

Lighthouse Green Fuels

Development Consent Order

Preliminary Environmental Information Report

Chapter 22: Cumulative Effects

Planning Inspectorate Reference: EN0110025

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1. Cumulative and Combined Effects

1.1 Introduction

1.1.1 This Chapter reports the work undertaken to date in relation to the Cumulative Effects Assessment (CEA) and should be read alongside Chapter 8: Air Quality (PEIR Volume 1) to Chapter 21: Geology and Soils (PEIR Volume 1). The equivalent Chapter in the Environmental Statement (ES) will assess the potential for significant cumulative effects as a result of the Proposed Development.

1.1.2 In line with Schedule 4, Paragraph 5(e) of the Environmental Impact Assessment (EIA) Regulations (Ref 1) the ES will consider the following:

“The cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”.

1.1.3 Furthermore, it will address Schedule 4, Paragraph 5 of the EIA Regulations which states

“The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short term, medium term and long term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union level (as they had effect immediately before exit day) or United Kingdom level which are relevant to the project, including in particular those established under the law of any part of the United Kingdom that implemented Council Directive 92/43/EEC and Directive 2009/147/EC”.

1.1.4 According to the Institute of Environmental Management and Assessment (IEMA) (Ref 2), cumulative impacts can be defined as:

“The additional changes caused by a proposed development in conjunction with other similar developments OR as the combined effect of a set of developments, taken together”.

1.1.5 In accordance with the EIA regulations, the Planning Inspectorate’s (‘the Inspectorate’) Advice Note Seventeen (0), and other best practice guidance, the following types of Cumulative Effects will be considered in the ES are classified as inter-project Effects. These are the residual environmental effects of the Proposed Development combining and interacting with the residual environmental effects of other, committed development(s), affecting the same receptor. For example, traffic effects upon users of the local road network because of the Proposed

Development and a nearby industrial development.

1.1.6 This Chapter sets out the following:

- Relevant, legislation, policy and guidance;
- Consultation undertaken to date;
- The methodology for the assessment of CEA;
- A draft Long List of Other Developments (Appendix 22A: Long List of Other Developments (PEIR Volume 3)); and
- Next steps.

1.2 Policy, Legislation and Guidance

1.2.1 The policy, legislation and guidance relevant to this Chapter is outlined below:

Legislation, Policy and Guidance	
Legislation	
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (The EIA Regulations) (0); and	
The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (0).	
National Planning Policy Framework (NPPF) 2024 (0)	
Policy	
Overarching National Policy Statement (NPS) for Energy (EN-1) 2024 (0)	
NPS for Renewable Energy Infrastructure (EN-3) (Ref 10)	
NPS for Electricity Networks Infrastructure (EN-5) (Ref 11)	
Stockton-on-Tees Borough Council (STBC) Local Plan 2019 (0).	
Redcar and Cleveland Borough Council (RCBC) Local Plan (2018) (Ref 12)	
Guidance	
IEMA Demystifying Cumulative Effects, Impact Assessment Outlook Journal 2020 (0)	
Planning Inspectorate Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (2025) (Ref 3)	

1.3 Scoping Opinion and Consultation

1.3.1 An EIA Scoping Opinion was received by the Applicant from the Inspectorate on 11 September 2025. The responses from the Planning Inspectorate and statutory consultees in relation to cumulative effects and how these requirements should be addressed by the Applicant are set out in Table 1-1.

Table 1-1 Summary of the EIA Scoping Opinion in Relation to Cumulative Effects

Section ID	Description	Scoping Opinion Comments	Response
3.17.1	Issues Scoped Out	No matters have been proposed to be scoped out of the assessment.	Accepted
3.17.2	Long list	Long list will be sent to relevant planning authorities for comment and agreement. The Inspectorate recommends that the short-list is also agreed with the relevant LPAs. Any omissions or inclusions should be clearly justified and explained with reference to PINS Advice Note 17: Cumulative effects assessment. Evidence of any consultation and/or agreement should be provided as part of the application documents.	Accepted
3.17.3	Locations of the long and short list of projects	The ES should include information on the locations of the developments included in the cumulative effects assessment and the distance from the proposed development. This should be supported by a figure depicting the locations and extent of cumulative developments in relation to the proposed development.	Accepted

1.4 Proposed Assessment Methodology

- 1.4.1 There is no widely accepted methodology or best practice for the assessment of Cumulative Effects, although there are several guidance documents available (see Section 1.2), including PINS advice (Ref 3), which will inform the approach taken to the Intra-project Effects and Inter-project Effects assessments. The approach that will be adopted is based on professional experience, the types of receptors being assessed and the nature of the Proposed Development.
- 1.4.2 The assessment will be qualitative and based on available information. Partially quantitative assessments may be undertaken for some elements where practicable, such as for traffic related effects. Where information is not available, assumptions that adopt a worst-case approach will be made based on professional judgement. All assumptions will be clearly stated alongside any uncertainty as part of the Intra-project Effects and Inter-project Effects assessments.
- 1.4.3 The impacts associated with Greenhouse Gases (GHGs) (described in Chapter 14: Greenhouse Gases (PEIR Volume 1)), in terms of their contribution to climate change, are global and cumulative in nature, with every tonne contributing to impacts on natural and human systems. As such it is the cumulative effects of all GHG-emitting human activities that cause climate change, and therefore the assessment of GHGs due to the Proposed Development implicitly assesses the cumulative effect of GHG emissions. Therefore, the assessment of GHGs as presented in Chapter 14: Greenhouse Gases (PEIR Volume 1) will be excluded from the CEA in the ES.

Intra-Project Effects

- 1.4.4 The assessment of Intra-project Effects will be based on the information and Study Areas within the Technical Chapters (Chapter 8: Air Quality (PEIR Volume 1) to Chapter 21: Geology and Soils (PEIR Volume 1)). This assessment considers any residual effects that are reported as non-negligible (or equivalent) within the Technical Chapters. Minor effects, while not significant, are considered in the assessment on the basis that multiple minor effects may interact to result in a significant effect. Negligible residual effects reported in the Technical Chapters are considered unlikely to accumulate to the extent that a significant Intra-project effect would occur.
- 1.4.5 The assessment methodology for Intra-project Effects will involve the following key stages.

Stage 1 – Screening of Sensitive Receptors

- 1.4.6 A screening of Sensitive Receptors (as identified in each topic chapter) will be undertaken to determine whether any has 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 will be taken forward to Stage 2 of the assessment.
- 1.4.7 The likely Common Receptors to be taken forward to Stage 2 include but are not limited to the following:
- Residential receptors/users;
 - Non-residential properties and facilities;
 - Motorised and non-motorised road users; and
 - Surface water and groundwater bodies.

Stage 2 – Determine Common Receptor's Residual Effects

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

Stage 3 – Assessment of Intra-Project Effects

- 1.4.9 An assessment of the overall significance of the Intra-project Effects on Common Receptors identified at Stage 2 will be undertaken. The assessment will be based on information provided within the technical topic assessments, as well as professional judgement. The assessment will consider the nature of the residual effects acting on the identified Common Receptors and determine whether or not these residual effects, acting in-combination, would significantly magnify the overall residual effects on specified receptors. Receptors will be assessed at spatial scale consistent with that of the Technical Chapters.

Inter-Project Effects

- 1.4.10 The assessment methodology for Inter-project Effects will involve the identification of incremental changes to baseline conditions likely to be caused by other relevant projects together with the Proposed Development. These will involve the following key stages.

Stage 1 – Identification and Evaluation of Developments for Consideration: The Long List

- 1.4.11 Stage 1 of the approach outlined in PINS Advice (Ref 3) requires the identification of a Zone of Influence (ZOI) for each technical topic (derived from the Study Areas in Chapter 8: Air Quality (PEIR Volume 1) to Chapter 21: Geology and Soils (PEIR Volume 1)) considered within the ES for the Proposed Development, with other, reasonably foreseeable developments identified within those ZOI. These projects are termed 'Other Developments'. For the purposes of the Inter-Project Effects Assessment, the term 'ZOI' is to be used in place of 'Study Area'.
- 1.4.12 For the purpose of this report and Appendix 22A: Long List of Other Developments (PEIR Volume 3), the ZOI defined in Technical Chapters (Chapters 8: Air Quality (PEIR Volume 1) to Chapter 21: Geology and Soils (PEIR Volume 1)) have been reviewed to determine the maximum ZOI likely to be scoped into the Inter-project effects assessment. This is 10km, taken from Chapter 10: Terrestrial Ecology (PEIR Volume 1) Study Area for 'Statutory Designated Sites – SSSI' and Chapter 8: Air Quality (PEIR Volume 1) Study Area for Human receptors within 10km of the Proposed Development that are the most likely to experience a change in NO₂, and/or particulate matter as a result of emissions from the Proposed Development.
- 1.4.13 This 10km ZOI has been used to establish the draft 'Long List' of 'Other Developments' (Appendix 22A: Long List of Other Developments (PEIR Volume 3)).
- 1.4.14 'Other Developments' have been identified through an initial search, within the identified ZOI, of the planning registers of the local planning authorities and the Inspectorate's planning register. Future development consents/approvals set out in the relevant LPA plans and programmes will be reviewed at ES stage. Following this initial search, this has led to the creation of a 'long list' of 'Other Developments' for consideration (corresponding with Stage 1 in PINS advice (Ref 3)) in Appendix 22A: Long List of Other Developments (PEIR Volume 3).
- 1.4.15 Table 2 of PINS advice (Ref 3) provides criteria to indicate the level of certainty that can be applied to each of the 'Other Developments' being considered. Table 1-2 has been based on Table 2 of PINS advice (Ref 3). The criteria are presented, descending from Tier 1 (most certain) to Tier 3 (least certain) and reflect a diminishing degree of certainty that can be assigned to each 'Other Development'. The assignment of certainty will be applied to the Long List during the ES.

Table 1-2 Assigning Certainty to ‘Other Developments’ Advice Note Seventeen

Tier	Certainty
Tier 1	• Under construction; • Permitted application(s), whether under the Planning Act (PA2008) (0) or other regimes (e.g. harbour revision orders), but not yet implemented; and • Submitted application(s) where a full ES or an equivalent has been submitted.
Tier 2	• Projects on the Planning Inspectorate’s Programme of Projects where a Scoping Report, PEIR or an equivalent has been submitted; and • Developments on an LPA’s planning register where an EIA Scoping Report or equivalent has been submitted.
Tier 3	• Projects on the Planning Inspectorate’s Programme of Projects where a Scoping Report or PEIR has not been submitted; • Developments on an LPA’s planning register with little or no environmental assessment information; and • Identified in other plans and programmes (where advised by the relevant LPA following the publication of this PEIR) which set the framework for future development consents/approvals, recognising that there will be limited information available on the ‘Other Development’.

1.4.16 The relevant Borough’s Planning Registers are:

- Stockton-on-Tees Borough Council;
- Redcar and Cleveland Borough Council.
- Hartlepool Borough Council; and
- Middlesbrough Council.

1.4.17 The relevant planning authorities are provided with the opportunity to comment on Appendix 22A: Long List of Other Developments (PEIR Volume 3) as part of the Statutory Consultation (on this PEIR). The draft Long List of Other Developments contained within Appendix 22A: Long List of Other Developments (PEIR Volume 3) will be reviewed and updated at the ES stage ahead of progressing to Stage 2, to ensure that the search of ‘Other Developments’ is as up to date as practicable.

Stage 2 – Identify a Short List of ‘Other Developments’

1.4.18 Following the data collection (Stage 1), the Long List will be refined post Statutory Consultation to a Short List which will be presented as part of the CEA in the ES. This Short List will be created by reviewing each of the ‘Other Developments’ identified against the following criteria:

- Is there a concurrent construction or operation phase between the ‘Other Development’ and the Proposed Development?;
- Is there potential that the ‘Other Developments’ shares some of the same Sensitive Receptors with the Proposed Development?; and

- Those ‘Other Developments’ that have no, or insufficient, environmental assessment information will, typically, not be considered as it will not be possible to accurately identify shared Sensitive Receptors or Inter-project Effects.

Stage 3 – Identification of Information for the Other Developments

- 1.4.19 Information on the Other Development(s) included within the Short List will be gathered from available third-party information sources within the public domain.
- 1.4.20 The information captured should include, but not necessarily be limited to:
- proposed design and Site boundary information;
 - proposed programme of construction and operation; and
 - technical information that sets out baseline data and effects arising from the Other Development on Common Receptors.

Stage 4 – Assessment of Inter-Project Effects

- 1.4.21 The assessment of Inter-project Effects will consider the deviation from the baseline conditions at Common Receptor(s) because of changes brought about due to the Proposed Development in combination with one or more Other Development(s) in the Short List. This stage corresponds with Stage 4 of PINS Advice (Ref 3).
- 1.4.22 The assessment of the Inter-Project Effects will be based upon the residual effects identified in the technical topic assessments of the ES, as well as available environmental information for the ‘Other Developments’.
- 1.4.23 The assessment of Inter-project Effects will consider the following:
- combined magnitude of change;
 - sensitivity/value/importance of the Receptor to change; and/or
 - duration and reversibility of effect.
- 1.4.24 Through a combination of the qualitative evaluation presented in the ES and the environmental information available for ‘Other Developments’, conclusions will be drawn as to the likelihood for significant Inter-project Effects, i.e. those over and above, or different to, those identified for the Proposed Development on its own.
- 1.4.25 If significant residual Inter-project 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 Development to do so) necessary mitigation measures will be proposed in the ES. Typically the onus is on less advanced projects or those later in the planning process to take account of effects from those projects already in the public domain or well

progressed through the consenting and development process.

Significance Criteria

Intra-Project Effects

- 1.4.26 The significance classifications for intra-project effects are detailed in Table 1-3.

Table 1-3 Intra-Project Effects Significance Criteria

Significance Category	Definition of Effect
Major	Adverse or Beneficial effects that are a significant magnification of potentially wide-ranging effects on receptors/resources that are already predicted to occur.
Moderate	Adverse or Beneficial effects that are a significant magnification of effects on receptors/resources that are already predicted to occur.
Minor	Adverse or Beneficial effects that would only lead to a localised magnification of effects on a receptor/resource.
Negligible	No effects or effects that are beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.

Inter-Project Effects

- 1.4.27 The assessment of Inter-Project Effects will consider the potential for significant residual effects, for which appropriate, additional mitigation measures will be proposed. The significance of the effect is formulated as a function of a Sensitive Receptor's or a resource's environmental value/sensitivity and the magnitude of the impact of the Proposed Development. This aligns with Advice Note Seventeen which states:

“The significance criteria used to assess likely cumulative effects should consider the capacity of environmental resources and receptors to accommodate changes that are likely to occur. The terminology used to determine significance should be explicit and ensure a clear understanding of the outcome of the CEA”.

- 1.4.28 The significance classifications for inter-project effects are detailed in Table 1-4.

Table 1-4 Inter-Project Effects Significance Criteria

Significance Category	Definition of Effect
Major	Adverse or Beneficial effects recognised to be very important considerations as significant magnification of effects on receptors/resources is likely to occur.
Moderate	Adverse or Beneficial effects that are unlikely to become issues, but where future work may be needed to improve on current performance as significant magnification of effects on

Significance Category	Definition of Effect
	receptor/resource is likely to occur.
Minor	Adverse or Beneficial effects that are locally significant and would be unlikely to lead to a significant magnification of effects on a receptor/resource.
Negligible	No effects or effects that are beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.

1.5 Study Area

Intra-Project Effects

- 1.5.1 The Study Areas used for the assessment of intra-project effects are those detailed in the relevant Technical Chapters (Chapter 8: Air Quality (PEIR Volume 1) to Chapter 21: Geology and Soils (PEIR Volume 1)).

Inter-Project Effects

- 1.5.2 The ZOI for inter-project effects is 10km, as describe above in Section 1.4.

1.6 Baseline Conditions

- 1.6.1 The baseline conditions for this Chapter are as described in the relevant technical chapters (Chapter 8: Air Quality (PEIR Volume 1) to Chapter 21: Geology and Soils (PEIR Volume 1)).

1.7 Next Steps

- 1.7.1 Stage 1 of the assessment of intra-project effects provides details on the screening of Sensitive Receptors and a list of likely Common Receptors has been provided to be taken forward see Section 1.4. The assessment of intra-project effects will be carried out during the EIA process and will be presented in the ES.
- 1.7.2 For Inter-Project Effects, Stages 2, 3 and 4 of the assessment, as described in Section 1.4 above, will be carried out during the EIA process and will be presented in the ES. This will include reviewing and updating the long list and developing the Short List to ensure all 'Other Developments' are correct at the time of writing.
- 1.7.3 Appendix 22A: Long List of Other Developments (PEIR Volume 3)) is presented as part of this PEIR. The following Statutory Consultees are to be consulted (as a minimum) at Statutory Consultation to consider this list:
- Environment Agency;
 - Marine Management Organisation;
 - Natural England;

- Middlesbrough Development Corporation;
- South Tees Development Corporation;
- Stockton on Tees Borough Council;
- Redcar and Cleveland Borough Council.
- Hartlepool Borough Council; and
- Middlesbrough Council.

1.8 Limitations and Assumptions

1.8.1 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:

- The assessment of Intra-project Effects resulting from the Proposed Development will be focused on the residual effects from the Construction and Operation Phases following the implementation of mitigation measures that are secured through DCO requirements or other mechanisms;
- The assessment of Inter-project Effects will be based on the interpretation and assessment of publicly available data and limited by the level of information available;
- There may be cases that Other Development screened into the Short List present information for some or most of the technical topics, but not for others. In such instances, the Inter-project Effects assessment for the given Other Developments may be limited to only those topics for which there is appropriate information available. However, this will be avoided where practicable with efforts made to make an assessment based upon the available information, assumptions and professional judgement. This will be stated in the ES where appropriate;
- Although information may be available for Other Developments, it may be limited in its compatibility where different assessment methodologies or criteria have been used in the technical topic assessments. Where this limits and/or prevents the Inter-project Effects assessment, it will be stated in the ES; and
- There may be cases where there are changes in baseline scenarios for Other Developments which will have an indirect effect on the Intra-effects assessment as a result of the changing effects in the technical disciplines (Chapter 8: Air Quality (PEIR Volume 1) to Chapter 21: Geology and Soils (PEIR Volume 1)).

References

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