

Riverside Energy Park

Environmental Statement

Chapter 4: ES Assessment Methodology

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4 ES Assessment Methodology

4.1 Introduction

4.1.1 This Chapter sets out the methodology which has been followed in undertaking the EIA. It describes the EIA process, the stages of consultation and engagement which have been followed, and how the scope of the assessment has been defined. The steps in undertaking the EIA are described in detail, including:

- the consultation undertaken, and how any responses have been taken into account;
- the topic-specific, reasonable worst case parameters used for assessment;
- how the study area, baseline and receptors have been defined;
- the assessment methodology and significance criteria used;
- the assumptions and limitations lying behind the assessment;
- how the assessment of cumulative effects has been undertaken;
- the approach taken to defining mitigation measures necessary to limit effects; and
- how residual effects remaining after mitigation have been assessed.

4.2 EIA Requirements

4.2.1 Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (Infrastructure EIA Regulations 2017) set out the information which is to be included in the Environmental Statement (ES). **Table 4.1** identifies where the information defined by Schedule 4 can be found within this ES.

Table 4.1: EIA Requirements

Specified Information	Location within ES
1. A description of the development, including in particular: (a) a description of the location of the development; (b) a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;	Chapter 3

Specified Information	Location within ES
<p>(c) a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;</p> <p>(d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases).</p>	
<p>2. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.</p>	<p>Chapter 5</p>
<p>3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.</p>	<p>Section 7 of Chapters 6 – 14 inclusive</p>
<p>4. A description of the factors specified in regulation 5(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.</p>	<p>Population – Chapter 14 (Socio-economics)</p> <p>Human Health – Chapter 15 (Other Considerations)</p> <p>Biodiversity – Chapter 11 (Terrestrial Biodiversity)</p> <p>Land, Soil (Chapter 13 – Ground Conditions)</p> <p>Water – Chapter 12 (Hydrology, Water Resources and Flood Risk)</p>

Specified Information	Location within ES
	Air – Chapter 7 (Air Quality) Climate – Chapter 15 (Other Considerations) Material Assets and Cultural Heritage – Chapter 10 (Historic Environment) Landscape – Chapter 9 (Townscape and Visual Impact Assessment)
<p>5. A description of the likely significant effects of the development on the environment resulting from, inter alia:</p> <p>(a) the construction and existence of the development, including, where relevant, demolition works;</p> <p>(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;</p> <p>(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;</p> <p>(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);</p> <p>(e) 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;</p> <p>(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;</p> <p>(g) the technologies and the substances used.</p> <p>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</p>	<p>a – Chapters 6 – 14 inclusive</p> <p>b – Chapter 13 (Ground Conditions), Chapter 12 (Hydrology, Water Resources and Flood Risk), Chapter 11 (Terrestrial Biodiversity)</p> <p>c – Chapter 7 (Air Quality), Chapter 8 (Noise and Vibration), Chapter 15 (Other Considerations)</p> <p>d – Chapters 6 – 14 inclusive and Chapter 15 (Appendix K.6)</p> <p>e – Chapter 4, and section 10 of Chapters 6 – 14 inclusive</p> <p>f – Chapter 15 (Other Considerations)</p> <p>g – Chapter 3 (Project and Site Description)</p>

Specified Information	Location within ES
<p>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 or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC and Directive 2009/147/EC.</p>	
<p>6. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.</p>	<p>Chapters 6 – 14 inclusive</p>
<p>7. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.</p>	<p>Sections 8, 11 and 12 of Chapters 6 – 14 inclusive</p>
<p>8. A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.</p>	<p>Chapter 15 (Appendix K.6)</p>

Specified Information	Location within ES
9. A non-technical summary of the information provided under paragraphs 1 to 8.	A non-technical summary (Document Reference 6.4) is provided alongside this ES
10. A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.	Chapters 6 – 14 inclusive.

4.3 Consultation and Engagement

Non-statutory consultation

- 4.3.1 The Applicant carried out non-statutory consultation on the Proposed Development in spring 2018. This included four public exhibitions at local venues within a community consultation period from 9th May to 29th May 2018 and providing information on the Riverside Energy Park website. A comments form was made available at public exhibitions and online during the community consultation period. This enabled the Applicant to explain the rationale and key objectives of the Proposed Development and provided consultees with the opportunity to submit feedback early in the process.
- 4.3.2 The Applicant also continued to engage with key prescribed bodies including the relevant planning authorities, the Greater London Authority, Natural England, the Environment Agency, Historic England, Transport for London and the Port of London Authority, to incorporate advice throughout the development process and ensure ongoing use of the latest information available.

Statutory consultation

- 4.3.3 In accordance with requirements of the PA 2008 and the APFP Regulations a Preliminary Environmental Information Report (PEIR) was published as part of the Statutory Consultation process undertaken for the REP Development Consent Order (DCO). Consultees were invited to provide feedback on the Proposed Development and the information set out in the PEIR during the statutory consultation period which ran from 18th June 2018 to 30th July 2018 (inclusive).
- 4.3.4 The Statutory Consultation also comprised seven consultation events at local venues in proximity to the Application Site.

Further Consultation and Engagement

- 4.3.5 In addition to the Statutory Consultation undertaken from 18th June 2018 to 30th July 2018 (inclusive), a further stage of consultation and engagement was undertaken for the period from 31st July 2018 to 7th September 2018 (inclusive)

due to minor refinements to the Indicative Application Boundary made subsequent to the publication of the PEIR. A 'Supplementary Information to the PEIR' (SIP) report was published and issued to all prescribed bodies, and addresses within a 200 m radius of the additional areas identified. On a non-statutory basis, these parties were invited to provide feedback and comments on the minor refinements. Any new land interests identified as a result of the refinements were consulted under s42(1)(d) of the Planning Act 2008, and provided with a copy of the PEIR and the SIP report.

- 4.3.6 Further information in relation to the consultation process is provided within the Consultation Report (**Document Reference 5.1**). A summary of consultation responses and how they have been addressed within the EIA is included in Section 3 of **Chapters 6 – 14** inclusive.

4.4 Scope of the Assessment

- 4.4.1 Scoping involves focusing the content of the EIA on those issues likely to result in a significant effect to the environment. It is an important tool for identifying the likely significant environmental effects of a development proposal through its design, construction, operation and decommissioning phases and ensures that appropriate mitigation options are considered, where necessary.
- 4.4.2 Cory sought a Scoping Opinion from the Secretary of State in November 2017 as part of the initial phases of work on the EIA. The request was accompanied by a Scoping Report (PBA, November 2017) which described the anticipated likely significant environmental effects that would require detailed evaluation as part of the EIA. The formal Scoping Opinion was received from PINS in January 2018 and has been used to inform those aspects of the environment on which the EIA has focused.
- 4.4.3 The Scoping Opinion can be found on the Planning Inspectorate's website and in **Appendix A.1**. The formal Scoping Opinion has been considered and reflected in the preparation of this ES. Section 1.5 of **Chapter 1** details compliance with the Scoping Opinion.
- 4.4.4 Subsequent to the Scoping Opinion issued by the Secretary of State, the proposed scope of works of REP was reduced. Temporary construction and dredging works within the marine environment, which were included in the Scoping Report, were no longer included as part of the Proposed Development described within the PEIR. Similarly, the possible Electrical Connection route to Renwick Road, Barking and a Main Temporary Construction Compound at Crabtree Manorway North (as defined in the Scoping Report) were no longer proposed in the PEIR (see **Chapter 5** for further information).
- 4.4.5 Under Regulation 14(3)(a) of the Infrastructure EIA Regulations 2017 where a scoping opinion request has been submitted, the subsequent ES must be based on the most recent scoping opinion adopted. As the scope of the EIA reduced since the scoping opinion was issued, consultation on minor refinements and amendments to the proposals was undertaken with prescribed bodies to allow updated advice to be provided.

- 4.4.6 This consultation consisted of an updated note on the Proposed Development explaining the removal of temporary works in the marine environment and how the scope of the EIA was reduced (**Appendix A.1**), along with a letter explaining updates made to the Electrical Connection as noted in paragraph 4.4.4 above. The note was sent to the prescribed bodies in March 2018.
- 4.4.7 The PEIR itself was then published in June 2018, resulting in a formal consultation period which allowed consultees to comment on preliminary environmental findings based upon the refined scope of REP.
- 4.4.8 Subsequent to the publication of the PEIR, the SIP report was published which addressed minor refinements to the Indicative Application Boundary to provide for the Electrical Connection route. This was supported by further consultation with affected land interests and inviting comments specifically relating to new areas included within the Application Boundary and provided consultees an opportunity to comment on the changes.
- 4.4.9 Further detail regarding statutory consultation and non-statutory engagement, and the comments received throughout the consultation process is provided within the Consultation Report (**Document Reference 5.1**). Responses to any comments received in relation to the EIA for the Proposed Development are set out within Sections 3 of **Chapters 6 – 14** inclusive.

4.5 Environmental Baseline

- 4.5.1 In undertaking an EIA for any project, it is important to identify the environmental baseline for the potential receptors which may be affected. This involves forming an understanding of the environmental receptors (e.g. their sensitivity) in an area and the developments that are already affecting those receptors at the time of the assessment. This allows any future baseline conditions to be determined and the effects of the Proposed Development to be compared and / or combined with the baseline in order to ensure an informed assessment is made of the potential effects of a project as well as to allow the identification of the most appropriate mitigation which could be employed to minimise any identified likely significant adverse effects, or enhancement of any beneficial effects.
- 4.5.2 To establish the baseline, a study area that is appropriate for each assessment topic is identified which takes into consideration the surrounding context and the scale and range of likely significant effects (the study area for noise, for example, would cover a smaller area than that used to assess townscape and visual effects which may be experienced over a wider area, or conversely, the study areas may be the same for certain assessment topics). Confirmation of the study area for each assessment topic is set out in the respective topic chapter.
- 4.5.3 A range of environmental data is then gathered from a combination of sources in respect of each study area. This will include:

- documentary information on the Application Site and its surroundings within each relevant study area, including information available from previous EIA work for other projects such as RRRF;
- field survey information, including: Phase 1 and 2 ecological surveys; townscape character assessments; background noise surveys; ground conditions/contaminated land assessments; identifying the location of sensitive receptors and existing traffic levels on the road network; and
- obtaining and reviewing data held by both statutory and non-statutory consultees, as well as through consultation with relevant consultees.

4.5.4 If the DCO is granted by the Secretary of State within the current programme it is anticipated that construction of the Proposed Development would commence in 2021. The assessment therefore uses a '2021 baseline' to provide a future baseline against which the direct, indirect and cumulative effects can be assessed.

4.6 Parameters Used for Assessment

4.6.1 Parameters relevant to all EIA disciplines are identified within **Chapter 3**, and will be used as the basis for assessments throughout this ES. However, the REP DCO Application seeks a degree of flexibility for the final design of the Proposed Development. To take account of this, each topic-specific assessment has tested a reasonable worst case scenario to ensure that the likely significant effects arising from Proposed Development have been robustly assessed on a precautionary basis. This reasonable worst case scenario is set out in Section 4 of ES **Chapters 6 – 14**.

4.7 Assessment Methodology

4.7.1 Significance criteria have been used to help understand, evaluate and quantify the likely significant environmental effects which may be positive (i.e. beneficial) or negative (i.e. adverse).

4.7.2 The significance of an effect is typically the product of two factors, the value or sensitivity of the environmental resource affected and the magnitude of the impact, while consideration may also need to be given to the likelihood of an effect occurring. A significant effect may arise as a result of a slight impact on a resource of national value or a severe impact on a resource of local value. In addition, the accumulation of many non-significant effects on similar local resources geographically spread throughout the Proposed Development may give rise to an overall significant effect. An example of this might be the loss of ecological habitat of low value at many locations.

4.7.3 This approach to assessing and assigning significance to an environmental effect will rely upon such factors as legislative requirements; guidelines, standards and codes of practice; consideration of the Infrastructure EIA Regulations 2017; the advice and views of statutory consultees and other interested parties; and expert judgement. The following questions are relevant

in evaluating the significance of likely environmental effects:

- Which risk groups are affected and in what way?
- Is the effect reversible or irreversible?
- Does the effect occur over the short, medium or long term?
- Is the effect permanent or temporary?
- Does the effect increase or decrease with time?
- Is the effect of local, regional, national or international importance?
- Is it a beneficial, neutral or adverse effect?
- Are health standards or environmental objectives threatened?
- Are mitigating measures available and is it reasonable to require these?

4.7.4 Specific significance criteria have been prepared as appropriate for each specialist topic, based on the above and the generic criteria set out in **Table 4.2** below.

Table 4.2: Significance Criteria

	Significance Level	Criteria
<i>Significant</i>	Substantial	These effects are assigned this level of significance as they represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites and features of national or regional importance. A change at a district scale site or feature may also enter this category.
	Major	These effects are likely to be important considerations at a local or district scale and may become key factors in the decision-making process.
	Moderate	These effects, while important at a local scale, are not likely to be key decision-making issues.
<i>Not significant</i>	Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process. Nevertheless, they are of relevance in enhancing the subsequent design of the project and consideration of mitigation or compensation measures.
	Negligible	Either no effect or an effect which is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error. Such effects should not be considered by the decision-maker.

- 4.7.5 Effects that are described as ‘substantial’, ‘major’ or ‘moderate’ are determined to be *significant*; and effects that are described as ‘minor’ or ‘negligible’ are determined to be *not significant* in the context of the Infrastructure EIA Regulations 2017.
- 4.7.6 For clarity, within assessment sections of this ES, assessments have been split to consider the ‘REP site and Main Temporary Construction Compounds’ and the ‘Electrical Connection and the Cable Route Temporary Construction Compounds’ separately. This is to ensure that potential effects are clearly attributed to the relevant aspect of the Proposed Development. A summary of the assessment is included in each chapter to draw together conclusions of the ‘REP site and Main Temporary Construction Compounds’, and the ‘Electrical Connection and the Cable Route Temporary Construction Compounds’.
- 4.7.7 In order to provide a consistent approach and enable the comparison of effects upon different environmental components, the assessments generally use the structure and terminology as set out in **Table 4.2**. However, it is noted that for some environmental topics, significance criteria may need to differ depending on the topic assessment and conditions encountered at the Application Site. Each topic chapter clearly identifies and explains the specific criteria used.

4.8 Assumptions and Limitations

- 4.8.1 The prediction of future effects inevitably involves a degree of uncertainty. This ES identifies, in accordance with Schedule 4 to the Infrastructure EIA Regulations 2017, any difficulties that have been encountered in undertaking the assessment to date.
- 4.8.2 Where necessary, the topic specific assessment chapters describe the principal factors giving rise to uncertainty in the prediction of environmental effects and the degree of that uncertainty.
- 4.8.3 Confidence in predictions is engendered by employing accepted assessment methodologies, e.g. Guidance for Ecological Impact Assessment by the Institute of Ecology and Environmental Management. Uncertainty inherent within the prediction is described within the limitations section of **Chapters 6 to 14** as required.
- 4.8.4 Uncertainty also applies to the success or otherwise of measures to mitigate adverse environmental effects. Where the success of a mitigation measure is uncertain, the extent of the uncertainty is identified.

4.9 Mitigation, Monitoring and Enhancement

- 4.9.1 Consideration has been given to the potential mitigation measures which could be used to ensure that likely adverse significant environmental effects of the Proposed Development are reduced.
- 4.9.2 In the hierarchy of mitigation, likely significant adverse effects should, in the first instance, be avoided altogether; where this is not possible such effects should then be reduced and, finally, offset.

4.9.3 Significant adverse effects are best avoided by incorporating appropriate measures into the design process. As such, the iterative nature of the EIA process has assisted in informing the development of the final design of the Proposed Development that is the subject of the REP DCO application.

4.9.4 Two broad types of potential mitigation measures are being applied in the EIA and are reported in this ES, namely:

- embedded mitigation - those designed to be an inherent part of the scheme for which planning permission is sought (e.g. limiting the height of a stack, or building form) or those which would be undertaken to meet existing legislative requirements. Embedded mitigation evolves through the iterative design process and early consideration of the likely significant effects. An outline Code of Construction Practice (CoCP) has been submitted with the REP DCO (**Document Reference 7.5**), alongside a draft DCO (**Document Reference 3.1**). Within the draft DCO, requirement 10 requires a detailed CoCP to be prepared which is substantially in accordance with the outline CoCP. As there is a Requirement for the items within the outline CoCP to be inherently delivered as part of the REP DCO, they have been considered as ‘embedded’ into the scheme; and
- further mitigation - those which require further activity to be achieved, are identified through carrying out assessments and do not form part of the scheme design in their own right.

4.9.5 Opportunities to provide environmental enhancements, or to maximise beneficial effects, will be sought where possible.

4.9.6 The Proposed Development has been developed in such a way that the reduction and, wherever possible, elimination of significant adverse environmental effects is integral to the overall design philosophy.

4.10 Cumulative Effects

4.10.1 Schedule 4 (part 5) to the Infrastructure EIA Regulations 2017 requires an ES to 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 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”.

4.10.2 PINS Advice Note 17 (Version 1, December 2015) (AN17) provides advice on a ‘staged’ process that applicants may wish to adopt in cumulative effects assessment for Nationally Significant Infrastructure Projects (NSIP). The four assessment stages comprise:

1. Stage 1: Establish the NSIP’s zone of influence and identify a ‘long list’ of other developments which could potentially have effect interactions with the NSIP;

2. Stage 2: Develop a 'short list' of other developments which could potentially have effect interactions with the NSIP. Essentially, analysing the 'long list' developed in stage 1 in more detail in order to include only those developments that have potential to give rise to significant cumulative effects by virtue of overlaps in temporal scope; due to the scale and nature of the 'Other Development'/receiving environment; or any other relevant factors. Relevant planning authorities are consulted on the short list of other developments;
3. Stage 3: Gather available information on the shortlisted developments; and
4. Stage 4: Assess likely significant impacts arising as a result of the NSIP cumulatively with the short listed developments identified during stage 2 and available information gathered in stage 3 and identify any mitigation measures required.

4.10.3 PINS Advice Note 17 (AN17) provides high level guidance on the assessment of cumulative effects. Detail on specific cumulative assessment methodologies are outlined in each topic chapter.

4.10.4 PINS Advice Note 9 (Version 3, July 2018) (AN9) sets out that *“the potential cumulative impacts with other developments will also need to be carefully identified such that the likely significant effects can be shown to have been identified and assessed against the baseline position (which would include built and operational development). In assessing cumulative impacts, other development should be identified through consultation with the local planning authorities and other relevant authorities.”*

4.10.5 Table 3 of AN17 describes potential schemes for cumulative assessment in three tiers and recognises that for each tier, there is a decreasing level of detail likely to be available. The three tiers are:

- Tier 1:
 - projects under construction;
 - permitted application(s), whether under the PA 2008 or other regimes, but not yet implemented; and
 - submitted application(s) whether under the PA 2008 or other regimes but not yet determined.
- Tier 2:
 - projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted.
- Tier 3:

- projects on the Planning Inspectorate’s Programme of Projects where a scoping report has not been submitted;
- identified in the relevant Development Plan (and emerging Development Plans - with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals would be limited; and
- identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

4.10.6 Within **Appendix A.4**, the structure of ‘Tier 1’ has been further subdivided into Tier 1a (projects under construction), Tier 1b (projects not yet implemented) and Tier 1c (projects yet to be determined).

4.10.7 **Table 4.3** below identifies the initial Zone of Influence (ZOI) for each assessment scoped in to this EIA. ‘Other Development’ which falls within both the tier structure as identified above and the ZOI has been identified to complete Stage 1 of the cumulative assessment.

4.10.8 In accordance with AN17, a cut-off date is required to stop assessment work at a particular point in time to allow assessments to be finalised and an application submitted. The cut-off date for new ‘Other Development’ coming forward was 17th September 2018.

4.10.9 Since the publication of the PEIR, to reflect the assessment in **Chapter 14** the ZOI for the socio-economic assessment has been refined to cover a 3 km area from the REP site for the assessment of community infrastructure, and the 60-minute drive time study area for the assessment of the labour market.

Table 4.3: Cumulative Assessment Zones of Influence and Justification.

EIA Discipline	Criteria and Justification
Transport	Cumulative effects from Transport are not intended to be assessed separately, as transport movements from ‘Other Developments’ are inherently included within transport models to allow accurate predictions of future transport scenarios. Accordingly, cumulative noise and air quality impacts from transport are provided for within the Transport Assessment model.
Air Quality	Specific area identified for potential interaction with dispersal of emissions from REP, see Figure 4.1 .

EIA Discipline	Criteria and Justification
	<p>The ZOI is defined where the predicted annual mean Nitrogen dioxide (NO₂) concentration from REP is 1% or less of the annual mean objective. This is the Environment Agency’s screening criteria for impacts to be considered insignificant, alone or in combination with other projects. The annual mean NO₂ concentration is chosen, as this is the pollutant most likely to breach national air quality strategy objectives.</p>
Noise and Vibration	<p>50 m from the Electrical Connection during construction, 0.5 km from the REP site during construction, 1 km from the REP site during operation.</p>
	<p>Construction ZOIs have been based on the likelihood of impacts and noise criteria agreed with London Borough of Bexley (LBB). For REP, construction noise levels beyond 0.5 km are unlikely to cumulatively impact on receptors such that significant impact are likely. Similarly, noise impacts beyond 50 m from the Electrical Connection route are unlikely to impact on receptors, particularly given the short term nature of the connection route construction operations.</p> <p>Operational impacts beyond 1 km from REP, due to distance and screening, are unlikely to significantly alter the background noise levels at the nearest noise sensitive receptors to REP. Therefore, operations beyond 1 km are not likely to influence the assessment outcomes.</p>
Townscape and Visual Impact Assessment	<p>2.5 km from REP’s stack for all development. From 2.5 to 5 km from REP’s stack for development above 65 m AOD in height (maximum parameter height for the Main REP Building).</p>
	<p>The ZOI was drawn to these criteria as beyond these, based on professional opinion and knowledge of the effects from similar types of development, the potential for significant cumulative effects were considered unlikely.</p>
Historic Environment	<p>2.5 km from REP’s stack for all development. From 2.5 to 5 km from REP’s stack for development above 65 m AOD in height (maximum parameter height for the Main REP Building).</p>
	<p>See text relating to Townscape and Visual Impact Assessment.</p>

EIA Discipline	Criteria and Justification
Terrestrial Biodiversity	2 km from the Application Site.
	The stated distances are considered appropriate for the scale of project, the presence of potential impact pathways, and the sensitivity of surrounding ecological receptors. In addition the stated distances are recommended by DEFRA and the EA for assessment of air quality impacts on environmental receptors in relation to environmental permitting.
Hydrology, Flood Risk and Water Resources	2 km from the Application Site.
	The ZOI is considered appropriate as beyond 2 km, based on professional opinion and due to connectivity of watercourses, it is not considered that the potential for likely significant cumulative effects would exist.
Ground Conditions	1 km from the REP site – south of the River Thames only.
	The ZOI was drawn to these criteria as beyond 1 km, based on professional opinion, knowledge of the geological profile and resulting possibility for impact pathways, it was not considered that the potential for likely significant cumulative effects would exist.
Socio-economics	3 km from the REP site for cumulative assessment of community infrastructure. 60 – minute drive time study area for cumulative assessment of labour market.
	The selected Study Areas and associated ZOIs adopted to assess likely labour market effects and likely effects on community infrastructure respectively reflect the outer limit that workers would typically commute on a daily basis from the REP site and the outer limit of community infrastructure which could experience discernible changes (e.g. demand for school places) as a result of the Proposed Development. Beyond these distances, labour market effects and associated effects on community infrastructure would only be likely to occur at much lower levels which would not be significant in the context of the EIA Regulations.

4.10.10 The long list of ‘Other Developments’ for inclusion in the assessment was identified and included within the PEIR, prepared using the above criteria. The ZOI for each environmental topic is identified in **Figure 4.1**, and justified within Section 10 of **Chapters 6-14** inclusive.

4.10.11 This list was subsequently refined into the short list in accordance with stage 2 of AN17, to allow a robust yet proportionate assessment of likely significant cumulative effects arising from the Proposed Development. Inclusion/exclusion criteria were applied to the stage 1 list of ‘Other Developments’ to determine whether they have any potential to give rise to significant cumulative effects.

4.10.12 The inclusion/exclusion criteria for each environmental discipline applied is outlined in **Table 4.4** below:

Table 4.4: Inclusion/Exclusion Criteria and Justification

EIA Discipline	Criteria and Justification
Transport	N/A – See Table 4.3 .
Air Quality	Include if the application includes an energy centre or other combustion point sources, or if the application would introduce new residential receptors into the zone of influence where there weren't any previously (i.e. old industrial land is being redeveloped for residential).
	If the application includes an energy centre or other combustion point source which could release NO ₂ , PM ₁₀ and PM _{2.5} emissions (which are also released by REP), there is therefore the potential for cumulative impacts. Consideration of developments that add road traffic emissions have not been considered as road traffic emissions will reduce significantly across London between 2020 and 2030 (London Atmospheric Emissions Inventory Workshop April 2016). Such reductions will outweigh any increases in traffic (and therefore emissions) associated with individual schemes. As residential receptors are sensitive receptors for annual average impacts, then any new residential development in the zone of influence is important to take into account.
Noise and Vibration	Exclude Residential and Use Class B8 uses during operation (however noise and vibration during construction will be considered), then discount schemes concluding 'no residual effect'.

EIA Discipline	Criteria and Justification
	<p>Where schemes result in no residual effects from a noise perspective, they are not considered to generate noise levels that would impact on surrounding receptors. Therefore, these schemes are not likely to provide a cumulative impact that needs to be assessed further. Residential uses and B8 storage and distribution are not considered to be industrial developments generating noise similar to REP and therefore these uses are not likely to lead to a cumulative impact.</p>
<p>Townscape and Visual Impact Assessment</p>	<p>Include all schemes within 0 to 2.5 km from REP stack. Include Energy Infrastructure of a minimum of 65 m in height between 2.5 to 5 km from REP stack.</p>
	<p>On the basis that the PEIR assessment identified moderately significant impacts to visual receptors within only 1 km of the REP site, and bearing in mind the regeneration areas within that inner assessment zone, it is considered that including all types of development up to 2.5 km from the stack is a proportionate, reasonable and robust approach, which captures the potential for likely significant cumulative effects.</p> <p>In addition, energy infrastructure schemes located in the outer assessment zone of 2.5 km – 5 km from the stack are included, specifically to consider the potential cumulative visual effects of additional large energy infrastructure stacks in the townscape. In this outer assessment zone, the townscape character is of a predominantly dense, residential settlement, with fewer areas of industrial scale development than in the inner zone of 2.5 km which surrounds the site. Therefore, it is considered that including only energy schemes in this zone is a proportional and reasonable approach to identify likely significant cumulative effects on people’s views and visual amenity at this distance from the site.</p>

EIA Discipline	Criteria and Justification
Historic Environment	Include all schemes within 0 to 2.5 km from the stack. Include Energy Infrastructure of a minimum of 65 m in height between 2.5 to 5 km from the stack.
	Justification - See text relating to Townscape and Visual Impact Assessment.
Terrestrial Biodiversity	Exclude schemes concluding 'no residual effect' to Biodiversity.
	Where other schemes have residual effects, even if these are not significant in isolation, there is potential for significant effects when considered cumulatively with REP. Where other schemes have no residual effects on ecological receptors, there would be no mechanism for significant effects when considered cumulatively with REP.
Hydrology, Flood Risk and Water Resources	Exclude schemes smaller than 1 hectare (ha) or schemes falling within Flood Zone 1.
	'Other Development' with a footprint larger than 1 ha has the potential to impact the local flood regime and thus would be considered cumulatively with REP. Additionally, only schemes located within an area at risk of flooding are considered to have the likelihood for significant cumulative effects upon Hydrology, Flood Risk and Water Resources.
Ground Conditions	Include if the scheme has potential to affect groundwater contamination, if the scheme is breaking ground or has it the potential to alter soil/groundwater conditions. Exclude 'change of use' applications and small scale residential uses/extensions.
	The threshold criteria were identified based on the 'source', 'pathway' & 'receptor' approach to assessing effects on ground conditions. The likelihood for a significant cumulative effect would only occur if 'Other Development' were considered to be a 'source' of impact, or introduce a new 'pathway' for impact to an identified receptor. Should 'Other Development' not fit this criteria, the likelihood for significant cumulative effects does not exist.

EIA Discipline	Criteria and Justification
Socio-economics	For assessment of the Labour Market, consider thermal energy generating NSIP developments. All schemes within ZOI to be considered for assessment of Community Infrastructure.
	No threshold was applied for the identification of cumulative developments within the community infrastructure ZOI, thereby allowing all construction projects within 3 km of the REP site, and with the potential to impact on the same local community infrastructure, to be considered. To assess wider cumulative labour market effects, similar energy generation proposals (50 MW+ thermal generation) across the 60-minute drive time catchment were also identified as relevant cumulative developments. This threshold was adopted to allow the assessment of cumulative labour market effects to focus on the availability of specialist staff within the 60-minute drive time catchment rather than the availability of general construction workers (for which there is a readily available supply).

4.10.13 The relevant planning authorities have been consulted on the list provided in **Appendix A.4** and **Figure 4.1**. The additionally requested schemes have been considered and are included within **Appendix A.4**. The methodology for the cumulative assessment was not questioned in consultation responses.

4.11 In-Combination Effects

4.11.1 Effects to the environment can result from incremental changes caused by interactions between effects resulting from an individual development. Direct and indirect effects of REP that have been assessed within the relevant topic chapters (**Chapters 6 to 14**), could lead to effects being reported in separate chapters but the in-combination effect on the same environmental receptor not being considered.

4.11.2 **Chapter 16** seeks to address this by considering where differing assessments have identified effects to common receptors.

4.12 Residual Effects

4.12.1 At the end of each topic chapter the residual likely significant effects arising from the Proposed Development are described. These are defined as effects which cannot be reduced to a 'not significant' level through the application of both embedded and/or further mitigation and therefore remain in place after mitigation has been incorporated.

4.13 Transboundary Effects

- 4.13.1 Regulation 32 of the Infrastructure EIA Regulations 2017 (Development with significant transboundary effects) applies where an ES is to be provided that, in the opinion of the Secretary of State, shows the development is likely to have significant effects on the environment in another European Economic Area (EEA) State.
- 4.13.2 When this is the case, the Secretary of State must consult with that EEA state and provide information on the description of the development, together with any available information on its possible significant effects on the environment in another EEA State, and information on the nature of the decision which may be taken.
- 4.13.3 Further information on the study area for each EIA discipline is included in each topic specific chapter. The study area identifies and justifies a spatial extent of areas within which the likelihood for significant effects exists. Considering the scope of identified study areas, transboundary effects arising from the Proposed Development are not anticipated to be likely and are therefore not considered further within this document.
- 4.13.4 A transboundary screening assessment was undertaken by PINS in May 2018, which concluded that on the basis of the information available at the time, the Proposed Development would not be likely to have a significant effect on the environment in another EEA State.

4.14 Water Framework Directive and Habitat Regulation Assessment

- 4.14.1 The Proposed Development has been scoped for compliance with the Water Framework Directive (WFD) through consultation with the EA and in accordance with the EA's latest 'Clearing the Water for All' guidance. A WFD Compliance Statement is included as **Appendix H.1** to **Chapter 12** of this ES.
- 4.14.2 Habitats Regulations Assessment (HRA) is a distinct process from EIA, being a requirement of The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations). The Proposed Development, as for the majority of projects considered under the NSIP regime, will require both EIA and HRA. The EIA assesses potential likely significant effects of the Proposed Development on European Sites within the study area of the Proposed Development. However, given the different requirements of the EIA and HRA processes, a separate HRA is provided for the Proposed Development which has run in parallel with the EIA. The HRA report (**Document Reference 6.5**) considers whether the Proposed Development, alone or in combination with other plans or projects, is likely to have an effect on a European designated site. The approach to the HRA follows Planning Inspectorate Advice Note 10 (November 2017, version 8) (AN10) and takes into account recent case law. The scope of the HRA has been determined through consultation with statutory consultees but will ultimately be confirmed by the Secretary of State, as the competent authority for the purposes of the Habitats Regulations.