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1. Introduction

This Non-Technical Summary (NTS) forms part of the Environmental Statement (ES) that has been prepared by AMEC Environment & Infrastructure UK Ltd (AMEC) on behalf of E.ON Climate and Renewables UK Developments Ltd (hereinafter referred to as E.ON) to accompany an application made to Scottish Ministers for their consent under Section 36 of the Electricity Act 1989 and for a direction that planning permission be deemed granted under the Town and Country Planning (S) Act 1997 for the proposed Benbrack Wind Farm (The “Proposed Development”). The Proposed Development would be built on moorland located between the settlements of Carsphairn and Dalmellington, to the east of the A713 (herein referred to as the “Development Site”).

Those interested in obtaining more detail about the environmental aspects of this proposal should consult the main ES which presents the findings of the Environmental Impact Assessment (EIA), and which accompanies the planning application to erect 18 wind turbines and ancillary infrastructure, including access tracks and a control building. A hard copy of the ES has been placed on deposit at the following addresses for examination by members of the public during normal opening hours:

<table>
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<tr>
<th>Dalmellington Community Library, Townhead, Dalmellington, KA6 7QZ</th>
<th>Dalmellington Area Centre, 33 Main Street, Ayr, KA6 7QL</th>
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<tr>
<td>Dalry Registration Office, Main Street, St John’s Town of Dalry, Castle Douglas, DG7 3UP</td>
<td>Dumfries &amp; Galloway Planning Office, Dumfries &amp; Galloway Council, Kirkbank House, English Street, Dumfries, DG1 2HS.</td>
</tr>
</tbody>
</table>

The ES can also be viewed at the Scottish Government Library at Victoria Quay, Edinburgh, EH6 6QQ.

Further copies of this NTS may be obtained free of charge from the following website or address:


E.ON, i2 Office, Exchange Place, 5 Semple Street, Edinburgh, EH3 8BL

Similarly copies of the full Environmental Statement (including figures and appendices) can obtained be at a cost of £200 + P&P for paper copies and £5 for CD copies from the same
location or can be downloaded from our website at http://www.eonenergy.com/About-eon/our-company/generation/planning-for-the-future/wind/onshore/benbrack

Any comments on the proposals or findings of this assessment should be directed in writing to Stephen McFadden, Planning Officer at Energy Consents and Deployment Unit of the Scottish Government (ECDU) at the address noted below, identifying that the correspondence refers to the proposed Benbrack Wind Farm and specifying the grounds for representation.

Scottish Government,
ECDU,
4th Floor,
5 Atlantic Quay,
150 Broomielaw,
Glasgow,
G2 8LU
2. Background

Interest in renewable energy production (such as that produced by a wind farm) has arisen in response to growing concern about the rise in atmospheric levels of carbon dioxide (CO₂) and other greenhouse gases, and the changes in the global climate that this could be causing. Burning of fossil fuels (oil, coal and gas) is a major contributor to greenhouse gas emissions and reducing their use and increasing the proportion of power generated from renewable energy sources is seen as a vital part of reducing these emissions, notwithstanding that increasing energy efficiency also has a vital role to play in this process.

In order to meet international obligations, the UK government is committed to reducing greenhouse gas emissions in an effort to reduce the level of future climate change. It is expected by the UK Government that a significant proportion of the power generation capacity required to replace fossil fuel generation will come in the short term from onshore wind generation. As the UK has one of the windiest climates in Europe, it has great potential to generate electricity from wind power, and, if constructed, the Proposed Development would contribute towards renewable generation capacity.

E.ON is one of the world’s largest power and gas companies. In the UK, E.ON supplies energy to more than 5 million customers and generates enough electricity for around 8 million homes. E.ON Climate & Renewables (EC&R) was set up in 2007 as a global business that’s responsible for developing, constructing and operating all E.ON’s renewable energy projects.

In the UK, E.ON focuses on developing onshore and offshore wind and biomass technologies and they currently own and operate 20 onshore and 3 offshore wind farms and 2 dedicated biomass plants.

The EIA has been managed by AMEC who also coordinated production of the Benbrack Wind Farm ES. AMEC is one of the UK’s leading environmental and engineering consultancies and are Registered Environmental Impact Assessors under an accreditation scheme run by the Institute of Environmental Management and Assessment (IEMA): the principal professional body for EIA in the UK.
3. The Development Site & Proposals

The wider geographical context in shown in ES Figure 1.1 and the Development Site boundary is shown in ES Figure 1.2 which accompany this NTS. The nearest settlements to the Development Site are Carsphairn in Dumfries and Galloway which is located approximately 5km to the south west, and Dalmellington in East Ayrshire which is located approximately 6km to the north. The nearest residential properties to the Development Site are Lamford and Meadowhead (both located within the land forming part of the larger estate in which the Proposed Development is located), Eriff (located directly north west) and Waterhead (located directly east). The Development Site lies within the former Stewartry District of Dumfries and Galloway Council (DGC), directly south of the border with East Ayrshire Council (EAC).

The A713, a designated tourist route, runs in a north south direction through the western part of the Development Site, connecting the settlements of Dalmellington and Carsphairn. Carsphairn Forest surrounds most of the Development Site boundary, the exception being the mid section of the western Development Site boundary, beyond which Loch Doon is located. The Galloway Hills Regional Scenic Area (RSA) lies partly within but mainly to the west of the Development Site. The East Ayrshire Council Sensitive Landscape Area joins the RSA and is located directly west of the Development Site.

The elevation of the Development Site is approximately 260m-430m above ordnance datum (AOD). The Development Site covers an area of approximately 1,231ha, the majority of which is rough grazing land. The topography of the Development Site is defined by three summits, Lamford Hill located in the southern section and Benbrack and Dodd Hills which are both located in the northern section of the Development Site. A minor unclassified road leading to isolated properties to the east runs through the centre of the Development Site from the A713 road. Eighteen wind turbines are proposed to be erected. Each turbine would consist of a tubular steel tower supporting three blades with a hub height of up to 80m, with an overall maximum height to blade tip of 130m. The Proposed Development for which planning permission is sought comprises the following main elements:

- 18 wind turbines;
- Access tracks connecting infrastructure elements;
- A new vehicular access point from the public highway;
- Hard standing areas e.g. crane pads; and
- Two anemometer masts; and
- Control building (and substation if required) and electrical cabling between this and the turbines.

Some temporary works would be undertaken e.g. construction compound and the establishment of borrow pit(s) for the provision of construction material. The planned operational life of the wind farm is up to 25 years and for the purposes of the assessment presented in the ES, it is assumed that the wind farm will be decommissioned after this period.
4. Environmental Impact Assessment (EIA)

Under section 36 of the Electricity Act 1989, consent is required from the Scottish Ministers for the construction and operation of all power generating plant that would have an installed capacity of more than 50 megawatts (MW). The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (the EIA Regulations) apply to section 36 applications and the Environmental Impact Assessment (EIA) for the Proposed Development has been carried out under those EIA Regulations.

EIA is a process by which information about the environmental effects of a Proposed Development is collected, evaluated and presented to assist consultation and to enable decision makers to take account of these effects when determining whether or not a project should proceed and, if it does, with what particular controls over its construction and operation are needed to avoid or reduce effects on the environment.

The EIA has identified the likely effects of the proposals on the environment (including people) and a determination has been made as to whether any of these could be significant. A number of ‘mitigation’ measures to reduce or avoid adverse effects have been incorporated into the design of the Proposed Development or are proposed as part of its construction or operational management.

The ES, which comprises three volumes: Volume 1 – Main Text, Volume 2 – Illustrative Figures, and Volume 3 – Technical Appendices, and includes this NTS, accompanies the application for consent and reports the findings of the EIA. The assessment of effects is undertaken in an impartial manner and the findings are presented in a systematic way in the ES, which will be used by the Scottish Ministers to help inform their decision about whether or not the development should be allowed to proceed.

4.1 Consultation

Consultation is a vital aspect of the EIA process, both to agree what work should be carried out (referred to as the ‘scope of work’ culminating in the ‘scoping opinion’ received from the Scottish Government Energy Consents and Deployment Unit (ECDU) in March 2013) and to understand public perception of the Proposed Development in order to help in the design process.

Extensive consultation (including public consultation) was undertaken throughout the development of the design of the Proposed Development. Consultation with statutory consultees was undertaken through the formal scoping opinion from the ECDU; responses were received from the relevant departments of Dumfries and Galloway Council, the Scottish Government, Transport Scotland, the Health and Safety Executive, Defence Infrastructure Organisation, Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH), and Historic Scotland. In addition, during the development phase and EIA process, the following bodies were also consulted: microwave link operators, Royal Society for the
Protection of Birds (RSPB), BEAR Scotland, the Ministry of Defence, National Air Traffic Service (NATS), Civil Aviation Authority (CAA), relevant airports, and a number of operators of existing infrastructure such as Scottish Gas Networks, Scottish Power Energy Networks and National Grid. EON also undertook public consultation both as part of the Pre-Application Consultation process required by the Scottish Government, and through other mechanisms such as the formation of a community liaison group and two rounds of public exhibitions which were held in November 2012 and October 2013 at New Cumnock Community Education Centre, Dalmellington Community Centre, Hillview Leisure Centre, Kellogholm and Lagwyne Village Hall, Carsphairn.

4.2 Environmental Effects

The potential significant effects identified during the scoping exercise were subject to detailed assessment, using methodologies appropriate to the different environmental topics that need to be considered as part of an EIA. These methodologies were based on recognised good practice. The environmental topics considered in the ES are:

- Peat;
- Noise;
- Shadow Flicker;
- Landscape and Visual Impact;
- Historic Environment;
- Ecology;
- Ornithology;
- Geology, Hydrology and Hydrogeology;
- Traffic and Transport;
- Socio-Economics; and
- Infrastructure, Telecommunications, Utilities and Aviation Safeguarding;

The findings of the assessments that are reported in the ES are intended to assist Scottish Ministers and other stakeholders that they consult in coming to a view about whether or not the Proposed Development should proceed (and how it should proceed if planning permission is granted). The decision-making is in itself part of the EIA process.

The following sections provide a brief summary of the main findings of the EIA as set out in detail within the technical chapters of the ES.

4.3 Renewable Energy Policy, Carbon Balance and Peat Management

The primary purpose of the Proposed Development is to generate renewable energy and assist in the reduction of the emission of greenhouse gasses by offsetting the production of electricity from combustion of fossil fuels. This chapter of the ES outlines the prevailing climate change
and renewable energy legislation and policy framework and describes the carbon balance (the length of time the wind farm development would take to repay the carbon emissions from manufacture, construction and decommissioning of the Proposed Development) of the Proposed Development taking account of peat within development areas. The carbon savings for the Proposed Development are calculated using accepted Scottish Government guidance. An assessment of the Proposed Development’s impact on the existing peat within the Development Site and the effects in terms of carbon dioxide emissions are also provided.

It is predicted that the carbon emissions in developing the proposed development will be paid back (i.e. offset by carbon savings) in approximately 2 years (approximately 8% of the operational life of 25 years). It is predicted the carbon emissions will have been offset in a period of approximately two years. Even on the most conservative assumptions, the carbon emissions would be offset within around 5 years.

Based on the methodology in Scottish Government guidance described in full within the ES, the Proposed Development is expected to provide a total carbon saving of approximately 1.4M tonnes over its lifetime, equivalent to the emissions from supplying electricity from a mix of conventional power stations to 30,173 average homes.

4.4 Landscape and Visual

An assessment of the impact of the Proposed Development on landscape and visual receptors has been undertaken. To draw conclusions on the potential cumulative impact of the Proposed Development with other similar wind farm developments, the assessment has also taken account of wind energy developments for which a planning application has been submitted as well as existing and consented developments.

Whilst no wind farm development can avoid some significant effects on landscape, due to the introduction of tall vertical structures into the environment, in this case these would be limited to an area of landscape within approximately 2km of the proposed turbines. This area falls mainly within the wider Southern Uplands with Forestry, Carsphairn Landscape Character Area (LCA), with sections within the Upper Dale, Upper Glenkens LCA and the Rugged Granite Uplands, Rhinns of Kells LCA.

For some receptors, the Proposed Development would result in some significant visual effects. These receptors include three residential properties within 2km of the Proposed Development, although there would be no significant effects on settlements. There would be intermittent, significant, views from approximately 1% of the A713 National Tourist Route where it passes within 2km of the Development Site. There would be limited, short-range, significant visual effects on the Galloway Forest Park, on the Loch Doon recreational and tourist area and on the views from the summit of Cairnsmore of Carsphairn within the 10km Study Area. There would be significant visual effects on the views and visual amenity experienced from a short stretch at the start of the core path 667, the first 1.6km section of core path 594 and from core path D17, where views are available within 1-2 km of the Proposed Development. There would be significant effects on part of two Scottish Hill Tracks, 80 and 83 where they run side-by-side within the 10km study area. This effect should therefore only be counted as a significant effect from one section of Scottish Hill Track. There would be no significant effects on the Merrick Wild Land Area or wild land characteristics and there would be no significant effects on designated landscapes.
Considering other proposed wind energy developments, including the nearby proposed South Kyle or Glenmount wind farms for example, some significant cumulative effects are also predicted. The Proposed Development would not however, greatly increase the overall level of cumulative effects on key receptors (for example the A713 National Tourist Route) in combination with other developments. Notwithstanding that there would be some significant and cumulative landscape and visual effects, the additional effects of the Proposed Development would be limited and the design can be sensibly related to other existing development.

4.5 Noise

An assessment of noise arising from the construction, operation and decommissioning of the Proposed Development has been undertaken. For each phase of the Proposed Development, the assessment considers compliance with the appropriate noise limit(s).

The assessment shows that the separation distance between the construction areas and receptors is sufficient to ensure that any construction noise effects will not cause undue disturbance, and that even due the busiest periods, construction traffic noise will not be excessive. It is assumed that decommissioning noise will be generally less or, at most, similar to that experienced during the construction period. Therefore no significant effects are anticipated in respect of noise from construction and decommissioning activities.

Operational noise has been assessed in accordance with ETSU-R-97: The Assessment of Rating of Noise from Windfarms ("ETSU-R-97 Guidance"), as recommended by The Scottish Government. The assessment was based upon an assessment ‘envelope’ of potential turbine noise emissions, which considered a number of potential wind turbine models suitable for the Proposed Development and used the highest noise level at each wind speed (i.e. data from the noisiest turbine at each wind speed was used) to ensure a robust assessment. Predicted noise levels from the wind farm at each of the assessed receptors were found to be a substantial margin (at least 4.6 decibels (dB)) below the noise limits specified under the ETSU-R-97 Guidance. On this basis, the Proposed Development will have no significant operational noise effects upon nearby sensitive receptors.

The operational noise assessment was extended to consider potential cumulative noise effects resulting from existing, consented and proposed wind farm developments. The cumulative noise assessment demonstrated that when residential receptors are downwind of all wind projects operating concurrently, predicted turbine emissions would again be below the noise limits specified under the ETSU-R-97 Guidance by a reasonable margin (more than 2.2 dB(A) at each assessed receptor). This is based on a conservative approach as it is unlikely for receptors to be downwind of all the wind projects at any one time. Therefore, no significant cumulative noise effects are predicted.

In conclusion, it is considered that the Proposed Development will comply with all relevant standards and guidelines designed to protect residential amenity in respect of noise, and will therefore not result in any significant noise effects.

4.6 Shadow Flicker

Under certain combinations of geographical position, time of day and time of year, the sun may pass behind the rotor of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow moves across the ground. Where the shadow is cast through a
window or an open door, it may appear to flicker on and off and this is known as ‘shadow flicker’.

A study has therefore been undertaken to identify whether shadow flicker is likely to occur at residential properties in the vicinity of the Proposed Development. This assessment has shown that there are no residential properties within the zone where shadow flicker could occur.

4.7 Historic Environment

The impact of the Proposed Development on the historic environment was assessed and this considered direct effects on heritage assets as well as visual effects on off-site heritage assets in respect of the ‘setting’ in which they are appreciated and understood.

The Development Site is within a designated Archaeologically Sensitive Area, which includes the site of a former cairn at Lamford Burn. There are a small number of known archaeological features identified within the Development Site boundary. Further possible features and deposits of peat which may have value for the study of past environments were also identified during the course of the assessment. All such identified archaeological features have been avoided by the scheme design. While there is a potential that previously unrecorded archaeological features and peat deposits may be affected by the Proposed Development, through the application of appropriate mitigation it is considered that any adverse residual effects will be not significant.

Designated heritage assets within the wider area, including listed buildings, scheduled monuments and the Craigengillan garden and designed landscape, were identified and considered in terms of the potential for visual impacts upon their setting. Assets assessed in detail included: prehistoric cairns at Cairn Avel, Lamford Burn, Brownhill Burn and the King’s Cairn; Loch Doon Castle; the Bardennoch-Garryhorn Archaeologically Sensitive Area; and the Craigengillan garden and designed landscape. The indirect visual effects of the Proposed Development on designated heritage assets within the wider area were all assessed as not significant.

4.8 Ecology

An ecological impact assessment has been undertaken to understand the potential effects of the Proposed Development on the habitats and species within and around the Development Site. The scope of the ecological assessment was determined through a review of existing biological data relating to the Development Site and the surrounding area, together with consultations with relevant nature conservation organisations such as SNH. Based on the outcome of the desk study and the consultation exercise, various ecological surveys were carried out.

Ecological surveys included field surveys, detailed protected species surveys (for badger, otter, water vole and bats), as well as a botanical survey to identify plant communities of higher nature conservation value and/or those that may be sustained by groundwater. In addition, a fisheries habitat survey was also undertaken.

The Development Site is dominated by dry modified bog, wet modified bog and marshy grassland, all of which are affected by sheep grazing and man-made drainage which have degraded the conservation value of the habitats present. No significant effects are predicted on any plant communities of high nature conservation value. Furthermore, no significant effects on any statutory designated sites are predicted to occur.
The presence of otter, badger and at least four bat species (soprano pipistrelle, common pipistrelle, *Nyctalus* species and *Myotis* species) was confirmed during surveys. No significant effects are predicted on any animal species of high nature conservation value or any legally protected animal species.

One scheme at application stage (South Kyle) was included in the cumulative impact assessment. No significant cumulative effects on ecological receptors are predicted to occur.

### 4.9 Ornithology

A programme of bird surveys was undertaken in accordance with SNH guidance (SNH 2010, revised 2013) during the 2011 and 2013 breeding seasons and 2011/12 and 2012/13 winter seasons.

These comprised of vantage point (VP) surveys from three fixed locations, with 81 hours of observation per VP across two breeding seasons and 90 hours of observation per VP across two non-breeding seasons. The following distribution and abundance surveys were also undertaken over two seasons: breeding waders, breeding raptors and winter walked transects. Black Grouse lek surveys were undertaken in spring 2013. Development Site survey data was supplemented with existing bird information provided by the RSPB and Raptor Study Group.

The Development Site primarily consists of grass-dominated moorland which is heavily grazed by sheep. Recorded activity of species of high nature conservation importance was low throughout the survey period, with key findings being the presence of a small Black Grouse population and low densities of breeding waders comprising one Curlew territory and two Snipe territories. Flight activity of species of high nature conservation importance within the Development Site area was low throughout the survey programme.

Between one and three Black Grouse have been recorded ‘lekking’ (displaying) at locations across the central section of the Development Site (each more than 1km to the south of proposed turbine locations), indicating the presence of a small population that is not restricted to a fixed/traditional lek location.

No residual significant effects are predicted as a result of the Proposed Development, or in combination with other developments.

### 4.10 Geology, Hydrology and Hydrogeology

The geology, hydrogeology (ground water) and hydrology baseline conditions within and surrounding the Proposed Development, have been identified and the potential impacts of the Proposed Development on these conditions assessed.

The assessment highlighted the potential for effects on the hydrology and hydrogeology of the Development Site, primarily during wind farm construction, but potentially also during site operation and decommissioning. These effects are associated with a range of activities, most notably access track construction. The most detrimental potential effects are associated with sediment-laden runoff from exposed ground entering the water environment.

However, mitigation measures incorporated into the scheme’s design, for example, a 50m buffer zone around Water of Deugh, would reduce the likelihood and magnitude of a pollution event or other impact resulting from the Proposed Development. These mitigation measures have been defined for each element of the on-site development, most of which involve work being
undertaken in accordance with current best practice. The implementation of these measures would ensure that there are no significant effects on geological, hydrological or hydrogeological receptors as a result of the Proposed Development.

4.11 Traffic and Transport

An assessment of the traffic levels that would be generated during the construction, operation and decommissioning phases of the Proposed Development has been carried out, with the construction phase being the main focus as this is when most traffic will be generated. Consideration has been given to both Heavy Goods Vehicle (HGV) and abnormal load movements (primarily for the delivery of large turbine components such as blades).

Estimates of traffic generation associated with the construction phase of the Proposed Development have been derived from a first principles approach based on calculations of vehicle loads of imported materials. To assess a worst case, it has been assumed in the assessment that the bulk construction materials (stone aggregate and the materials required for the mixing of concrete) will be sourced from one of the quarries located within the Castle Douglas/Dumfries area, with access to the Development Site in all instances gained ultimately via the unclassified road just off the A713. For the purposes of this assessment it has been assumed that the majority of construction materials will be obtained from a quarry located north of Kirkcudbright on the A711. It is however possible, based on the results of further assessment, that a reasonable quantity of materials could be sourced on-site and therefore impacts would be much reduced from those assessed.

The route from the quarry to the Development Site is expected to use the A711, travelling northbound on the A711, before joining the A75 and heading north-eastbound, turning on to the A713 and travelling northbound to the Development Site access.

All turbine components will be imported into Scotland via the port at Ayr and delivered to the Development Site by road. The route used to deliver turbine components from Ayr Port will be expected to leave Ayr Port on Waggon Road, before turning right onto Allison Street A79, and then onto A719, the A77 towards bank field roundabout, before proceeding along the A713 towards the Development Site entrance.

The impact of construction-related traffic on the proposed access routes for road stone deliveries, concrete material deliveries and abnormal load deliveries has been calculated, in percentage terms, relative to the future predicted baseline, which was calculated using the 2013 background traffic levels. The current proportions of HGVs on the local highway network are fairly consistent, apart from the A713 at Greenlaw where the proportion of HGVs is relatively low. The remainder of the delivery routes vary between 8% and 14% of total Annual Average Daily Traffic (AADT) flow.

This assessment has considered two construction scenarios as follows:

- Scenario 1: 100% import of all road stone required for the construction of on-site access tracks. Month 4 in the construction programme generates the highest number of trips with a total of 206 movements per day or 17 to 18 per hour across a 12 hour working day (Mon-Fri 0700-1900); and

- Scenario 2: 15% importation of road stone for internal access tracks, with the remaining 85% sourced from borrow pits located within the Development Site boundary. Month four generates the highest number of trips with a total of 66
movements per day, 5 to 6 per hour across a 12 hour working day (Mon-Fri 0700-1900).

The assessment of impact of construction traffic on receptors on the A713 in the villages of St John’s Town of Dalry and Carsphairn has found that the magnitude of change on severance, driver and pedestrian delay, fear and intimidation and accidents and safety is ‘negligible’ and therefore the effects are not significant. With regards to pedestrian amenity, the magnitude of change was identified as ‘moderate’, however, mitigation measures included within the proposed Construction Traffic Management Plan (TMP) would reduce the magnitude to ‘slight’ resulting in an effect which is not significant.

4.12 Socio-economics

This chapter considers potential changes to land use, socio-economics, tourism and recreation as a result of the Proposed Development.

It is estimated that the capital cost of constructing the Proposed Development could equate to between £24.3m and £37.4m. During the construction phase, the Proposed Development could directly support between 11 and 16 local jobs and 48 and 73 national jobs. The socio-economic, tourism and recreation assessment demonstrates that the construction and decommissioning phases of the Proposed Development are not predicted to directly affect most of the tourism receptors or specific recreational pursuits identified, other than through temporarily restricting public access to limited areas of the Development Site for Health and Safety purposes.

The Proposed Development would likely be visible from some locations within the Galloway Forest Park. During operation, significant landscape and visual effects are anticipated along some sections of some core paths, sections of Scottish Hill Tracks and Heritage Paths, and some parts of the Galloway Forest Park, Cairnsmore of Carsphairn hill summit and sections of The Galloway Tourist Route A713. These effects would be visual. There is currently no substantiated evidence to indicate that landscape and visual effects would adversely affect either visitor numbers or visitor spending at individual tourist and recreational receptors within the surrounding area.

The assessment concluded that the Proposed Development would result in no significant effects on employment, the economy, land use, tourism or recreation during the construction, operation and decommissioning phases. There would be an important but not significant beneficial effect at the local level on the economy during the construction period and a long term beneficial effect during the 25 year operation of the Proposed Development.

4.13 Infrastructure and Telecommunications

The potential impact of the Proposed Development on telecommunications (including television reception) and utility infrastructure in the vicinity of the Development Site was undertaken. This was based upon consultation with organisations which own or operate infrastructure on or close to the Development Site.

A number of telecommunications and infrastructure consultees indicated that they operate telecommunications links or plant which could potentially be affected by the Proposed Development if they were not accounted for in the layout design. Suitable buffer and separation
distances have therefore been incorporated into the layout design (as requested by the operators) to mitigate against any possible effects on telecommunications and infrastructure.

The Proposed Development will be constructed and operated in accordance with all relevant UK health and safety legislation to ensure the risk to public safety is minimised. The Development Site will be appropriately signed to indicate the presence of construction work.

All potential effects in respect of utility infrastructure, television reception and public safety have been mitigated and therefore no effects are anticipated.

### 4.14 Aviation

The Proposed Development is within the operational range of National Air Traffic Services (NATS) Lowther Hill and Great Dun Fell En Route Primary Surveillance Radar (PSR) systems and Glasgow Prestwick Airport PSR.

At an anticipated maximum height of 130 metres (m) to blade tip, all eighteen constituent turbines are considered not likely to be within Line of Sight (LoS) and will therefore be undetectable to the Great Dun Fell and Glasgow Prestwick Airport PSR. One turbine (Turbine 14) is predicted to be intermittently detectable by the Lowther Hill PSR.

Due to the potential detectability of one of the turbines to the Lowther Hill PSR, the Proposed Development may create an operational and/or cumulative effect to NATS utilising the Lowther Hill PSR. The Proposed Development is not considered to have any operational significance to NATS operations that utilise the Great Dun Fell PSR or Glasgow Prestwick Airport.

Glasgow Prestwick Airport have confirmed that they will not object to the Proposed Development at a blade tip of 130m (Airport, 2014)

As a result of consultation, the MoD concluded that the effect on Low Flying operations would be manageable and that the MoD does not intend to object subject to the Applicant satisfying a request for the fitting of a form of aviation obstruction lighting and the inclusion of a 1 kilometre (km) buffer on the A713 for low flying purposes. A form of aviation obstruction lighting to be fitted to the turbines will be implemented by the Applicant and a 1km buffer on the A713 has been accounted for in the design of the Proposed Development.

In conclusion, it has been identified during LoS analysis that the Proposed Development will not be theoretically detectable by the NATS Great Dun Fell PSR or the Glasgow Airport PSR, and will not affect the radar and operations of stakeholders utilising these radar systems. However, analysis cannot rule out intermittent detection of one of the turbines by the NATS Lowther Hill PSR. The MoD have confirmed that effects on military Low Flying operation would be manageable subject to the turbines being fitted with a form of aviation obstruction lighting and the inclusion of a 1km buffer on the A713 included within the design process for military low flying operations. Mitigation measures to be implemented to prevent, reduce or offset any potential adverse effects where required have been considered.
4.15 Summary

The Proposed Development has resulted from a comprehensive iterative design process which has eliminated or mitigated the majority of potentially significant environmental effects, as described in more detail in the sections above.

The Proposed Development would provide a number of economic benefits which result from investment into the local and national economy, job creation and benefits in respect of national energy security, as well as the environmental benefits which would arise from the provision of low carbon renewable energy.