Lorg Wind Farm Grid Connection

Environmental Impact Assessment Report

Chapter 11: Cumulative Assessment

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11 CUMULATIVE ASSESSMENT

11.1 Introduction

11.1.1 Schedule 4, Paragraph 5(e) of the Environmental Impact Assessment (EIA) Regulations states that the EIA Report (EIAR) should include a description of the likely significant effects of the development on the environment resulting from *"the cumulation of effects with other existing and/or approved development, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources"*[2].

11.1.2 Regulation 4 paragraph 2 refers to the need to assess *"the factors specified in paragraph (3) and the interaction between those factors"*, this refers to the topic-specific factors.

11.1.3 For the purposes of this EIAR, the following types of cumulative effects have been considered in accordance with the EIA Regulations 2017 and best practice guidance:

- In-combination effects – the combined effects of the Proposed Development and other projects on a receptor; and
- Effect interactions – the interaction and combination of different environmental effects from within the Proposed Development affecting a receptor[2].

11.2 Legislation, Policy and Guidance

11.2.1 A summary of the legislation, planning policy and guidance relevant to the cumulative effects assessment for the Proposed Development is set out below.

Legislation

11.2.2 The following national legislation forms the background against which the assessment has been made:

- Electricity Act 1989 (UK Government, 1989[1]);
- Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (UK Government, 2017[2])

Policy

11.2.3 The following national policy forms the background against which the assessment has been made:

- National Planning Framework 4 (NPF4) (Published February 2023, updated October 2024) (Scottish Government, 2024[3]);
- Planning Advice Note (PAN) 1/2013: Environmental Impact Assessment (Scottish Government, 2013[4])

11.2.4 The following local planning policy has also been considered as part of the assessment:

- Dumfries and Galloway Council Local Development Plan (adopted 2019) (Dumfries and Galloway Council, 2019[5]);

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[1] UK Government. (1989). Electricity Act 1989. Retrieved from : https://www.legislation.gov.uk/ukpga/1989/29/contents

[2] UK Government. (2017). The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Retrieved from: https://www.legislation.gov.uk/ssi/2017/101/contents

[3] Scottish Government. (2024). National Planning Framework 4. Retrieved from gov.scot: https://www.gov.scot/publications/national-planning-framework-4/

[4] Scottish Government. (2013). *Planning Advice Note 1/2013: Environmental Impact Assessment.* Retrieved from gov.scot: https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/

[5] Dumfries and Galloway Council. (2019). Adopted Local Development Plan 2. Retrieved from dumfriesandgalloway.gov: https://www.dumfriesandgalloway.gov.uk/planning-building/planning/planning-policy/local-development-plan/local-development-plan-2-ldp2

Guidance

11.2.5 The following guidance has been applied to the assessment process:

- Nationally Significant Infrastructure Projects (NSIPs) - Advice on Cumulative Effects Assessment (2024) (Planning Inspectorate, 2024[6])
- Demystifying Cumulative Effects (Institute of Sustainability and Environmental Professionals, (ISEP) 2020)[7]
- Guidelines for the Assessment of Indirect and Cumulative Impacts as well a Impact Interactions (Hyder, 1999)[8]

11.3 Consultation

11.3.1 A technical note dated 24 July 2024 was sent to the Energy Consents Unit (ECU) via email. A response was received from the ECU on 10 December 2024, confirming they agreed with the developments included within the in-combination assessment.

11.4 Assessment Methodology and Significance Criteria

11.4.1 At present, there is no widely accepted methodology or best practice for the assessment of cumulative effects (effect interactions). The following approach is based on previous experience and professional judgement, the types of receptors being assessed, the nature of the Proposed Development and the environmental information available to inform the assessment.

11.4.2 However, guidance for NSIPs in England, the Planning Inspectorate's Advice on Cumulative Effects Assessment, provides a robust methodology for assessing in-combination effects and has therefore been used as the basis for the assessment methodology below. Further guidance from ISEP and the guidelines produced by Hyder have been drawn upon for the assessment of effect interactions.

In-combination Effects

11.4.3 In-combination effects are the combined effect of the Proposed Development together with reasonably foreseeable Other Committed Developments (taking into consideration effects at the stages of Site preparation and earthworks, construction, and operation). The assessment is based upon residual effects of each technical chapter. negligible residual effects reported in the technical chapters are considered unlikely to accumulate to the extent that a significant intra-project effect will occur; therefore, they are not taken forward for assessment.

11.4.4 The Study Area for the assessment is informed by the Study Areas for the individual factor assessments, as set out in **Chapters 6-10**.

11.4.5 The in-combination effects assessment consists of the following key stages:

- Stage 1: Identification and evaluation of projects for consideration by establishing a Zone of Influence (ZoI) for respective environmental topics;
- Stage 2: Establish a short list of Committed Developments; and
- Stage 3: Assessment of in-combination effects.

11.4.6 Detail on each of these stages is provided below.

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[6] Planning Inspectorate (2024). Nationally Significant Infrastructure Projects: Cumulative Effects Assessment Relevant to Nationally Significant Infrastructure Projects (as amended 2025). Retrieved from gov.uk: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment

[7] ISEP (formerly known as IEMA), (2020) Demystifying Cumulative. [Online] Available at: https://www.iema.net/media/nbsdjhlf/ia-outlook-journal-vol-7.pdf

[8] Hyder (1999) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions. Available at: https://edz.bib.uni-mannheim.de/www-edz/pdf/1999/guideassess.pdf

Stage 1: Identification and evaluation of the projects for consideration by establishing a ZoI for respective environmental topics

11.4.7 Stage 1 requires the identification of a ZoI for each chapter scoped into the in-combination effects assessment. This is derived from the Study Areas in **Chapters 6-10** of the EIAR.

11.4.8 Following this, reasonably foreseeable developments are identified within those ZoI. These foreseeable developments are termed 'Other Committed Developments.' Other Committed Developments are identified through an initial search, within the identified ZoI, of the planning register of Dumfries and Galloway Council and the Energy Consents Unit register of applications. This initial list is known as a long list.

11.4.9 For the selection of Other Committed Developments, the following criteria have been considered ahead of any inclusion in the long list:

- The development is of at least an equivalent size to 50 residential units, alongside meeting one of the other criteria identified below;
- The development has been permitted within the last five years but is yet to be constructed/implemented;
- The development is under construction but is not yet completed;
- A request for an EIA Scoping Opinion for the development has been submitted;
- Application(s) for a development has been submitted that is awaiting determination; or
- Application(s) for a development has been submitted that has been refused but is subject to appeal procedures.

11.4.10 These criteria have been selected based on professional judgement. If the Other Committed Developments do not meet these criteria, then it is considered reasonably proportionate to discount them from the long list as they are unlikely to give rise to significant cumulative effects in-combination with the Proposed Development.

Stage 2: Establish a short list of Committed Development

11.4.11 Stage 2 refines the long list to a short list of developments for assessment. This is done by reviewing the Other Committed Developments included in the long list against the following criteria. Criteria used are based on professional judgement and have been decided in proportion to the scale and nature of the Proposed Development. It is not anticipated that Other Committed Developments outside these criteria would give rise to cumulatively greater or materially different likely significant effects than the Proposed Development, considering its nature and scale:

- There are concurrent construction or operation phases between the Other Committed Development and the Proposed Development;
- There is potential that the Other Committed Development shares some of the same sensitive receptors with the Proposed Development;
- The nature and scale of the Other Committed Development may give rise to potentially significant interactions with the Proposed Development;
- The Other Committed Development is of a scale and/or proximity to have the potential to result in an in-combination effect with identified shared receptors.

11.4.12 Other Committed Developments that have no, or insufficient, environmental assessment information will typically not be considered, as it will not be possible to accurately identify shared environmental receptors.

11.4.13 Other Committed Developments that are expected to finish construction before commencement or operation (as relevant to the phase being assessed) of the Proposed Development or are already constructed and operating are already accounted for in the current and future baseline conditions established in **Chapters 6-10**. As such, these are not included in the short list.

11.4.14 Professional judgment may be applied to support the exclusion of an Other Committed Development which exceeds the determined thresholds but may not give rise to discernible in-combination effects on receptors, or vice versa.

11.4.15 The status of what would constitute an Other Committed Development may change frequently as applications are made or withdrawn. It is therefore necessary to decide on a cut-off date when the Sites and layouts to be included are fixed. This EIAR includes consented and application stage developments as of September 2025.

Stage 3: Assessment of in-combination effects

11.4.16 Information on the short list of Other Committed Developments is gathered from third-party sources within the public domain. The information would include, but is not necessarily limited to:

- Design and Site boundary information;
- Programme of construction and operation;
- Technical information that sets out baseline data and effects arising from the Other Committed Developments on shared receptors. Shared receptors are the identified sensitive receptors in each technical chapter being included in the application of an Other Development.

11.4.17 The assessment of in-combination effects considers the deviation from the baseline conditions for shared receptors or resources because of changes generated by the Proposed Development in-combination with one or more Other Committed Developments in the short list.

11.4.18 The assessment of the in-combination effects is based upon the residual effects (including non-significant effects) of the Proposed Development identified in the technical assessments of this EIAR, as well as available environmental information for the short-listed Other Committed Developments. Information on the magnitude of residual impacts may not always be available for Other Committed Developments, in which case professional judgement is required to determine the likely magnitude of any in-combination effects.

11.4.19 The assessment of in-combination effects considers the following:

- combined magnitude of change;
- sensitivity/value/importance of the receptor to change; and/or
- duration and reversibility of effect.

11.4.20 Through a combination of the qualitative evaluation of the residual effects presented in the technical chapters of this EIAR and the environmental information available for the committed developments within the short list, conclusions have been drawn as to the likelihood for significant in-combination effects, i.e. those over and above, or different to, those identified for the Proposed Development on its own.

11.4.21 If significant residual in-combination effects are identified that need to be remedied by the Proposed Development (in situations where it would not be appropriate or possible for the Other Committed Development to do so), necessary mitigation measures are proposed.

Effect Interactions

11.4.22 Effect interactions are the combined or synergistic effects caused by several effects combining on a particular receptor, which may collectively cause a more significant effect than individually.

11.4.23 The approach to the assessment of effect interactions considers the changes in baseline conditions at common sensitive receptors (i.e. those receptors that have been assessed by more than one technical topic) due to the Proposed Development. The assessment is based upon residual effects only of minor or greater significance, i.e. excluding negligible effects.

11.4.24 The assessment methodology for effect interactions involves the following key stages:

- Stage 1: Screening of Sensitive Receptors;
- Stage 2: Determine Common Receptor's Residual Effects; and
- Stage 3: Assessment of Effect Interactions.

Stage 1 – Screening of Sensitive Receptors

11.4.25 A screening of residual effects on sensitive receptors (as identified in each technical chapter) is undertaken to determine whether any have the potential to be exposed to more than one type of residual effect (within an individual technical topic assessment and/or across multiple technical topic assessments) during either the construction or operation phases of the Proposed Development. These sensitive receptors are termed 'Common Receptors' and are taken forward to Stage 2 of the assessment.

Stage 2 – Determine Common Receptors' Residual Effects

11.4.26 Of the Common Receptors identified in Stage 1, those that have two or more non-negligible residual effects are identified and taken forward to Stage 3 of the assessment.

Stage 3 – Assessment of Effect Interactions

11.4.27 An assessment of the overall significance of the effect interactions on Common Receptors identified in Stage 2 is undertaken. The assessment is based on information provided within the topic assessments, as well as professional judgement. The assessment considers the nature of the residual effects acting on the identified Common Receptors and determines whether or not the interactions of the residual effects significantly magnify the overall residual effects on specific receptors. Receptors are assessed at a spatial scale consistent with that of the topic chapters.

Determining Significant Cumulative Effects

11.4.28 There is no formal guidance on the criteria for determining the significance of cumulative effects. The following principles have been considered when assessing the significance of cumulative effects as a result of the Proposed Development:

- The nature of the receptors/resources affected;
- How the impacts identified combine to affect the condition of the receptor/resource;
- The probabilities of the impacts occurring in relation to each other in such a way as to produce a cumulative effect; and
- The ability of the receptor/resource to absorb further effects.

11.4.29 The assessment of effects will consider the potential for significant residual effects, for which appropriate, additional mitigation measures are proposed. The significance of the effect is formulated as a function of a sensitive receptor or a resource's environmental value/sensitivity and the magnitude of the impact of the Proposed Development in-combination with Other Committed Developments.

11.4.30 The significance classifications for both in-combination effects and effect interactions are detailed in the **Table 11.1** below. Moderate and above are considered to be significant.

Table 11.1 Significance Classifications for In-combination Effects and Effect Interactions

Significance Category	Definition of Effect
Major	**Adverse or beneficial** effects recognised to be very important considerations, as there is significant magnification of potentially wide-ranging effects on receptors/resources that are already predicted to occur. The effects are likely to be long-term or occur frequently.
Moderate	**Adverse or beneficial** effects that are a significant magnification of localised effects on receptors/resources that are already predicted to occur. The effects are likely to occur over a longer period or may occur more frequently.
Minor	**Adverse or beneficial** effects that are locally significant and will be unlikely to lead to a significant magnification of effects on a receptor / resource. This also applies to effects that are likely to be temporary and short-term in nature, and may occur infrequently.

Significance Category	Definition of Effect
Negligible	No effects or effects that are beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.

11.5 Baseline Conditions

Existing Baseline

11.5.1 Details on the existing baseline relevant to the assessment of in-combination effects or effect interactions can be found in the consideration of the respective Study Areas in the relevant environmental topics chapter **(Chapters 6-10)** for the receptors in question.

Future Baseline

11.5.2 The in-combination effects assessment considers effects on future baseline conditions as part of the assessment process.

11.5.3 A future baseline assessment has not been carried out for the effect interactions assessment, as the chapters have concluded that a future baseline does not change the assessment from the baseline position. Reasoning for this can be found in the relevant environmental chapters **(Chapters 6-10)**.

11.6 Scope of the Assessment

11.6.1 Topics outlined in **Table 11.2** below are not considered to give rise to residual effects of minor or greater significance as a result of the Proposed Development and therefore have not been considered further within the in-combination effects or effect interactions assessments.

Table 11.2 Elements Scoped Out of the Assessment

Element Scoped Out	Justification
Forestry: Operation Phase	All residual effects in the operation phase of **Chapter 6: Forestry** have been concluded as negligible. Therefore, there is no potential for cumulative effects, and this phase is scoped out of the assessment.
Ecology and Ornithology: Operation Phase	All residual effects in the operation phase of **Chapter 6: Ecology and Ornithology** have been concluded as negligible. Therefore, there is no potential for cumulative effects, and this phase is scoped out of the assessment.

11.7 Potential Effects

Assessment of In-Combination Effects

Stage 1: Identification and evaluation of projects for consideration by establishing a ZoI for respective environmental topics

11.7.1 The first step of the in-combination effects assessment is to classify the ZoI for the respective environmental topics scoped into the assessment. There are some environmental topics that are not included in the in-combination assessment, which are described in **Table 11.2.**

11.7.2 Defined institutional and professional guidelines, and the Study Areas outlined in each respective technical chapter, have determined each environmental topic's ZoI. **Table 11.3** below provides further details on the ZoIs.

Table 11.3 ZoI applied for In-Combination Assessment for Each Environmental Topic Scoped In

Environmental Topic	ZoI applied for In-Combination Assessment
Landscape and Visuals	2 km
Ecology and Ornithology (Construction Phase)	10 km. Although the **Chapter 8: Ecology and Ornithology** states that 20 km is the largest Study Area (for European sites with geese as a qualifying feature), it has been determined that the Proposed Development would have no likely significant effects on European sites therefore, a 10 km ZoI is considered proportional.
Cultural Heritage and Archaeology	3 km
Hydrology Hydrogeology, Geology and Soils (Construction Phase)	3 km
Forestry (Construction Phase)	40 m

11.7.3 A search was conducted within these ZoIs to determine the long list of Other Committed Developments. The long list is presented in **Table 11.4** below. The criteria for Other Committed Developments to be included in the long list are outlined in **Sections 11.3** and **11.4**.

11.7.4 Other Committed Development's environmental topics were scoped in and out of the in-combination assessment depending on the proximity of the Other Committed Development to the Proposed Development as each environmental topic has its own ZoI. For example, an Other Committed Development adjacent to the Proposed Development would apply all four environmental topics for in-combination assessment. Conversely, an Other Committed Development 10 km away from the Proposed Development would apply only the environmental topic of Ecology and Ornithology for in-combination assessment.

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Table 11.4 Long List of Other Committed Developments

Long List ID	Planning Regime/Reference	Description	Status	Location in Relation to the Proposed Development	Justification for inclusion in the short list of Other Committed Developments
1	23/0322/S36 ECU00003399	Quantans Hill Wind Farm - Up to 14 wind turbines (maximum tip height 200 m), substations, control building, anemometer mast, formation of compound, temporary construction and storage compounds, and borrow pits, underground cables and associated works.	Under Consideration	Adjacent to the Proposed Development.	**Yes** –nature, scale and proximity likely to result in a magnification of effects on Common Receptors.
2	24/1223/PAN 24/2089/SCR	Holm Hill Substation - A 132 (kv) substation and ancillary work, including access road, drainage, and earthworks.	Accepted	Adjacent to the Proposed Development	**Yes –**major grid infrastructure project linked to multiple Wind Farms, and connects with the Proposed Development. Likely to overlap with the project programme in early works or enabling phases.
3	23/0610/FUL 22/0734/OBL 22/0242/FUL 23/0635/FUL 22/0751/FUL 24/1424/OBL ECU00004797	Benbrack Wind Farm, including supporting works (borrow pit and operations area) and discharge of conditions (7, 8, 10, 11, 14, 17, 22, 24, 26 and 30).	Granted Conditionally	3.7 km north-west	**No –**not of a sufficient scale and of a temporary nature, with elements of the works complete prior to the proposed programme.
4	21/1766/S42 22/2487/S42	Cornharrow Wind Farm - A Wind Farm comprising up to 7 turbines (maximum height up to 180 metres), the formation of access tracks, borrow pits, temporary construction compound, battery storage, on-site substation, and all other associated infrastructure.	Granted Conditionally	2.7 km south-east	**No** –there are no common receptor pathways, therefore, in-combination effects are not anticipated.

Long List ID	Planning Regime/Reference	Description	Status	Location in Relation to the Proposed Development	Justification for inclusion in the short list of Other Committed Developments
5	23/1686/S42 [22/1315/S42] 22/1079/FUL, 25/0342/S42, 25/0958/S42	Glenshimmeroch Wind Farm and 132 kV substation - A Wind Farm comprising 10 wind turbines (each with an overall height from base to tip of up to 180 m or 200 m), including associated infrastructure.	Granted Conditionally	5 km south-east	**No** –there are no common receptor pathways, therefore, in-combination effects are not anticipated.
6	23/0063/SCR ECU00004716	Troston Moniaive Overhead Lines (OHL) - 3.7 km of 132 kV OHL grid supported on wooden poles between Troston Loch Wind Farm substation to Glenshimmeroch collector substation.	Pre-Application Screening, deemed non-EIA	6.5 km south-east	**No** –there are no common receptor pathways, therefore, in-combination effects are not anticipated.
7	23/0368/FUL 20/2085/FUL	Margree Wind Farm - Erection of Wind Farm comprising 9 wind turbines (maximum height 200 m to blade tip), formation of access tracks and water crossings, formation of turbine foundations, crane hardstandings, temporary construction compound, on-site substation, battery storage facility, bowwor fits and other associated infrastructure	Granted conditionally	8 km south-east	**No** –there are no common receptor pathways, therefore, in-combination effects are not anticipated.
8	23/0692/FUL	Manquhill Wind Farm - A Wind Farm comprising up to 8 wind turbines (maximum height 200 m to blade tip), formation of access, temporary construction compound, transformer housing, substation building and associated works.	Accepted	1.5 km west	**Yes –**nature, scale and proximity likely to result in a magnification of effects on Common Receptors.
9	ECU00002141 [20/1942/S36] 25/1687/FUL	Euchanhead Wind Farm Near Sanquhar and upgrading existing access track - Erection of 21 wind turbines (maximum height 230 m to blade tip), energy	Under consideration	1 km east	**Yes –**nature, scale and proximity likely to result in a magnification of effects on Common Receptors.

Long List ID	Planning Regime/Reference	Description	Status	Location in Relation to the Proposed Development	Justification for inclusion in the short list of Other Committed Developments
		storage facility, access tracks and hardstanding areas, new access point to a76(t), temporary construction compound, borrow pits, anemometer mast (maximum height 149.9 m), substation and control buildings and compound, and associated works.			
	ECU00005065	Euchanhead 132 kV OHL Grid Connection, including 5.46 km of OHL, supported by wood poles, and would include an operational wayleave corridor of approximately 60 m (30 m each side of the central alignment).	Pre-application Screening, deemed non-EIA.	Adjacent to the north of the Proposed Scheme.	**No** – the scale and type of project is unlikely to result in measurable in-combination effects, and insufficient environmental information is available to produce an assessment.
10	23/1271/PAN 24/0025/FUL	Rowancraig Wind Farm including discharge of conditions - 6 wind turbines (maximum tip height 180 m), access tracks, crane hard standing, substation, control building, formation of temporary construction compound and associated works.	Accepted	9.5 km north-east	**No** –there are no common receptor pathways, therefore, in-combination effects are not anticipated.
11	ECU00000335 ECU00004895 (S36C variation)	Windy Standard III Wind Farm – Up to 20 wind turbines consisting of 8 turbines of a maximum height from base to tip not exceeding 125 m and a capacity of up to 3 MW, and 12 turbines of an overall height from base to tip not exceeding 177.5 m each with a capacity of up to 3.6 MW and associated infrastructure. S36C variation is to increase the height of 12 turbines located on the Meaul Hill Cluster.	Accepted	Approximately 1.8 km north	**Yes –**nature, scale and proximity likely to result in a magnification of effects on Common Receptors.

Long List ID	Planning Regime/Reference	Description	Status	Location in Relation to the Proposed Development	Justification for inclusion in the short list of Other Committed Developments
12	22/0221/S42	Knockman Hill Wind Farm - 5 wind turbines (81 m to blade tip), anemometer mast (55 m high), control building, turbine transformers and associated access track and associated works.	Granted Conditionally	9.6 km south-east	**No** –there are no common receptor pathways, therefore, in-combination effects are not anticipated.
13	ECU00003283 [23/0205/S36]	Lorg Wind Farm - Up to 10 wind turbines with tip heights up to 200 m, and an installed capacity of more than 50 megawatts (MW).	Under Consideration	Adjacent to the Proposed Development	**Yes** –the development is of a nature, scale, and proximity that it is likely to result in a magnification of effects on Common Receptors.
14	EC00003106 ECU00001865 ECU00005185	Pencloe Wind Farm - 19 turbines with a tip height of 149.9 m.	Accepted	6.3 km north-west	**No** –there are no common receptor pathways, therefore, in-combination effects are not anticipated.
15	23/2572/FUL	Herds Hill Wind Farm - 3 wind turbines (maximum tip height 149 m), formation of crane hardstandings, a borrow pit, temporary construction and storage compound and access tracks, erection of substation control room, installation of underground cabling and associated works.	Under Consideration	8.4 km north-east	**No** –there are no common receptor pathways, therefore, in-combination effects are not anticipated.
16	WIN-170-2005 ECU00005137	Shepherds Rig Wind Farm - development comprising the construction, 25 year operation and subsequent decommissioning of up to 17 turbines, comprising 15 with a tip height of 149.9 m and 2 with a tip height of 125 m; together with on-site access tracks, hard-standing areas, temporary borrow workings, a substation, battery energy storage and control building compound, operational anemometry	Granted conditionally	Adjacent to the Proposed Development	**Yes** –the development is of a nature, scale, and proximity that it is likely to result in a magnification of effects on Common Receptors.

Long List ID	Planning Regime/Reference	Description	Status	Location in Relation to the Proposed Development	Justification for inclusion in the short list of Other Committed Developments
		mast, on-site underground cabling and a temporary construction compound.			
17	ECU00003429	South Kyle II Wind Farm – comprising 11 wind turbines up to 200 m tip height, Battery Energy Storage System, associated infrastructure and an anticipated total generating capacity of up to 142.4 MW (92.4 MW provided by turbines, and an additional 50 MW provided by battery/energy storage)	Under consideration	8 km north-west	**No** –the application was submitted in May 2025, and construction works are expected to commence after completion of the proposed programme of works.
18	ECU00003447	Appin Wind Farm – Generating station consisting of the construction and 50-year operation of up to 9 wind turbines (each with a maximum blade tip height of 200 m) and associated infrastructure. The Wind Farm is expected to have an installed capacity of approximately 64.8 MW and will be located approximately 9 km northwest of Moniaive.	Under consideration	9.8 km north-east	**No** –the application was submitted in June 2025, and construction works are anticipated to begin during the final reinstatement phase of the proposed programme of works.
19	ECU00003461	Cloud hill Wind Farm – 10 wind turbines with a maximum tip height of 180 m, with associated foundations and hardstanding areas; Battery Energy Storage System; Access tracks (existing, upgraded and new); Electrical Infrastructure (substation and control room, with underground cabling between each turbine and the substation); A temporary construction compound; Up to three borrow pits; and a permanent met mast (approximately 100 m).	Under consideration	7 km north-east	**No** –the application was submitted in November 2024, and enabling works are anticipated to begin during the final reinstatement phase of the proposed programme of works.

Long List ID	Planning Regime/Reference	Description	Status	Location in Relation to the Proposed Development	Justification for inclusion in the short list of Other Committed Developments
20	ECU00000458 ECU00006131	Troston Loch Wind Farm – up to 12 turbines with a maximum tip height of 200 m, energy storage facility and associated infrastructure, with a generating capacity of approximately 68 MW.	Accepted – variation in pre-application	6 km south-east	**No** –the project is in pre-application stage, and enabling works are anticipated to begin during or after the final reinstatement phase of the proposed programme of works.
21	ECU00006258	A proposed 33 kV grid connection to connect the consented Fell Wind Farm to the electricity grid network.	Pre-application Screening, deemed non-EIA.	8.2 km south-east	**No** –the project's scale and nature are unlikely to generate measurable in-combination effects, as evidenced by the absence of an EIA requirement.
22	ECU00006131	Troston Loch Wind Farm – varied development will comprise up to 12 turbines with a maximum tip height of 200 m, energy storage facility and associated infrastructure, with a generating capacity of approximately 68 MW.	Under consideration	6 km south-east	**No** –there are no common receptor pathways, therefore, in-combination effects are not anticipated..

Stage 2: Establish a short list of Committed Developments

11.7.5 Other Committed Developments to be taken forward to the in-combination effects assessment are identified below. **Table 11.5** below contains justification as to why each development from the long list is or is not included in the short list. These justifications are based on either spatial, temporal, or other reasons.

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Table 11.5 Short List of Other Committed Developments

Short List ID	Description	Topics with overlapping ZoIs
1	Quantans Hill Wind Farm - Up to 14 wind turbines (maximum tip height 200 m), substations, control building, anemometer mast, formation of compound, temporary construction and storage compounds, and borrow pits, underground cables and associated works	• Landscape and Visuals; • Ecology and Ornithology (Construction only); • Hydrology Hydrogeology, Geology and Soils (Construction only); and • Cultural Heritage and Archaeology.
2	Holm Hill Substation - A 132 kV substation and ancillary work, including access road, drainage, and earthworks	• Landscape and Visuals; • Ecology and Ornithology (Construction only); • Hydrology Hydrogeology, Geology and Soils (Construction only); • Cultural Heritage and Archaeology; and • Forestry.
3	Shepherds Rig Wind Farm - development comprising the construction, 25 year operation and subsequent decommissioning of up to 17 turbines, comprising 15 with a tip height of 149.9 m and 2 with a tip height of 125 m; together with on-site access tracks, hard-standing areas, temporary borrow workings, a substation, battery energy storage and control building compound, operational anemometry mast, on-site underground cabling and a temporary construction compound.	• Landscape and Visuals; • Ecology and Ornithology (Construction only); • Hydrology Hydrogeology, Geology and Soils (Construction only); • Cultural Heritage and Archaeology; and • Forestry.

Short List ID	Description	Topics with overlapping ZoIs
4	Lorg Wind Farm - Up to 10 wind turbines with tip heights up to 200 m, and an installed capacity of more than 50 MW.	• Landscape and Visuals; • Ecology and Ornithology (Construction only); • Hydrology Hydrogeology, Geology and Soils (Construction only); • Cultural Heritage and Archaeology; and • Forestry.
5	Windy Standard III Wind Farm – Up to 20 wind turbines consisting of 8 turbines of a maximum height from base to tip not exceeding 125 m and a capacity of up to 3 MW, and 12 turbines of an overall height from base to tip not exceeding 177.5 m each with a capacity of up to 3.6 MW and associated infrastructure.	• Landscape and Visuals • Ecology and Ornithology (Construction only); • Hydrology Hydrogeology, Geology and Soils (Construction only); and • Cultural Heritage and Archaeology.
6	Euchanhead Wind Farm - Near Sanquhar and upgrading existing access track - Erection of 21 wind turbines (maximum height 230 m to blade tip), energy storage facility, access tracks and hardstanding areas, new access point to a76(t), temporary construction compound, borrow pits, anemometer mast (maximum height 149.9 m), substation and control buildings and compound, and associated works.	• Landscape and Visuals; • Ecology and Ornithology (Construction only); • Hydrology Hydrogeology, Geology and Soils (Construction only); and • Cultural Heritage and Archaeology.
7	Manquhill Wind Farm - A Wind Farm comprising up to 8 wind turbines (maximum height 200 m to blade tip), formation of access, temporary construction compound, transformer housing, substation building and associated works.	• Landscape and Visuals; • Ecology and Ornithology (Construction only);

Short List ID	Description	Topics with overlapping ZoIs
		• Hydrology Hydrogeology, Geology and Soils (Construction only); and • Cultural Heritage and Archaeology.

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Stage 3: Assessment of in-combination effects

11.7.6 **Table 11.6** and **Table 11.7** below contain the outputs of the assessment of in-combination effects, for the construction and operation phases, for the identified short list of Other Committed Developments and for each relevant environmental topic.

11.7.7 Only topics where to ZoI overlaps, and there is therefore the potential for significant cumulative effects, detailed in **Table 11.3** have been considered for further assessment and are included in **Table 11.6** and **Table 11.7**.

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Table 11.6 An Assessment of In-Combination Effects for the Construction Phase of the Proposed Development

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Short List ID 1: Quantans Hill Wind Farm - 0.9 km south of the Proposed Development			
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, the Proposed Development would extend across the identified LCT 160 – Narrow Wooded River Valley, LCT 177 – Southern Uplands, LCT 178 Southern Uplands with Forest character units, with **minor adverse** and **moderate adverse** effects. The Quantans Hill Wind Farm development is situated within the Southern Uplands – Dumfries and Galloway Local Council Authority. The documents submitted as part of the Quantans Hill Wind Farm Proposed Development outline potential landscape effects of **moderate** to **major adverse** upon landscape receptors shared with the Proposed Development application at the construction phase. Notably, LCT 160 – Narrow Wooded River Valley, LCT 177 – Southern Uplands, LCT 178 Southern Uplands with Forest. Effects upon LCT 160 and LCT 178 are, however, noted to be indirect, with the proposed Wind Farm development lying outside of these landscape units. On the basis of Quantans Hill reporting up to **major adverse**, together with the Proposed Development reporting up to **moderate adverse**, in-combination effects upon the landscape character areas are therefore anticipated with a likely rating of **major adverse** in-combination. Visual receptors, identified within the Proposed Development Visual Assessment that are considered likely to experience views of the proposed Quantans Hill Wind Farm are noted to be residents at Brockloch Tower, road users of the Galloway Tourist Route (A713), users of Core Path Cairnsmore of Carsphairn by Green Well, recreational users with elevated views, users of Cairnsmore of Carsphairn by Craig of Knockgray, users of Core Path Corlae, users of Lorg Road, residents and visitors to River Ken Cottage B&B, users of Core Path Lorg Trail and residents at Marbrack Farm, Furmiston, Craigengillan, auchlae, Corlae, and Nether Holm. Construction phase effects for these receptors range from **minor adverse**, **moderate adverse** and **moderate** – **major adverse**. On the basis of Quantans Hill reporting up to **major adverse**, together with the Proposed Development reporting up to **moderate - major adverse**, in-combination effects upon identified visual receptors therefore anticipated with a likely rating of **major adverse** in-combination.	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the Proposed Development to minimise in-combination effects.	Landscape: **major adverse** (**significant**) Visual: **major adverse** (**significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Ecology and Ornitholsogy	As discussed in **Chapter 8: Ecology and Ornithology**, construction phase residual effects range from **negligible** to **minor adverse. Minor** impacts are anticipated for Otters, Badger, Pine Marten, Red Squirrel, regionally important blanket bog habitat and locally important grassland habitats. The documents submitted as part of the Quantans Hill Wind Farm application conclude that construction phase residual effects for Otters and Badgers, and blanket bog are **negligible**. No evidence of Pine Martens or Red Squirrels were found. Consequently, no magnification of effects is likely to occur; therefore, a **negligible** (**not significant**) in-combination effect is anticipated.	None Required	**Negligible** (**not significant**)
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders outlined within the Outline Construction Environmental Management Plan (CEMP) and **Chapter 3: Proposed Development**, no significant effects are anticipated for most heritage assets. However, adverse construction phase residual effects are recorded for Assets: • Stroanfreggan Craif, fort, Smittons Bridge (A6) – **Slight adverse** • Marbrack burn (A28) – **Slight adverse** • Altry, Altry burn (A29) – **Slight adverse**; • Benloch burn (A30) – **Slight adverse** • Enclosure (A58) – **Slight adverse**, • Stroanfreggan Archaeologically Sensitive Area (ASA) (A66)- **Slight adverse** • Black Burn Bridge (A73) – **Slight adverse** • Furmiston (A85) – **Slight adverse** • Furmiston Bridge (A87) – **Slight adverse** • Smitton's Bridhe (A110) – **Slight adverse**,	None Required	**Minor adverse** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	• Big Loskie (A111) – **Slight adverse**, and • Unnamed assets A115, A116, A117 – **Slight adverse**. The documents submitted as part of the Quantans Hill Wind Farm application notes direct effects on the Big Loskie field system (**negligible**) and Marbrack burn (**negligible** to **minor**). No magnification of effects is anticipated at Big Loskie, however, there may be a slight magnification of effect at Markbrack burn. As a result, a **minor adverse** (**not significant**) in-combination effect is anticipated.		
Hydrology, Hydrogeology, Geology and Soils	As discussed in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils**, construction phase residual effects range from **negligible** to **minor adverse. Minor** impacts are anticipated for Drinking Water Protected Areas (DWPA), including Scottish Environmental Protection Agency (SEPA) & Scottish Water DWPA (Benloch Burn catchment), SEPA groundwater DWPA and Scottish Water abstraction points, as well as peat and soil resources, and Private Water Supplies (PWS). The documents submitted as part of the Quantans Hill Wind Farm application conclude that construction phase residual effects for impediments to surface water flow were **minor** / **moderate adverse**, while increased run-off and modifications to surface drainage pattern were **minor adverse,** and all remaining potential impacts were **negligible**. Consequently, no magnification of effects is likely to occur therefore a **negligible** (**not significant**) in-combination effect is anticipated.	None Required	**Negligible** (**not significant**)
Short List ID2 Holm Hill Substation – Adjacent to the Proposed Development			
Landscape and Visual	As outlined within **Chapter 7: Landscape and Visual,** the Proposed Development is anticipated to result in effects ranging from **minor** to **moderate adverse** upon LCT160 Narrow Wooded River Valley LCT 178 – Southern Uplands with Forest and LCT 177 – Southern Uplands LCT. The proposed Holm Hill Substation is located within LCT 165 – Upper Dale (Dumfries and Galloway) and is situated within close proximity to both LCT 178 – Southern Uplands with Forest and LCT 177 – Southern Uplands.. On the basis of the Holm Hill screening reporting non-significant effects on landscape receptors (magnitude not quantified at this stage), together with the Proposed Development reporting up to **moderate adverse** effects, in-combination effects upon identified	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals** which could be applied to the Proposed Development to minimise in-combination effects	Landscape: **moderate adverse** (**significant**) Visual: **moderate adverse** (**significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	landscape receptors are therefore anticipated with a likely rating of **moderate adverse** in-combination. Visual receptors, identified within the Proposed Development Visual Assessment and in proximity to Holm Hill Substation, that are considered likely to experience views of the Holm Hill substation development are noted to be residents at Brockloch Tower and users of the Galloway Tourist Route (A713) and residents in Carsphairn. Construction Phase effects upon these identified visual receptors as a result of the Proposed Development are recorded as **moderate adverse**, and **not significant** in the Holm Hill Screening Report, apart from at a single residential receptor at Brockloch Tower where potential short term significant effects may be experienced. In-combination effects upon visual receptors are therefore considered likely to occur predominately upon identified residents at Brockloch Tower and users of the Galloway Tourist Route (A713). In-combination effects upon the identified visual receptors are therefore anticipated, with a likely rating of **moderate adverse** (**significant**).		
Ecology and Ornithology	As discussed in **Chapter 8: Ecology and Ornithology**, construction phase residual effects range from **negligible** to **minor. Minor adverse** impacts are anticipated for Otters, Badger, Pine Marten and Red Squirrel, regionally important blanket bog habitat and locally important grassland habitats. The Holm Hill Substation EIA Screening concludes that there are no significant effects on ecological receptors, however effects are not quantified at this stage. As a result, a **minor adverse** in-combination effect is anticipated to occur.	None Required	**Minor adverse** (**not significant**)
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro-siting in consultation with stakeholders outlined within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated for most heritage assets. However, **adverse** construction phase residual effects are recorded for Assets: • Stroanfreggan Craif, fort, Smittons Bridge (A6) – **Slight adverse** • Marbrack burn (A28) – **Slight adverse** • Altry, Altry burn (A29) – **Slight adverse**; • Benloch burn (A30) – **Slight adverse**	None Required	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	• Enclosure (A58) – **Slight adverse**, • Stroanfreggan ASA (A66) - **Slight adverse** • Black Burn Bridge (A73) – **Slight adverse** • Furmiston (A85) – **Slight adverse** • Furmiston Bridge (A87) – **Slight adverse** • Smitton's Bridhe (A110) – **Slight adverse**, • Big Loskie (A111) – **Slight adverse**, and • Unnamed assets A115, A116, A117 – **Slight adverse**. The Holm Hill Substation EIA Screening concludes direct effects on known Cultural Heritage assets are considered unlikely during construction and operation, due to the distance from the Proposed Development. The receptors which are anticipated to experience effects from the Proposed Development are not in proximity to the Holm Hill Substation. Consequently, a magnification of effects is not anticipated to occur, and the in-combination effect is anticipated to be **negligible**.		
Forestry	As discussed in **Chapter 6: Forestry**, construction residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated towards Land Parcel A (Smittons Forest), B (Auchrae Forest), C (Corlae Forest) and D (Daltallochan Hill). The Holm Hill Substation EIA Screening concludes that the Site overlaps small areas of plantation woodland, however, these areas are not affected by the Proposed Development. There would subsequently be no potential for in-combination impacts during the Proposed Development's construction. Therefore, a magnification of effects is not expected to occur, and no in-combination effect with the Proposed Development is anticipated.	None Required	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Hydrology, Hydrogeology, Geology and Soils	As discussed in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils**, construction phase residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated for DWPAs, including SEPA & Scottish Water DWPA (Benloch Burn catchment), SEPA groundwater DWPA and Scottish Water abstraction points, as well as peat and soil resources, and PWS. The Holm Hill Substation EIA Screening concludes that there are no significant construction effects on hydrology, hydrogeology or peat from the appraisal of the baseline conditions, subject to good layout design and the preparation and implementation of an approved Water Management Plan and a Pollution Prevention Plan as part of the CEMP. Therefore, a magnification of effects is not expected to occur; and no in-combination effect with the Proposed Development is anticipated.	None Required	**Negligible** (**not significant**)
Short List ID3: Shepherds Rig Wind Farm – Adjacent to the Proposed Development			
Landscape and Visual	As noted within **Chapter 7: Landscape and Visual** of this report, Construction Phase residual landscape effects upon the shared landscape receptors ranges from **minor** to **moderate adverse**. On the basis of the Shepherds Rig Wind Farm reporting residual effects at **moderate** - **major adverse**, together with the Proposed Development reporting effects up to **moderate adverse**, in-combination effects upon the landscape character areas identified are anticipated with a likely rating of **major adverse**. Shepherds Rig Wind Farm Proposed Development is situated within LCT178 – Southern Uplands with Forest and within close proximity to both LCT160 Narrow Wooded River Valley and LCT177 Southern Uplands with landscape effects ranging from **major** / **moderate** to **major adverse**. Visual receptors identified within the Proposed Development Visual Assessment that are considered likely to experience views of the Shepherds Rigg Wind Farm development are noted to be: Recreational users with elevated views; users of Core Path Cairnsmore of Carsphairn by Craig of Knockgray (CARS/182/1); users of Core Path Corlae (CARS/188/1); residents at Marbrack Farm; users of Lorg Road and residents of dwellings at Craigengillan, Strahanna, Auchrae, and Corlae. Effects range from **minor** to **moderate** - **major adverse** at Construction Phase. On the basis of Shepherds Rig Wind Farm reporting residual visual effects up to **moderate**-Major **adverse**, together with the Proposed Development reporting	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the Proposed Development to minimise in-combination effects.	Landscape: **major adverse** (**significant**) Visual: **major adverse** (**significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	effects up to **moderate- major adverse**, cumulative impacts upon identified visual receptors are therefore anticipated with a likely rating of **major adverse** in-combination.		
Ecology and Ornithology	As discussed in **Chapter 8: Ecology and Ornithology**, construction phase residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated for Otters, Badger, Pine Marten and Red Squirrel, regionally important blanket bog habitat and locally important grassland habitats. The documents submitted as part of the Shepherds Rig Wind Farm application conclude that there are likely to be non-significant effects on offers during construction as a result of disturbance and potential for collision. Consequently, a slight magnification of effects is anticipated, leading to a **minor adverse** (**not significant**) in-combination effect.	None Required	**Minor adverse** (**not significant**)
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated for most heritage assets. However, **adverse** construction phase residual effects are recorded for Assets: • Stroanfreggan Craif, fort, Smittons Bridge (A6) – **Slight adverse** • Marbrack burn (A28) – **Slight adverse** • Altry, Altry burn (A29) – **Slight adverse**; • Benloch burn (A30) – **Slight adverse** • Enclosure (A58) – **Slight adverse**, • Stroanfreggan ASA (A66)- **Slight adverse** • Black Burn Bridge (A73) – **Slight adverse** • Furmiston (A85) – **Slight adverse** • Furmiston Bridge (A87) – **Slight adverse** • Smitton's Bridhe (A110) – **Slight adverse**, • Big Loskie (A111) – **Slight adverse**, and	None Required	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	• Unnamed assets A115, A116, A117 – **Slight adverse**. The documents submitted as part of the Shepherds Rig Wind Farm application conclude that there are no direct construction effects across heritage assets. As a result, no impacts are anticipated to occur for shared heritage asset A58. Consequently, a magnification of effects is not anticipated to occur. A measurable in-combination effect would not occur, and a **negligible** (**not significant**) effect is concluded.		
Forestry	As discussed in **Chapter 6: Forestry**, construction residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated towards Land Parcel A (Smittons Forest), B (Auchrae Forest) C (Corlae Forest) and D (Daltallochan Hill). Smittons Forest will experience woodland loss as a result of Shepherds Rig Wind Farm, however for the Proposed Development, the area lost is much smaller and is within the area to be removed by Shepherds Rig Wind Farm. Therefore, with the Proposed Development, the magnification of effects is slight, leading to an in-combination effect of **minor adverse** (**not significant**).	None Required	**Minor adverse** (**not significant**)
Hydrology, Hydrogeology, Geology and Soils	As discussed in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils**, construction phase residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated for DWPAs, including SEPA & Scottish Water DWPA (Benloch Burn catchment), SEPA groundwater DWPA and Scottish Water abstraction points, as well as peat and soil resources, and PWS. The documents submitted as part of the Shepherds Rig Wind Farm application conclude that the residual effects are of **negligible** significance. Consequently, no magnification of effects is likely to occur; therefore a **negligible** (**not significant**) in-combination effect is anticipated.	None Required	**Negligible** (**not significant**)
Short List ID 4: Lorg Wind Farm – Adjacent to the Proposed Development			
Landscape and Visual	As outlined within **Chapter 7: Landscape and Visual** of this report, effects of **minor adverse** are anticipated upon the Southern Uplands with Forest landscape receptor. The Lorg Wind Farm is located within LCT 178 – Southern Uplands with Forest and lies adjacent to LCT 160 – Narrow Wooded River Valley. Significant effects associated with the Lorg Wind Farm are only anticipated in the Southern Uplands with Forest (**major adverse**, **significant**). As a result, a magnification of	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the	Landscape: **moderate adverse** (**significant**) Visual: **major adverse** (**significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	effects may occur, therefore a **moderate adverse** (**significant**) in-combination effect on LCT 178 is anticipated. Visual receptors identified within the Proposed Development Visual Assessment that are considered likely to experience views of the Lorg Wind Farm development are identified as: recreational users with elevated views; users of Core Path Corlae (CARS/188/1); users of Lorg Road; and users of Core Path Lorg Trail (CARS/215/4). Construction effects range for both schemes range from **moderate** to **moderate** – **major adverse**. As a result, a magnification of effects may occur and a **major adverse** (**significant**) in-combination effect is anticipated.	Proposed Development to minimise in-combination effects.	
Ecology and Ornithology	As discussed in **Chapter 8: Ecology and Ornithology**, construction phase residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated for Otters, Badger, Pine Marten, Red Squirrel, regionally important blanket bog habitat and locally important grassland habitats. The documents submitted as part of the Lorg Wind Farm application conclude no **significant** effects (described as low in the chapter) on Otter and Badger. Consequently, a slight magnification of effects may occur at a local level, and a **minor adverse** (**not significant**) in-combination effect is anticipated.	None Required	**Minor adverse** (**not significant**)
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated for most heritage assets. However, **adverse** construction phase residual effects are recorded for Assets: • Stroanfreggan Craif, fort, Smittons Bridge (A6) – **Slight adverse** • Marbrack burn (A28) – **Slight adverse** • Altry, Altry burn (A29) – **Slight adverse**; • Benloch burn (A30) – **Slight adverse** • Enclosure (A58) – **Slight adverse**, • Stroanfreggan ASA (A66)- **Slight adverse** • Black Burn Bridge (A73) – **Slight adverse**	None Required	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	• Furmiston (A85) – **Slight adverse** • Furmiston Bridge (A87) – **Slight adverse** • Smitton's Bridhe (A110) – **Slight adverse**, • Big Loskie (A111) – **Slight adverse**, and • Unnamed assets A115, A116, A117 – **Slight adverse**. The documents submitted as part of the Lorg Wind Farm application conclude that there are no significant construction effects on heritage assets. No impacts are anticipated to occur for shared heritage asset A58. Consequently, a magnification of effects is not anticipated to occur. As a result, no in-combination effect with the Proposed Development is anticipated.		
Forestry	As discussed in **Chapter 6: Forestry**, construction residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated towards Land Parcel A (Smittons Forest), B (Auchrae Forest), C (Corlae Forest) and D (Daltallochan Hill). Lorg Wind Farm's Environmental Statement (ES) concludes that there is no forestry within the development Site boundary. Consequently, Forestry was scoped out of Lorg Wind Farm's assessment. Therefore, a magnification of effects is not anticipated to occur. As a result, no in-combination effect with the Proposed Development is anticipated.	None Required	**Negligible** (**not significant**)
Hydrology, Hydrogeology, Geology and Soils	As discussed in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils**, construction phase residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated for DWPAs, including SEPA & Scottish Water DWPA (Benloch Burn catchment), SEPA groundwater DWPA and Scottish Water abstraction points, as well as peat and soil resources, and PWS. The Lorg Wind Farm's ES concludes that, with both embedded and additional mitigation in place, standalone and cumulative effects of the Proposed Development on all water receptors are **not significant**. Consequently, no magnification of effects is likely to occur; therefore a **negligible** (**not significant**) in-combination effect is anticipated.	None Required	**Negligible** (**not significant**)
Short List ID 5: Windy Standard III Windfarm			

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, the Proposed Development would extend across the identified LCT 160 – Narrow Wooded River Valley, LCT 177 – Southern Uplands, LCT 178 Southern Uplands with Forest character units, with **minor adverse** and **moderate adverse** effects. Windy Standard Windfarm assessment records localised significant effects at LCT 177 – Southern Uplands and LCT 178 – Southern Uplands with Forest Character Units. As a result, there would be a magnification of effects and a **moderate adverse** (**significant**) in-combination effect is anticipated on common landscape receptors. Common visual receptors between the two schemes include the Users of Core Path Cairnsmore of Carsphairn by Green Well (CARS/487/2). These users are anticipated to experience a **moderate adverse** (**significant**) effect from the Proposed Development, and a **major adverse** (**significant**) effect from Windy Standard Windfarm. As a result, a magnification of effects is likely, and an in-combination effect of **moderate adverse** (**significant**) is anticipated.	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the Proposed Development to minimise in-combination effects.	Landscape: **moderate adverse** (**significant**) Visual: **moderate adverse** (**significant**)
Ecology and Ornithology	As discussed in **Chapter 8: Ecology and Ornithology**, construction phase residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated for Habitats, Otters, Badger, Pine Marten Red Squirrel, regionally important blanket bog habitat and locally important grassland habitats. The documents submitted as part of the Windy Standard III Wind Farm conclude that the construction phase residual effect for Habitats is considered low to **negligible** and **not significant**, and for Otter, Red Squirrel and Badger is considered **negligible** and therefore **not significant**. Pine Martens were not recorded on-site. As a result, there may be a slight magnification of effects on blanket bog habitats, therefore a **minor adverse** (**not significant**) in-combination effect is anticipated.	None Required	**Minor adverse** (**not significant**
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are	None Required	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	anticipated for most heritage assets. However, **adverse** construction phase residual effects are recorded for Assets: • Stroanfreggan Craif, fort, Smittons Bridge (A6) – **Slight adverse** • Marbrack burn (A28) – **Slight adverse** • Altry, Altry burn (A29) – **Slight adverse**; • Benloch burn (A30) – **Slight adverse** • Enclosure (A58) – **Slight adverse**, • Stroanfreggan ASA (A66)- **Slight adverse** • Black Burn Bridge (A73) – **Slight adverse** • Furmiston (A85) – **Slight adverse** • Furmiston Bridge (A87) – **Slight adverse** • Smitton's Bridhe (A110) – **Slight adverse**, • Big Loskie (A111) – **Slight adverse**, and • Unnamed assets A115, A116, A117 – **Slight adverse**. The documents submitted as part of the Windy Hill Application conclude that there are no effects on shared heritage receptors. As a result, no in combination effect with the Proposed Development is anticipated.		
Hydrology, Hydrogeology, Geology and Soils	As discussed in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils**, construction phase residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated for DWPAs, including SEPA & Scottish Water DWPA (Benloch Burn catchment), SEPA groundwater DWPA and Scottish Water abstraction points, as well as peat and soil resources, and PWS. The Windy Standard III ES concludes that the implementation of mitigation measures and best practices would ensure that any of the potentially significant impacts associated with construction effects would be controlled on all identified receptors. Consequently, no magnification of effects is likely to occur therefore a **negligible** (**not significant**) in-combination effect is anticipated.	None Required	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Short List ID 6: Euchanhead Wind Farm Near Sanquhar			
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, the Proposed Development would extend across the identified LCT 160 – Narrow Wooded River Valley, LCT 177 – Southern Uplands, LCT 178 Southern Uplands with Forest character units, with identified effects being **minor adverse** and **moderate adverse**. The Euchanhead Wind Farm is located in the Ken unit of Southern Uplands with Forest and Southern Uplands – Ayrshire. On the basis of Euchanhead Wind Farm reporting residual landscape effects up to **moderate adverse**, together with the Proposed Development reporting up to **moderate adverse**, in-combination effects upon identified landscape receptors are therefore anticipated with a likely rating of **moderate adverse** in-combination. Visual receptors, identified within the Proposed Development Visual Assessment and Euchanhead Wind Farm, that are considered likely to experience views of Euchanhead Wind Farm are noted to be users of Core Path Lorg. and recreational users with elevated views with indirect/glimpsed views. Construction Phase effects upon these identified visual receptors as a result of the Proposed Development construction are recorded as **moderate adverse**, and on the basis of Euchanhead Wind Farm reporting **moderate adverse significant** effects, in-combination effects upon identified visual receptors are therefore anticipated, with a likely rating of **moderate adverse** in-combination.	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the Proposed Development to minimise in-combination effects.	Landscape: **moderate adverse** (**significant**) Visual: **moderate adverse** (**significant**)
Ecology and Ornithology	As discussed in **Chapter 8: Ecology and Ornithology**, construction phase residual effects range from **negligible** to **minor**. **minor adverse** impacts are anticipated for Otters, Badger, Pine Marten, Red Squirrel, regionally important blanket bog habitat and locally important grassland habitats. The documents submitted as part of Euchanhead Wind Farm conclude that effects on Otters, Pine Marten and Red Squirrel are **not significant**, however they are not **negligible**. As a result, a slight magnification of effects may occur and as a result a **minor adverse** (**not significant**) in-combination effect is anticipated.	None Required	**Minor adverse** (**not significant**)
Cultural Heritage	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are	None Required	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	anticipated for most heritage assets. However, **adverse** construction phase residual effects are recorded for Assets: • Stroanfreggan Craif, fort, Smittons Bridge (A6) – **Slight adverse** • Marbrack burn (A28) – **Slight adverse** • Altry, Altry burn (A29) – **Slight adverse**; • Benloch burn (A30) – **Slight adverse** • Enclosure (A58) – **Slight adverse**, • Stroanfreggan ASA (A66)- **Slight adverse** • Black Burn Bridge (A73) – **Slight adverse** • Furmiston (A85) – **Slight adverse** • Furmiston Bridge (A87) – **Slight adverse** • Smitton's Bridhe (A110) – **Slight adverse**, • Big Loskie (A111) – **Slight adverse**, and • Unnamed assets A115, A116, A117 – **Slight adverse**. The documents submitted as part of Euchanhead Wind Farm conclude there would only be direct impact on two trackways, which are unrelated to the Proposed Development. Consequently, a magnification of effects is not anticipated to occur. As a result, no in-combination effect with the Proposed Development is anticipated.		
Hydrology, Hydrogeology, Geology and Soils	As discussed in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils**, construction phase residual effects range from **negligible** to **minor**. **minor adverse** impacts are anticipated for DWPAs, including SEPA & Scottish Water DWPA (Benloch Burn catchment), SEPA groundwater DWPA and Scottish Water abstraction points, as well as peat and soil resources, and PWS. The Euchanhead Wind Farm ES concludes that, the implementation of mitigation measures and best practice would ensure that the potential impacts associated with construction effects are **negligible**. Consequently, no magnification of effects is likely to occur; therefore a **negligible** (**not significant**) in-combination effect is anticipated.	None Required	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Short List ID 7: Manquhill Wind Farm			
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, the Proposed Development would extend across the identified LCT 160 – Narrow Wooded River Valley, LCT 177 – Southern Uplands, LCT 178 Southern Uplands with Forest character units, with identified effects being **minor adverse** and **moderate adverse**. Manquhill Wind Farm is located within LCT 178 Southern Uplands with Forest, with **moderate adverse** (**not significant**) effects. **Minor adverse** (**not significant**) effects are reported for LCT 160 and LCT 177. in-combination effects upon identified landscape receptors are therefore anticipated with a likely rating of **moderate adverse** (**significant**). Users of Core Paths near the Proposed Development may experience **moderate adverse** (**significant**) effects. Similarly, **major** to **moderate** effects are anticipated on users of Core Paths near Manquhill Wind Farm. As a result, a magnification of effects is anticipated, and a **major adverse** (**significant**) visual in-combination effect.	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the Proposed Development to minimise in-combination effects.	Landscape: **moderate adverse** (**significant**) Visual: **moderate adverse** (**significant**)
Ecology and Ornithology	As discussed in **Chapter 8: Ecology and Ornithology**, construction phase residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated for Otters, Badger, Pine Marten, Red Squirrel, regionally important blanket bog habitat and locally important grassland habitats. The documents submitted with the Manquhill EIAR state that **minor adverse** effects are anticipated for Otter and Badger during the construction phase. There may be some slight magnification of effect, therefore an in-combination effect of **minor adverse** (**not significant**) is anticipated for Common Receptors.	None Required	**Minor adverse** (**not significant**)
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated for most heritage assets. However, **adverse** construction phase residual effects are recorded for Assets: • Stroanfreggan Craif, fort, Smittons Bridge (A6) – **Slight adverse** • Marbrack burn (A28) – **Slight adverse**	None Required	Negligble (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	• Altry, Altry burn (A29) – **Slight adverse**; • Benloch burn (A30) – **Slight adverse** • Enclosure (A58) – **Slight adverse**, • Stroanfreggan ASA (A66)- **Slight adverse** • Black Burn Bridge (A73) – **Slight adverse** • Furmiston (A85) – **Slight adverse** • Furmiston Bridge (A87) – **Slight adverse** • Smitton's Bridhe (A110) – **Slight adverse**, • Big Loskie (A111) – **Slight adverse**, and • Unnamed assets A115, A116, A117 – **Slight adverse**. The Manquhill Wind Farm EIAR confirms that no Common Receptors will experience effects as a result of both developments, therefore no in-combination effects are anticipated.		
Hydrology, Hydrogeology, Geology and Soils	As discussed in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils**, construction phase residual effects range from **negligible** to **minor**. **Minor adverse** impacts are anticipated for DWPAs, including SEPA & Scottish Water DWPA (Benloch Burn catchment), SEPA groundwater DWPA and Scottish Water abstraction points, as well as peat and soil resources, and PWS. The Manquhill Wind Farm ES concludes that the implementation of mitigation measures and best practice will ensure that there will be **no significant adverse** residual effects from the Proposed Development on the hydrological, hydroecological and geological environment. Consequently, no magnification of effects is likely to occur therefore a **negligible** (**not significant**) in-combination effect is anticipated.	None Required	**Negligible** (**not significant**)

Table 11.7 An Assessment of In-Combination Effects for the Operation Phase of the Proposed Development

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Short List ID 1: Quantans Hill Wind Farm - 0.9 km south of the Proposed Development			
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, Operational Phase, **minor adverse** operational effects are anticipated at LCT 160 – Narrow Wooded River Valley in Year 1, reducing to **negligible** by Year 15 of operation. On the basis of Quantans Hill reporting operational landscape residual effects of **moderate adverse** on the same receptor, a medium-term magnification of effects is likely, however this will reduce to no magnification by Year 15 of Operation of the Proposed Development. As a result, a **moderate adverse** (**significant**) in-combination effect is anticipated, reducing to **negligible** by Year 15. Visual receptors, identified within the Proposed Development Visual Assessment that are considered likely to experience views of the proposed Quantans Hill Wind Farm are noted to be users of the Galloway Tourist Route (A713), users of Core Path Cairnsmore of Carsphairn by Green Well, recreational users with elevated views, and users of Cairnsmore of Carsphairn by Craig of Knockgray. Operation Phase effects for these receptors is **minor adverse** (**not significant**) at Year 1 and Year 15 for recreational users with elevated views, and users of Cairnsmore of Carsphairn by Craig of Knockgray and reduces to **negligible** at Year 15 for users of the A713, Users of Core Path Cairnsmore of Carsphairn by Green Well, Documents submitted as part of the Quantans Hill Wind Farm Proposed Development identify visual effects of **major adverse** upon receptors at Cairnsmore of Carsphairn (recreational) and users of A713. On the basis of Quantans Hill reporting visual effects at Operational Phase of up to **major adverse**, together with the Proposed Development reporting effects of **minor adverse** to **negligible**, **adverse**, a medium-term magnification of effects is likely, however this would reduce to no magnification for some receptors by Year 15 of Operation of the Proposed Development. As a result, a **major adverse** (**significant**) in-combination effect is anticipated for all receptors at Year 1 of the Proposed Development, and would reduce to **negligible** only for users of the A713 and users of the Cainsmore of Carsphairn by Green Well Core Path by Year 15 of Operation of the Proposed Development.	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the Proposed Development to minimise in-combination effects.	Landscape: **moderate adverse** (**significant**) at Year 1 of Operation, reducing to **negligible** (**not significant**) by Year 15. Visual: **major adverse** (**significant**) at Year 1 of Operation, reducing to **negligible** for users of the A713 and users of the Cainsmore of Carsphairn by Green Well Core Path by Year 15.

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated on heritage assets. However, **minor adverse** operational phase residual effects are recorded for Assets: • Craigengillan Cairn (A7) – **Slight adverse**; • Cairn on Holm Hill (A8) – **Slight adverse**; • Cairn on Cairn Hill (A10) – **Slight adverse**; • Cairn on Ewe Hill (A11) – **Slight adverse**; • Scalloch / Little Auchrae (A23) - **Slight adverse**; • Daltallochan Cairn (A45) – **Slight adverse**; • Cairnfield (A55) – **Slight adverse** • Sheep Ree and Cairn (A57) – **Slight adverse**, • Stroanfreggan ASA (A66) – **Slight adverse** • Craigengillan (Farmstead, enclosure, settlement) (A67) – **Slight adverse** • Cairn at Nether Holm of Dalquhairn (A76) – **Slight adverse**, • Cairn on Scalloch (A77) – **Slight adverse** • Burnt mound on Scalloch and burnt mound and cairns on Scalloch (A78 and A79) – **Slight adverse**; and • Furmiston Bridge (A87) – **Slight adverse**. The documents submitted as part of the Quantans Hill Wind Farm application conclude **minor adverse** operational residual effects on Craigengillan Cairn, Little Auchrae, and Stroanfreggan ASA. Consequently, a significant magnification of effects is not anticipated to occur. As a result, a **minor** in-combination effect with the Proposed Development is anticipated and a **minor adverse** (**not significant**) effect is concluded.	None Required	**Minor adverse** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Short List ID2: Holm Hill Substation – Adjacent to the Proposed Development			
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, Operational Phase, **minor adverse** operational effects are anticipated at LCT 160 – Narrow Wooded River Valley in Year 1, reducing to **negligible** by Year 15 of operation. Landscape effects associated with the Holm Hill Substation are also anticipated to appear reduced with application mitigation at Operation Phase and to therefore are **non-significant**. Significant in-combination effects upon identified landscape receptors are therefore not likely to occur. Identified visual receptors within **Chapter 7: Landscape and Visual** of this report, include residents at Brockloch Tower and users of the Galloway Tourist Route (A713) with direct views and users of Core Path Cairnsmore of Carsphairn by Green Well and recreational users with elevated views with indirect/glimpsed views are concluded to experience residual effects ranging from **minor adverse** to **negligible** at Operation Phase. Visual effects associated with the Holm Hill substation are anticipated to result in **non-significant** residual effects at Operation Phase. Significant in-combination effects upon visual receptors are therefore not anticipated. On the basis of the proposed Holm Hill Substation screening reporting no **significant** visual effects at Operational Phase, together with the Proposed Development reporting effects of up to **minor adverse**, a slight magnification of effects is likely, and an in-combination effect of **minor adverse** (**not significant**) is anticipated.	None Required.	Landscape: **negligible** (Not **significant**) Visual: **minor adverse** (**not significant**)
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated on heritage assets. However, **minor adverse** operational phase residual effects are recorded for Assets: • Craigengillan Cairn (A7) – **Slight adverse**; • Cairn on Holm Hill (A8) – **Slight adverse**;	None Required.	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	• Cairn on Cairn Hill (A10) – **Slight adverse**; • Cairn on Ewe Hill (A11) – **Slight adverse**; • Scalloch / Little Auchrae (A23) - **Slight adverse**; • Daltallochan Cairn (A45) – **Slight adverse**; • Cairnfield (A55) – **Slight adverse** • Sheep Ree and Cairn (A57) – **Slight adverse**, • Stroanfreggan ASA (A66) – **Slight adverse** • Craigengillan (Farmstead, enclosure, settlement) (A67) – **Slight adverse** • Cairn at Nether Holm of Dalquhairn (A76) – **Slight adverse**, • Cairn on Scalloch (A77) – **Slight adverse** • Burnt mound on Scalloch and burnt mound and cairns on Scalloch (A78 and A79) – **Slight adverse**; and • Furmiston Bridge (A87) – **Slight adverse**. The Holm Hill Substation EIA Screening concludes that direct effects on known Cultural Heritage assets are considered unlikely during operation, due to the distance from the Proposed Development. Consequently, a magnification of effects is not anticipated to occur. A measurable in-combination effect would not occur.		
Short List ID3: Shepherds Rig Wind Farm – Adjacent to the Proposed Development			
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, Operational Phase, **minor adverse** operational effects are anticipated at LCT 160 – Narrow Wooded River Valley in Year 1, reducing to **negligible** by Year 15 of operation. At Operational Phase landscape effects associated with the Shepherds Rig Wind Farm development are identified as ranging between **negligible** to **major adverse** (within 3 km of the turbines) on the Narrow Wooded River Valley LCT.	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the Proposed	Landscape: **major adverse** (**significant**) in Year 1 of Operation, reducing to **negligible** (**not significant**) by Year 15. Visual: **major adverse** (**significant**) at Craigengillan, **moderate adverse** (**significant**) for all other receptors at Year 1,

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	Therefore, a medium-term magnification of effects is likely, however this would reduce to no magnification by Year 15 of Operation of the Proposed Development. As a result, a **major adverse** (**significant**) in-combination effect is anticipated, reducing to **negligible** by Year 15. At Operational Phase visual receptors identified within the Proposed Development Visual Assessment within **Chapter 7: Landscape and Visual**, that are likely to experience effects as a result of Shepherds Rig Wind Farm are users with elevated views, users of the A713, residents of Auchrae and Corlae, and Craigengillan and users of Lorg Road. These effects are **minor adverse** in Year 1, with the exception of Craigengillan which is **moderate adverse**. For residents of Auchrae, this reduces to **negligible** by Year 15. At Shepherds Rig Wind Farm, these receptors are likely to experience **moderate** to **major adverse** effects. Commercial forestry to the west of the dwellings at Craigengillan is likely to limit views towards the Shepherds Rig development from visual receptors at this location. On the basis of the Shepherds Rig Wind Farm identifying effects of up to **major adverse**, together with the Proposed Development identifying effects of up to **moderate adverse** at Operational Phase, a magnification of effects is likely to occur and an in-combination effect is anticipated for visual receptors with a likely rating of **major adverse** at Craigengillan, with **moderate adverse** for other receptors. For residents of Auchrae, the in-combination effect reduces to **negligible** (**not significant**) by Operation Year 15.	Development to minimise in-combination effects.	reducing to **negligible** (**not significant**) for residents at Auchrae by Year 15.
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated on heritage assets. However, **minor adverse** operational phase residual effects are recorded for Assets: • Craigengillan Cairn (A7) – **Slight adverse**; • Cairn on Holm Hill (A8) – **Slight adverse**; • Cairn on Cairn Hill (A10) – **Slight adverse**; • Cairn on Ewe Hill (A11) – **Slight adverse**; • Scalloch / Little Auchrae (A23) - **Slight adverse**;	None Required	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	• Daltallochan Cairn (A45) – **Slight adverse**; • Cairnfield (A55) – **Slight adverse** • Sheep Ree and Cairn (A57) – **Slight adverse**, • Stroanfreggan ASA (A66) – **Slight adverse** • Craigengillan (Farmstead, enclosure, settlement) (A67) – **Slight adverse** • Cairn at Nether Holm of Dalquhairn (A76) – **Slight adverse**, • Cairn on Scalloch (A77) – **Slight adverse** • Burnt mound on Scalloch and burnt mound and cairns on Scalloch (A78 and A79) – **Slight adverse**; and • Furmiston Bridge (A87) – **Slight adverse**. The documents submitted as part of the Shepherds Rig Wind Farm application conclude that with mitigation, there are **negligible** to **minor** operational effects on heritage assets. There are no shared receptors which are likely to experience **minor adverse** effects from Shepherds Rig Wind Farm, therefore a magnification of effects is not anticipated to occur. A measurable in-combination effect would not occur.		
Short List ID4: Lorg Wind Farm – Adjacent to the Proposed Development			
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, Operational Phase, **minor adverse** operational effects are anticipated at LCT 160 – Narrow Wooded River Valley in Year 1, reducing to **negligible** by Year 15 of operation. For the Narrow Wooded River Valley, Lorg Wind Farm Reports an indirect landscape effect of up to **major adverse** (**significant**), with the greatest effects between Lorg Bridge and south or Corlae. A medium-term magnification of effects is likely, however this would reduce to no magnification by Year 15 of Operation of the Proposed Development. As a result, a **major adverse** (**significant**) in-combination effect is anticipated, reducing to **negligible** by Year 15. Visual receptors identified within the Proposed Development Visual Assessment that are considered likely to experience views of the Lorg Wind Farm	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the Proposed Development to minimise in-	Landscape: **major adverse** (**significant**) at Year 1, reducing to **negligible** (**not significant**) at Year 15. Visual: **major adverse** (**significant**), reducing to **negligible** (**not significant**) for residents at Auchrae in Year 15.

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	development are identified as: recreational users with elevated views; users of the A713, users of Lorg Road; residents of dwellings at Craigengillan, Auchrae, and Corlae; and users of Core Path Lorg Trail (CARS/215/4). Operational Phase effects are **minor adverse** at Year 1 with the exception of residents at Craigengillan, who are considered to experience **moderate adverse** residual effects associated with the Proposed Development at Operational Phase. Views from these residents, however, would be set back from the Proposed Development beyond areas of dense commercial forestry and are therefore considered unlikely to experience **significant adverse** effects. For Residents at Auchrae, visual effects are anticipated to be **negligible** by Year 15. On the basis of the Lorg Wind Farm reporting effects of up to **major adverse** on residential receptors off Lorg Road, Cairnsmore of Carsphairn and **minor adverse** effects on users of the A713, together with the Proposed Development report identifying up to **moderate adverse** effects on visual receptors at Operational Phase, a magnification of effects is likely to occur. As a result, an in-combination effects of **major adverse** (**significant**) is anticipated, reducing to **negligible** (**not significant**) by Year 15 for residents of Auchrae.	combination effects.	
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated on heritage assets. However, **minor adverse** operational phase residual effects are recorded for Assets: • Craigengillan Cairn (A7) – **Slight adverse**; • Cairn on Holm Hill (A8) – **Slight adverse**; • Cairn on Cairn Hill (A10) – **Slight adverse**; • Cairn on Ewe Hill (A11) – **Slight adverse**; • Scalloch / Little Auchrae (A23) - **Slight adverse**; • Daltallochan Cairn (A45) – **Slight adverse**; • Cairnfield (A55) – **Slight adverse** • Sheep Ree and Cairn (A57) – **Slight adverse**,	None Required.	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	• Stroanfreggan ASA (A66) – **Slight adverse** • Craigengillan (Farmstead, enclosure, settlement) (A67) – **Slight adverse** • Cairn at Nether Holm of Dalquhairn (A76) – **Slight adverse**, • Cairn on Scalloch (A77) – **Slight adverse** • Burnt mound on Scalloch and burnt mound and cairns on Scalloch (A78 and A79) – **Slight adverse**; and • Furmiston Bridge (A87) – **Slight adverse**. The documents submitted as part of the Lorg Wind Farm application conclude no direct effects on assets during operation, and only indirect effects on receptors that are not likely to experience effects as a result of the Proposed Scheme. Consequently, a magnification of effects is not anticipated to occur. A measurable in-combination effect is not anticipated.		
Short List ID5: Windy Standard III Wind Farm			
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, Operational Phase, **minor adverse** operational effects are anticipated at LCT 160 – Narrow Wooded River Valley in Year 1, reducing to **negligible** by Year 15 of operation. There are no effects anticipated on this LCT as a result of the Windy Standard III Wind Farm, therefore, no magnification of effects is anticipated, and a **negligible** (**not significant**) in-combination effect on Landscape receptors is anticipated. The only common visual receptor between the two developments that is likely to experience effects during operation is the Cairnsmore of Carsphairn by the Green Well Core Path. For the Windy Standard project, this is a **major adverse** effect, and for the Proposed Development this is **minor adverse** at Year 1, reducing to **negligible** at Year 15. A medium-term magnification of effects is likely, however, this would reduce to no magnification by Year 15 of Operation of the Proposed Development. As a result, a **major adverse** (**significant**) in-combination effect is anticipated, reducing to **negligible** by Year 15.	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals** which could be applied to the Proposed Development to minimise in-combination effects.	Landscape: **negligible** (**not significant**) Visual: **major adverse** (**significant**) at Year 1, reducing to **negligible** (**not significant**) at Year 15.

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated on heritage assets. However, **minor adverse** operational phase residual effects are recorded for Assets: • Craigengillan Cairn (A7) – **Slight adverse**; • Cairn on Holm Hill (A8) – **Slight adverse**; • Cairn on Cairn Hill (A10) – **Slight adverse**; • Cairn on Ewe Hill (A11) – **Slight adverse**; • Scalloch / Little Auchrae (A23) - **Slight adverse**; • Daltallochan Cairn (A45) – **Slight adverse**; • Cairnfield (A55) – **Slight adverse** • Sheep Ree and Cairn (A57) – **Slight adverse**, • Stroanfreggan ASA (A66) – **Slight adverse** • Craigengillan (Farmstead, enclosure, settlement) (A67) – **Slight adverse** • Cairn at Nether Holm of Dalquhairn (A76) – **Slight adverse**, • Cairn on Scalloch (A77) – **Slight adverse** • Burnt mound on Scalloch and burnt mound and cairns on Scalloch (A78 and A79) – **Slight adverse**; and • Furmiston Bridge (A87) – **Slight adverse**. The documents submitted as part of the Windy Standard Wind Farm application conclude that there are no Common Receptors between the two developments. Consequently, a magnification of effects is not anticipated to occur. A measurable in-combination effect is not anticipated.	None Required.	**Negligible** (**not significant**)
Short List ID6: Euchanhead Wind Farm Near Sanquhar			

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, Operational Phase, **minor adverse** operational effects are anticipated at LCT 160 – Narrow Wooded River Valley in Year 1, reducing to **negligible** by Year 15 of operation. The Euchanhead landscape assessment records that to the north of the LCT, effects would be **major** to **moderate adverse** (**significant**). Beyond 6 km from the turbines, the impacts would be considered **moderate adverse** or less, and **not significant**. On the basis of Euchanhead Wind Farm reporting operational landscape residual effects of up to **major/moderate** to **moderate adverse** together with the Proposed Development reporting effects of **minor adverse**, in-combination effects are anticipated with a likely rating of **major adverse** in-combination at Year 1, reducing to **negligible** by Year 15. The Euchanhead Wind Farm reports that there are **moderate** and **major adverse significant** visual effects on users of core paths, which may combine with the **minor adverse** effect on visual receptors of the Proposed Development. Therefore, in-combination effects upon identified visual receptors are therefore anticipated, with a likely rating of **moderate adverse** in-combination.	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the Proposed Development to minimise in-combination effects.	Landscape: **major adverse** (**significant**) at Year 1, reducing to **negligible** (**not significant**) at Year 15. Visual: **moderate adverse** (**significant**)
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated on heritage assets. However, **minor adverse** operational phase residual effects are recorded for Assets: • Craigengillan Cairn (A7) – **Slight adverse**; • Cairn on Holm Hill (A8) – **Slight adverse**; • Cairn on Cairn Hill (A10) – **Slight adverse**; • Cairn on Ewe Hill (A11) – **Slight adverse**; • Scalloch / Little Auchrae (A23) - **Slight adverse**; • Daltallochan Cairn (A45) – **Slight adverse**; • Cairnfield (A55) – **Slight adverse** • Sheep Ree and Cairn (A57) – **Slight adverse**,	None Required	**Negligible** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	• Stroanfreggan ASA (A66) – **Slight adverse** • Craigengillan (Farmstead, enclosure, settlement) (A67) – **Slight adverse** • Cairn at Nether Holm of Dalquhairn (A76) – **Slight adverse**, • Cairn on Scalloch (A77) – **Slight adverse** • Burnt mound on Scalloch and burnt mound and cairns on Scalloch (A78 and A79) – **Slight adverse**; and • Furmiston Bridge (A87) – **Slight adverse**. The Euchanhead Wind Farm reports no effects on common heritage assets with the Proposed Development. Consequently, a magnification of effects is not anticipated to occur. A measurable in-combination effect is not anticipated.		
Short List ID 7: Manquhill Wind Farm			
Landscape and Visual	As identified within **Chapter 7: Landscape and Visual** of this report, Operational Phase, **minor adverse** operational effects are anticipated at LCT 160 – Narrow Wooded River Valley in Year 1, reducing to **negligible** by Year 15 of operation. **minor adverse** (**not significant**) effects are reported for LCT 160 in relation to Manquhill Wind Farm. As a result, a slight magnification of effects is anticipated, with a likely in-combination effect of **minor adverse** (**not significant**). Users of Core Paths near the Proposed Development may experience **minor adverse** (**significant**) effects. Similarly, **major** to **moderate** effects are anticipated on users of Core Paths near Manquhill Wind Farm. As a result, a magnification of effects is anticipated, and a **moderate adverse** (**significant**) visual in-combination effect.	There is no mitigation over and above that already discussed in **Chapter 7: Landscape and Visuals,** which could be applied to the Proposed Development to minimise in-combination effects.	Landscape: **minor adverse** (**not significant**) Visual: **moderate adverse** (**significant**)
Cultural Heritage and Archaeology	As discussed in **Chapter 9: Cultural Heritage and Archaeology**, due to commitments to micro siting in consultation with stakeholders set out within the CEMP and **Chapter 3: Proposed Development**, no significant effects are anticipated on heritage assets. However, **minor adverse** operational phase residual effects are recorded for Assets:	None Required	**Minor adverse** (**not significant**)

Environmental Topic	Potential In-Combination Effects	Mitigation Requirements	Residual Effects
	• Craigengillan Cairn (A7) – **Slight adverse**; • Cairn on Holm Hill (A8) – **Slight adverse**; • Cairn on Cairn Hill (A10) – **Slight adverse**; • Cairn on Ewe Hill (A11) – **Slight adverse**; • Scalloch / Little Auchrae (A23) - **Slight adverse**; • Daltallochan Cairn (A45) – **Slight adverse**; • Cairnfield (A55) – **Slight adverse** • Sheep Ree and Cairn (A57) – **Slight adverse**, • Stroanfreggan ASA (A66) – **Slight adverse** • Craigengillan (Farmstead, enclosure, settlement) (A67) – **Slight adverse** • Cairn at Nether Holm of Dalquhairn (A76) – **Slight adverse**, • Cairn on Scalloch (A77) – **Slight adverse** • Burnt mound on Scalloch and burnt mound and cairns on Scalloch (A78 and A79) – **Slight adverse**; and • Furmiston Bridge (A87) – **Slight adverse**. The Manquhill Wind Farm EIAR records operational effects due to changes in setting on Caraigengillan Cairn (**moderate adverse**, **not significant**), Scalloch/Little Auchrae (**moderate adverse**, **not significant**) and the Stroanfreggan ASA (**moderate adverse**, **not significant**). A magnification of effects is anticipated, however this is not likely to be significant. As a result, a **minor adverse** (**not significant**) in-combination effect is anticipated.		

Assessment of Effect Interactions

11.7.8 This section presents the assessment of effect interactions. Stage 1 of the assessment involves screening of sensitive receptors to identify any Common Receptors across different topic areas considered.

11.7.9 Common Receptors identified comprise;

- Residential receptors at Brockloch Tower, Auchrea and Corlea considered as visual receptors and private water supply receptors.
- Peat habitats, considered as biodiversity/habitat receptors and hydrogeology receptors.

11.7.10 Impacts on private water supplies are expected to be mitigated and managed via the implementation of best practice measures set out in **Appendix 10.3: Private Water Supply Risk Assessment.** As such, residential receptors are not expected to experience any impacts to their private water supply and there is therefore no potential for effect interactions between visual effects and private water supply effects for these properties.

11.7.11 The assessment of effects on peat habitat as a biodiversity receptor has considered potential hydrological and hydrogeological changes because of the Proposed Development, and as such, the effect interactions have already been considered as part of the assessment presented in **Chapter 8: Ecology and Ornithology.**

11.7.12 As there are no other Common Receptors with the potential to experience effect interactions, the assessment has not been taken further.

11.8 Additional Mitigation and Enhancement

11.8.1 The in-combination effects assessment identified **significant** in-combination effects on Landscape Character and Visual Amenity receptors during both construction and operation phases. These in-combination effects are largely driven by the significant impacts of the Other Committed Developments considered, as such, no additional practicable mitigation measures over and above those considered in the respective chapter **(Chapter 7: Landscape and Visual)** are recommended.

11.9 Residual Effects

11.9.1 **Table 11.8** below summarises the significant in-combination residual effects associated with the Proposed Development.

Table 11.8 Significant Residual In-Combination Effects

Other Committed Development	Assessment Topic	Significance of Effect with Embedded Mitigation	Additional Design, Mitigation, Enhancement Measure	Residual Effect
Construction Phase				
Quantans Wind Farm	Landscape and Visual	**Major adverse** (**significant**)	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	**Major adverse** (**significant**)

Other Committed Development	Assessment Topic	Significance of Effect with Embedded Mitigation	Additional Design, Mitigation, Enhancement Measure	Residual Effect
Holm Hill Substation	Landscape and Visual	**Moderate adverse** (**significant**)	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	**Moderate adverse** (**significant**)
Shepherds Rig Wind Farm	Landscape and Visual	**Major adverse** (**significant**)	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	**Major adverse** (**significant**)
Lorg Wind Farm	Landscape and Visual	Landscape: **moderate adverse** (**significant**) Visual: **major adverse** (**significant**)	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	Landscape: **moderate adverse** (**significant**) Visual: **major adverse** (**significant**)
Windy Standard III Wind Farm	Landscape and Visual	Landscape: **moderate adverse** (**significant**) Visual: **moderate adverse** (**significant**)	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	**Moderate adverse** (**significant**)
Euchanhead Wind Farm Near Sanquhar	Landscape and Visual	**Moderate adverse** (**significant**)	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	**Moderate adverse** (**significant**)
Manquhill Wind Farm	Landscape and Visual	**Moderate adverse** (**significant**)	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	**Moderate adverse** (**significant**)
Operation Phase				
Quantans Wind Farm	Landscape and Visual	Landscape: **moderate adverse** (**significant**) at Year 1 of Operation, reducing to **negligible** (**not significant**) by Year 15.	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	Landscape: **moderate adverse** (**significant**) at Year 1 of Operation, reducing to **negligible** (**not significant**) by Year 15.

Other Committed Development	Assessment Topic	Significance of Effect with Embedded Mitigation	Additional Design, Mitigation, Enhancement Measure	Residual Effect
		Visual: **major adverse** (**significant**) at Year 1 of Operation, reducing to **negligible** (**not significant**) for users of the A713 and users of the Cainsmore of Carsphairn by Green Well Core Path by Year 15.		Visual: **major adverse** (**significant**) at Year 1 of Operation, reducing to **negligible** (**not significant**) for users of the A713 and users of the Cainsmore of Carsphairn by Green Well Core Path by Year 15.
Shepherds Rig Wind Farm	Landscape and Visual	Landscape: **major adverse** (**significant**) in Year 1 of Operation, reducing to **negligible** (**not significant**) by Year 15. Visual: **major adverse** (**significant**) at Craigengillan, **moderate adverse** (**significant**) for all other receptors at Year 1, reducing to **negligible** (**not significant**) for residents at Auchrae by Year 15.	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	Landscape: **major adverse** (**significant**) in Year 1 of Operation, reducing to **negligible** (**not significant**) by Year 15. Visual: **major adverse** (**significant**) at Craigengillan, **moderate adverse** (**significant**) for all other receptors at Year 1, reducing to **negligible** (**not significant**) for residents at Auchrae by Year 15.
Lorg Wind Farm	Landscape and Visual	Landscape: **major adverse** (**significant**) at Year 1, reducing to **negligible** (**not significant**) at Year 15. Visual: **major adverse** (**significant**), reducing to **negligible** (**not significant**) for residents at Auchrae in Year 15.	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	Landscape: **major adverse** (**significant**) at Year 1, reducing to **negligible** (**not significant**) at Year 15. Visual: **major adverse** (**significant**), reducing to **negligible** (**not significant**) for residents at Auchrae in Year 15.

Other Committed Development	Assessment Topic	Significance of Effect with Embedded Mitigation	Additional Design, Mitigation, Enhancement Measure	Residual Effect
Windy Standard III Wind Farm	Visual	Visual: **major adverse** (**significant**) at Year 1, reducing to **negligible** (**not significant**) at Year 15.	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	Visual: **major adverse** (**significant**) at Year 1, reducing to **negligible** (**not significant**) at Year 15.
Euchanhead Wind Farm Near Sanquhar	Landscape and Visual	Landscape: **major adverse** (**significant**) at Year 1, reducing to **negligible** (**not significant**) at Year 15. Visual: **moderate adverse** (**significant**)	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	Landscape: **major adverse** (**significant**) at Year 1, reducing to **negligible** (**not significant**) at Year 15. Visual: **moderate adverse** (**significant**)
Manquhill Wind Farm	Visual	Visual: **moderate adverse** (**significant**)	All practicable mitigation has been offered in **Chapter 7: Landscape and Visual**	Visual: **moderate adverse** (**significant**)