

Other Issues

Background

Pre-application advice for the proposed Development was requested from the Highland Council (THC) and a response provided in March 2019. The key aspects identified by THC Environmental Health relating to other issues are summarised here:

Consultant Experience and Expertise

The other issues section of the Environmental Impact Assessment Report will be compiled by RSK on behalf of Scottish Power Renewables supported by sub-consultants on certain specialist assessment sections. For each topic, the detailed assessment of likely significant effects will be undertaken by organisations with relevant specialist skills, drawing on their qualifications, experience of working on other development projects, good practice in EIA and on relevant published information.

Socio-Economic, Tourism and Recreation

Access rights, as provided by the Land Reform (Scotland) Act 2003, are exercisable throughout the majority of the Site and would continue to be so during the operation of any development. The use of the area of any proposed turbine locations for such access rights is limited at present though the development would provide an access resource for the public in terms of built tracks.

Public recreational access in the area of the development is focused on the coast, Dunnet Head/Dunnet Bay/Dunnet Forest, Duncansby Head etc. There is use of the A836 which forms part of the National Cycle Network route 1 and the A99 as part of the John O'Groats to Land End route for non-motorised means. There are several core paths within approximately 5km of the proposal, namely the Mey Link (CA05.16), Castle of Mey Coast (CA05.17), St John's Point (CA05.12), Old Road (CA07.4) and Stroupster Hill (CA08.07). The North Coast 500 (NC500) is located approximately 5 km from the Site at its closest point. The NC500 is described as a world-renowned Scottish tourist attraction consisting of approximately 500 miles of scenic route around the north coast of Scotland, starting and finishing in Inverness.

The potential effects on visual amenity of these areas will be fully assessed in the EIA Report as part of the Landscape and Visual Impact Assessment.

In terms of impacts with a social implication, including recreation and tourism interests, there is a catalogue of research and survey that has concluded that there is no evidence to suggest windfarms have a significantly adverse effect on tourism. The most recent of these was produced by independent consultancy Biggar Economics (2017), which analysed the impact of Scottish windfarms on tourism-related employment.

The most comprehensive study of the potential effects of windfarms on tourism was undertaken by the Moffat Centre at Glasgow Caledonian University (2008). The study found that, although there may be minor effects on tourism providers and a small number of visitors may not visit Scotland in the future, the overall effect on tourism expenditure and employment would be very limited. This study is now almost 12 years old and in that time windfarms have become a more common feature in Scotland. A subsequent study by the James Hutton Institute (Dinnie 2012) concluded that there is no new evidence to contradict the earlier findings that windfarms have little or no adverse impact on tourism in Scotland.

It is therefore proposed that impacts upon tourism be scoped out of the EIA process.

More specifically relevant to Hollandmey, while in a wider region of Scotland that attracts tourists and recreational users interested in outdoor pursuits, the Site is privately owned and is forested and is not used for recreational purposes.

In terms of the wider area around the Site, the nearest major tourist attractions are:

- Queen Elizabeth Castle of Mey Trust which is located approximately 1.67 km north of the application boundary;
- RSPB Dunnet Head 9.18 km north west of the application boundary;
- Mary Anne's Cottage 6.78 km west of the application boundary;
- Duncansby Head 9.12 km north east of the application boundary;

- Castlehill Heritage Centre 8.42 km west of the application boundary;
- the village of John O'Groats 6 km north east of the application boundary;
- Dunnet Bay 6.3 km west of the application boundary;
- Wick Heritage Museum 18.93 km south east of the application boundary;
- Caithness Horizons 16.32 km west of the application boundary; and
- Caithness Broch Centre 8.65 km south east of the application boundary.

There are also a small number of properties affording accommodation in the wider area. While impacts are likely upon these resources to varying degrees, it is not anticipated that any of these effects would be significant.

SPR is also committed to the identification and implementation of access enhancement measures that will help facilitate greater use and enjoyment of the Site and wider access network. Examples that have been adopted for other SPR sites include creating new circular access routes, providing new visitor interpretation facilities at key locations, improving signposting, upgrading parking facilities and provision of bird hides. SPR will seek to identify suitable and proportionate opportunities for the Site through the public consultation and scoping exercise. Such enhancement opportunities have the potential for beneficial effects to the local community.

The proposed Development would also bring the potential for significant beneficial economic effects at a local level in relation to employment opportunities and the use of local services by construction workers. There will also be potential local employment opportunities during operation. Other socio-economic benefits that would arise from the proposed Development will be the establishment of a community benefit fund and the opportunity for local community groups to invest directly in the project. It is expected that these income streams could be used to support community projects within the local area.

Although the above access, recreation and other socio-economic benefits are not expected to be significant at a national or regional level, given their potential importance at a local and community level it is considered that their impacts should be fully assessed and reported in the EIA Report.

Dust and Air Quality

The main source of impact on air quality would be increased traffic flows on local roads during construction and emissions from construction activities including exhaust fumes and dust generated from quarrying activities associated with borrow pits and unmade ground from borrow pits and access tracks in dry conditions.

It is considered that the air emissions associated with these activities would be transient, localised and highly unlikely to have a significant effect upon local air quality given the lack of sensitive receptors close enough to experience these effects. In addition, there are well established best practice measures applied to construction that would form an integral part of the development process e.g. speed control, optimising deliveries to Site, dust control, restrictions on idling plant/vehicles, etc. These controls and measures will form an integral part of the Construction Environmental Management Plan (CEMP) for the development and will be detailed within the relevant parts of the EIA Report.

There would be no emissions to air during operation, with the only source being occasional vehicles accessing the Site for maintenance purposes. For the reasons cited above Air Quality is therefore scoped out from further assessment.

Shadow Flicker

Shadow flicker is an effect caused by the rotation of the turbine blades when the sun is shining, which can create a flickering or strobe like effect. This can be a cause of annoyance at residences near wind developments.

There are no formal guidelines currently available on what exposure would be acceptable in relation to shadow flicker. There is no standard for the assessment of shadow flicker. The Scottish Government's web-based guide relating to onshore wind turbines (Scottish Government 2013) suggests that as a general rule shadow flicker should not pose problems beyond a distance of 10 rotor diameters from a wind turbine, which equates to a maximum of 1500 m in this instance.

Section 2.43 (p20) of The Highland Council Interim Supplementary Guidance: Onshore Wind Energy (March, 2012) states, "*the Council will expect wind energy developments to be located at least a minimum distance equivalent to 10 times the blade diameter from any regularly occupied buildings not associated with the development*".

Department of Environment and Climate Change studies have shown that in northern latitudes shadows from wind turbines can only be cast 130 degrees either side of north relative to the turbine due to the orientation of the earth's axis and the positioning of the sun.

This equates to a region of 50 degrees either side of due south where a wind turbine would never cast a shadow and therefore properties within this region would experience no effects from shadow flicker.

The proposed Development will be designed where possible to avoid turbine placements within the Zone of Potential Shadow Flicker (ZPSF). Should this be achieved, it is proposed that shadow flicker be scoped out of the EIA. If not possible to avoid shadow flicker effects through turbine placement, then the dates, times and durations of shadow flicker events for each property within the ZPSF will be calculated and an assessment of effects at these properties included in the EIA.

Solar Glint and Glare

This section describes the proposed methodology for assessing solar glint and glare from potential solar panels during operation of the proposed Development. The inclusion of solar panels will be confirmed through the design process. If not included in the final design, there would be no requirement to assess these potential effects in the EIA.

Solar panels have varying reflectivity properties; however no solar panel absorbs 100% of incoming light. As a result, solar panels have the potential to produce solar reflection in the form of solar glint (a momentary flash of bright light) and solar glare (a continuous source of bright light). Solar glint will be witnessed by moderate to fast-moving receptors while solar glare will be encountered by static or slow-moving receptors with respect to a solar development.

Guidance states that common receptors of solar glint and glare effects are residents, road users, railway users and aviation operations. In this way, residents who have a view of solar panels may experience solar reflection which could impact upon residential amenity. The possibility of glint and glare effects from a proposed solar development can also lead to concerns with respect to the possible impact upon road and rail safety especially if the solar PV development is to be located next to a road with fast moving and/ or busy traffic or a railway line. In terms of aviation, concerns are most likely for aircraft that are approaching or departing an airport, where solar reflections could be mistaken for aviation lighting.

Based on a review of current studies and consultation responses, the following study areas for the above receptors are proposed:

- Identify the receptors of concern. In this instance the concern is reflections of the sun from the solar panels toward road users, dwellings, public routes and ATC/flight paths, particularly to the south of the solar array;
- Dwellings (also taken to incorporate nearby recreational users) – all properties/public paths within 1km that could have a direct view of the solar panels;
- Road users – all roads within 1km that may have a view of the solar panels;
- Railway users – railway lines within 100m which may have a direct view of the solar panels; and
- Aviation (air traffic controllers and pilots) – Air Traffic Control (ATC) towers and approach paths out to 30km.

In general terms, and based on the above guidance, the broad approach to the assessment will be as follows:

1. Identify the receptors of concern. In this instance the concern is reflections of the sun from the solar panels toward road users, dwellings, public routes and ATC/flight paths, particularly to the south of the solar array;
2. Choose appropriate receptor locations for the assessed roads, dwellings, routes and ATC/flight paths;
3. Define the proposed solar farm area and choose an appropriate assessment resolution;
4. Undertake geometric calculations to determine whether a solar reflection may occur at each receptor, and if so, when it will occur;
5. If a reflection will occur, determine whether the reflecting panels will be visible from the identified receptor locations or whether site topography or screening will limit visibility;

6. If it is calculated that a reflection will occur, consider the location of the solar reflection with respect to the location of the sun in the sky, its angle above the horizontal and the time of day at which a reflection could occur;
7. Determine whether the solar reflection is likely to be a significant hazard to safety; and
8. Consider mitigation such as shielding of the Site.

In relation to the guidance, a major effect is one where a solar reflection is geometrically possible and visible under conditions that will produce a significant impact.

Telecommunications

Wind turbines can potentially cause interference to telecommunication system signals such as terrestrial fixed microwave links, terrestrial radio telemetry links and television broadcasts through reflecting and shadowing telecommunication signals between transmitters and receivers.

The study area will comprise the Site and the wind turbine locations. Only telecommunication links which travel across the Site and close to the wind turbine locations have the potential to be impacted by the proposed Development and therefore there is no need to widen the study area.

Initial consultation has been undertaken with Ofgem who confirmed that there are two telecommunications links across the Site. The location of these links, and appropriate buffers, will be factored into the windfarm design to embed mitigation and avoid potential impacts. Further consultation will be undertaken through the EIA to update this baseline information and inform the assessment.

The potential effects on telecommunications assets arising from the proposed Development will be undertaken as part of the EIA. This will identify any issues requiring mitigation or detailed assessment, in consultation with telecommunications asset owners.

TV interference is now considered to be low risk due to analogue TV signals no longer being in use and so this aspect is proposed to be scoped out of the assessment. In the unlikely instance that TV interference occurs, it is considered that this can be appropriately covered by a suitably worded planning condition and complaints procedure to implement any necessary mitigation.

Aviation and Radar

The development of wind turbines has the potential to cause a variety of adverse effects on aviation during turbine operation. These include but are not limited to:

- Physical obstructions;
- Generation of unwanted returns on Primary Surveillance Radar (PSR); and
- Adverse effects on overall performance of Communication, Navigation and Surveillance (CNS) equipment.

Where line of sight exists between turbines and air traffic control radars it is possible that the turbines may be detected by the radar, dependent on atmospheric conditions, and appear as clutter on controllers' screens. Such clutter may have an adverse impact on air traffic control operations.

The proposed Development is in an area remote from military aviation infrastructure, approximately 13.5 km to the north of Wick Airport. The Site is outside the Aerodrome Traffic Zone, but underneath or close to several of the instrument approach procedures published for the airport that lie outside the protection of regulated airspace. It is immediately adjacent to the Operational Lochend Wind Farm.

An assessment of civil and military aviation issues will be undertaken. Input will be obtained from the specialist consultants should any issues be identified that require mitigation or detailed technical assessment, including line-of sight assessments.

Carbon Balance

The proposed Development once operational would generate zero carbon energy, which would help to offset the release of greenhouse gas emissions by fossil fuel-dependent energy generation. During their construction and decommissioning, however, renewable energy developments can themselves result in GHG emissions, for example from turbine manufacture and site preparation. This is particularly the case where natural carbon stores such as forestry or peat are present and potentially impacted by the development.

Peat surveys will be conducted to establish the depth and quality of peat on the Site. It is known that the Site contains areas of blanket bog listed as Class 1 peatland, these are areas considered to be nationally important carbon-rich soil and are afforded significant protection under Scottish Planning Policy.

During the design process, the wind turbines will be sited to avoid the areas of deepest peat as far as practicable and measures to minimise disturbance to peat especially during excavation will be considered. To minimise peat disturbance during construction and decommissioning Best Practicable Measures will also be considered that will be provided as part of the CEMP.

The resulting Carbon Balance Assessment will be prepared in accordance with IEMA's guidance document Assessing Greenhouse Gas Emissions and Evaluating their Significance in EIA (2017) and presented in the Other Issues chapter of the EIA report.

The prediction of future natural baselines is required under the EIA regulations to compare with future baselines that incorporate the proposed Development. Climate change will be considered in the prediction of future natural baselines based on the best available climate modelling, such as the UK Climate Projections project.

Population and Human Health

As per the 2017 EIA Regulations, an assessment of population and human health should be considered during the EIA process. It is proposed that this requirement will be covered through the findings of other assessments undertaken as part of the EIA process and so no dedicated EIA chapter will be produced.

Limited interactions with human health are possible, and consideration will be given to the findings of the following assessments in the EIA Report:

- Noise;
- Residential Amenity;
- Traffic and Transportation;
- Telecommunications;
- Aviation and Radar;
- Health and Safety at Work including best practice;
- Ice build-up on turbine blades and risk of ice throw;
- Lightning strike; and
- Risk of turbine failure and consideration of in-built emergency procedures and best practice.

Properly designed and maintained wind turbines are a safe technology. The site design and inbuilt buffers from sensitive receptors would minimise any risk to human health resulting from the operation of the turbines.

As the potential for risks associated with ice build-up and lightning strike are removed or reduced through inbuilt turbine mechanisms in modern machines it is proposed that this can be scoped out of the further assessment.

Effects on Traffic and Transportation; Noise; and Residential Amenity will be assessed in full elsewhere within the EIA Report.

Potentially significant effects are not anticipated from ice, lightning strike, or structural failures due to Health and safety best practice and a sensitive approach to layout design.

All other potential interactions with Human Health, building in Health and Safety best practice, and a sensitive approach to layout design, resulting from ice, lightning strike and structural failures are unlikely to occur and as a result potentially significant effects are not anticipated.

Vulnerability of the development to risks of major accidents and/or disasters (including climate change)

None of the following climate trends identified in UKCP18¹ could affect the proposed Development:

- increased temperature;

¹ <https://www.metoffice.gov.uk/pub/data/weather/uk/ukcp18/science-reports/UKCP18-Overview-report.pdf>

- changes in the frequency, intensity, and distribution of rainfall events (e.g. an increase in the contribution to winter rainfall from heavy precipitation events and decreases in summer rainfall); and
- sea level rise and associated coastal flood risk.

The possibility that the proposed Development would be exposed to windstorms could represent a risk; however, braking mechanisms installed on turbines allow them to be operated only under specific wind speeds and should severe windstorms be experienced, then the turbines would be shut down. As published mapping confirms that most of the Site is not located in an area identified as being at risk of flooding it is considered unlikely that flooding will pose a significant risk to the operation of the windfarm nor would the construction of the proposed Development contribute to flooding elsewhere. Therefore, it is considered unlikely that significant effects would arise as a result of the proposed Development, and this topic can be scoped out of the further assessment.

Consultees

The consultees below will be approached for information to inform the EIA. These consultees may also be contacted by the Scottish Government regarding the scope of the EIA:

- Scottish Environment Protection Agency
- The Highland Council
- Telecommunications asset owners
- MoD Defence Infrastructure Organisation (DIO)
- NATS Safeguarding
- Highlands and Islands Airports Limited

Consultee Questions

- Are the scopes of the proposed assessments appropriate?
- Are Consultees aware of any key sensitive receptors that should be considered?
- Are Consultees aware of any additional relevant consultees?
- Do consultees have any initial comments to make in relation to potential effects arising from solar glint and glare?
- Do consultees agree that air quality can be scoped out of the EIA?
- Do consultees agree with the proposed design mitigation approach to avoid potential shadow flicker effects?
- Do consultees agree with the proposed assessment methodology for calculating carbon balance?
- Do consultees agree that population and human health can be scoped out of the EIA?
- Do the consultees agree that vulnerability of the development to risks of major accidents and/or disasters (including climate change) can be scoped out of the EIA?
- Please confirm additional requirements, which have not been covered in this information sheet, that you believe should be included in this element of the EIA.

Relevant Policy and Guidance

- The Highland Council, (2012). Interim Supplementary Guidance: Onshore Wind Energy.
- Scottish Government, (2014). Onshore wind turbines: planning advice.
- IEMA, (2017). Assessing Greenhouse Gas Emissions and Evaluating their Significance in EIA (2017).
- Met Office, (2019) UKCP18 Science Overview Report (2019).
- Scottish Government, (2013). The Scottish Government's web-based guide relating to onshore wind turbines.