

Chapter 12: Cumulative and Interactive Effects

Environmental Impact Assessment
Report for:

Westfield Substation Extension

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12. Cumulative and Interactive Effects

12.1 Introduction

1211 This chapter considers both effects arising from different elements of the Proposed Development on environmental receptors (interactive effects) and from projects combined with other activities (in-combination effects).

1212 The approach to cumulative assessment therefore considers the following:

- Interactive cumulative effects arising from the interaction of different environmental effects associated with the Proposed Development.
- In-combination cumulative effects arising from the Proposed Development in combination with the other associated developments comprising the relevant parts of TKUP and EGL4.
- In-combination cumulative effects arising from the Proposed Development and relevant parts of TKUP and EGL4 in combination with other developments.

12.2 Methodology and Approach

1221 The approach to cumulative assessment has been informed by the following guidelines:

- Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (PINS, 2024);
- Planning Advice Note 1/2013: Environmental Impact Assessment (Scottish Government, 2013);
- Planning Circular 1/2017: Environmental Impact Assessment Regulations (Scottish Government, 2017); and
- EIA Handbook v5 (Scottish Natural Heritage and Historic Environment Scotland, 2018).

1222 A 'long list' of other proposed developments was identified, to include all elements of the Tealing to Kincardine Upgrade Project (within the SPEN Transmission Licence Area, with those within the SSE Licence Area considered far enough away to not be likely to result in significant cumulative effects based upon an initial appraisal and professional judgement) and other proposed energy and other developments within an identified geographical zone of influence of the proposed development (to include development under construction, permitted applications not yet implemented, submitted applications not yet determined, any appeal not yet determined, projects where a Screening or Scoping request has been made to either the Scottish Government Energy Consents Unit (ECU) or LPA).

1223 Undertaking the cumulative assessment in this way ensures that the relevant parts of the TKUP project is considered in an appropriate and transparent manner. Although the consenting strategy requires the substation 'hubs' and overhead line upgrades to be progressed as separate applications, reflecting a phased approach to securing the necessary consents, the cumulative assessment first considers the Proposed Development alongside the relevant elements of the TKUP project before assessing cumulative effects with the other cumulative developments

identified. This ensures that the environmental effects of the Proposed Development as part of TKUP project as a whole are properly taken into account.

1224 Information has been obtained on other developments from Fife Council planning department and the Energy Consents Unit.

1225 The geographical zone of influence of cumulative effects varies across each environmental topic, whereby the potential for cumulative effects will differ depending upon the geographical extent of potential impacts. For example, when considering visual amenity there may be no visual relationship between the Proposed Development and other cumulative schemes identified, and therefore any cumulative effects are likely to only to be experienced in a sequential way. Therefore, the developments considered in the assessment of cumulative effects will vary between each environmental topic. The geographical zone of influence was informed by the Zone of Theoretical Visibility (**Figure 6.6**) and best practice guidance relevant to each topic.

12.3 Cumulative Sites

1231 The list of cumulative schemes was presented to Fife Council in a pre-application meeting in February 2025. This has been reviewed and updated ahead of submission to take account of potential additional cumulative schemes, and further agreement was provided in April 2026 by Fife Council. Since that agreement, one additional scheme has been added, and one removed. The updated list of projects has been agreed with Fife Council. The cumulative schemes and their reason for inclusion are listed in **Table 12.1** and their location identified on **Figure 12.1**.

Table 12.1: Developments for Consideration in Cumulative Assessment

Development Name	Description	Fife Council/ECU Reference and Status	Reason for Inclusion within Cumulative Assessment
Elements of the Tealing to Kincardine Upgrade Project (TKUP)			
TKUP Reconductoring of YJ Route	Reconductoring YJ overhead line from 275kV to 400kV.	Consulted on publicly in 2024 and 2025 but is yet to be subject to an EIA Scoping Request or S37 Application to ECU.	As part of the wider TKUP project, requires to be included as part of the appraisal of the TKUP project.
TKUP Reconductoring of YV Route	Reconductoring YV Route from 275kV to 400kV	Consulted on publicly in 2024 and 2025 but is yet to be subject to an EIA Scoping Request or S37 Application to ECU.	As part of the wider TKUP project, requires to be included as part of the appraisal of the TKUP project
TKUP Reconductoring of YS Route	Reconductoring YS overhead line from 275kV to 400kV.	Consulted on publicly in 2024 and 2025 but is yet to be subject to an EIA Scoping Request or S37 Application to ECU.	As part of the wider TKUP project, requires to be included as part of the appraisal of the TKUP project.

Development Name	Description	Fife Council/ECU Reference and Status	Reason for Inclusion within Cumulative Assessment
TKUP ZC(N) and ZC(S)	Routes have consent to operate at 400kv as part of their original consents. One span between ZC(N)001 and YG001A will be subject to Section 37 application for uprating to 400kv and one new span is proposed between these towers as part of TKUP.	Part Consented. Consulted on publicly in 2024 and 2025 but is yet to be subject to an EIA Scoping Request or S37 Application to ECU.	As part of the wider TKUP project, requires to be included as part of the appraisal of the TKUP project.
Reconfiguration of OHL and 132kV OHL works at Westfield Substation	New terminal towers and reconfiguration works including removal of existing towers and use of temporary masts around the existing Westfield Substation.	Consulted on publicly in 2024 and 2025 but is yet to be subject to an EIA Scoping Request or S37 Application to ECU. Some works to 132kV Permitted Development.	As part of the wider TKUP project, requires to be included as part of the appraisal of the TKUP project. Particularly so given the proximity to the Proposed Development.
Reconfiguration of OHL and 132kV OHL works at Mossmorran Substation	New terminal towers and reconfiguration works including removal of existing towers and use of temporary masts around the existing Mossmorran Substation.	Consulted on publicly in 2024 and 2025 but is yet to be subject to an EIA Scoping Request or S37 Application to ECU. Some works to 132kV Permitted Development.	As part of the wider TKUP project, requires to be included as part of the appraisal of the TKUP project.
Mossmorran 400kV Substation (and decommissioning of 275/132kV elements such as 2 x 240MVA Transformers, 275kV Circuit Breakers, Disconnectors, Instrument Transformers, Surge Arresters, Post Insulators, associated busbars and support structures)	400kV extension to the existing Mossmorran substation.	EIA Scoping Opinion Reference 24/01928/SCO, decision issued 10 September 2024.	As part of the wider TKUP project, requires to be included as part of the appraisal of the TKUP project.
Removal of YJ001 tower and span between YJ001 & YJ001A	Removal of YJ001 tower and span between YJ001 & YJ001A cannot be done during the YJ reconductoring works. The removal should take place during shifting of	Anticipated 2030.	As part of the wider TKUP project, requires to be included as part of the appraisal of the TKUP project.

Development Name	Description	Fife Council/ECU Reference and Status	Reason for Inclusion within Cumulative Assessment
	circuits from YJ001/A to ZCN.		
Reconfiguration of OHL at Conland	New terminal towers and reconfiguration works including removal of existing towers and use of temporary masts around the proposed Conland Substation.	Consulted on publicly in 2025 but is yet to be subject to an EIA Scoping Request or S37 Application to ECU.	As part of the wider TKUP project, requires to be included as part of the appraisal of the TKUP project.
Conland 400kV Substation	New 400kV Substation near Pitkevy Farm.	Consulted on publicly in 2025 but is yet to be subject to an EIA Scoping Request or Planning Application to Fife Council.	As part of the wider TKUP project, requires to be included as part of the appraisal of the TKUP project.
Elements of the Eastern Green Link 4 Project (EGL4)			
Eastern Green Link 4 (EGL4) – Converter Station	New High Voltage Direct Current (HVDC) electrical link that will connect Fife in Scotland with Norfolk in England. Construction of the Scottish onshore elements will start in 2027 and last for approximately 4-5 years. The Converter Station site is located immediately east of Westfield Substation. Converter stations are key components of a DC system and they enable electricity to be converted from AC to DC or vice versa. The largest buildings which house the converters are up to 28.5m tall, with other infrastructure housed outside or in small buildings. The total operational footprint is approximately 8-9 hectares. Construction is expected to take up to four years.	Consulted on publicly in 2024 and 2025. A Scoping Request was submitted on 09 December 2024 and a Proposal of Application Notice submitted on 08 April 2025.	The Proposed Development will serve EGL 4. This is a large energy transmission development in close proximity to the Proposed Development this development needs to be considered as part of the Proposed Development cumulative assessment.

Development Name	Description	Fife Council/ECU Reference and Status	Reason for Inclusion within Cumulative Assessment
Eastern Green Link 4 (EGL4) – On Shore Underground AC Cable Route	New High Voltage Direct Current (HVDC) electrical link that will connect Fife in Scotland with Norfolk in England. Construction of the Scottish onshore elements will start in 2027 and last for approximately 4-5 years. AC underground cables are required between the converter station and Westfield Substation. The route will be 800m long, within a 60m wide working corridor, constructed using open cut trenching methods. These works will be undertaken simultaneously with the construction of the converter station.	Consulted on publicly in 2024 and 2025. A Scoping Request was submitted on 09 December 2024 and a Proposal of Application Notice submitted on 08 April 2025.	The Proposed Development will serve EGL 4. This is a large energy transmission development in close proximity to the Proposed Development, and within the wider zone of influence, this development needs to be considered as part of the Proposed Development cumulative assessment.
Eastern Green Link 4 (EGL4) – On Shore Underground DC Cable Route	New High Voltage Direct Current (HVDC) electrical link that will connect Fife in Scotland with Norfolk in England. Construction of the Scottish onshore elements will start in 2027 and last for approximately 4-5 years. DC underground cables are required between the landfall site and the converter station. This corridor is approximately 14km in length and a working corridor of 40m is required. Construction will be undertaken over 2-3 years. No permanent above ground infrastructure is required along the route.	Consulted on publicly in 2024 and 2025. A Scoping Request was submitted on 09 December 2024 and a Proposal of Application Notice submitted on 08 April 2025.	The Proposed Development will serve EGL 4. This is a large energy transmission development in close proximity to the Proposed Development, and within the wider zone of influence, this development needs to be considered as part of the Proposed Development cumulative assessment.
Eastern Green Link 4 (EGL4) – Landfall Site	New High Voltage Direct Current (HVDC) electrical link that will connect Fife in Scotland with Norfolk in England. Construction	Consulted on publicly in 2024 and 2025. Scoping Request was submitted on 09 December 2024 and a	The Proposed Development will serve EGL 4. Included as part of the wider EGL4 development, even though

Development Name	Description	Fife Council/ECU Reference and Status	Reason for Inclusion within Cumulative Assessment
	of the Scottish onshore elements will start in 2027 and last for approximately 4-5 years. The landfall site is where the subsea cables come ashore and connected to the underground cables using a buried Transition Joint Pit. No permanent above ground infrastructure is required.	Proposal of Application Notice submitted on 08 April 2025	not located in close proximity to the Proposed Development.
Other Cumulative Developments			
Westfield Solar Farm, near OHL tower YS07.	Solar Farm.	22/02880/FULL: Construction of a Terrestrial Solar Farm and Associated Development (Section 42 application to vary condition 10 (landscaping) of 22/02880/FULL) - approved 27 November 2025. Ref. 25/02363/FULL.	Located approximately 1.2km to the north of the Proposed Development, there is potential for combined intervisibility and other potentially combined impacts to occur.
Former Fife Power Station, Ballingry, Cardenden, KY5 OHQ	Battery Energy Storage System.	ECU00005188: Battery Energy Storage System (BESS) facility with an installed capacity of up to 100MW (at point of connection) – Application submitted to the ECU July 2024.	Located just north of the adjacent B9097 to the north of the Proposed Development, there is potential for combined intervisibility and other potentially combined impacts to occur.
Kirklands Farm, Ballingry, KY5 OHH	Battery Energy Storage System.	ECU00004942: Energy storage system, which will store up to 200MW of energy – EIA Screening Opinion issued 22 February 2024 (non-EIA).	Located a short distance to the west of the Proposed Development, there is potential for combined intervisibility and other potentially combined impacts to occur.
Land At Strathruddie, Kinglassie	Battery Energy Storage System and Solar Farm.	21/03531/FULL: Proposed solar farm up to 25MW, battery storage and associated access and infrastructure.	Located approximately 1.8km to the east of the Proposed Development, there is potential for combined intervisibility and

Development Name	Description	Fife Council/ECU Reference and Status	Reason for Inclusion within Cumulative Assessment
		Approved 16 March 2022, undergoing Condition discharge.	other potentially combined impacts to occur.
Glenniston Solar Array	Installation of 39MW solar PV array with 10MW embedded battery storage facility and associated infrastructure including vehicular access, internal access tracks, security fencing, CCTV cameras, underground cabling, inverters, substations, auxiliary transformer and other ancillary development	23/02598/FULL Approved 5 April 2024	Located approximately 4.5km to the south of the Proposed Development, there is potential for combined intervisibility and other potentially combined impacts to occur.
Westfield BESS	Proposed development of a battery energy storage system including associated infrastructure and access on land at the former Westfield Opencast Coal Site.	ECU00006213 At Screening stage.	Located just north of the adjacent B9097 to the north of the Proposed Development, there is potential for combined intervisibility and other potentially combined impacts to occur.

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Furthermore, there is also a temporal consideration, whereby the cumulative schemes will be delivered at different times. Therefore, the cumulative sites considered in the assessment of cumulative effects will vary between each environmental topic. **Table 12.2** provides information on the delivery programme of the wider TKUP project. It should be noted that for some of the overhead line routes these will be reconductored and put back in operation at 275kV, and only when the 400kV Substations are operational will the overhead lines be operated at 400kV.

Table 12.2: TKUP and EGL 4 Delivery Programme

Elements of the Tealing to Kincardine Upgrade Project (TKUP)	Construction Period, Year and Length	Operation, Year
TKUP Reconductoring of YJ Route from 275kV to 400kV	Oct 2028 – Sep 2029	275kV Sep 2029 400kV Oct 2030
TKUP Reconductoring of YV Route from 275kV to 400kV	April 2029 – Nov 2029	275kV Nov 2029 400kV Oct 2030
TKUP Reconductoring of YS Route from 275kV to 400kV	June 2028 – Feb 2029	275kV Feb 2029 400kV Oct 2030
132kV OHL works at Westfield Substation (AG)	September 2026 – Mar 2027	March 2027

Elements of the Tealing to Kincardine Upgrade Project (TKUP)	Construction Period, Year and Length	Operation, Year
Reconfiguration of OHL at Westfield Substation	Apr 2030 – Oct 2030	Oct 2030
Westfield 400kV Substation Extension	Sep – Oct 2030	Oct 2030
Decommissioning and Deconstruction of existing Westfield 275kV Substation Elements	Oct 2030 – Oct 2031	n/a
132kV OHL works at Mossmorran Substation (CP)	April 2027 – Oct 2027	Oct 2027
Reconfiguration of OHL at Mossmorran Substation	April 2030 – Oct 2030	Oct 2030
Mossmorran 400kV Substation	Feb 2028 – Aug 2030	Aug 2030
Decommissioning and deconstruction of 275kV Substation at Mossmorran	Oct 2030 – Oct 2031	n/a
Reconfiguration of OHL at Conland	Sep 2029 – Oct 2030	Oct 2030
Conland 400kV Substation	Sept 2027 – Oct 2030	Oct 2030
EGL4/HVDC at Westfield	Jan 2031- Oct 2031	Oct 2031

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To assist further in the cumulative assessment, the anticipated construction periods for TKUP and the other identified cumulative schemes (where known) are set out in the table below.

Table 12.3: Anticipated Construction Timetables

Scheme	2026	2027	2028	2029	2030
The Proposed Development					
TKUP Relevant Elements					
EGL4					
Westfield Solar Farm					
Former Fife Power Station BESS					
Kirklands Farm BESS	No details available				

Scheme	2026	2027	2028	2029	2030
Land At Strathruddie	No details available, but could extend across this period.				
Glenniston Solar Array	Unknown but likely 2026-2028				
Westfield BESS	Currently at Screening, so likely 2028-2030				

Cumulative Sites for Assessment

1234 A 'short list' of sites for assessment has been identified. This list has been identified considering the geographical zone of influence, the geographical extent of the cumulative sites and the likely construction periods and operational dates, along with industry specific guidance for each environmental topic in relation to cumulative assessment. These are listed as follows and shown on **Figure 12.1**.

- TKUP related projects:
 - TKUP Reconductoring of YJ Route;
 - TKUP Reconductoring of YS Route;
 - Reconfiguration of OHL and 132kV OHL works at Westfield Substation;
- EGL4 related projects:
 - EGL4 Converter Station;
 - EGL4 On Shore Underground AC Cable Route;
 - EGL4 On Shore Underground DC Cable Route;
- Westfield Solar Farm;
- BESS Kirklands Farm;
- BESS Fife Power Station;
- Westfield BESS; and
- Solar Farm and BESS Land at Strathruddie.

1235 Of the initial list of cumulative sites set out in **Table 12.1**, it is only the Glenniston Solar Array that has been 'scoped out' of further consideration of cumulative effects. This is for the following reasons:

- The Glenniston Solar Array has been scoped out of the cumulative assessment with the Westfield Substation Project due to its separation distance of approximately 4.5km and the lack of any credible pathway for cumulative effects.
- At this distance, and with intervening topography, vegetation and settlement, there is very limited potential for intervisibility or shared landscape or visual receptor context. The developments would not be experienced together and would not result in significant cumulative landscape or visual effects.
- There is no ecological or hydrological connectivity between the sites, and they do not share designated sites, habitats or ornithological receptors. Construction and operational activities would be spatially and functionally separate, precluding cumulative ecological effects.

- Traffic associated with each development would use separate road networks, and there are no shared sensitive receptors in relation to noise, vibration or air quality. Any effects arising from either scheme would be localised and temporary in nature.
- Owing to the distance between the sites, the absence of shared receptors, and the lack of overlapping environmental effects, the Glenniston Solar Array is appropriately excluded from further cumulative assessment in relation to the Westfield Substation Project

12.4 Interactive Cumulative Assessment

- 1241 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 significant residual effects only (moderate or major significant effects).
- 1242 An overall assessment of the cumulative effects on identified common sensitive receptors has been made using professional judgement and the technical information provided in **Chapters 6–11**.
- 1243 Only residual significant effects on landscape character and visual amenity have been identified for the Proposed Development in isolation. It is therefore concluded that no significant effect interactions are anticipated.

12.5 In-combination Cumulative Assessment

- 1251 The in-combination cumulative assessment considers the cumulative effects arising from the relevant parts of the TKUP project and EGL 4, as established through the interactive assessment, together with other developments identified within the cumulative study area and identified above.
- 1252 The purpose of this assessment is to determine whether the combined influence of the wider TKUP, EGL 4 and other developments gives rise to additional significant environmental effects beyond those identified through the project-specific and interactive assessments. The assessment approaches this in line with topic area specific guidance and considers all stages through construction and operation.
- 1253 The ‘short list’ of proposed developments considered in this cumulative assessment is summarised above and illustrated on **Figure 12.1**. Each technical environmental topic has considered these, and the cumulative effects are summarised in the following sections.

In-combination Cumulative Effects of TKUP and EGL4

- 1254 The Proposed Development forms one component of the wider TKUP project, which comprises a number of related infrastructure elements that are being progressed through separate consent applications. In accordance with the cumulative assessment methodology set out in this chapter, the interaction between the Proposed Development and the relevant elements of the TKUP and EGL4 projects has been considered before assessing cumulative effects with other committed developments. This approach ensures that the environmental effects of the relevant TKUP and EGL4 projects are appropriately considered, notwithstanding the staged consenting strategy.

- 1255 The topic-specific chapters assess where interactions between the Proposed Development and other TKUP and EGL4 elements could result in combined environmental effects during construction or operation. The summary below provides an overview of the principal interactions and the conclusions reached.
- 1256 The in-combination assessment demonstrates that the interaction of the Proposed Development with the relevant elements of the TKUP project has been fully considered. Whilst some environmental receptors may experience the combined influence of more than one TKUP component, these effects generally reflect the same environmental changes identified for the Proposed Development in isolation, rather than giving rise to materially greater or different effects. Where interactions occur, they have been taken into account within the relevant topic-specific assessments and are reflected in the reported significance of effects.

Landscape and Visual Amenity

- 1257 Significant cumulative effects would not arise where there is no significant effect for the Proposed Development in isolation. There are also receptors where cumulative effects would reduce in significance due to the increased infrastructure and electrical context provided by the theoretical cumulative baseline which reduces the extent to which the Proposed Development would contribute to the cumulative magnitude of change. A summary of the cumulative effects on all landscape and visual receptors is provided below, with the full assessment provided in **Technical Appendix 6.1**.

Cumulative Landscape Effects Summary

- 1258 The cumulative assessment considers the interaction of the Proposed Development with other relevant elements of the TKUP and EGL4 projects, together with other committed and reasonably foreseeable developments identified within the cumulative baseline. Four cumulative scenarios are assessed, with the assessment considering the additional contribution of the Proposed Development and whether this would result in effects greater than those identified for the Proposed Development in isolation.

Scenario 1 Cumulative Effects

- 1259 Under Scenario 1, the addition of Westfield Solar Farm would result in only a limited change to the cumulative landscape baseline. Within the host LCT 186 Lowland Hills and Valleys, the separation between the developments and the existing influence of electrical and industrial infrastructure would limit the extent to which they would be perceived as a combined change. Construction and operational effects would therefore be no greater than those identified for the Proposed Development in isolation and would remain **Not Significant**.
- 12510 For the non-host LCTs, the influence of Westfield Solar Farm would generally be limited by distance, landform and vegetation. The Proposed Development would remain a small component of the wider landscape and cumulative effects would either be unchanged from the standalone assessment or not discernible. **No significant** cumulative landscape effects would arise.

Scenario 2 Cumulative Effects

- 12511 Under Scenario 2, the TKUP works would make only a limited additional contribution to landscape change, reflecting the existing presence of overhead lines, towers and substation infrastructure. EGL4 would represent the more substantial change to the cumulative baseline due to its scale and proximity to the Proposed Development.
- 12512 Within the host LCT, the Proposed Development and EGL4 would at times be experienced within the same localised area of energy infrastructure. However, this change would affect only a relatively small geographical part of the LCT and the Proposed Development would not materially increase effects beyond those identified in isolation. Cumulative effects on the host and non-host LCTs would therefore remain **Not Significant**.

Scenario 3 Cumulative Effects

- 12513 Scenario 3 would result in a modest further increase in the developed baseline through the addition of Westfield Solar Farm. However, its separation from the Proposed Development means that it would make only a limited additional contribution compared with Scenario 2.
- 12514 For the host LCT, cumulative construction and operational effects would therefore remain broadly equivalent to Scenario 2 and no greater than those arising from the Proposed Development in isolation. For the surrounding non-host LCTs, the additional change associated with Westfield Solar Farm would similarly be limited and would not materially alter the assessment conclusions. All cumulative landscape effects would remain **Not Significant**.

Scenario 4 Cumulative Effects

- 12515 Scenario 4 represents the greatest degree of cumulative landscape change, incorporating the additional BESS developments at Kirklands Farm, Westfield and the former Fife Power Station alongside TKUP, EGL4 and Westfield Solar Farm. This would result in a greater concentration of energy-related development within the local landscape, particularly within and around the host LCT.
- 12516 During construction, overlapping activity could result in a more noticeable cumulative landscape effect locally. However, the Proposed Development would represent a relatively modest component of this wider change, with EGL4 and the nearby BESS developments also making substantial contributions. At operation, the increased developed context would further reduce the relative contribution of the Proposed Development. Consequently, effects arising from the addition of the Proposed Development would be no greater than, and for the host LCT slightly lower than, those identified in isolation and would remain **Not Significant**.

Cumulative Landscape Effects Conclusion

- 12517 Across all four scenarios, the Proposed Development would form part of an evolving concentration of electrical and energy infrastructure but would not become a defining influence on the character of any assessed LCT. Scenario 4 would represent the greatest overall cumulative change, but the contribution of the Proposed Development to that wider change would remain limited. No significant cumulative landscape effects would therefore arise as a result of the addition of the Proposed Development under any of the four scenarios.

Cumulative Visual Effects Summary

- 12518 The cumulative visual assessment considers the additional visual change associated with the Proposed Development when experienced alongside the developments included within Scenarios 1 to 4. The assessment distinguishes between the overall cumulative visual effect and the contribution made by the Proposed Development to that effect.

Scenario 1 Cumulative Effects

- 12519 Under Scenario 1, cumulative visual effects would generally be very limited. For the Fife Pilgrim Way and the closer Core Paths to the west, Westfield Solar Farm would generally not be sufficiently prominent in the same views to result in discernible additional cumulative effects. Similarly, for most residential receptors and the B9097, there would be little or no additional cumulative change.
- 12520 Some limited sequential change may occur for users of the B920 and the unnamed road, although separation between the developments would limit their combined influence. Overall, Scenario 1 would result predominantly in no discernible cumulative effects or effects no greater than those arising from the Proposed Development in isolation.

Scenario 2 Cumulative Effects

- 12521 Under Scenario 2, EGL4 would result in a more substantial change to the local visual context, whereas the wider TKUP elements would generally make only a minor or imperceptible additional contribution. EGL4 and the Proposed Development would therefore be the principal components of cumulative change where both are visible.
- 12522 The greatest cumulative effects would occur at specific close-range or open locations, including the northern sections of Core Paths R580 and R581, parts of the elevated Core Path network, residential receptor groups and locations on the B9097. Significant cumulative effects would occur at some of these receptors; however, these would generally be the same as, or lower than, those identified for the Proposed Development in isolation. Across the routes and receptor groups as a whole, effects would generally remain **Not Significant**.

Scenario 3 Cumulative Effects

- 12523 Under Scenario 3, the addition of Westfield Solar Farm would largely result in little further change compared with Scenario 2. For the Fife Pilgrim Way, Core Paths to the west, residential groups and roads, the solar development would either be outside the principal direction of view, screened or sufficiently separated that it would not materially alter the cumulative visual effect.
- 12524 Accordingly, cumulative effects under Scenario 3 would generally be the same as those identified under Scenario 2. Significant effects would remain at certain localised receptors where significant effects already arise from the Proposed Development and EGL4, but the addition of the Proposed Development would not result in a new or greater significant cumulative effect.

Scenario 4 Cumulative Effects

- 12525 Scenario 4 would result in the greatest concentration of visible energy infrastructure, with the addition of the Kirklands Farm, Westfield and former Fife Power Station BESS developments. The extent of cumulative change would be most apparent from receptors with open or elevated views

towards the site and surrounding development, including parts of the Core Path network, some residential groups and sections of the B9097.

12526 At the northern ends of Core Paths R580 and R581, significant cumulative effects would continue to occur, although the Proposed Development would form only one component of a wider concentration of infrastructure. Similarly, significant cumulative effects may occur at particular residential groups and close-range locations, but these would generally be the same as or lower than the effects identified for the Proposed Development in isolation. EGL4 and, depending on the receptor, the nearby BESS schemes would make substantial contributions to the overall cumulative situation.

12527 Across the Fife Pilgrim Way, routes as a whole, more distant Core Paths and the wider road network, the contribution of the Proposed Development would remain limited and cumulative effects would generally be **Not Significant**. In several cases, the more developed cumulative baseline would reduce the relative visual influence of the Proposed Development.

Cumulative Visual Effects Conclusion

12528 Overall, the cumulative visual assessment demonstrates that the degree of cumulative change increases progressively from Scenario 1 through to Scenario 4, with Scenario 4 representing the greatest concentration of energy-related development. However, this does not translate into a corresponding increase in the contribution made by the Proposed Development. In the more developed scenarios, EGL4 and the nearby BESS developments would frequently form equal or greater components of cumulative visual change.

12529 While significant cumulative visual effects are identified at a number of localised receptors under Scenarios 2 to 4, these are generally no greater than, and in a number of cases lower than, the significant effects already identified for the Proposed Development in isolation. Accordingly, the addition of the Proposed Development would not give rise to any new or greater significant cumulative visual effects under any of the four scenarios.

Ecology and Biodiversity

12530 A review of the cumulative schemes 'short list' has been undertaken to assess the potential for cumulative effects on ecological receptors. This assessment considered both spatial and temporal overlaps in construction and operation phases, as well as any shared impact pathways, such as hydrological connectivity, habitat fragmentation, or disturbance to protected species.

12531 Of these cumulative schemes, the TKUP Reconductoring of YJ Route, YV Route and the YS Route are not considered relevant to the assessment of Ecology and Biodiversity, based on the limited and temporary nature of the scope of work. The uprating of the OHL routes will use the existing lattice tower structures, with no physical changes to the location or height of the route, and the construction activities will comprise temporary access and accommodation works. Therefore, these schemes are not considered relevant to the cumulative effects on Ecology and Biodiversity.

12532 The EGL4 project involves the construction of a converter station to the east of the existing Westfield substation with 14km of underground cable connecting to Kinghorn landfall site. The installation of the associated cable route will predominantly have temporary impacts on habitats and species, especially where horizontal directional drilling (HDD) will be used to avoid

watercourses and large areas of woodland and other sensitive habitats, and the existing habitats above the cable route will be allowed to naturally regenerate. Therefore, construction activities associated with the cabling are not anticipated to have cumulative effects on Ecology and Biodiversity

12533 The Zone of Influence for each ecological receptor is as defined in **Chapter 7**, and as follows:

- International statutory designations (20km radius around the site);
- National and Local statutory designations (2km) and non-statutory local sites (1km radius around the site);
- All other protected species, Priority Species and other notable species records (1km radius around the site); and
- All other Priority Habitat records (1km radius around the site).

12534 The Proposed Development alone will have no significant effect on any statutory designated site, predominantly due to the spatial separation and the scope of works, and there will therefore be no additive or incremental cumulative effects when considered in combination with other projects. Similarly, there will be no significant effects on any non-statutory designated sites as a result of the Proposed Development. Ballingry Meadow is the only non-statutory designation within the Zone of Influence, and the Proposed Development will not have any effects on the designated features and will therefore not contribute to cumulative effects from other schemes.

12535 The Proposed Development will have a minor adverse effect on the priority habitats within the site, namely the hedgerow, lines of trees and broadleaved semi-natural woodland habitat. However, this has been assigned on a precautionary basis, as these habitats are discrete, isolated and species-poor, and only small areas will be lost that have limited connectivity off-site. These habitat types are common and widespread within the surrounding landscape and only small losses are proposed as a result of the other schemes, including that of the adjacent EGL4 project, which are predominantly open areas of relatively low-value grassland, bare ground with very minimal woodland, hedgerow and tree loss. For the majority of the schemes there is no hydrological connectivity between them and the Proposed Development. However, the watercourse network within the site flows into the boundary of the now operational Westfield Energy Recovery Facility. The delivery of pollution control measures as part of the embedded mitigation for the Proposed Development will ensure there is no effect downstream through dust deposition, polluted water run-off or other impacts on species using the watercourse, and there are therefore no cumulative effects anticipated.

12536 The Proposed Development will have no significant effects on the bird assemblage, as this is valued at Less than Local level, or otter, as they are only considered to utilise the site for a foraging and/or commuting resource, for which connectivity will be maintained. Therefore, no cumulative effects are anticipated with the other schemes identified.

12537 The Proposed Development could have up to a minor adverse effect at the Local level for the bat assemblage within the site through the loss of suitable roost resources. The adjacent EGL4 will require the removal of trees with the potential to support roosting bats to facilitate the development, however, loss within the Proposed Development will be mitigated through the provision of bat boxes to replace any lost roost features and therefore any loss of suitable roosting habitat as a result of the other scheme will not have a cumulative effect in combination with the Proposed Development.

- 12538 Additionally, the schemes listed above have appropriate inherent or additional mitigation measures designed to minimise/avoid impacts to Ecology and Biodiversity. Where schemes are still subject to the planning process, it is assumed that they will only be consented where appropriate mitigation is secured to ensure that no unacceptable ecological effects arise. Therefore, it is concluded that no significant cumulative effects on ecological receptors are anticipated as a result of the Proposed Development in combination with other known or approved plans or projects.

Transport and Access

- 12539 A review of the shortlisted development sites within close proximity to the Proposed Development, as well as the TKUP and EGL4 elements, has been undertaken with specific regard to traffic and transport impacts associated with any operational and construction phases. The information used to formulate if the Proposed Development is to make a significant cumulative effect has been extracted from applications within Fife Planning Portal, alongside qualitative technical judgement.
- 12540 It is noted in the first instance that the Proposed Development (Construction Phase and associated substation decommissioning works) is anticipated to have a negligible impact on the local road network, and an assessment has been undertaken within **Chapter 8** of this EIA Report. The Proposed Development requires no mitigation works associated with traffic and transport.

Shortlisted Developments

- 12541 Five developments within close proximity to the Proposed Development have been identified and include the Westfield Solar Farm, BESS Kirklands Farm, and Solar Farm, BESS Fife Power Station, BESS Land at Strathruddie, and EGL4. Each development application has been reviewed (where provided) to determine the traffic impact and summarised below for clarity.

Westfield Solar Farm

- 12542 The Westfield Solar Farm (application reference: 22/02880/CND005) is situated approximately 1.6km north of the Proposed Development with access to be taken from the B920.
- 12543 A Construction Traffic Management Plan (CTMP) was submitted in September 2023 by Axis. The CTMP identified that the development will provide negligible operational traffic, and only 48 two-way trips per day during the construction peak period. The construction vehicle routing was identified to travel to the M90 Junction 5 to avoid traffic sensitive locations. The development was proposed to generate a negligible transport impact. Nevertheless, mitigation proposed for the site included a site staff Travel Plan and a Traffic Management Plan to be produced by the Contractor to ensure HGVs follow the proposed routing.

BESS Kirklands Farm

- 12544 The BESS Kirklands Farm (ECU application reference: ECU00004942; Fife Council reference 23/02776/CON) is situated approximately 800m west of the Proposed Development.
- 12545 An EIA Screening Opinion was adopted by the Scottish Ministers on 22 February 2024. The Screening Opinion identified that no EIA was required for this site. The Screening Opinion response also stated (with specific regard to transport) that traffic movements are likely to be low, with the most significant movements expected during construction and decommissioning. The document

concluded that construction, operational and decommissioning phases of the development are not expected to result in any impacts that would be considered significant.

BESS Fife Power Station

- 12546 The BESS Fife Power Station (ECU application reference: ECU00005188; Fife Council reference 25/00983/CON) is located at Woodend, Cardenden approximately 1km south-east of the Proposed Development.
- 12547 A Screening Opinion was adopted by the Scottish Ministers on 23 January 2025. The Screening Opinion stated that the development does not lie close to sensitive areas (including Land to which Nature Conservation Orders apply, International Conservation Sites, A World Heritage Site, Scheduled Monuments, National Scenic Areas, National Parks, Marine Protected Areas). The Screening Opinion also noted that 'given the site's proximity to the B9097, the existing access arrangements already in place, the negligible operational traffic and the temporary nature of construction traffic the Proposed Development is not expected to have any significant effects on the highway network.' The site therefore resulted in negligible transport impacts.
- 12548 An Outline Construction Management Plan (OCTMP) was submitted in April 2025. The OCTMP set out that around six to 10 HGV movements per day were anticipated during the busiest period. As aforementioned, the site would result in negligible transport impacts.
- 12549 In December 2025 Fife Council gave no objections to the proposal subject to the documents submitted during the consultation stage.

Solar Farm and BESS Land at Strathruddie

- 12550 The Solar Farm and BESS Land at Strathruddie (application reference: 21/03531/FULL) is situated approximately 2.6km east of the Proposed Development and was approved on 16 March 2022.
- 12551 A Transport Statement was submitted on 09 November 2021. The Transport Statement identified that the operational phase would see negligible trips (one trip a week). The construction period was set to six months with one month noted as the peak period. The construction peak period would see 64 two-way trips, operating outside of peak hours and routing towards the M90 Junction 5 to avoid sensitive areas. The Transport Statement concluded that the site would generate negligible effects.
- 12552 Transport comments were received from Fife Council in December 2021, which stated that 64 trips during a peak construction period was not a concern.
- 12553 A notice of commencement of development was issued in February 2025 with the start date for commencement on 24 February 2025. As construction began in February 2025 and is anticipated to last six months, no construction traffic will be on the local road network at the time of the Proposed Development construction or decommissioning. Additionally, as negligible traffic is anticipated during the operational phase, the Proposed Development should not be impacted.

Eastern Green Link 4

- 12554 The EGL4 project comprises a new High Voltage Direct Current (HVDC) electrical link that will connect to Fife in Scotland and Norfolk in England (application reference: 25/01071/PAN). ELG4 is proposed to be situated directly east of the Proposed Development with construction to begin in 2027.

- 12555 A separate 'Environmental Impact Assessment Scoping Opinion' application (reference: 24/03149/SCO) has been submitted to Fife Council. Within Fife Council's Environmental Services response (to the referenced scoping report), it was specified that an assessment of anticipated traffic volumes relating to any future works was provided, and the report concluded that the site does not meet the criteria for a more detailed assessment and has therefore been scoped out. Based on this response, it is understood that the forecasted traffic is not expected to have any significant effects on the network.
- 12556 The construction phase for EGL4 is forecasted to commence in 2027 at the earliest. As identified, the peak construction period for the Proposed Development is during March to June 2027. Whilst the early phases of the construction period associated with ELG4 could overlap with the peak construction period for the Proposed Development, it is noted that the traffic volumes associated with ELG4 were low enough to not require a detailed assessment. As a result, it could be anticipated that the negligible construction traffic associated with the early stages of EGL4 would not be enough to impact the Proposed Development peak construction period for the Proposed Development during March to June 2027 or with the decommissioning in 2031.

In-combination Cumulative Effects

- 12557 The additional construction and operational traffic impacts associated with the Proposed Development have been assessed when combined with the proposed construction and operational traffic impacts of the cumulative schemes (identified above) to determine if this would result in effects greater than those identified for the Proposed Development in isolation.
- 12558 Two scenarios have been assessed. Scenario 1 reviews the Proposed Development traffic impacts when combined with the TKUP and EGL4 cumulative schemes and their respective traffic impacts, and Scenario 2 reviews the Proposed Development traffic impacts when combined with all the cumulative schemes and their respective traffic impacts.

Scenario 1 – Proposed Development + TKUP and EGL4 Cumulative Schemes

- 12559 Under Scenario 1, taking account of the submitted information for other applications (summarised above) for both construction and operational phases, the traffic impact associated with the Proposed Development, the TKUP, and the EGL4 schemes would be negligible on the surrounding local road network. Consequently, the combination of the Proposed Development, plus the TKUP and EGL4 cumulative schemes would remain negligible for both construction and operational phases.

Scenario 2 – Proposed Development + All Cumulative Schemes

- 12560 Scenario 2 reviews the in-combination cumulative effects when combining all cumulative schemes. Taking account of the submitted information for all the cumulative schemes (summarised above) for both the construction and operational phases, it has been identified that the traffic impact would be negligible on the surrounding local network. Consequently, the combination of the Proposed Development, plus all the cumulative schemes would remain negligible for both construction and operational phases.

Summary

- 12561 In summary, developments within close proximity to the Proposed Westfield Substation Development generate negligible impacts with regard to Traffic and Transport.
- 12562 As concluded within **Chapter 8**, the Proposed Development shall generate a negligible transport impact. In addition, the Proposed Development will also generate a negligible impact when considering the addition of the alternative sites (aforementioned in this chapter resulting from changes caused by other past, present or foreseeable developments situated within close proximity), TKUP and ELG4 elements, and the respective traffic impacts added to the baseline network.
- 12563 Nevertheless, a Construction Traffic Management Plan is recommended to be prepared to set out the aim to reduce the transport impacts of the construction traffic servicing the Proposed Development.

Air Quality

Construction

- 12564 There is the potential for the Proposed Development to be in construction at the same time as other consented developments in the local area, such as other TKUP developments and EGL4. However, dust generating activities would have to be taking place concurrently in proximity to a receptor for cumulative effects to occur, which is considered unlikely. In addition, all consented development will require robust dust management procedures and construction vehicle routing strategies to prevent significant effects, and it is considered that these will be adequate to prevent the risk of significant in-combination effects associated with construction dust and construction traffic. As such, no in-combination construction phase impacts are predicted, and the overall cumulative effect is considered **Not Significant**.

Operation

- 12565 As part of the Proposed Development, there is a back-up power generator (diesel fired), which is required in case of a power outage. However, **Chapter 9** has determined the impacts of operational combustion emissions from the back-up power generator to be **Not Significant**.
- 12566 There is not considered to be a risk of cumulative impacts of operational combustion emissions as the assessment has identified no existing combustion plant within 500m of the site, and any existing combustion plant would need to be operating at the same time as the back-up generator to give rise to cumulative impacts. This is considered unlikely given the infrequent operation of the proposed back-up generator. Furthermore, existing combustion plant located further afield, such as the Westfield Energy Recovery Facility, is likely to have different dispersion characteristics to the proposed generator and will therefore impact different sensitive receptors. As well as this, it is unlikely that emissions from other sources such as road sources will impact the same receptors at the same time.
- 12567 In terms of road traffic emissions, the effect of operational road traffic emissions associated with the Proposed Development is considered **Not Significant**. A review of the EIA Scoping Opinion for EGL4 (planning application reference: 24/03149/SCO) indicates that the traffic generated by EGL4

is expected to fall below the thresholds for detailed assessment and can therefore be considered **Not Significant** and unlikely to give rise to in-combination effects with the Proposed Development. Similarly, operational traffic associated with other TKUP developments is unlikely to be considered significant or give rise to in-combination effects given the trips are expected to be limited to occasional maintenance trips.

- 12568 As such, it is considered that the overall cumulative effect during the operational phase is considered **Not Significant**.

Decommissioning

- 12569 There is the potential for the decommissioning phase of the Proposed Development to happen at the same time as the decommissioning or construction of other consented developments in the local area. However, dust generating activities would have to be taking place concurrently in proximity to a receptor for cumulative effects to occur, which is considered unlikely. In addition, all consented development will require robust dust management procedures and construction vehicle routing strategies to prevent significant effects, and it is considered that these will be adequate to prevent the risk of significant in-combination effects associated with decommissioning traffic. As such, no in-combination decommissioning phase impacts are predicted, and the overall cumulative effect is considered **Not Significant**.

Noise

Construction

- 12570 Cumulative construction traffic noise effects could occur in the event that vehicle movements from multiple schemes take place over the same period, or overlapping period, of time. The cumulative scheme list above has been reviewed for this preliminary assessment in relation to the construction phase.
- 12571 In relation to other TKUP substations, their scale and separation distance is such that cumulative noise effects are not anticipated to occur due to construction traffic.
- 12572 The assessment of construction traffic noise from the TKUP OHL works in close proximity to the Proposed Development and elsewhere has not yet been undertaken, and it is therefore not possible to quantitatively assess cumulative impact from this development. The TKUP OHL works will require connection to the Westfield substation, and therefore vehicles will be required to access the site. A significant increase (at least 25%) in vehicle movements on access roads would be required to result in an impact. Significant impacts as a result of the TKUP OHL works are therefore not anticipated.
- 12573 No specific information on construction traffic noise is currently available from other schemes. As the impact of construction traffic has been assessed as negligible within **Chapter 10**, it is considered that the proposed scheme will not significantly influence construction traffic noise in the area. Therefore, the cumulative impact is negligible and **Not Significant**.

Operational

- 12574 Operational cumulative effects have been considered using the cumulative schemes identified above to determine potential cumulative impacts at NSRs. The assessment considers the noise

impact from static plant only and does not consider any cumulative effects from maintenance or replacement, as this information is not publicly available. It is expected that impacts associated with maintenance works would be no greater than those identified for construction.

12575 The study area used within the **Chapter 10** Noise for operational impacts is 500m, as only negligible impacts from the site are expected at distances beyond this.

12576 To ensure a worst-case consideration of cumulative effects, schemes within 1km of the site have been identified and reviewed for potential cumulative effects during operation. The cumulative schemes within 1km have been considered in the assessment of cumulative operational effects in **Table 12.4**, based on publicly available information. A discussion of the likely cumulative effects from each site has been included.

Table 12.4: Cumulative Effects Discussion

Fife Council/ ECU Reference	Scheme	Cumulative Effects Discussion
N/A	TKUP Reconductoring of YJ Route	Due to the separation distance between the YJ Route and the nearest noise sensitive receptor considered within Chapter 10 Noise being approximately 500 m, cumulative operational noise effects are not anticipated.
N/A	TLUP Reconductoring of YS Route	Cumulative effects would only be expected to occur if both schemes were expected to result in significant effects. As the assessment in Chapter 10 Noise concludes that significant effects are not expected to occur, cumulative effects are not expected to occur.
N/A	Reconfiguration of OHL and 132kV OHL works at Westfield Substation	Cumulative effects would only be expected to occur if both schemes were expected to result in significant effects. As the assessment in Chapter 10 Noise concludes that significant effects are not expected to occur, cumulative effects are not expected to occur.
N/A	Eastern Green Link 4 (EGL4) – Converter Station	The separation distance between the Eastern Green Link 4 (EGL4) Converter Station and the nearest noise sensitive receptor considered within Chapter 10 Noise is approximately 200 m. At this distance, impacts from the EGL4 converter station could be significant. However, as the assessment in Chapter 10 Noise concludes that significant effects are not expected to occur, cumulative effects are not expected to occur.
ECU00005188	Former Fife Power Station, Ballingry, Cardenden, KY5 OHQ	NSR2 and NSR3 are assessed within the Noise Impact Assessment Report for the Battery Energy Storage System (ref. 24.121.2.R2). The results indicated that with mitigation, the rating level would be 41 dB $L_{Ar,15minutes}$ at night at NSR2, and 42 dB $L_{Ar,15minutes}$ at night at NSR3.

	Battery Energy Storage System	The calculated rating levels from the Westfield Substation proposals are 36 dB $L_{Ar,15minutes}$ at night at NSR2 and 28 dB $L_{Ar,15minutes}$ at night at NSR3. Based on the calculated rating levels being at least 5 dB below the contribution from the Battery Energy Storage System, cumulative effects are unlikely to occur.
ECU00004942	Kirklands Farm, Ballingry, KY5 OHH	No noise assessment has been provided at the time of writing this report. Therefore, it is not possible to comment on the impact of noise from the scheme. However, noise impacts associated with the Westfield Substation primarily affect the east facade of NSR2, whereas noise impacts associated with the Kirklands Farm development would primarily affect the west facade of NSR2. Based on noise emissions from the Kirklands Farm development being suitably controlled, significant cumulative effects are not anticipated to occur.
ECU00006213	Westfield BESS	No noise assessment has been provided at the time of writing this report. Therefore, it is not possible to comment on the impact of noise from the scheme. However, for planning purposes, noise from the scheme would need to be suitably controlled such that it does not result in significant adverse impact at receptors, or result in noise nuisance. BESS elements of the scheme are indicated to be approximately 600 m from NSR2, and the energy recovery facility is indicated as being approximately 400 m from NSR2. These distances are expected to be sufficient for impacts to be controlled on the Westfield BESS scheme, such that cumulative significant effects would be controlled. The Proposed Development results in minor effects due to operation at NSR2. On this basis and the above, cumulative effects are not anticipated to occur.

Summary

- 12577 Based on the discussion of potential cumulative effects from construction noise, the cumulative effects in EIA terms are considered to be short term, negligible and **Not Significant**.
- 12578 Based on the discussion of potential cumulative effects from operational noise, the cumulative effects in EIA terms are considered to be long term, negligible and **Not Significant**.

Major Accidents and Disasters

Construction

- 12579 There is the potential for the construction phase of the Proposed Development to overlap temporarily with other consented or planned developments within the study area, however, for cumulative effects associated with MA&D to arise, there would need to be a realistic pathway for simultaneous incidents occurring across multiple sites and affecting shared receptors.
- 12580 Construction activities would be managed through measures such as Construction Environmental Management Plans (CEMPs) and Construction Traffic Management Plans (CTMPs), further reducing the potential for incidents and ensuring risks are controlled.
- 12581 As such, no likely significant cumulative effects associated with MA&D are anticipated during the construction phase.

Operation

- 12582 During operation, the Proposed Development and surrounding schemes would operate under strict regulatory frameworks, including environmental permitting, safety case requirements, and industry-standard design and operational controls.
- 12583 The potential for cumulative effects would require simultaneous operational failures or major incidents occurring across multiple developments, resulting in combined effects on receptors. This is considered highly unlikely due to:
- The independent operation of each facility;
 - Built-in safety systems, monitoring, and emergency shutdown procedures;
 - Regulatory oversight ensuring risks are reduced to as low as reasonably practicable (ALARP); and
 - The spatial separation between developments, limiting the potential for interaction between incidents.
- 12584 There is no credible pathway for significant cumulative effects associated with MA&D during operation.

Decommissioning

- 12585 The decommissioning phase would involve activities similar in nature to construction, including removal of infrastructure, vehicle movements, and site restoration. As with construction, there is potential for temporal overlap with other developments; however, cumulative effects related to major accidents and disasters would require concurrent and interacting incident scenarios across multiple sites.
- 12586 Given the temporary and controlled nature of decommissioning activities, alongside the implementation of appropriate environmental management measures, health and safety procedures, and traffic management controls, the likelihood of such cumulative events is low.

12587 Therefore, no in-combination effects associated with major accidents and disasters are predicted during decommissioning.

12.6 Summary of In-combination Cumulative Effects

1261 Overall, the in-combination assessment concludes that the interaction of the TKUP project components would not give rise to additional significant environmental effects beyond those identified for the individual project elements.

1262 In summary, the majority of in-combination cumulative effects are assessed as **Not Significant**. This applies to cumulative effects on landscape character, ecology and biodiversity, traffic and transport, air quality during both construction and operation, major accidents and disasters and noise during both construction and operation. The existing industrial and electrical character of the area, together with the limited scale and duration of additional change from the Proposed Development, means that cumulative effects across these topics remain low.

1263 Cumulative effects on visual amenity are more pronounced in certain circumstances. Significant cumulative visual effects are identified during construction and operation for a limited number of receptors, particularly some residential groups in closer proximity to the site and at specific elevated or open viewpoints. However, in all cases, these effects are no greater than those identified for the Proposed Development in isolation and, consequently, no additional significant cumulative effects arise as a result of the Proposed Development. Where significant cumulative effects are identified, these are influenced by the presence and scale of other nearby developments, with the Proposed Development forming one component of a wider cluster of infrastructure.

12.7 Conclusion

1271 This cumulative assessment has considered the potential for cumulative effects arising from the interaction between the Proposed Development and relevant elements of the TKUP and EGL4 projects, together with the interaction between other committed developments within the cumulative study area.

1272 The cumulative assessment has been informed by a proportionate 'short list' of developments, identified having regard to the geographical zone of influence for each environmental topic, the spatial relationship and extent of the developments, anticipated construction and operational programmes, and relevant topic-specific guidance on cumulative assessment.

1273 Where appropriate the assessment first considers the Proposed Development in combination with the relevant elements of the TKUP and EGL4 projects, recognising that a number of these are being progressed through separate consent applications as part of a co-ordinated programme of works. It also considers the cumulative effects of the Proposed Development in combination with other committed developments. The assessment concludes that, whilst some environmental receptors may experience the combined influence of multiple developments, these interactions do not result in additional or materially greater significant effects beyond those identified for the individual project elements, and no additional significant cumulative effects are anticipated.

1274 **Table 12.5** below sets out a summary of the Cumulative Effects.

Table 12.5: Summary of Cumulative Effects

Environmental Topic	Other Developments Considered	Nature of Cumulative Interaction	Additional Significant Effects?
Landscape and Visual	Other committed energy, infrastructure and development proposals	Combined influence of the relevant TKUP and EGL4 projects and other developments within shared landscape and visual contexts.	No
Ecology and Nature Conservation	Other developments with potential habitat or species interactions	Combined habitat disturbance and mitigation requirements.	No
Noise and Vibration	Concurrent construction activities associated with other developments	Temporary overlap of construction noise.	No
Traffic and Transport	Other developments generating construction traffic	Combined use of the local highway network.	No
Other Environmental Topics	Relevant committed developments	Topic-specific cumulative interactions assessed where applicable.	No