

# Slickly Wind Farm

## Non-Technical Summary

March 2021





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## PREFACE

In December 2019, Slickly Wind Farm Ltd (the Applicant) submitted a planning application (the Application) to the Highland Council (the Council) under the Town and Country Planning (Scotland) Act 1997 (as amended by the Planning etc. Scotland Act (2006)) to install and operate a wind farm comprising 11 turbines with a combined generation capacity of up to 49.9 megawatts (MW), and associated infrastructure for a period of 30 years (the Development) (the Highland Council Planning Reference: 19/05624/FUL). The Development is located on land at Strouper West Forest in north-east Caithness, Highland (the Site).

The Application was accompanied by the Slickly Wind Farm Environmental Impact Assessment Report (EIA Report) (December 2019), prepared under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations).

The Supplementary Environmental Information (SEI) focusses on outlining the change in predicted effects arising from the revisions to the Development (the Revised Development). The Revised Development will comprise of up to 11 three-bladed turbines with a maximum tip height of up to 149.9 meters (m) for all turbines except Turbine 5 (T5) and T10 which will have a maximum tip height of up to 135 m.

This SEI Non-Technical Summary (NTS) will summarise the predicted effects outlined in the SEI as well as the previous predicted effects outlined in the EIA Report.

The SEI Report will be publicised in accordance with Part 5 of the EIA Regulations and the Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 (the Coronavirus Regulations). The EIA Report and supporting documentation is available on the Slickly Wind Farm project website<sup>1</sup> and the Highland Council (the Council) Planning Portal<sup>2</sup>.

Hard copies of the Non-Technical Summary (NTS) can be made available free of charge from the Applicant. Hard copies or USB of the SEI submission may be obtained for £395 or £20 respectively to cover production cost, plus postage and packaging. Requests for copy of the application submission can be made:

By email: [ukprojects@statkraft.com](mailto:ukprojects@statkraft.com)

By post: Freepost Statkraft

By phone: 0800 772 0668

Any representations to the application should be made by completing the online representation form on the Council Planning Portal:

By email: [eplanning@highland.gov.uk](mailto:eplanning@highland.gov.uk)

By post:

eProcessing Centre Highland Council Headquarters,  
Glenurquhart Road,  
Inverness,  
IV3 5NX

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<sup>1</sup> Statkraft (2019) Slickly Wind Farm [Online] Available at: <https://www.statkraft.co.uk/power-generation/onshore-wind-development-projects/slickly/> (Accessed 12/01/21)

<sup>2</sup> The Highland Council Planning Portal [Online] Available at: <https://wam.highland.gov.uk/wam/> (Accessed 12/01/21)

## 1 INTRODUCTION

This Non-Technical Summary (NTS) is a summary of the SEI Report which is submitted as additional information to the planning application (the Application) to the Highland Council (the Council), under the Town and Country Planning (Scotland) Act 1997 (as amended by the Planning etc. Scotland Act (2006)) to install and operate a wind farm comprising 11 turbines with a combined generation capacity of up to 49.9 megawatts (MW), and associated infrastructure for a period of 30 years (the Development) (the Highland Council Planning Reference: 19/05624/FUL). The Development is located on land at Stroupster West Forest in north-east Caithness, Highland (the Site).

The Application was accompanied by the Slickly Wind Farm Environmental Impact Assessment Report (EIA Report) (December 2019), prepared under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations).

The Supplementary Environmental Information (SEI) focusses on outlining the change in predicted effects arising from the revisions to the Development (the Revised Development). The Revised Development will comprise of up to 11 three-bladed turbines with a maximum tip height of up to 149.9 meters (m) for all turbines except Turbine 5 (T5) and T10 which will have a maximum tip height of up to 135 m.

This NTS provides a non-technical summary of each technical assessment conducted in the SEI process and is intended to be read alongside the Application, EIA Report, SEI Report and associated application documents for the Revised Development.

## 2 THE APPLICANT

Statkraft is a leading company in hydropower internationally and Europe's largest generator of renewable energy. In the UK, the Group produces and develops hydropower, wind power, solar power, and greener grid parks. Statkraft is a global company in energy market operations. Statkraft has 4,500 employees in 17 countries.

## 3 THE NEED FOR THE DEVELOPMENT

There have been changes to climate change legislation, policy and guidance to those presented in Chapter 14 of the EIA Report. The following policy and related documents are new considerations which were not in place at the time the Application:

- At a UK level:
  - The Committee on Climate Change (CCC) Annual Report to the UK Parliament (June, 2020);
  - UK Government, response to the CCC Progress Report to Parliament (October 2020);
  - National Audit Office (NAO) 'Achieving Net Zero' (December 2020);
  - CCC, Sixth Carbon Budget 'the UK's Path to Net Zero' (December 2020); and
  - The UK Energy White Paper (December 2020).
- At a Scottish Government Level:
  - The CCC advice to the Scottish Government on recovery from the COVID-19 crisis (May 2020);
  - The recommendations from the Scottish Government's Advisory Group on Economic Recovery (June 2020);
  - Scottish Government, Official Statistics, Scottish Greenhouse Gas Emissions 2018, (June 2020);
  - The Report from the Climate Emergency Response Group (CERG) 'Eight Policy Packages for Scotland's Green Recovery' (July 2020);
  - The Programme for Government (2020); and
  - The Update to the Climate Change Plan (December 2020).

The UK net zero target for 2050 was made legally binding by way of amendments made to the Climate Change Act 2008. The scale of the net zero challenge was highlighted in a report from the Institute of Government published in September 2020. The Institute refers to the CCC's latest assessment of June 2020 which states *that "not nearly enough progress had been made a year on from the net zero target being adopted"* (Page 16). The UK is on track to meet its third carbon budget (covering 2018-22) however, not on track to meet its fourth (2023-27) and fifth (2028-32).

The CCC Annual Report to UK Parliament includes new advice to the UK Government on securing a green and resilient recovery following the COVID-19 pandemic. It recommends that Ministers *"seize the opportunity to turn the COVID-19 crisis into a defining moment in the fight against climate change"*. The CCC states that although a limited number of steps have been taken over the past year to support the transition to a net-zero economy and improve the UK's resilience to the impacts of climate change *"much remains to be done"*.

The Scottish Government published the update to the Climate Change Plan (CCP) 'Securing a Green Recovery on a Path to Net Zero' on 16th December 2020. The CCP covers the period 2018-2032 and responds to the new net zero targets aimed at ending Scotland's contribution to climate change by 2045. The period it covers refers to the timescale in which the Government has committed to reduce greenhouse gas emissions by 75% by 2030 (compared with 1990 levels).

In terms of electricity, the CCP update announces, *"further policies to continue the rapid growth in renewable generation over the past 20 years, moving from a low to a zero-carbon electricity system"*.

The Development Plan for the Revised Development comprises the Highland-Wide Local Development Plan (HwLDP) (2012)<sup>3</sup> and the Caithness and Sutherland Plan (CaSPlan) (2018)<sup>4</sup> which is supportive of the principle of wind energy development. The HwLDP policies require developers to demonstrate that wind energy development proposals will not have unacceptable impacts on people, the natural and water environment, landscape, or the historic, built or cultural environment.

The Council adopted its Supplementary Guidance (SG)<sup>5</sup> on Onshore Wind Energy in November 2016 and this now forms part of the statutory Development Plan. Section 1 'Introduction' states: *"The advice that follows provides a fuller interpretation of HwLDP policies as they relate to onshore wind energy development. The Council will balance these considerations with wider strategic and environmental and economic objectives including sustainable economic growth in the Highlands, and our contribution to renewable energy targets and tackling climate change...."*

The Addendum Supplementary Guidance 'Part 2B'<sup>6</sup> which was adopted in December 2017 and provides landscape sensitivity appraisals for 'Black Isle, Surrounding Hills and Moray Firth Coast Caithness'. The Addendum (2017) has identified that turbines in north-east Caithness should *"consolidate and improve the existing layout of Stroupester"* and *"avoid*

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<sup>3</sup> The Highland Council (2012) Highland-wide Local Development Plan [Online] Available at: [https://www.highland.gov.uk/info/178/local\\_and\\_statutory\\_development\\_plans/199/highland-wide\\_local\\_development\\_plan](https://www.highland.gov.uk/info/178/local_and_statutory_development_plans/199/highland-wide_local_development_plan) (Accessed 12/01/21)

<sup>4</sup> The Highland Council (2018) the Caithness and Sutherland Local Development Plan [Online] Available at: [https://www.highland.gov.uk/info/178/local\\_and\\_statutory\\_development\\_plans/283/caithness\\_and\\_sutherland\\_local\\_development\\_plan](https://www.highland.gov.uk/info/178/local_and_statutory_development_plans/283/caithness_and_sutherland_local_development_plan) (Accessed 12/01/21)

<sup>5</sup> The Highland Council (2016) Onshore Wind Energy: Supplementary Guidance [Online] Available at: [https://www.highland.gov.uk/downloads/file/18793/onshore\\_wind\\_energy\\_supplementary\\_guidance\\_november\\_2016](https://www.highland.gov.uk/downloads/file/18793/onshore_wind_energy_supplementary_guidance_november_2016) (Accessed 12/01/21)

<sup>6</sup> The Highland Council (2017) Onshore Wind Energy: Supplementary Guidance Part 2b [Online] Available at: [https://www.highland.gov.uk/downloads/file/18753/addendum\\_supplementary\\_guidance\\_part\\_2b\\_december\\_2017](https://www.highland.gov.uk/downloads/file/18753/addendum_supplementary_guidance_part_2b_december_2017) (Accessed 12/01/21)



*cumulative effects by ensuring turbine height and proportions are similar to existing turbines.”*

Overall, there is strong policy support for the principle of renewable energy development at all policy levels, subject to the satisfaction of a number of planning and environmental considerations which are considered in detail in the technical chapters of the SEI. A full assessment of the Revised Development against the applicable plans, policies and strategies is contained within the Planning Statement that accompanies the SEI.

#### **4 THE REVISED DEVELOPMENT**

The purpose of the Revised Development is to generate electricity from a renewable source of energy, offsetting the need for power generation from the combustion of fossil fuels. Consequently, the electricity that will be produced results in a saving in emissions of Carbon Dioxide (CO<sub>2</sub>) with associated environmental benefit.

The Revised Development would comprise of 11 three-bladed turbines with a total generating capacity of up to 49.9 MW. The main components of the Revised Development are as follows:

- Up to 11 three-bladed turbines with a maximum tip height of up to 149.9 m for all turbines except Turbine 5 (T5) and T10 which have a maximum tip height of up to 135 m to tip height;
- Aviation lighting (32 cd low intensity fixed red aviation light) on T1, T4, T5, T8 and T10;
- Associated foundations, blade laydown areas, crane hardstandings and external transformers at each wind turbine location;
- Access tracks linking the turbine locations including a turning head. These will largely comprise new tracks of which the majority will be floating;
- Substation compound incorporating electrical switchgear, wind farm control elements and Battery Energy Storage System facility;
- Temporary construction compound;
- Network of underground cabling running adjacent to the access tracks where possible;
- A permanent anemometry mast (up to 92 m); and
- Upgraded site access from existing junction off the C1037 public road.

The dimensions of the turbines are stated for SEI purposes. It is not intended to amend the description of the development in the Application form so as to specify these dimensions.

As with the EIA Report, the Revised Development will require the felling of approximately 205 ha of commercial coniferous crops as it is proposed that the Site will be clear-felled.

The Application is for the Revised Development to be operational for 30 years, and at the end of this period, decommissioned. The components of the Revised Development are shown in SEI Figure 1.2.

The maximum installed capacity of the Revised Development remains up to 49.9 MW. The Revised Development is not, however, tied to a particular turbine model, as the turbine market is dynamic, with technology changes, predicted performance and price fluctuations driving turbine selection. The final turbine choice will depend on technical and commercial considerations at the time of procurement, although the final turbines would not exceed the proposed maximum parameter tip heights of 149.9 m and 135 m for T5 and T10.

The Revised Development would be accessed via a new junction from the C1037 public road connecting Lyth to Upper Gills then existing forestry track and new track. The turbine components which constitute 'abnormal loads' would be delivered by sea to either Wick Harbour or Gills Bay Harbour.

The grid connection for the Revised Development would be via a new on-site substation, which would contain metering equipment and switchgear. The connection between the Site and the wider grid is the responsibility of Scottish Power Energy Networks (SPEN) and would be subject to a separate consent procedure.

## **5 SITE SELECTION AND DESIGN EVOLUTION**

The Site was identified as having the potential for development as part of a comprehensive site search exercise and feasibility studies were undertaken looking at a range of factors. The final design of the Development was established through an iterative process which included the identification of technical and environmental constraints determined during the SEI process and through consultation with statutory bodies. The SEI design layout was established in December 2020 and comprises of 11 turbines.

## **6 SITE AND SURROUNDINGS**

The Site covers an area of approximately 332 hectares (ha) and is centred on National Grid Reference (NGR) 332200, 966000 as shown on SEI Figure 1.1.

The topography of the Site and immediate vicinity is relatively flat. The elevation of the Site varies from approximately 40 m Above Ordnance Datum (AOD) in the central portion of the Site, rising gently to 60 m AOD towards the east of the Site on the south-western flanks of the Hill of Stroupster which rises to 74 m AOD.

The predominant land use within the Site consists of coniferous forestry which mainly includes Sitka spruce, lodgepole pine and larch. The west of the Site is not forested and consists of open moorland and blanket bog. There are a number of watercourses within the Site, all of which drain to the south and the majority of which discharge into the Back Burn of Slickly which runs through the centre of the Site.

The operational Stroupster Wind Farm consisting of 13 turbines is immediately to the north-east, while the operational four turbine Lochend Wind Farm is approximately 3 km to the north-west of the Site. Stroupster Wind Farm consists of 12 turbines with a tip height of 113 m and a single turbine at 110 m.

No public roads are located within the Site, although there two forestry access tracks within the Site, to the west and east.

There are a number of dispersed properties surrounding the Site, predominantly to the east and south along unnamed roads, however none are within 1 km of the proposed turbine locations. There are no residential properties within the Site.

The Site is bordered to the north and south by Caithness and Sutherland Peatlands which is a Special Area of Conservation (SAC), Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and Ramsar Site.

## **7 CONSTRUCTION PHASE DETAILS**

The construction period for the Revised Development would be approximately 18 months in duration. These details remain unchanged from the EIA Report.

The starting date for construction activities will largely be dependent upon the date that consent might be granted and grid availability; subsequently, the programme would be influenced by constraints on the timing and duration of any mitigation measures confirmed in the individual technical chapters or by the consent decision.

Construction activities have been assumed to take place between 07:00 to 19:00 hours on weekdays and 07:00 to 18:00 on Saturdays. No work would be undertaken on Sundays or public/bank holidays.

It would be the responsibility of the Principal Construction Contractor to prepare and implement a Construction Environmental Management Plan (CEMP). An Outline CEMP is included as part of the application and can be found in Technical Appendix A9.1.

The CEMP would incorporate the following:

- Pollution Prevention Plan;
- Drainage Management Plan;
- Traffic Management Plan;
- Site Waste Management Plan;
- Stakeholder Management Plan;
- Habitat Management Plan;
- Peat Management Plan;
- Peat Landslide Hazard and Risk Assessment; and
- Geotechnical Risk Register.

## **8 OPERATION**

During operation, general servicing will be required. Each turbine manufacturer has specific maintenance requirements, but typically, routine maintenance or servicing of turbines is carried out twice a year, with a main service at twelve monthly intervals and a minor service at 6 months. In the first year, there will likely be an initial three-month service after commissioning.

These details remain unchanged from the EIA Report.

## **9 DECOMMISSIONING**

The Revised Development has been designed with an operational life of 30 years. At the end of the operational period, it would be decommissioned and the turbines dismantled and removed. Any alternative to this action would require consent from the Council.

During decommissioning, the turbine bases would be excavated below ground level. All cables would be cut off below ground level, de-energised, and left in-situ. Access tracks would be left for use by the landowner. No stone would be removed from the Site. The decommissioning works are estimated to take six months. This approach is considered to be more environmentally beneficial than seeking to remove foundations, cables and roads entirely.

These details remain unchanged from the EIA Report.

## **10 CONSULTATION**

Following the submission of the Application, the Council contacted a range of relevant consultees (detailed in Section 1.5.3 of the SEI). On receipt of consultation responses, the Applicant has considered matters raised and has undertaken further design and assessment work, where appropriate. Notable consultation responses which have informed the SEI are detailed in the following sections.

### **10.1 Heritage**

Historic Environment Scotland (HES) objected to the Application as it had the potential for significant adverse impacts on the setting of Kirkstones settlement 1,650 m south-south-west of Stroupster (Scheduled Monument, Index no. 4636). In addition, potential impacts on Green Hill of Clayton, settlement west-south-west of Hill of Clayton (Scheduled Monument, Index no. 4593) were noted in the HES response.

In response to these comments, the site layout has been re-designed following detailed consultation. T11 has been re-sited approximately 685 m further north-west and the tip

heights of T5 and T10 have been reduced to up to 135 m to tip to maintain the setting and relationship of the Scheduled Monuments.

As noted in its response dated 25th September 2020, HES stated that while some impact would remain on the setting of the Kirkstones, HES considers that the "changes are likely to reduce the impacts to an acceptable degree"<sup>7</sup>. A formal response from HES is expected following submission of the SEI however, HES has indicated that it now finds the impacts of the Revised Development acceptable.

## 10.2 Geology

Scottish Environment Protection Agency (SEPA) objected to the Application with regards to the infrastructure located in areas of deep peat (> 1 m depths). Most notably, SEPA requested further information in regards to how impacts to peat were minimised during design in regards to the placement of T1, T2, T4, T7, T9 and the track between T5 and T11. In response to these comments, the layout has been re-designed to re-locate T1, T2, T4, T5, T7, T9 and T11 and associated infrastructure in areas out with deep peat or in shallower peat depths (including the removal of the track between T5 and T11) and this information is included in this SEI.

The SEI layout was sent to SEPA on 15th December 2020 however,

It is anticipated that SEPA will be amenable to the Revised Development and it is anticipated that the objection will be removed.

## 10.3 Landscape

Following consultation with the Council's Landscape Architect, landscape and visual issues were considered during the re-design process, and some improvements were made to avoid excessive overlapping or stacking within the group.

## 10.4 Aviation

Further discussions have been undertaken with Highlands and Islands Airport Ltd (HIAL) regarding the need for aviation lighting on the Revised Development. HIAL have requested 32 candela (cd) low intensity fixed red aviation lights on T1, T4, T5, T8 and T10.

To assess the impact of aviation lighting, a night-time landscape assessment has been undertaken and detailed further in Section 12.9.

## 11 THE SEI PROCESS

Chapter 2 of the EIA Report describes the EIA process for the Development. The process and principles outlined in that chapter have been carried through to the post submission stage and remain valid for the Revised Development and the preparation of the SEI.

The revisions to the Development which are considered within this SEI related to the Revised Development presented in SEI Figure 1.1 which includes the reduced tip height of T5 and T10 to 135 m, and the re-siting of other turbines as detailed in Section 1.6 of this SEI.

Environmental effects have therefore already been considered for a similar (or larger with regard to tip height) scale development scenario than that considered within this SEI. The SEI focusses on outlining the change in predicted effects arising from the revisions to the Development.

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<sup>7</sup> HES (2020) Case ID: 300038257 – Letter to Heather Kwiatkowski - Dated 25<sup>th</sup> September 2020

## **12 SEI REPORT**

### **12.1 Landscape and Visual Impact Assessment (LVIA)**

The Revised Development is similar to the EIA Layout in terms of turbine envelope and number of turbines, and there are therefore no changes in landscape and visual effects in terms of significance, although some effects have increased or decreased slightly (within the same effect levels).

The arrangement of turbines within the Revised Development is different from the EIA Layout, which means that there are some changes to the arrangement of turbines in views. The relocation of T1 and T4 has increased the spread westwards slightly, visible from VP4 Warth Hill. The relocation of T11 and reduction in tip height for T5 and T10 were to mitigate cultural heritage effects (see Chapter 7: Archaeology and Cultural Heritage) has reduced the prominence of the Revised Development in views from the south-east slightly (see VP3 Nybster Water Tower).

However, none of these changes would be very noticeable without reference to the comparative wirelines provided in SEI Figures 3.30.i-xvi, and as illustrated by the CZTV (SEI Figure 3.5), there is effectively no change in visibility of the Revised Development from with wider area.

In summary, alterations to the Revised Development were made primarily in order to mitigate cultural heritage and peat effects. Landscape and visual issues were considered during the re-design process, and some improvements were made to avoid excessive overlapping or stacking within the group however, all effects remain as identified for the EIA Layout in Chapter 6 of the EIA Report. However, in a broader sense, the alterations made to the Revised Development have led to an improved relationship with Stroupster in terms of it appearing as an extension to Stroupster.

There are no changes in effect or significance of landscape or visual effects from those identified in the EIA Report.

A Visual Assessment of Aviation Lighting is included in SEI Appendix A3.1. It is concluded that no significant effects were identified on visual receptors as a result of aviation lighting on T1, T4, T5, T8 and T10 of the Revised Development.

### **12.2 Ecology**

The Revised Development may result in a minor increase in the risk to otter during construction, and will result in a reduction in blanket bog habitat loss, but a very minor increase in the value of blanket bog habitat to be impacted. Therefore, the potential effects on otter and blanket bog remains the same as the EIA Report and are not significant in relation to the EIA Regulations. As no significant effects, no specific mitigation required and good practise measures in EIA Report are sufficient.

In light of the above, the Revised Development will result in no change to the conclusions of the EIA Report, and no significant effects have been predicted.

Effects on ecology associated with the Revised Development are considered to be not significant. This represents no change to the conclusions of the EIA Report or the HRA appraisal.

### **12.3 Ornithology**

The Revised Development has resulted in changes to the wind turbine layout, tip height of T5 and T10, and changes to associated infrastructure from that assessed in the EIA Report.

Despite this, there has been no change in the conclusions of the assessment from that in the EIA Report, and no significant effects on ornithology assets both individually and cumulatively, have been predicted.

Effects on ornithology associated with the Development are considered to be not significant. This represents no change to the conclusions outlined in the EIA Report or the HRA.

#### **12.4 Geology, Hydrology, Hydrogeology and Peat**

T2 has been relocated approximately 150 m north to be out with the watercourse buffer and therefore, reducing the potential for chemical pollution. As a result, the potential effects associated with chemical pollution are not significant. No effects on hydrology are identified.

The Revised Development includes several turbines being re-located and an overall reduction in footprint, mainly due to slightly reducing length of tracks which results in less soils/peat being disturbed. The relocation of turbines and associated infrastructure has also resulted in a reduction of peat disturbance in the region of 33,703 m<sup>3</sup> in comparison with the EIA layout (decreased from 113,118 m<sup>3</sup> in the EIA to approximately 79,415 m<sup>3</sup> in the SEI). The level of class 5 soils disturbed is reduced, but this is still a moderate magnitude of change.

Following the same mitigation measures as the EIA Report, the residual effect is reduced to minor and not significant (as per the EIA Report). As a result, there is no significant effect on peat.

The relocation of turbines and associated infrastructure has resulted in the removal of one new watercourse crossing and remains not significant.

The Revised Development presents no change to the effects assessed in the EIA Report in terms of geology, hydrology, hydrogeology and peat.

The effects on geology, hydrology, hydrogeology and peat resources associated with the Revised Development are considered to be not significant.

This represents no change to the conclusions outlined in the EIA Report.

#### **12.5 Archaeology and Cultural Heritage**

An assessment has been made of the potential for significant effects of the Revised Development on the archaeological and cultural heritage. This assessment did not identify any significant direct effects (in terms of the EIA Regulations) on any receptors during the construction of the Revised Development though preservation by record (e.g., measurement and photographic record) is recommended for two sheepfolds (common archaeological features) affected by construction.

In regards to designated heritage assets, the EIA Report identified significant effects as a result of changes to setting at Kirkstones Settlement (SM4636) and Green Hill of Clayton Settlement (SM4593). The Revised Development has relocated T11 approximately 685 m (north-west) further away from the monuments and reduced the tip height of the two turbines in closest proximity from 149.9 m to 135 m (T5 and T10). This has reduced the effect at Green Hill of Clayton Settlement (SM4593) to minor and not significant. For Kirkstones Settlement (SM4636), the effect remains significant but has been reduced from major to moderate.

From the Kirkstones Settlement (SM4636), the Revised Development will be seen in conjunction with Stroupster Wind Farm; however, the turbine field of view is extended in the vista to the north with introduces additional modern elements into the setting which would further detract from the appreciation of its cultural significance as a remote upland

settlement. Mitigation consisting of the reinstatement of the historic open moorland to the north of Kirkstones Settlement (SM4636) is a beneficial effect that re-establishes the remote moorland setting to the north where it currently is not appreciable due to forestry. The layout revisions have placed T11 at a greater distance from the scheduled monument (approximately 685 m north-west) and reduces the tip height of the closest two turbines (T5 and T10) so that the immediate moorland context in close proximity to the monument would be appreciable. At a further distance, the turbines would be visible; however, the spacing between them, allows the remote open setting important to its cultural significance to be appreciated both in close proximity and as part of the wider upland landscape beyond to the north. This is a beneficial change to the setting and cultural significance but with modern turbines visible in the vista detracting from the remote aspects of its cultural significance, the effect remains moderate and significant.

No significant cumulative indirect (changes to setting) effects from the Revised Development and other wind farm developments is likely.

Effects are considered to be significant for the purposes of the EIA Regulations where the effect is classified as being of 'major' or 'moderate' significance.

Two common archaeological features (i.e., sheepfolds) would be affected by construction with preservation by record recommended after felling. These are of low-negligible sensitivity and likely to be destroyed (high magnitude of change) with the effect minor and not significant. As such, there are considered to be no significant direct effects likely upon known archaeological features within the Site and there is low potential for damage to or destruction of unknown buried archaeological remains.

The Revised Development has reduced the effect from moderate and significant to minor and not significant at Green Hill of Clayton Settlement (SM4593), whilst for the Kirkstones Settlement (SM4636), effects were reduced from major to moderate, remaining significant. For all other designated heritage assets, the assessment within the EIA Report remains valid and these effects are not significant. The integrity of the setting of the scheduled monuments remains so that in relation to Scottish Planning Policy (SPP) Paragraph 145, there is no adverse impact on integrity of the assets.

No significant cumulative indirect (changes to setting) from the Revised Development and other wind farm developments is likely. All cumulative effects are considered to be not significant.

## 12.6 Noise

An assessment has been made of the potential for significant effects of the Revised Development on the acoustic aspects of the local environment.

No significant effects were identified during construction.

This assessment identified an exceedance of the proposed noise limits at one dwelling during the operation of the Revised Development. By applying operational mitigation measures, in the form of reduced noise operating modes under a limited range of wind conditions, and following best practice guidelines during construction, the residual effects of the Revised Development, both alone and in combination, with other schemes are assessed as being not significant in terms of the EIA Regulation.

The above results are consistent with those reported in the EIA Report. With application of the recommended mitigation, operational noise effects would be no greater than previously assessed.

Operational noise would potentially exceed the proposed noise limits at one dwelling for a limited range of wind conditions. Application of mitigation in the form of appropriate planning conditions and reduced noise operational modes would ensure that residual

operational noise effects are at or below the proposed noise limits and therefore not significant.

The above results are consistent with those reported in the EIA Report. With application of the recommended mitigation, operational noise effects would be no greater than previously assessed.

## 12.7 Climate Change

Based on the anticipated capacity factor of the onshore wind aspect of the Revised Development of 30%, it is expected the Revised Development would result in the production of approximately 121,414 MWh annually, equating to 3,642,408 MWh over the operational life of the Development. This equates to displacing approximately 1,624,514 tonnes of fossil fuel mix generation equivalent CO<sub>2</sub> emissions over the operational life which is a beneficial environmental effect. This equates to powering the equivalent of approximately 31,062 homes annually, based on the latest available figures from 2020<sup>8</sup>.

An updated peat depth survey was undertaken for the Revised Development where it was confirmed that the majority of the Site was not underlain by deep peat; however, pockets of deep peat do exist particularly in the localised areas of flatter ground. Overall, the carbon losses for the Revised Development will be 183,106 t CO<sub>2</sub> equivalent. This is largely due to increased generation capacity of the Revised Development.

The estimated payback period for the Revised Development (excluding battery storage) has decreased from 6 years for the Proposed Development, to 5.8 years for the Revised Development when compared to grid-mix electricity generation. In comparison to fossil fuel mix and coal-fired electricity generation the payback period of the Revised Development is 3.3 years and 1.6 years. This is due to the reduction in carbon intensity of the grid-mix emission factor in the updated version of the carbon calculator, which will be due to the increased penetration of low carbon generation into the grid.

The CO<sub>2</sub> emission savings for the operational lifetime beyond that (currently predicted as 30 years) would result in a net benefit of the Revised Development to reducing climate change. This is considered a low magnitude of effect; i.e., a slight, detectable alteration of the baseline condition which is not significant.

The findings predicted in the EIA Report with regard to climate change and carbon balance remain valid. In summary, no significant effects were predicted in the EIA Report as a result of the climate change. As stated within the EIA Report, the predicted future climatic baseline conditions are highly unlikely to affect the operation of the Development. The Development will have a positive effect on carbon savings and a significant positive effect when considered cumulatively with the UK-wide renewable energy development.

The Revised Development is predicted to have a significant positive effect on carbon balance when considered cumulatively with other UK wide renewable energy development. Other effects relating to climate change associated with the Revised Development are considered to be not significant. This represents no change to the conclusions outlined in the EIA Report.

## 12.8 Socio-Economics

The EIA Report identified no significant effects predicted on all phases of the Development and it is expected to remain the same for the Revised Development, however due to the change in design, construction and operational effects had to be reassessed as well as the overall benefits to the community as part of the SEI.

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<sup>8</sup> Department for Business, Energy & Industrial Strategy (2020) DUKES 2020 [Online] Available at: <https://www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2020> (Accessed 08/03/2021)



The key changes that are likely to cause construction effects in relation to socio-economics include the re-siting of the turbines identified above, the track realignment and the relocated substation. All three may have an impact on public access and walkways; any core paths within proximity of the Site may become inaccessible and therefore reduce tourism. However, it is expected this will not be a significant effect as it will be a short-term issue which will be resolved on completion of construction

As with the EIA Report, it is not expected that there will be any significant effects on socio-economics in relation to the operational phase of the Revised Development. Any effects on socio-economics from the construction phase will no longer be an issue; the reduced tip heights to turbine T5 and T10 will reduce the impacts on the visual impacts on the local area, specifically on the Kirkstones Scheduled Monument which has the potential to benefit the local economy in terms of attracting visitors by maintaining the scenery and natural landscape.

As a result of the Revised Development, CAPEX in the construction and development phase is expected to be approximately £61 million. This is an increase from approximately £52 million as presented in the EIA Report.

As a result of the Revised Development, OPEX in the operational and maintenance phase is expected to be approximately £2.8 million per annum. This is an increase from approximately £2.15 million per annum based on the 3.6 MW turbines assessed in the EIA Report.

As a result of the Revised Development and based on 4.2 MW candidate turbines, the annual community benefits payments are expected to increase to approximately £231,000 per annum and would equate to £6.9 million during a 30-year operational period.

Effects on socio-economics associated with the Revised Development are considered to be not significant. This represents no change to the conclusions outlined in the EIA Report.

In addition to the community benefit fund the Applicant has provided the opportunity for local community organisations to invest in the Development through shared ownership as well as using the infrastructure to deliver super-fast broadband. Shared ownership is defined as any structure that involves a community group as a meaningful financial partner in a renewable energy project.

## 12.9 Aviation

The EIA Report did not identify potential significant effects, in terms of the EIA Regulations 2017, on any aviation receptors during the construction, operation and decommissioning of the Development.

As noted in Chapter 15 of the EIA Report, engagement with HIAL in relation to Wick Airport was continuing with the outstanding aviation issues would be resolved prior to submission of the SEI Report.

HIAL updated its Radar Safeguarding Strategy on 26th August 2020. The position has evolved as they explore alternative surveillance solutions. Surveillance cannot currently be considered in their safeguarding criteria, as detailed in Chapter 2 of the SEI.

HIAL did not provide an update on the requirement for aviation lighting however, as detailed in Section 15.9 of the EIA Report.

Subject to the findings of the Instrument Flight Procedure (IFP) study, it was anticipated that a low intensity fixed red lights with a brilliance of 32 cd, located on the nacelle and visible throughout 360 degrees, would be required for T1, T2, T5, T8 and T11.

Further consultation (dated 08/02/21) has been undertaken with HIAL to confirm the position on aviation lighting. HIAL has requested 32 cd low intensity fixed red lights on T1, T4, T5, T8 and T10.

The requirement for aviation lighting will not change the significance of effects on aviation stakeholders however, the visual impacts have been assessed as part of this SEI Report. SEI Appendix A3.1 includes a visual assessment of aviation lighting that concludes no significant effects were identified.

HIAL is content that there is no impact on the IFPs as a result of the Revised Development.

No significant effects will occur as a result of the Revised Development on aviation facilities or stakeholders. This conclusion is consistent with the findings of the EIA Report.

## **12.10 Other Issues**

### **12.10.1 Shadow Flicker**

The maximum rotor diameters have not changed since the EIA Report (up to 130 m) however, the proposed rotor diameter of T5 and T10 has reduced to up to 126 m. T1, T2, T4, T5, T7, T9 and T11 locations have also been changed since the EIA Report.

Given the change in turbine dimensions and locations, there will be an effect on the shadow flicker study area as referred to in the shadow flicker assessment of the EIA Report.

One property (Slickly Croft) has been identified within the Show Flicker Study Area.

Shadow flicker effects have been assessed as being not significant at the nearest residential receptor, Slickly Croft. As such, no mitigation measures are required in this SEI Report. Shadow flicker does not exceed the criteria specified in current guidance, and therefore no significant effects will occur as a result of the Development. This conclusion is consistent with the findings of the EIA Report.

### **12.10.2 Telecommunications and Utilities**

There is no known change to the telecommunications and utilities baseline conditions and the relocation of turbines and reduction in tip height of turbines T5 and T10 will make no material change to the potential effects determined within the EIA Report which remains valid to the Revised Development. Mitigation effects remain unchanged from those within the EIA Report and remains valid to the Revised Development.

## **13 CONCLUSION**

The Revised Development would consist of 11 turbines (nine of which would have a maximum tip height of up to 149.9 m, and two (T5 and T10) would have a maximum tip height of up to 135 m) and associated infrastructure including battery storage.

As per the EIA Report, the Revised Development turbines would have a total installed maximum capacity of 49.9 MW. The operational life-span of the Development would be 30 years.

This SEI concludes that there are no changes to the conclusions of the EIA Report in terms of the EIA Regulations.