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Chapter 15.

Synergistic Effects, Summary of Mitigation and Residual Effects

Contents

Glossary

Term	Definition
Environmental Impact Assessment	Environmental Impact Assessment (EIA) is a means of carrying out, in a systematic way, an assessment of the likely significant environmental effects from a development.
Environmental Impact Assessment Regulations	The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations)
Environmental Impact Assessment Report	A document reporting the findings of the EIA and produced in accordance with the EIA Regulations
Proposed Development	The South Kyle II Wind Farm development
Proposed Development Area	The area within the “Site boundary” as illustrated on Figure 1.1, Volume 2a which the Proposed Development will be located

List of Abbreviations

Abbreviation	Description
ACoW	Archaeological Clerk of Works
Applicant	Vattenfall Wind Power Ltd, the Applicant
BERP	Biodiversity and Enhancement Management Plan
CAA	Civil Aviation Authority
CEMP	Construction Environmental Management Plan
CoWRP	The Scottish Government’s ‘Control of Woodland Removal Policy’
CP	Compensatory Planting

Abbreviation	Description
DWPA	Drinking Water Protected Area
EAC	East Ayrshire Council
ECoW	Environmental/Ecological Clerk of Works
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
FLS	Forestry and Land Scotland
FMS	Fisheries Management Scotland
GDL	Gardens and Designed Landscapes
HER	Historic Environment Record
HES	Historic Environment Scotland
HGV	Heavy Goods Vehicles
HMP	Habitat Management Plan
IEF	Important Ecological Feature
IFP	Instrument Flight Procedure
IOF	Important Ornithological Feature
JRC	Joint Radio Company
LCS	Landscape Capacity Study
LCT	Landscape Character Type
LDSFB	Local District Salmon Fisheries Board
LFA	Low Flying Area
LLA	Local Landscape Area
MOD	Ministry of Defence
MSS	Marine Scotland Science
NATS	National Air Traffic Services Ltd.
NERL	NATS En Route Ltd
NSA	National Scenic Areas
NVIS	Night Vision Imaging Systems
PMO	Planning Monitoring Officer
PPIP	Pollution Prevention Incident Plan
PWS	Private Water Supply
RSA	Regional Scenic Area
RSPB	Royal Society for Protection of Birds
SEPA	Scottish Environment Protection Agency
SF	Scottish Forestry
SLA	Scenic Landscape Area
SPP	Species Protection Plan
SPEN	Scottish Power Energy Network
SW	Scottish Water
TS	Transport Scotland
TMP	Traffic Management Plan
WoSAS	West of Scotland Archaeology Service
WQMFMP	Water Quality Monitoring and Fish Monitoring Plan
WSI	Written Scheme of Investigation
ZTV	Zone of Theoretical Visibility

15.1. Introduction

15.1.1. This chapter of the Environmental Impact Assessment Report (EIAR) presents a summary of the topics scoped for the Environmental Impact Assessment (EIA), the consultees which were consulted/responded during the EIA, where in the EIAR these responses have been addressed if applicable, the EIA results where these are potentially significant, the mitigation proposed and the residual effects. Synergistic effects are potential effects which may be caused through a combination of effects from different topics and these are assessed in section 15.2 below.

Table 15.1: Summary of Effects, Mitigation and Residual Effects

Topic	Consultees	EIAR reference	Potential Significant Effects	Proposed Mitigation	Residual Effects
Landscape & Visual	NatureScot East Ayrshire Council (EAC)	Chapter 5	The Proposed Development would **significantly** affect parts of three landscape character areas within 2-5km of the proposed turbines. Whilst it would not significantly affect the integrity of the Doon Valley Local Landscape Area (LLA) and its overarching 'summary statement of character and qualities', there would be a **significant effect** on two of the 24 SLQs that contribute to the Doon Valley LLA. Both of these relate to views from the wider estate of Craigengillan Garden and Designed Landscape (GDL) and the perceived setting of Dalmellington viewed from the north and west. The Proposed Development would **significantly affect** the views from part of Dalmellington (northern extents) and Burnton settlements, part of Craigengillan GDL, part of the A713 Galloway Tourist Route and the B741, and three Core Paths and Rights of Way within a localised area mainly to the north and west of the Proposed Development with the effects often overlapping with existing / consented wind farm development. Due to embedded mitigation which forms the Lighting Strategy there would be **no significant night-time effects** on the landscape or visual resource as a result of the proposed aviation warning lights.	The Proposed Development has been through an iterative design process which aimed to mitigate significant effects through careful siting and design of developments. The design process aimed to reduce environmental effects whilst achieving suitable technical and commercial objectives, resulting in the removal of six proposed turbines and the reduction in proposed tip height from 220 m to 200 m. Turbine layout was thought out carefully to provide a layout with simple form and one that relates to the landscape character of the site and its surroundings. Furthermore, suitable separation between operational/consented wind farms and the Proposed Development prevented amalgamation with other nearby cumulative sites. An approved Lighting Strategy for the aviation warning lights includes mitigation to ensure there would be **no significant night-time effects.** Wind farm collector cables would be underground within the site to avoid potential visibility. Substation, Control Building, Energy Storage and Permanent Compound would be constructed onsite and situated away from residential properties. Throughout all phases of the Proposed Development, ground disturbance on site would be confined, as far as practicable, to access tracks, turbine base areas, lay-down areas, crane pads and underground sections of the grid connection cables Although significant landscape effects are to be expected, the extent of these is not unusual for wind farm development and the large scale and simple characteristics of this landscape reduce the susceptibility of this landscape to the Proposed Development. There would be **no significant effects** on any landscape planning designations including the Doon Valley Local Landscape Area or Wild Land Areas within the Study Area.	Chapter 5 of the LVIA should be referred to for full detailed assessment of each receptor. It concludes that there would be several **significant effects** to both landscape and visual receptors within a localised area including road users and some local residents along the B741, local footpaths, hill summits, and views from Auchenroy Hill.

Topic	Consultees	EIAR reference	Potential Significant Effects	Proposed Mitigation	Residual Effects
Ecology	NatureScot Scottish Environment Protection Agency (SEPA) EAC Nith District Salmon Fisheries Board (NDSFB) Galloway Fisheries Trust (GFT) Fisheries Management Scotland (FMS) Ayrshire Rivers Trust	Chapter 6	This assessment has systematically considered the potentially significant effects of the Proposed Development on important ecological features (i.e. sensitive habitats and protected species) and any potential cumulative effects that could occur in combination with other relevant projects. It is predicted that, following the implementation of embedded mitigation, the Proposed Development would not have any significant effects on any Important Ecological Features (IEFs). It has been assessed that there would be a minor negative (**not significant**) effect on common pipistrelle, soprano pipistrelle, noctule, Leisler's bat and *Nyctalus sp.* species.	Embedded mitigation measures are proposed at the outset of the Proposed Development, to reduce impacts associated with construction, operation and decommissioning, and are outlined as follows. A minimum distance of 50 m has been maintained between the Proposed Development and watercourses, with the exception of four new watercourses crossings, and three existing crossings potentially requiring upgrades. The layout of the Proposed Development has avoided impacts to sensitive habitats where possible (e.g. modified bog), and areas of peat, taking into account other constraints. All proposed turbine locations are over 100 m from key habitat features for bats (such as areas of woodland or scrub). A Construction and Environment Management Plan (CEMP) will be produced prior to construction works commencing in consultation with the Local Planning Authority (LPA). The document will be a live document and will be updated throughout the pre-construction and construction and will: • Include measures to safeguard habitats and species to be implemented prior to construction, during construction and post-construction; and • Provide details of pre-construction surveys required including methods and timings. Detailed mitigation measures will be provided in the CEMP for the protection of sensitive habitats during the pre-construction, construction and post-construction phases. An Environmental Clerk of Works (EcoW) will be present during enabling works and throughout the construction period of the Proposed Development. Any land degraded by construction and not required for the operation of the Proposed Development, such as the construction compound and around areas of tracks, would be restored as soon as possible after construction is completed. Any vegetation removed for the construction phase would be reinstated within the area of the Proposed Development, facilitating natural re-colonisation of vegetation communities. Permanent habitat loss would be limited to that required for the footprint of infrastructure and good site management practices would be implemented to minimise the risk of encroachment of the construction corridor into adjacent habitats. A Water Quality Monitoring and Fish Monitoring Plan (WQMFMP) to monitor and protect fish populations pre-, during- and post-construction will be drafted to be agreed with the local planning authority in consultation with NatureScot and Galloway Fisheries Trust.	Residual assessment has concluded, assuming that the proposed mitigation measures are implemented effectively, that all potentially significant adverse effects from the Proposed Development (including cumulative) are avoidable for each ecological feature. **No significant effect.**

Topic	Consultees	EIAR reference	Potential Significant Effects	Proposed Mitigation	Residual Effects
				A Species Protection Plan (SPP) will be produced as part of the CEMP prior to the commencement of development, detailing measures to be implemented before and during construction to protect species present in the area of the Proposed Development. This will include good practice measures to prevent accidental mortality of protected species during construction. In addition, an outline Biodiversity and Enhancement Management Plan (BERP) has been prepared which includes measures for habitat enhancements and ecological monitoring. The outline BERP includes management prescriptions and monitoring of the retained/enhanced habitats to achieve biodiversity benefits.	
Ornithology	NatureScot RSPB Crosshill Straiton and Kirkmichael Community Council	Chapter 7	The assessment considered the various potential impacts arising from the construction, operation and decommissioning of the proposed wind farm, and evaluated the significance of these impacts on the identified key species of interest in the context of their conservation value, sensitivity to wind farm development and the scale of the potential effects. One Important Ornithological Feature (IOF), goshawk, was identified in the context of the Proposed Development. There are **no predicted significant effects** on goshawk as a result of the Proposed Development, including cumulative effects. Additionally, there are **no predicted significant effects** on other ornithological features recorded during baseline ornithology surveys for the Proposed Development. Collision risk has been assessed using data systematically gathered during flight activity surveys and a standard model used in wind farm EIA. Due to the low levels of flight activity for most species considered in the assessment the effect of wind turbine collision is considered to be **Not Significant** at the regional population scale.	Embedded mitigation measures are proposed at the outset of the Proposed Development, to reduce impacts associated with construction, operation and decommissioning, and are outlined as follows. In line with good practice, an independent ECoW will be appointed prior to the commencement of construction and will be present during enabling works and throughout the construction period. They will be a suitably experienced individual, whose role will be to oversee that all works are carried out in accordance with environmental legislation and good practice, and with agreed construction phase management plans, such as the CEMP. The ECoW will carry out pre-construction survey checks during the main bird breeding season (March to August, inclusive) in advance of vegetation stripping or excavation works to check for the presence of any active nests. Any active nests found will be cordoned off to a suitable distance for the species concerned and construction operations delayed within the cordon until the young have fledged and/or the nest becomes vacant naturally. Good practice via timing of works and pre-construction surveys will be necessary to reduce the possibility of illegal damage, destruction or disturbance to occupied bird nests during the construction phase. Adherence to this will be overseen by the ECoW. A SPP will be produced; this plan will detail embedded mitigation measures required prior to and during construction for protected bird species potentially breeding at the Proposed Development, particularly in the vicinity of historic nests or suitable nesting habitat. Control measures will be incorporated into an Operational Environmental Management Plan (OEMP). The OEMP will detail mitigation measures required during the operational phase relating to bird species to ensure ongoing compliance with relevant environmental legislation.	**No significant effect**

Topic	Consultees	EIAR reference	Potential Significant Effects	Proposed Mitigation	Residual Effects
Hydrology, Geology & Hydrogeology	EAC Scottish Water (SW) SEPA Galloway Fisheries Trust Nith District Salmon Fishery Board	Chapter 8	The potential effects on the hydrological, geological and hydrogeological environment have considered pollution incidents, erosion and sedimentation, changes in water quality, changes to water resources and private water supplies, modification of surface water and groundwater flows, modification of natural drainage patters, impediments to flow and flood risk, peat instability and compaction of soils. Following the identification and assessment of the key receptors, taking into account the potential effects listed above, a comprehensive suite of mitigation and good practice measures has been incorporated into the design, including extensive buffer areas. In addition, a Site-specific CEMP as well as detailed design of infrastructure and associated mitigation will be implemented to protect the groundwater and surface water resources from pollution and minimise changes to the hydrological environment. The impact assessment has taken into account the hydrological regime, highlighting that the principal effects will occur during the construction phase. Following the successful design and implementation of mitigation measures the significance of construction effects on all identified receptors are not defined as significant. The assessment of predicted operational effects has determined that the significance of effects on all receptors to be **not significant**.	To facilitate the reduction of potential impacts on the hydrological environment, a series of set-back distances have been adopted and designed proportionately to allow greater protection in more sensitive areas. All watercourses identified within the Proposed Development Area were allocated a 50m buffer. Layout of new tracks, watercourse crossings and use of infrastructure have been designed to minimise impacts on hydrological environment. The design of linear infrastructure elements will be done so to avoid modifying surface water and groundwater flow pathways. A site-specific CEMP will provide details on industry good practice measures to be put in place to manage activities in such a manner as to prevent or minimise effects on the surface and groundwater environment. As a result of above mitigation and successful design and implementation of these measures the significance of construction effects be **not significant**.	**No significant effect**
Cultural Heritage	Historic Environment Scotland (HES) West of Scotland Archaeology Service (WoSAS)	Chapter 9	Thirty-four known heritage assets are within the Proposed Development Area. **No significant direct** impacts are expected upon these as the iterative design process has largely allowed for mitigation through avoidance. The potential for hitherto unknown archaeological remains to survive within the Proposed Development Area has been considered and mitigation measures have been suggested to ensure identification, assessment and avoidance or recording of any such assets as required. The baseline assessment established that there are 319 designated cultural heritage sites within 15 km of the Proposed Development Area that could potentially be affected by the Proposed Development. The Zone of Theoretical Visibility (ZTV) was used to determine which of the designated cultural heritage sites would be unaffected by the proposal. This exercise established that 241 designated cultural heritage sites would have no visibility of the turbines. The Proposed Development would result in no change to the pre-project settings of	The Proposed Development has been designed, where possible, to avoid direct impacts on known heritage assets. Where this is not possible, preservation through record should be achieved. The assessment has established that the Proposed Development Area has been used as upland rough grazing since at least the mid eighteenth century and that no development is known to have taken place since that time. The Proposed Development would not have a direct impact on any of the known cultural heritage sites. However, prehistoric ritual activity is known in the Proposed Development Area where Beoch kerb cairn (CHS 11), Dalmellington cairn (CHS 20), Knockskae cairn (CHS 23) and Mossdale cairn (CHS 26), and Knockenlee Burn stone setting (CHS 10) are all located. Given presence of these funerary and ritual remains within a mostly undeveloped landscape, the land has some archaeological sensitivity and there is, therefore, potential for the survival of previously unrecorded sub-surface cultural heritage remains within the Proposed Development Area. Consequently, East Ayrshire Council may require that a programme of archaeological	**No significant effect**

Topic	Consultees	EIAR reference	Potential Significant Effects	Proposed Mitigation	Residual Effects
			these 241 designated cultural heritage sites, resulting in **no significant** effect upon their settings. The remaining 78 designated cultural heritage sites were visited and the potential indirect effect upon them was assessed using the Historic Environment Scotland guidance *Managing Change in the Historic Environment: Gardens and Designed Landscapes (2020*) and *Managing Change in the Historic Environment: Setting (2020)*, and the Chartered Institute for Archaeologists publications *Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment (2020)* and *Standard and guidance for historic environment desk-based assessment (2020)*. **No significant** operation effects or cumulative effects upon the setting of heritage assets has been predicted.	evaluation works be carried out in advance of the removal of topsoil and any overburden within the Proposed Development Area. Following consultation with West of Scotland Archaeology Service (WoSAS), in accordance with NPF4 and PAN 2/2011, where mitigation of direct impacts is required, some or all of the following methods would be used: archaeological survey, building recording, evaluation, excavation, post-excavation analyses and publication. No significant adverse impacts upon the settings of designated cultural heritage sites within 15 km of the Proposed Development are anticipated.	
Noise	EAC	Chapter 10	The results of the noise assessment show that, subject to the adoption of mitigation measures in the form of low noise mode operation when required for the candidate wind turbine, the predicted wind turbine noise levels would meet the Site Specific Noise Limits under all conditions and at all locations for both daytime and night time periods. There are a number of wind turbine makes and models that would be suitable for the Proposed Development and that may not require the use of low noise modes. **There would be no significant residual effects.** Predicted cumulative wind farm operational noise levels lie below the Total Noise Limit at all Noise Assessment Locations, there would be **no significant residual effects** due to the Proposed Development.	The exact model of wind turbine to be used for the Proposed Development would be the result of a future tendering process. Achievement of the noise limits determined by this assessment would be a key determining factor in the final choice of wind turbines for the site. Modern turbines have the ability to operate in a range of lower noise modes if required. Good practice construction techniques will be employed to minimise noise effects. In addition to proposed good practice measures, a noise control plan, as part of the CEMP.	**No significant** residual noise effects are predicted.

Traffic and Transport	Ayrshire Road Alliance (ARA)
	EAC
		Chapter 11	**Significant** effects have been identified in the following cases:
			• In the worst-case scenario in relation to:
			  ○ Safety on all links;
			  ○ Non-motorised user (NMU) Amenity on the B741
			  ○ NMU delay on the A713
			• In the cumulative worst-case scenario in relation to:
			  ○ Safety on all links;
			  ○ NMU Amenity on the B741 and A713
			  ○ NMU delay on the B741 and A713
			• In the cumulative realistic worst-case scenario in relation to:
			  ○ Safety on all links;
			  ○ NMU Amenity on the A713;
				For the Proposed Development the following primary mitigation measures are proposed:
				• Use of on-site borrow pits to source the majority of aggregates required for construction;
				• Use of on-site batching for concrete; and
				• As a result of the above the avoidance of the majority of construction traffic from using the B741 and A96 routes.
				In other words, the realistic worst-case scenario will be implemented, thus no secondary mitigation measures are required.
				In relation to the significant effects identified in the cumulative realistic worst-case scenario the following secondary mitigation measures are proposed:
					With the implementation of mitigation, the significance of effects is at worst **minor and not significant**

Topic	Consultees	EIAR reference	Potential Significant Effects	Proposed Mitigation	Residual Effects
			○ NMU delay on the A713.	• The Applicant and their appointed Principal Contractor will prepare a Detailed Construction Traffic Management Plan (Detailed CTMP). This Detailed CTMP will incorporate the measures identified in the Outline CTMP (Appendix 11.2) informed by the Principal Contractors detailed understanding of the proposed construction process and collaboration as discussed below; • The Detailed CTMP will include details of consultation and collaboration which will take place between the Applicant/Principal Contractor and the identified cumulative developments. This consultation will consider the following: ○ Agreement as to the timing of the peak period of construction; ○ Identification of possible risk of significant effects occurring due to cumulative traffic levels; ○ Collaboration on the provision of secondary mitigation measures to mitigate such risks. This will consider the following non exhaustive list: ▪ Temporary speed reduction measures in affected communities (e.g. Dalmellington and Patna); ▪ Temporary controlled crossing facilities (lights or crossing patrol) during affected months; and/or ▪ Information service provided to affected communities advising them of upcoming traffic events; It is anticipated that the requirement for a Detailed CTMP will be secured through an appropriately worded condition of consent. It is anticipated that listed secondary mitigation measures would only be required should there be significant overlap of peak construction periods for several of the cumulative developments. This need will be identified by the Applicant and Principal Contractor during preparation of the Detailed CTMP.	
Forestry	Scottish Forestry	Chapter 12	The Forestry Study Area (FSA) extends to approximately 2,209.6 ha and is comprised of woodlands within the National Forest Estate managed by Forest and Land Scotland. The forests are comprised largely of commercial conifers with areas of mixed broadleaves and open ground planted in the late 1990s. The crops are in the mid restructuring phase and there have been recent felling and replanting programmes. A total of 210.1 ha will require to be felled to enable the construction and operation of the Proposed Development. The majority of the areas to be felled for the Proposed Development would be restocked except for land required for the Proposed Development's permanent	Compensatory Planting (CP) would be required to mitigate the loss of woodland area. The Applicant is committed to providing appropriate CP. The extent, location and composition of such planting would be agreed with Scottish Forestry. Infrastructure has been directed, where practical to utilise open ground and minimise the disruption of planted compartment.	**No significant effect**

Topic	Consultees	EIAR reference	Potential Significant Effects	Proposed Mitigation	Residual Effects
			infrastructure and land to be left unplanted for forest management; or forest design purposes. On site replanting of felled areas and restoration of habitat within the woodlands results in a decrease in the area of stocked woodland. There would be a decrease in 70.9 ha within the FSA and as such compensatory planting will be required.		
Shadow Flicker		Chapter 13	Four properties may potentially experience shadow flicker from the Proposed Development. The worst-case modelling results indicate that across the four affected receptors, the worst-case impact is between 18.0 and 59.4 hours per year. Three of the total four receptors are modelled to experience shadow flicker above the threshold indicated in guidelines of 30 minutes/day and 30 hours/year. However, when considering the real-case assessment, no receptors breach the maximum limits of shadow flicker. When assessing cumulative shadow flicker affects from neighbouring farms, it was found that there were no increases in effect at any of the receptors considered in this analysis.	No requirement for mitigation.	**No significant effect**
Aviation	National Air Traffic Services (NATS) Glasgow Prestwick Airport (GPA) Ministry of Defence (MOD)	Chapter 13	The Proposed Development is likely to generate false plots on the Lowther Hill radar. National Air Traffic (En Route) (NERL) has indicated that it will object to the Proposed Development. The Applicant is in discussions with NERL on technical mitigation measures to address the impacts on this radar. The Proposed Development is understood to be within the operational airspace of GPA, and therefore has potential to impact the surveillance radars and the Instrument Flight Procedure (IFP). For the surveillance radar, the Significance of Impact is **Moderate Adverse**. For the IFP, the turbines have been positioned to meet the safeguarding requirements for IFP at Prestwick Airport. Therefore, the Significance of Impact is **Negligible**. The Proposed Development is within a high-priority military low flying area. The Magnitude of Impact is Moderate, and the Sensitivity of the receptor is High. Therefore, the overall Significance of Impact is **Major Adverse**.	Radar Mitigation will be agreed by the Applicant and NATS to address the effects of the Proposed Development on the Lowther Hill radar. Following implementation of the Radar Mitigation the residual adverse effect will be Moderate/Minor significance. The Applicant has been working with GPA to agree the necessary mitigation to avoid adverse operational impacts on the Airport's Air Traffic Services (ATS). In light of the progress of this work, the Applicant and GPA are in discussions regarding appropriate mitigation which will allow GPA to either not object, or withdraw any holding objection, to the Proposed Development subject to the imposition of suspensive planning conditions being attached to any planning consent granted. The wording and terms of these planning conditions to be agreed. To address its concerns raised in scoping opinion, the MOD requested that turbines be fitted with MOD accredited aviation safety lighting in accordance with the requirements of the Air Navigation Order 2016. The Proposed Development is now a reduced scheme of 11 turbines and tip heights have been reduced to 200m in height from ground level. A scheme of infra-red lighting to be agreed with the MOD to account for operators who carry night vision device capability.	**Not significant**

Topic	Consultees	EIAR reference	Potential Significant Effects	Proposed Mitigation	Residual Effects
Socioeconomics	EAC	Chapter 14	The Proposed Development would provide community benefit funding for the Local Area which (subject to turbine selection) could be of up to £462,000 annually (based on assumed 8.4MW turbine). It was estimated that the Proposed Development would pay £1.1 million each year in non-domestic rates, helping to support local government services. A Skills and Employment Plan has also been provided that sets out the Developers approach to strategies and initiatives aimed at maximising local economic benefits through skill development and job creation. This has been submitted alongside the EIA. The most recent evidence on the relationship between wind farms and tourism suggests that there are no adverse effects on the tourism economy resulting from the development of onshore wind. An assessment of the likely effects of the Proposed Development on specific local tourism assets, accommodation providers and routes found no significant adverse effects are expected. Overall, there were **no significant adverse effects** identified. While the beneficial construction and operation socioeconomic effects are not significant in EIA terms, they would be important to the local and national economies, contributing to sustainable economic growth.	There are no standard mitigation requirements for economic impacts during construction and development and operations and maintenance. The Developer has submitted a Skills and Employment Plan that sets out the Developers approach to strategies and initiatives aimed at maximising local economic benefits through skill development and job creation.	**No Significant Effects**

15.2. Synergistic Effects

15.2.1. An assessment of synergistic effects ensures that the assessments provided in the EIAR for each topic are not considered in isolation. Chapters 6 and 7 of the EIAR assess the biological environment (Ecology and Ornithology). Chapters 5, 8, 9, 12 assess the physical environment (LVIA, Hydrology, Cultural Heritage, Forestry) and Chapters 10, 11, 13 and 14 assess population and human health (Noise, Traffic, Infrastructure and Aviation and Socioeconomics). It is acknowledged that there are also some potential overlaps between the physical environment and population and human health.

15.2.2. This assessment considers the potential synergistic effect of related residual effects during construction, operation, and decommissioning of the Proposed Development. A synergistic effect during decommissioning is considered to be of similar or less significance than that created during construction and therefore they are discussed together below.

Construction and Decommissioning

15.2.3. During the construction and decommissioning phases, potential adverse synergistic effects are limited to the Proposed Development Area where there will be heavy plant operations, earth works, forestry operations and vehicle movements. These could result in potential synergistic effects upon physical and biological receptors including where there are overlaps between ecology, hydrology and hydrogeology. These effects would be temporary in nature, will be managed through a CEMP, TMP and Decommissioning Plan and in isolation have been assessed in the EIAR as not significant. These potential effects will also be monitored by an ECoW and if deemed necessary a Planning Monitoring Officer enforced through planning condition(s). Given the limited number and extent of receptors, the limited and non-significant effects predicted and their temporary nature, the synergistic effects during construction and decommissioning phases are considered not significant.

Operation

15.2.4. Potential synergistic effects during the operational phase relate primarily to overlaps between physical and human receptors and are limited to areas which are within or close to the Proposed Development Area where there may be a combination of potential visual, noise and shadow flicker effects.

15.2.5. The EIAR predicts that there are no significant adverse effects in isolation for noise, visual effects of aviation warning lighting and shadow flicker for a relatively small number of residential receptors within 12 km of the Proposed Development. A combination of all these effects at once is not possible however, any combination of a number of these effects would be very limited in occurrence and duration. It is not considered that the synergistic effects would become overbearing such that these places become unpleasant places to stay.

15.2.6. A number of road receptors, long distance footpaths and local paths were identified within the 45 km LVIA study area. The assessment has predicted a small number of these receptors, within a localised area, including part of the A713 Galloway Tourist Route, the B741, and three Core Paths and Rights of Way, would receive significant effects to short sections where views can be obtained, with these effects often overlapping with existing / consented wind farm development. Overall, the routes would not receive a significant effect. As neither the potential visual effects nor direct effects will prevent use of these in the long term, it is considered that the synergistic effects during operation are not significant.

15.2.7. The inclusion of habitat management proposed by the Applicant, which will restore degraded peat habitat shall also improve natural flood drainage and habitat for some breeding bird species, thus have a positive synergistic effect in this regard.

15.3. SUMMARY

15.3.1. This chapter of the EIAR summarises the potential effects of the Proposed Development as well as potential synergistic effects which consider such effects in combination. Following the implementation of mitigation primarily in the form of embedded mitigation in the siting and design of the proposal, potential significant adverse effects are restricted to isolated landscape and visual effects upon limited receptors within close proximity of the Proposed Development. As noted in Table 15.1 these are effects which are commonly associated with wind farms and in this regard need to be balanced against the benefits.

15.3.2. The Applicant has proposed enhancements options including habitat management which will restore degraded peat habitat on and/or off-site, selective tree planting along riparian corridors, improve natural flood drainage and improve habitat for some breeding bird species. The Proposed Development will provide socioeconomic benefits through continuing employment opportunities it has already provided at the planning stage throughout the lifetime of the project following consent. Local businesses will be encouraged to provide services through “Meet the Buyer Events”. The Proposed Development will contribute towards meeting national renewable energy targets and reducing carbon dioxide emissions to help reach the national carbon net zero target.