provides En Route Air Traffic Control) and the Ministry of Defence (MoD) are statutory consultees under the Town and Country Planning Act. The impact on their infrastructure should be assessed within the Environmental Impact Assessment. The MoD currently provide a free service although demand is high leading to the need to allow sufficient time to respond, although this should be well within the timescales of other consultation requirements such as ecological or noise surveys. NATS provide a number of paid-for services and free self-assessment tools details of which can be found on their website. Both of these organisations need to be consulted in **all** cases.

There are also a number of officially safeguarded aerodromes which are defined in government circulars (listed at the end of this guidance). These may offer pre-planning services for which there may be a charge. Such aerodromes should have lodged safeguarding maps with LPA identifying the areas in which they need to be consulted. Due to the nature of their operations these areas may be in excess of 50km from the aerodrome.

Local Planning Authorities and applicants must note that if an objection is raised by any of the above, and consent is granted there is a possibility that the decision will be subject to 'call-in' by the Secretary of State or Scottish Ministers.

Identifying Non statutory Consultees

In addition to officially safeguarded Aerodromes there are several hundred other aerodromes in the United Kingdom. These may be Licensed or Unlicensed by the CAA. Associated Aerodrome Licence Holders or operators may have registered safeguarding maps with their LPAs. To verify the presence of aerodromes known to the CAA in any particular area, it is recommended that an aeronautical chart is purchased and the site of the turbine checked to see if it falls within the range of an aerodrome using the distances recommended in CAP 764. It is also recommended that Emergency Service Helicopter Support Units are consulted as they may operate in the area of concern and be affected by the introduction of tall obstacles. For example Police helicopters are permitted to operate down to 75 feet and will routinely follow main roads and motorways during their operations. Both the Police and Air Ambulance may need to land anywhere and will also have specifically designated landing sites.

Consideration of Electromagnetic Effects Including Radar and Radio Impacts

Almost uniquely among land developments wind turbines can be interpreted as moving objects by Air Traffic Control Radar. This can lead to impacts such as increased workload for Air Traffic Controllers, misidentification of tracks or loss of a genuine aircraft track, any of which could have safety implications. It is for this reason that consultation with the statutory consultees is essential in determining whether there is an operational impact on the radar system and if so, whether a mitigation can be agreed.

There may also be impacts upon other radio systems such as Air Ground Air communications and radio navigation beacons.

Consideration of Obstacle Aspects

As wind turbines are tall structures they can become obstacles to aviation. When in the vicinity of an aerodrome this will be assessed by the aerodrome itself. Away from an aerodrome the CAA will assess whether a wind turbine is an obstacle. The key blade tip heights to consider for developments away from an aerodrome are:

- 91.4 metres as there is an international requirement for all obstacles of 300 feet or more in height to be marked on aeronautical charts and listed in the UK Aeronautical Information Publication. This assists pilots to safely plan their flights to take into consideration the locations of tall obstacles. The national database of aeronautical obstacles is maintained by the Defence Geographic Centre.

- 150 metres at which the display of medium intensity aviation warning lights becomes mandatory as specified in Article 219 of the Air Navigation Order. There may also a requirement that the turbine is appropriately marked which would require the upper 2/3 of the turbine to be painted white. NB. Like any structure a wind turbine less than 150m in height might need to be lit / marked if, by virtue of their location and nature, it is considered a significant navigational hazard. If asked for comment, it would be unlikely that the CAA would have any issues associated with an aviation stakeholder (eg a local aerodrome operator or airspace operator) request for lighting / marking of any structure that was considered to be a significant hazard to air navigation.

There may be areas where the CAA will consider turbines of lower heights to be obstacles due to a combination of complex airspace with a low base and high terrain. Currently these areas of special

consideration include the Manchester Low level Route and the Scottish Terminal Manoeuvring Area. Other areas may be included as wind turbines proliferate and the design of airspace changes.

Useful Resources for Potential Applicants

| | |
|---|---|
| CAA Wind Energy web pages | www.caa.co.uk/windfarms |
| CAA Policy and guidelines on wind turbines | www.caa.co.uk/docs/33/Cap764.pdf |
| Air Navigation Order | http://www.legislation.gov.uk/uksi/2009/3015/contents/made |
| List of Stockists of Aeronautical Charts | http://www.nats-uk.ead-it.com/public/index.php%3Foption=com_content&task=blogcategory&id=235&Itemid=355.html |
| Interim Guidelines for the wind industry. (Note: only the MoD is offering a pre planning service) | http://www.bwea.com/pdf/Wind-Energy-and-aviation-interim-guidelines.pdf |
| DECC Renewable Energy Statistics project (for aviation safeguarding data) | https://restats.decc.gov.uk/cms/aviation-safeguarding-maps/ |
| NATS Ltd Radar Coverage Maps | http://www.nats.co.uk/just-for-you/windfarm-developers/ |
| ODPM Government Circular 1/2003 | http://www.dft.gov.uk/pgr/aviation/safety/safeguarding/safeguardingaerodromestechni2988 |
| Annex 3 (list of officially safeguarded aerodromes) | http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/pgr/aviation/safety/safeguarding/coll_safeguardingaerodromestechn/atedannex3todftcircular12003.pdf |
| Scottish Government Circular 2/2003 | http://www.scotland.gov.uk/Publications/2003/01/16204/17030 |
| Ministry of Defence safeguarding | http://www.mod.uk/DefenceInternet/MicroSite/DE/WhatWeDo/Operations/ModSafeguarding.htm |
| Environmental Impact Regulations | http://www.legislation.gov.uk/uksi/1999/293/made |
| DAP Policy: Lighting of En-Route Obstacles and Onshore Wind Turbines | http://www.caa.co.uk/application.aspx?catid=33&pagetype=65&appid=11&mode=detail&id=4494 |

## Glasgow Prestwick Airport

We have now reviewed the turbine co-ordinates and the terrain shielding is extremely marginal. Therefore there is the possibility that the turbines will be detected by our primary radar and display as clutter on the Air Traffic Control radar display.

As they are located in airspace we consider critical to our air traffic control service Glasgow Prestwick Airport would object to this development.

We have also reviewed a smaller turbine in this area (80m to tip) and the terrain shielding is still marginal, we are not convinced that even at this height the turbines will not be detected.

## Ayrshire Rivers Trust

No major concerns for this wind farm development as it does not impact any water courses, which we regard as important to salmonids and spawning.

## RSPB

Thank you for consulting RSPB Scotland on the scoping report for the proposed Crostonhill Moor windfarm. This development is proposed to be located in site compromising non-native plantation forestry and grazing land and we are not aware of any features of significant conservation value that are likely to be directly affected by a development at this site.

However, the results of ecological and ornithological surveys will be required to inform the assessment of impacts and the cumulative impact of developments within this area requires consideration.

In general, the scoping report proposes appropriate surveys and assessment for the impacts of the development on ecological and ornithological features although SNH guidance relating to windfarms and bird survey work has recently been revised and the applicant must ensure that all surveys comply with this guidance ('Recommended bird survey methods to inform impact assessment of onshore wind farms' -August 2013).

We offer the following additional comments on the most significant issues that should be considered as part of the Environmental Impact Assessment.

**Ecology and Nature Conservation**

We note that peat depth surveys are proposed if the habitat assessment records peat based habitat and we support this. Areas of peat based habitats should be avoided through site design.

The site is adjacent to Craigdow Loch and ornithological survey work should ensure that use of the loch and nearby waterbodies is assessed.

In general, ornithological surveys should comply with the latest SNH guidance, which has recently been revised.

**Mitigation and Enhancement**

We welcome the commitment to consider the requirement for mitigation measures within the ES but we also hope that opportunities for positive habitat enhancement will be considered as part of a habitat management plan for the site. In particular there may be opportunities arising from any felling of plantation forestry.

## South Ayrshire Council Internal Consultees

## Environmental Health

The scoping report submitted by the RES propose to cover all aspects of the construction and operational noise impact of the proposed wind farm in addition to the potential for shadow flicker on nearby dwellings and therefore meet with the requirements of Environmental Health.

## Roads

This response provides comments on the Scoping Report submitted by Renewable Energy Systems (RES) Ltd, and how the information contained within this report relates to transportation impacts of the proposed development scheme.

**Summary of Proposals**

We note that the proposals are for a wind farm of approximately 7 turbines (up to a max 132m to tip height) at a site located approximately 3.75km to the south-west of Maybole, approximately 4km to the north of Dailly and approximately 4km east of Kirkoswald, and that at this early stage the site layout is indicative and therefore subject to change.

It is acknowledged that the provision of feedback on the Scoping Report is intended to inform the required contents of any subsequent Environmental Impact Assessment (EIA) process.

**Proposed Access Route**

We note that the access route to the site is yet to be confirmed, and await clarification on the intended route.

As the proposed access route will involve use of the A77 which forms part of the Trunk Road network in Scotland, we would suggest that Transport Scotland should be included within the consultation process of this proposal.

**Swept Path Analysis**

The EIA should include a set of vehicle swept path drawings demonstrating that the largest vehicle anticipated to be using the construction route can safely negotiate all junctions falling within public road limits along the route.

**Traffic Impact**

The impacts of construction traffic levels on the access route should be examined in order to establish if a full route assessment (as per the IEMA Guidance) is required. This should be undertaken within the EIA, and shall require the following:

- The establishing of traffic levels on the proposed construction traffic route in order to demonstrate an appreciation of Base conditions;
- The investigation of suitable growth estimates for projecting traffic flows forward to the proposed year of construction (if different from survey year);
- A comprehensive breakdown of the predicted number of trips to the proposed development site during the construction phase of the wind farm. This information should be fully classified by vehicle type and cover total construction trips for the entire project, as well as average vehicles per month and average per day;
- Investigation of the predicted scale of impact that construction trips will have on the proposed construction traffic route;
- A comprehensive breakdown of anticipated levels of operational traffic, and associated traffic impact implications should also be considered within the EIA.

The Scoping Report suggests that a Transport Management Plan (TMP) will be prepared and agreed in consultation with the Council prior to commencement on site. While we acknowledge that the use of appropriate conditions (such as the implementation of a section 96 agreement) and the adoption of a TMP will help mitigate impacts associated with the construction of the proposed development, we require a traffic impact investigation as part of the EIA. The results of the impact assessment can then be used to consider the most appropriate conditions and/ or management planning in order to minimise the impacts that the construction phase of the development would have on the South Ayrshire road network.

**Cumulative Impact**

There are currently several live wind farm development applications within South Ayrshire Council at various stages of the planning consultation process. In addition to examining the impact that construction trips will have on the strategic/ local road network, we will also require the EIA to investigate the effects of cumulative impact where overlapping construction periods and common sections of access routes are found to occur.

Confirmation on both the construction traffic route (currently unspecified) and planned construction period would be required in order to ascertain which (if any) other wind farm applications should be included in a cumulative impact assessment.

**Decommissioning**

We require that the EIA provides details on decommissioning of the site at the end of the wind farm's 25 year life cycle.

**Conclusion**

A review of the Scoping Report submitted by Renewable Energy Systems (RES) Ltd in support of a proposed 7 turbine wind farm located on a site approximately 3.75km to the south-west of Maybole, approximately 4km to the north of Dailly and approximately 4km east of Kirkoswald in South Ayrshire, has been undertaken by SAC Transportation.

Further to this review, we require that the following Traffic and Transportation elements are presented within the EIA Report:

- Construction vehicle swept path analysis;
- Traffic flow data of construction route to establish base conditions;
- A breakdown of construction trips by vehicle classification and numbers;
- Assessment of the impact of construction traffic on the construction traffic route;
- A breakdown of operational trips by vehicle classification and numbers;
- Assessment of cumulative impact of other wind farm developments (if appropriate); and
- Clarification on decommissioning of the site at the end of its life cycle.

We trust that the information contained within this response clarifies the position of SAC Transportation in relation to the Scoping Report submitted in support of the proposed Crostonhill Moor wind farm development. Should you require clarification or additional information on any aspect of this response, please do not hesitate to contact me.

## WoSAS (as the Council's archaeology consultant)

The methodology that will be used to assess the effect of the proposal on archaeology and cultural heritage is set out in sections 7.70 – 7.90 of the scoping document. In relation to this, section 7.71 states that a cultural heritage appraisal was undertaken as part of a feasibility study, and that the results of this was used to inform initial design proposals. The scoping document indicates that this appraisal was based on existing records of known heritage within the site boundary, as identified in the NMRS, and digital datasets for designated assets within 5km of this boundary, downloaded from Historic Scotland. It explicitly states that the appraisal did not include a comprehensive desk-based assessment, and nor was any form of consultation undertaken with Historic Scotland, WoSAS (as archaeological advisors to South Ayrshire Council), or the Council's Conservation Officer, though this will be carried out during the course of the assessment. I am pleased to see that this is the case, as I would not regard the work conducted to date as being sufficient to provide an adequate picture of the archaeological baseline or the possible impact of the proposed development upon it.

Section 7.73 states that two undesignated archaeological sites have been identified from within the boundaries of the proposed development area, these being a building shown on the 1st edition Ordnance Survey map in the area now occupied by the Altiwan Plantation, and a wind-pump recorded from the area to the west of Middleridge Farm, and I would agree that this accords with information contained in the Historic Environment Record (HER). While it is acknowledged that a full desk-based assessment of the area has still to be completed, I would note that the 1st edition also demonstrates the presence of a number of other settlements within the prospective development area during the mid 19th century. Roofed buildings were shown at Leffinhead (NGR 227242, 607127), Moorhead (NGR 227594, 606802), Lochhead (NGR 226502, 606327) and Lochderry (NGR 226133, 605527), suggesting that the area was more densely occupied during this period. However, comparison with Roy's Military Survey of Scotland, conducted in the period 1747-55, suggests that the majority of

these settlements may post-date the period of widespread agricultural improvement in the later 18th and 19th centuries.

Paragraph 7.74 states that there are thirteen Scheduled Monuments (including two which are Properties in Care), three Inventory Designed Landscapes, three Conservation Areas and one hundred and four Listed Buildings (including twenty-two Category A, forty-two Category B and forty Category C) within 5km of the site boundary. I would generally agree that these figures appear to be correct, though I would note that the HER identifies one hundred and fifty-five listed buildings within this distance – however, this apparent discrepancy is likely to be due to cases where one listing encompasses a number of individual structures. I would, however, have some reservations that the 5km buffer used in the initial appraisal may not be sufficiently large to identify all heritage features that would potentially be affected by construction of the proposed wind farm.

Having provided a general summary of the results of the initial appraisal, section 7.79 lists the various policy and guidance documents against which the proposal will be assessed, and I would agree that this list appears to be appropriate. The methodology that will be adopted to assess the impact of the proposed windfarm is set out in sections 7.80 – 7.86. This states that all cultural heritage sites, including undesignated archaeological features, will be assessed for operational effects both within the site and up to 2km from its boundaries. I would agree that this is likely to be appropriate. I would also agree with the proposal that undesignated sites of potentially national importance recorded from within 5km of the application boundary and as identified in our HER should be included among the category of monument assessment for operational effects, and I am pleased to see that consideration will be given to the impact of the wind farm on the setting of certain classes of feature beyond the 5km study area.

Section 7.83 lists the range of sources that will be consulted as part of the desk-based phase of the assessment process. This appears to generally replicate the range of sources that we would expect to be consulted in an assessment of this type, and I would therefore consider that it is likely to be appropriate.

Section 7.84 states that a walkover survey of the development site will be carried out by a suitably qualified and experienced archaeologist, covering all areas of open ground within the site boundary. The forestry plantations in the centre of the site would be specifically excluded from this, and instead, the potential for unknown heritage assets in areas of forestry would be addressed by a post-felling walkover survey, targeting the footprint of the development, to be carried out as part of a programme of works under a planning condition. While I am aware of the difficulties in undertaking a walkover survey in areas that are under dense conifer plantation, the methodology proposed would mean that the Council would have to determine whether to grant planning consent on the basis of an incomplete picture of the archaeological baseline. Moreover, as any features within this section of the site would not be identified until after consent had been granted, it is more likely that they would be removed by the development, as there would be less scope post-consent to alter the layout of the wind farm or its associated infrastructure to allow their preservation *in situ*.

In terms of assessing the impact of the proposal on the setting of cultural heritage features, section 7.85 states that assets with the potential to be affected in this way will be visited to establish baseline conditions. I would agree that this would be necessary, in order to allow an assessment of the extent to which the setting of the feature would be changed by the introduction of the turbines. I would suggest that this should include consideration both of the archaeological setting of the features, as well as their more general landscape setting and the extent to which this would be changed should turbines be constructed. I would also note that consideration of indirect setting impacts should not be restricted solely to designated features; National planning policies relating to the treatment of archaeology and the planning process make it clear that *'Government policy is to protect and preserve archaeological sites and monuments, and their settings, in situ wherever feasible'* (Planning Advice Note 2/2011, paragraph 4) and that *'when determining a planning application, the desirability of preserving a monument (whether scheduled or not) and its setting is a material consideration'* (PAN 2/2011, paragraph 14).

The cultural heritage section of the scoping document does not include any details of locations for

which visualisations may be provided. While I am aware that a list of general viewpoints is identified in the paragraph 7.35 of the Landscape and Visual Assessment section, none of these appear to have been selected with specific reference to illustrating the possible effect of the proposal on the setting of heritage features. Although I would anticipate that the selection of these viewpoints will be developed during the assessment process, I would specifically suggest that visualisations should be provided illustrating the extent to which the settings of the scheduled forts at Hollowshean and Kildoon Hill would be altered by construction of the proposed turbines. In addition, it is also likely to be necessary to assess the effect of the proposal on Crossraguel Abbey. Although the ZTV map supplied in the scoping document suggests that the turbines may not be visible from ground level within the Abbey complex, consideration should be given to the fact that it is possible to access the former gatehouse, providing a viewpoint at a higher level. This increase in elevation may mean that the wind farm would be visible from the Abbey. These three viewpoints should not be regarded as exclusive, however, as it is likely to be necessary to illustrate the effect of the proposal on other heritage features.

The potential effects of construction of the wind farm are set out in sections 7.87 and 7.88, and I would in general agree with the possible impacts identified in these paragraphs. I would also agree that the cumulative effect of the development in conjunction with planned or committed development in the surrounding area should also be assessed. Possible mitigation measures are set out in paragraph 7.90, which states that mitigation of identified physical effects is likely to include preservation *in situ* as far as reasonably practicable, and preservation by record where this is not possible. I would stress that preservation *in situ* should be the preferred approach, in line with both national and local planning policies, and would reiterate my concern that only surveying the section of the site that is currently forested after consent has been granted limits the opportunity for this approach to be employed. Section 7.90 also states that setting effects will be avoided or reduced where possible through design, and while I would agree with this, it should also be noted that there may be situations where it is not possible to reduce the visibility of proposed turbines to a level at which they accord with planning policies, and that when this is the case, the Council may decide to refuse planning consent.

The final point I would make is to note that we were contacted in July of this year by Paul Masser of Headland Archaeology, who requested a digital extract for a search area extending 5km from the boundary of the prospective development. This was provided on the 23rd of July, indicating that the assessment process is already under way in accordance with the methodology set out in the scoping document. It is worth noting, however, that although various datasets were supplied at that time, no comments were requested or made in relation to potential viewpoints or the likely scope of any mitigation measures that may be required.