Energy Isles Wind Farm

Supplementary Environmental Information 2

Non-Technical Summary

September 2021

Document Information

Project Name:	Energy Isles Wind Farm
Document Title:	Supplementary Environmental Information 2
Client Name:	Statkraft UK Ltd
Client Contact:	Charlotte Healey
Client Address:	22 Bishopsgate, London EC2N 4BQ
Document Status:	Final for Issue
Author:	M. Rankin
Reviewed:	S. Tullie
Approved:	G. Spowage
Date:	2021-09-14
Version:	1.0
Project/Proposal Number:	3850
ITPEnergised Office:	4th Floor, Centrum House, 108-114 Dundas Street, Edinburgh, EH3 5DQ

Revision History

Version	Date	Authored	Reviewed	Approved	Notes
0.1	2021-09-07	M. Rankin	S. Tullie	G. Spowage	First Issue
1.0	2021-09-14	M. Rankin	S. Tullie	G. Spowage	Final Issue

Contents

1. Background

This document is a Non-Technical Summary of the Energy Isles Wind Farm Supplementary Environmental Information (SEI) 2 which provides further information in support of the application by Energy Isles Shetland Limited (the Applicant), proposing the development of a wind farm on Yell, in the Shetland Islands (refer to Figure 1).

The Applicant submitted an application for Section 36 consent under the Electricity Act 1989 for the proposed Energy Isles Wind Farm (hereafter referred to as the 'Proposed Development') to the Scottish Ministers via the Scottish Government's Energy Consents Unit (ECU), in April 2019.

Supplementary Environmental Information was submitted in August 2020 (the '2020 SEI') which provided an update to the original Environmental Impact Assessment Report (the '2019 EIA Report').

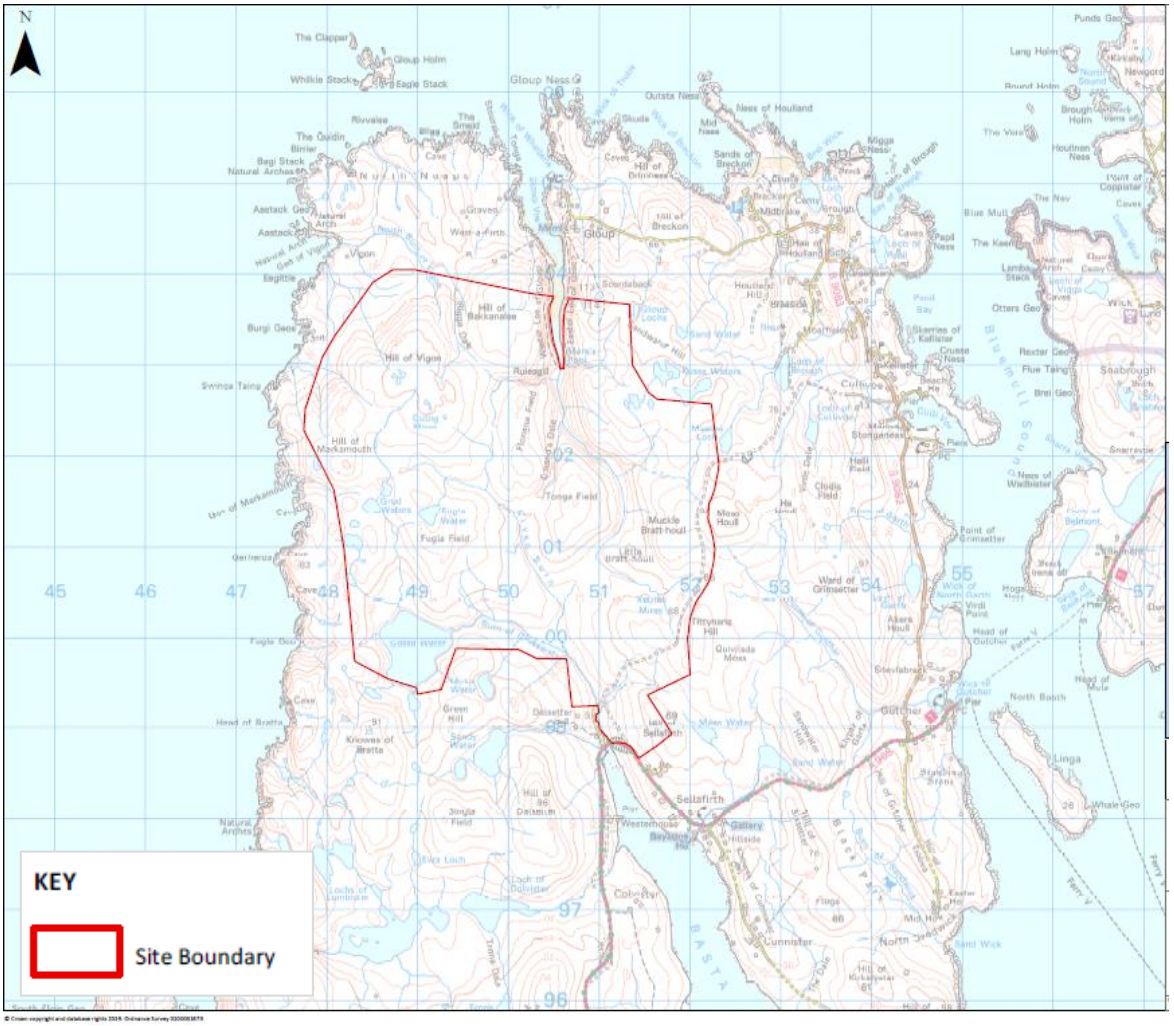

Figure 1 - Site Location Plan

2. Purpose of this Supplementary Environmental Information

This SEI 2 presents a second round of SEI to update the 2019 EIA Report and 2020 SEI and has been produced for the purpose of assessing the changes to the Proposed Development following consultation since the 2020 SEI.

This SEI 2 is not a standalone document. It does not replicate information previously provided within the 2019 EIA Report or the 2020 SEI, and therefore should be read in conjunction with both those earlier submissions.

3. Availability of SEI 2

Copies of this SEI 2 are available from:

EnergyIsles@statkraft.com

Electronic copies of SEI 2 can be accessed at http://www.energyconsents.scot/ or at http://www.energyisles-shetland.co.uk/ as required by the Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 (Scottish Government, 2020).

Hard copies of this Non-Technical Summary (NTS) are available free of charge from the Applicant and a hard copy of SEI 2 for £800 (taking into account printing and distribution costs). In addition, all documents are available (as a PDF for screen viewing only) on a USB for £20.

Due to the COVID-19 pandemic and in-line with The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020, no physical copies are available for public viewing at the point of submission.

4. Representations to the Application

Any representations to the application should be made directly to the case officer at the Scottish Government Energy Consents Unit via the following:

Energy Consents Unit
Scottish Government
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

email: representations@gov.scot
online: www.energyconsents.scot

5. The Proposed Development

The Proposed Development will now comprise of 18 wind turbines, all of which will be up to 180 m height from ground to blade tip when vertical (refer to Table 1 below). The total power output of the Proposed Development is estimated to be approximately 126 MW but will be no greater than 200 MW.

A number of ancillary elements are also proposed, including three temporary construction compounds, permanent hardstandings adjacent to the wind turbines for maintenance and decommissioning cranes, external transformers, internal access tracks including a junction from the existing road network, a network of underground cables between turbines, an on-site substation and maintenance building, a permanent meteorological monitoring mast and four potential borrow pit search areas. The proposed site layout is shown in Figure 2.

KEY FACTS:

Number of Turbines	18
Turbine Tip Height	Up to 180 m
Lifespan	30 years
Location	North Yell
Energy Generation	Approx. 126 MW

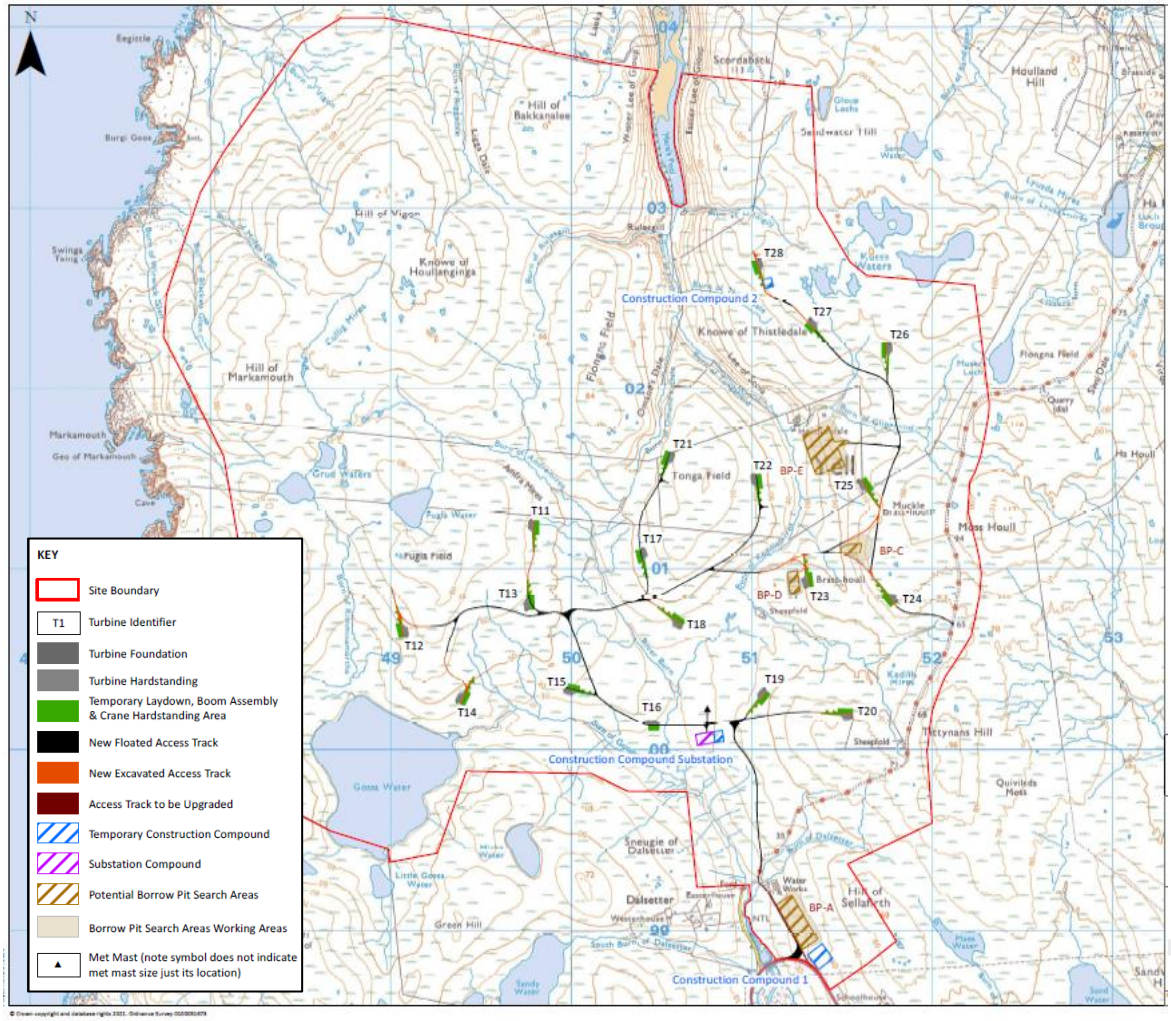

Figure 2 - Site Layout Plan

The design process that has led to this final layout and how this differs from the layouts presented in the 2019 EIA Report and the 2020 SEI are described in Chapter 3 of SEI 2 and are summarised in the table below.

Table 1 Summary of differences between 2019 Layout, 2020 Layout and 2021 Layout

Infrastructure	2019 Layout	2020 Layout	2021 Layout
Number of turbines	29	23	18
Maximum height of turbines	29 turbines 200 m to tip	9 turbines 180 m to tip and 14 turbines 200 m to tip	18 turbines 180m to tip
Number of borrow pit search areas	Nine	Seven	Four
Number of meteorological masts	One	One	One
Number of construction compounds (including substation construction compound)	Four	Three	Three
Length of new permanent floated access track	18.35 km	12.5 km	8.4 km
Length of new permanent dug access track	1.75 km	990 m	2.2 km
Length of new temporary floated access track	980 m	720 m	160 m
Length of upgraded existing track	1.05 km	1.05 km	630 m
Total length of proposed access track	*22.1 km*	*15.3 km*	*11.4 km*
Overall Footprint	*483,209 m^2*	*383,518 m^2*	*279,327 m^2*

The overall footprint of the Proposed Development's infrastructure in the 2021 Layout has reduced by 27% compared to the 2020 Layout and by 42% compared to the 2019 Layout.

Based on the capacity factors of other wind farms on Shetland[1] and supported by independent analysis, the annual indicative energy output for the Proposed Development is expected to be approximately 562,917[2] MWh per annum, indicating that the Proposed Development would generate enough electricity to power

[1] e.g. Burradale Wind Farm on the island of Mainland, Shetland has an average annual capacity factor of 52% https://www.burradale.co.uk/. This has been independently, validated by a third party consultant using analysis of the wind resource for the Proposed Development to assume a capacity factor of 51%

[2] This has been calculated by multiplying the annual capacity of the Proposed Development (126 MW) by the hours in a year (8,760) by the capacity factor (51%)

over 157,327 average UK households[3] (based on Department of Business, Energy and Industrial Strategy (BEIS) UK average domestic household consumption of 3,578 kWh per annum. (BEIS, 2020)). The Proposed Development is anticipated to save 143,000 tonnes of carbon emissions annually (refer to Chapter 16 of SEI 2 for further details of carbon emissions).

6. Consultation

Consultation with statutory and non-statutory consultees, interested parties and the public has been a critical component of the process during the design evolution of the Proposed Development and following submission of the 2019 EIA Report and the 2020 SEI. Consultation responses received as part of the statutory consultation process following the submission of the 2020 SEI have been reviewed and, where necessary, addressed within SEI 2. Direct consultation has also been undertaken since the submission of the 2020 SEI with NatureScot, Scottish Environment Protection Agency, and Shetland Island Council to discuss their concerns. Details of this can be found in Chapter 2 of SEI 2.

7. Environmental Impact Assessment (EIA)

The EIA considers the effects of the Proposed Development during construction, operation and decommissioning on the following topics:

- landscape and visual (effects to the character of the landscape and views from agreed locations);
- ornithology (the effects to birds and protected bird habitats);
- ecology (the effects to protected habitats, flora and fauna, excluding birds);
- noise and vibration (effects to local properties from noise and vibration caused by the Proposed Development);
- cultural heritage (effects to the integrity and setting of historic sites);
- hydrology, hydrogeology and geology (the effects to surface water, ground water, rocks and soils);
- traffic and transport (effects from traffic travelling to, and from, the Proposed Development);
- socio-economics, tourism and recreation (effects to the local and national economy, local tourism businesses, recreation facilities, and the change in use of the land at the site of the Proposed Development);
- aviation and radar (effects to civil and military aviation facilities and air space);
- shadow flicker (effects caused by the passing of the turbine blades in front of the sun);
- telecommunications (effects to telecommunications facilities); and
- carbon calculator (the whole life carbon balance of the Proposed Development).

The SEI 2 provides an assessment of the potential significant environmental effects of the amended infrastructure design (the 2021 Layout). The temporal and technical scope of SEI 2 and the assessment methodology are the same as reported in the 2019 EIA Report and the 2020 SEI. This NTS provides an updated summary of the potential significant environmental effects.

Large sections of the 2019 EIA Report and 2020 SEI remain valid and relevant to the 2021 Layout, and are therefore unchanged for SEI 2. Where this is the case, this information has not been replicated in SEI 2, but cross-references to the 2019 EIA Report or 2020 SEI are provided to assist the reader. This NTS for SEI 2 should therefore be read in conjunction with the NTSs for the 2019 EIA Report and the 2020 SEI.

[3] This has been calculated by dividing the annual power output (526,917 MWh) by annual UK average household consumption (3.578 MWh) (BEIS, 2020).

Landscape and Visual

The full assessment of effects on landscape and visual receptors is provided in Chapter 5 of the 2019 EIA Report and Chapter 5 of the 2020 SEI, with updates provided in Chapter 5 of SEI 2. Revised visuals demonstrating the anticipated visibility of the 2021 Layout from key viewpoints are provided in Volume 3 of SEI 2.

The updated Landscape and Visual Impact Assessment (LVIA) considers the potential effects of the revised proposals following the reduction from 23 to 18 turbines, and the reduction in blade tip height of ten turbines from 200 m to 180 m.

The revised assessment has considered the effects upon designated landscapes including the Shetland National Scenic Area, the proposed Local Landscape Areas and Inventory Gardens and Designed Landscapes. From a visual perspective, the revised assessment considers effects upon residents at settlements, users of roads, ferries and recreational routes, which include locals and tourists.

The adjustment to the Proposed Development, most notably removing Turbines T5, T6, T8, T9 and T10, reduces the visual influence of the Proposed Development on the sub-units of the Shetland National Scenic Area at North Roe and Unst. In particular, the turbine removal and reduction in height of a further ten turbines draws the Proposed Development back even further from the coastline of north Yell.

The revision to the Proposed Development takes development even further away from the lower lying headland area of Yell, thereby setting the influence of development back from the sensitive coastlines and away from the focus of coastal views. This reduction of the Proposed Development also positions the development within the moorland interior of Yell, associating the development more clearly with a single component of the landscape.

Significant landscape and visual effects are to be expected for any commercial scale wind farm, and this is no exception. A number of significant effects are predicted including significant landscape effects on the landscape character of the site and its surroundings, visual effects on residents at settlements and tourists including recreational walkers. The removal of five turbines and associated infrastructure marks a 25% reduction in the number of turbines. These changes to the layout have reduced the magnitude of change for the majority of receptors, with a removal of significant effects in a small number of instances. In other locations, the magnitude of change leading to a significant effect has reduced to the lowest level that is capable of triggering a significant effect. In particular the magnitude of change will be reduced for some landscape and visual receptors to the north, west and south of the wind farm.

The large-scale, open and expansive landscape of Yell is considered to have attributes which are suited to wind farm development, as recognised in the Shetland Island Council Capacity Study (LUC, 2009)[4]. It is considered that the Proposed Development is an appropriate scale of development, which can be accommodated in this landscape.

Ornithology

The full assessment of effects on ornithology receptors is provided in Chapter 6 of the 2019 EIA Report and Chapter 6 of the 2020 SEI, with updates provided in Chapter 6 of SEI 2.

SEI 2 has provided an update to the impact of the 2021 Layout on ornithology compared with the 2020 Layout and provides an update on the ornithological consultation since the publication of the 2019 EIA Report and the 2020 SEI.

The re-assessment considers the responses to the 2020 SEI on ornithological grounds which were received from NatureScot, Shetland Bird Club, and Royal Society for the Protection of Birds (RSPB). Objections were made in relation to technical elements of the ornithology assessment within the 2020 SEI and responses to each of these are presented in Chapter 6 of SEI 2.

[4] LUC. (March 2009*). Landscape Sensitivity and Capacity Study for Wind Farm Development in the Shetland Islands.* Shetland Island Council.

The assessment has concluded that residual effects of disturbance and displacement during the construction and operation phases will be reduced from those predicted in the 2020 SEI. Construction phase effects will be minimised through the timing of the work and the use of buffer zones. Pre-development surveys and the adoption of habitat management measures will protect bird species through construction and operation of the Proposed Development. Any displaced territories will be accommodated through habitat enhancement to create more favourable nesting habitat. It is expected that displacement effects can be fully mitigated through habitat enhancement.

An updated, corrected and peer reviewed collision risk model predicted collision-related mortality to have increased for great skua compared to the risk reported in the 2020 SEI. However, the significance of collision effects remains low, and is unlikely to extend beyond the site level. For all other species, collision related mortality is predicted to be not significant at any geographical level.

Overall, construction and operational phase ornithological effects are likely to be localised, and adverse effects on the integrity of internationally designated sites are unlikely to occur.

Ecology

The full assessment of effects on ecological receptors is provided in Chapter 7 of the 2019 EIA Report and Chapter 7 of the 2020 SEI, with updates provided in Chapter 7 of SEI 2.

Following the change in design of the Proposed Development a re-assessment has been undertaken of the residual effects of the Proposed Development upon ecological features.

The Proposed Development site is upland in character, waterlogged and dominated by blanket bog and other mire types, with some areas of grassland in the more sheltered valleys and on better-drained slopes. With the change in layout from the 2020 SEI, an updated ecological impact assessment has been carried out for valuable acid grassland and blanket bog habitats. The assessment within the 2019 EIA Report remains valid for all other non-avian (ornithological) important ecological features.

Similar to the conclusion in the 2020 SEI, no significant impacts are predicted for valuable acid grassland habitat.

The reduction in the number of turbines from 23 in the 2020 Layout to 18 in the 2021 Layout has resulted in significant reductions to the permanent and temporary losses of peatland habitat. There is a reduction to the permanent loss of blanket bog from a predicted loss of 23.4 ha under the 2020 Layout to 17.5 ha under the 2021 Layout (i.e. a 25 % reduction). Temporary impacts have been reduced from a predicted loss of 18 ha under the 2020 Layout to 15.6 ha under the 2021 Layout.

Therefore, the 2021 Layout represents a very significant reduction in permanent loss, temporary loss and temporary impacts to sensitive habitats. Blanket bog is of National importance and therefore the loss of this habitat during the construction phase would remain a significant effect in the absence of any compensation. This is unchanged from the 2020 SEI. The degradation and disturbance effect on blanket bog during operation has reduced and is now assessed as a non-significant effect as a result of the 2021 Layout. All other effects are unchanged from the 2020 SEI and remain non-significant.

An updated Habitat Management Plan for restoration of blanket bog off-site has been included as Appendix 7.1 in the 2021 SEI. This sets out the proposals for areas of off-site degraded blanket bog habitat to be made available for restoration. Overall, a net amount of around 51 ha blanket bog will be restored which will outweigh the predicted losses within the Proposed Development site.

Noise

The full assessment of effects on noise sensitive receptors is provided in Chapter 8 of the 2019 EIA Report and Chapter 8 of the 2020 SEI, with updates provided in Chapter 8 of SEI 2.

This assessment considered the potential noise effects associated with construction and operation phases of the Proposed Development. No potential vibration effects were identified and therefore consideration of vibration was scoped out of the 2019 EIA Report and remain scoped out of this SEI 2.

The assessment has included an update to predictions of operational wind noise; all other aspects have been assumed to be the same as those considered in the 2020 SEI.

Construction level noise will remain similar to the findings of the 2019 EIA Report, albeit slightly lower in magnitude due to the reduction in the number of turbines and associated infrastructure. No updated predictions of construction noise have therefore been undertaken; the predicted levels considered in the 2019 EIA Report have been assumed to be representative of 'worst-case' levels for the 2021 Layout. Predicted construction-phase effects are therefore the same as those reported in the 2020 SEI and the resultant noise impacts remain not significant.

The reduced number of turbines included in the 2021 Layout compared to the 2020 Layout and 2019 Layout will result in marginally lower noise levels compared to previously predicted operational noise levels, which have been previously confirmed to meet the proposed noise limits. Similarly, fixed non-turbine plant (i.e. substations and transformers) remain unchanged from the 2019 Layout and 2020 Layout, and therefore no updated assessment of such plant has been undertaken. Predicted operational phase effects are therefore the same as those reported in the 2019 EIA Report and 2020 SEI and remain not significant.

This assessment has determined that operational noise from wind turbines associated with the 2021 Layout will be not significant, both during operation in isolation and cumulatively.

Cultural Heritage

The full assessment of effects on archaeological features and heritage assets is provided in Chapter 9 of the 2019 EIA Report and Chapter 9 of the 2020 SEI, with updates provided in Chapter 9 of SEI 2.

The cultural heritage assessment within Chapter 9 of the 2019 EIA Report identified the archaeological and cultural heritage value of the site and assessed the potential for direct and indirect effects on archaeological features and heritage assets resulting from the construction, operation and decommissioning of the Proposed Development. The assessment identified measures that should be taken to mitigate predicted adverse effects.

Following the change in design of the Proposed Development a re-assessment of the residual effects of the Proposed Development upon the receptors identified in the 2019 EIA Report and 2020 SEI has been undertaken.

The removal of turbines T5, T6, T8, T9 and T10 and associated access track and hardstanding and removal of borrow pits B, F and H for the 2021 Layout would result in a reduction in total numbers and proportions of turbines and associated infrastructure visible from heritage assets across the study area. The removal of turbines in the west of the site would reduce the visibility of the Proposed Development when viewed from the Burgi Geos fort scheduled monument. However, the overall significance of effect would remain unchanged from that identified in the 2020 SEI.

Geology, Peat, Hydrology and Hydrogeology

The full assessment of effects on geology, peat, hydrology (surface water bodies, drainage and flooding) and hydrogeology (groundwater) is provided in Chapter 10 of the 2019 EIA Report and Chapter 10 of the 2020 SEI, with updates provided in Chapter 10 of SEI 2.

SEI 2 presents the responses to points raised by consultees following the submission of the 2020 SEI, and assesses the effects of the 2021 Layout on geological, hydrogeological and hydrological receptors.

The changes in the 2021 Layout in relation to the hydrology, hydrogeology and geology are summarised below:

- Reduction in the overall footprint of the development.
- Reduction from approximately 30 to 23 new watercourse crossings.
- Removal of infrastructure from three potential source zones of peat slide risk.

- The number of turbines with the Gossa Water catchment (Scottish Water public drinking water supply source) has reduced from 2 to 1 with the removal of Turbine 10 and a reduction in the area of infrastructure within the Gossa Water catchment.

The layout optimisation and infrastructure area reduction have resulted in very significant changes in the volume of peat that will require to be excavated. Compared to the 2020 Layout, the 2021 Layout has reduced the total volume of peat which will be excavated by approximately 43% from around 327,000m^3 to around 186,000m^3. Compared to the 2019 Layout, which proposed excavation of around 394,000m^3 of peat, the 2021 Layout has reduced the total excavated volume by approximately 53%.

A revised Peat Management Plan has been provided in Appendix 10.1 of SEI 2 which details how excavated peat will be re-used on site. The volume of peat predicted to be excavated does not exceed the intended re-use volume so no disposal of excess peat off site is expected for the 2021 Layout of the Proposed Development.

Overall, the 2021 Layout greatly reduces the scale of some of the potential adverse effects. Through careful design, and incorporation of mitigation measures, the disturbance and excavation of peat and peatland habitats has been greatly reduced. Due to the value afforded to peat, the effects cannot be fully mitigated, therefore the potential significant adverse effects on hydrology, hydrogeology and geology remain the same as outlined with the 2020 SEI.

Traffic and Transport

The full assessment of effects on traffic and transport receptors is provided in Chapter 11 of the 2019 EIA Report and Chapter 11 of the 2020 SEI, with updates provided in Chapter 11 of SEI 2.

SEI 2 presents the changes in transport and access impacts that are associated with the proposed 2021 Layout and compared against those presented for the 2020 Layout. It also assesses changes in material volumes and what effect that these have on vehicle numbers during the construction phase.

The changes in layout result in fewer car, light goods vehicle (LGV) and heavy goods vehicle (HGV) journeys during the construction phase. The significance of effects to users of the transport network in the vicinity of the site entrance, including pedestrians and cyclists, has therefore reduced compared to the 2020 Layout. The impacts are considered not significant.

No additional traffic mitigation measures are proposed, and the Applicant has advised that they are willing to accept suitably worded planning conditions to satisfy the queries raised to date by stakeholders.

Socio-economic, Recreation and Tourism

The full assessment of effects on socio-economic, recreation and tourism receptors is provided in Chapter 12 of the 2019 EIA Report and Chapter 12 of the 2020 SEI, with updates provided in Chapter 12 of SEI 2.

SEI 2 considered the potential change in in effects associated with socio-economics as a result of revisions to the Proposed Development. For tourism, recreation and land use effects, the assessment and conclusions in the 2019 EIA Report and 2020 SEI remain valid.

The economic analysis for SEI 2 is based on a smaller number of turbines and therefore a reduced expenditure, which has resulted in a marginally lower economic impact.

Based on an installed capacity of 126 MW, the updated assessment of the Proposed Development's economic impact presented in the 2021 SEI found that:

- during the development and construction phase it would generate up to
  - £17.3 million and 152 job years of employment in Shetland, and
  - £55.2 million and 499 job years in Scotland (including Shetland).
- during each year of the operational phase it would generate up to:
  - £0.4 million and three jobs in Shetland, and

- £0.9 million and seven jobs in Scotland.

The Proposed Development would also contribute non-domestic rates estimated at £1 million per year, or £30 million over 30 years, supporting the delivery of public services. The magnitude of impact is expected to be similar and therefore conclusions on the effect of the Proposed Development on the Shetland and Scottish economies have not changed from those reported in the 2020 SEI.

The Proposed Development is expected to bring wider benefits to Yell, Unst and Fetlar, including community benefit fund of up to £0.63 million annually, and £18.9 million over the lifetime of the Development.

Overall, the significance of the socio-economic, tourism and recreation effects of the Proposed Development's 2021 Layout have been assessed as being the same as in the 2020 SEI in respect of the 2020 Layout.

Aviation and Radar

The full assessment of effects on aviation and radar assets is provided in Chapter 13 of the 2019 EIA Report and Chapter 13 of the 2020 SEI, with updates provided in Chapter 13 of SEI 2.

SEI 2 has examined the difference between the impact of the 2021 Layout on aviation and radar compared with the 2020 Layout and provides an update on aviation consultation since the publication of the 2020 SEI.

The changes to the layout do not result in any significant change to the overall impact on aviation and radar. It remains the case that the only primary surveillance radar (PSR) affected is the Ministry of Defence (MOD) radar located at Remote Radar Head Saxa Vord. There is a further reduction in the impact on the performance of the radar as a result of the reduced number and size of turbines, but this does not materially alter the significance of the overall impact of the Proposed Development. The MOD has confirmed that it does not object to the revised layout, subject to the agreement of an appropriate planning condition to protect the operation of the PSR facility.

An updated aviation lighting report is provided in Appendix 13.1 to SEI 2 which details the proposed lighting scheme, with hub and/or tower lights on 12 of the 18 turbines. This lighting scheme has been approved by the Civil Aviation Authority and is assessed within the LVIA.

Shadow Flicker

The full assessment of effects of shadow flicker is provided in Chapter 14 of the 2019 EIA Report and Chapter 14 of the 2020 SEI, with updates provided in Chapter 14 of SEI 2.

Shadow flicker is the effect of the sun passing behind the moving rotors of turbines casting a flickering shadow through the windows and doors of neighbouring properties. This occurs in certain combinations of geographical position, time of day, time of year and specific weather conditions. No impact can occur from this during the construction or decommissioning phases of the Proposed Development.

The study area within which properties could potentially be affected by shadow flicker extends 1,600 m from each turbine, covers a distance of 10 rotor diameters from each turbine and lies 130 degrees either side of north (relative to each turbine).

With the removal of the north-westerly most turbines from both the 2020 and 2021 Layouts, the potential shadow flicker effects have been removed entirely and there are no potential receptors within the study area. Therefore, it can be concluded that there is no need for further shadow flicker consideration and the 2020 SEI conclusion that there are no potential significant effects remains valid.

Telecommunications

The full assessment of effects on telecommunication receptors is provided in Chapter 15 of the 2019 EIA Report and Chapter 15 of the 2020 SEI, with updates provided in Chapter 15 of SEI 2.

Responses to the 2020 SEI relating to telecommunications were received from Joint Radio Company and British Telecom, who both confirmed they had no objection. No other responses were received from telecommunication or television consultees.

The 2020 Layout was not anticipated to have any effects on television and telecommunications infrastructure, and no mitigation measures were deemed necessary. Although the number of turbines has been reduced along with a reduction in tip height to 180 m, the location of turbines within the 2021 Layout has not changed. Therefore the conclusions of the 2020 SEI that there were no potential significant effects remains valid.

Carbon and Climate Change

The full assessment of the whole life carbon balance of the Proposed Development is provided in Chapter 16 of the 2019 EIA Report and Chapter 16 of the 2020 SEI, with updates provided in Chapter 16 of SEI 2.

SEI 2 assesses the effects of the 2021 Layout on the whole life carbon balance of the Proposed Development. With the removal of five turbines and associated infrastructure from the 2020 Layout the input parameters for the assessment have changed and the Carbon Calculator assessment has been updated.

The results of the updated carbon calculator show that the Proposed Development is estimated to produce annual carbon savings in the region of 143,000 tonnes of CO_2e per year through the displacement of grid electricity, based on a counterfactual emission factor of 0.254 $kgCO_2e/kWh$. This is a slight decrease from the carbon savings in the region of 180,000 tonnes of CO_2e associated with the 2020 Layout.

The assessment of the carbon losses and gains from the 2021 Layout has estimated an overall loss of around 244,000 tonnes of CO_2e, mainly due to embodied losses from the manufacture of the turbines and provision of backup power to the grid, in comparison to the 334,000 tonnes of CO_2e predicted for the 2020 Layout.

The estimated payback time of the 2021 Layout, using the Scottish Government Carbon Calculator, is estimated at 1.7 years, with a minimum/maximum range of 1.4 to 2.1 years, compared against the estimated 1.9 years payback time for the 2020 Layout. There are no current guidelines about what payback time constitutes a significant impact, but 1.7 years is only around 6 % of the anticipated lifespan of the Proposed Development. Compared to fossil fuel electricity generation projects, which also produce embodied emissions during the construction phase and significant emissions during operation due to combustion of fossil fuels, the Proposed Development has a very low carbon footprint and after 1.7 years, the electricity generated is estimated to be carbon neutral and will displace grid electricity generated from fossil fuel sources. The carbon intensity of the electricity produced by the Proposed Development is estimated at 0.014 $kgCO_2e/kWh$. This is below the outcome indicator for the electricity grid intensity of 0.05 $kgCO_2e/kWh$ of the carbon intensity required by the Scottish Government in the Climate Change Plan (2018-2032) and therefore the Proposed Development is evaluated to have an overall beneficial effect on climate change mitigation.

8. Conclusion

This Non-Technical Summary of SEI 2 provides an overview of the second round of Supplementary Environmental Information provided to the 2019 EIA Report undertaken for the Proposed Development on Yell, in the Shetland Islands.

Within Chapter 17 of SEI 2 a schedule of commitments can be found which details the environmental mitigation measures, summarised above, which the Applicant has committed to implement. Chapter 18 of SEI 2 summarises the differences in residual effects between the 2020 Layout and the 2021 Layout.

The final 2021 Layout has been informed by a robust EIA, a lengthy design process, and additional assessments within this SEI 2, taking into consideration consultation responses received, baseline data, best practise and appropriate guidance and planning policy. Consideration has been given to potential environmental impacts and their effects and where predicted effects have been found as a result of the Proposed Development, mitigation measures will be implemented as far as possible to reduce or eliminate these. The revised Proposed Development layout is considered to represent the most appropriate design, taking into account potential environmental effects, consultation responses, physical constraints, and health and safety considerations, while maximising the generating capability of the site.

This SEI 2 provides additional clarity as well as amendments to the assessments presented with the 2019 EIA Report and the 2020 SEI. The amendments to the Proposed Layout have led to decreased environmental impact which is evidenced throughout SEI 2.

ITPENERGISED

ITPEnergised is a leading, international consultancy offering renewable energy, natural resources, environmental, engineering, technical advisory and asset management services for clients with onshore and offshore projects.

Visit the ITPEnergised group offices in:

Bristol, London, Edinburgh, Glasgow, Buenos Aires, Lisbon, Madrid, Delhi, Beijing, Canberra, Auckland

Sectors:

Onshore Renewables & Storage | Offshore Renewables | Oil & Gas
Property & Urban Regeneration | Corporate, Industrial & Manufacturing

4th Floor, Centrum House, 108-114 Dundas Street, Edinburgh, EH3 5DQ

itpenergised.com