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13.0 EFFECT INTERACTIONS

13.1 Introduction

13.1.1 This chapter of the Preliminary Environmental Information (PEI) Report provides an assessment of the potential for cumulative and combined effects to occur as a result of the Proposed Project. Cumulative and combined effects are defined as follows:

- cumulative effects are those that accrue over time and space from a number of development activities – the impact of the Proposed Project is considered in conjunction with the potential impacts from other projects or activities which are both reasonably foreseeable in terms of delivery (i.e. have planning consent or relevant applications which have been submitted and are in the planning system) and are located within a realistic geographical scope where environmental impacts could act together with the Proposed Project to create a more significant overall effect; and
- combined effects are those impacts that result from a single development (the Proposed Project) on any one receptor that may collectively cause a greater effect (such as the combined effects of noise and visual disturbance impacts during construction on birds).

13.1.2 The assessment presented in this chapter draws on the assessment of impacts provided in Chapters 7 to 12 of this PEI Report, and information in the public domain relating to other known developments within the Study Areas defined by these technical topics.

13.1.3 The cumulative impact assessment does not consider other developments that are already constructed and operating, as such existing developments are already accounted for in the baseline conditions established for the main assessments within Chapters 7 to 12 of this PEI Report.

13.1.4 As described in this PEI Report, full planning permission for the Slough Multifuel Facility with 50MW capacity at the Site was granted under the Town and Country Planning Act 1990 in June 2017 (hereafter referred to as the 'Consented Development'). The Proposed Project provides an opportunity to improve the efficiency of the Consented Development and increase the electrical output up to 60MW. As the effects of the Proposed Project are being assessed against the future baseline (that being the Consented Development), there are very limited effects of the Proposed Project (and only during construction). This in turn results in limited scope for cumulative effects. There are no new impacts attributed to the Proposed Project during operation and decommissioning that do not already occur from the Consented Development.

13.1.5 This chapter is supported by Figure 13.1 in PEI Report Volume 2 which shows the location of 'other developments'.

13.2 Legislation and Planning Policy Context

13.2.1 The requirement for cumulative and combined impact assessments is stated in the relevant European Directive and domestic legislation, as detailed:

- European Directive 2014/52/EU on the assessments of effects of certain public and private projects on the environment requires an assessment of “*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 project*”;
- Schedule 4 Part 5 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (‘the EIA Regulations’) requires: “*A description of the likely significant effects of the development on the environment resulting from, inter alia [...] (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*”. The EIA Regulations state that this description of likely significant effects “*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*”;
- paragraph 4.1.3 of the Overarching National Policy Statement (NPS) for Energy (EN-1) (Department for Energy and Climate Change, 2011) states that:

“In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the Infrastructure Planning Commission (IPC) should take into account:

 - its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and
 - its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.”;
- paragraph 4.2.5 of NPS EN-1 goes on to state that when considering cumulative effects, “*the ES should provide information on how the effects of the applicant’s proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence) [...]*”; and
- paragraph 4.2.6 of NPS EN-1 states that consideration should be given to “*how the accumulation of, and interrelationship between, effects might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place may also have other evidence before it, for example from appraisals of*

sustainability of relevant NPSs or development plans, on such effects and potential interactions”.

- paragraph 107 of the Planning Act 2008: Guidance on the pre-application process (Department for Communities and Local Government, 2015) states that:

“Applicants should consider the potential cumulative impacts on an area as a result of increasing development in the proposed area, as well as those developments which are:

- *in the process of being built;*
- *permitted application(s), but not yet implemented;*
- *submitted application(s) not yet determined;*
- *projects on the National Infrastructure’s programme of projects;*
- *identified in the relevant Local Plan (and emerging Local Plans -with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will 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.*

- Paragraph 108 of the Guidance (Department for Communities and Local Government, 2015) states *“It may not always be easy for applicants to assess potential impacts fully due to lack of available information. In such circumstances, applicants should take a pragmatic approach when determining what is feasible and reasonable. They should satisfy themselves that they have made all reasonable efforts to identify the main impacts and to include mitigation measures in their draft Order. As with the parameters for the Rochdale Envelope, applicants should fully explain their options to the Secretary of State as part of their application. National Policy Statements provide a useful overview of common impacts and ways of mitigating them”.*

13.2.2 The Site is located within the Slough Trading Estate, Simplified Planning Zone (‘SPZ’) Scheme (2014-2024). The SPZ is a specialised planning permission that applies across most of Slough Trading Estate. It sets out a range of conditions that have to be met in order that some types of development, mostly datacentres, warehouses and research and development centres, can be built without the need to apply for an individual planning permission. The SPZ allows developers on the estate to undertake demolition activities without prior notification and to build up to heights of 16m or 20-23m depending on the size of their site and the SPZ ‘Sub-Zone’ it is located within.

13.3 Assessment Methodology

Impact Assessment and Significance Criteria

- 13.3.1 This assessment aims to identify the potential for cumulative and combined effects expected to occur during the construction and operation (including maintenance) of the Proposed Project, and where possible, identify the possibility for significant effects.
- 13.3.2 Construction effects have been assessed assuming the Proposed Project starts construction in 2024.
- 13.3.3 The cumulative operational assessment considers the total effects of the Proposed Project and the other identified developments operating concurrently.
- 13.3.4 Cumulative effects during decommissioning of the Proposed Project are not considered as the Proposed Project must be decommissioned at the same time as the Consented Development and is not anticipated to lead to any change to the predicted impacts associated with the Consented Development.
- 13.3.5 There is no standard prescriptive method for assessing cumulative and combined effects and, in relation to cumulative effects, the extent to which the effects of other developments can be assessed quantitatively depends on the level of information available about the other developments. Such effects are, therefore, assessed by professional judgment, although matrices and modelling are used where appropriate and where enough information regarding the other developments exists. Where environmental assessment information regarding other developments is not available or uncertain, the assessment is necessarily qualitative.

Cumulative Effects Assessment Methodology

- 13.3.6 An initial screening exercise was undertaken to identify potential major developments within the vicinity of the Proposed Project for consideration within the cumulative impact assessment. This process identified major developments within a 1km radius to create an initial list for consideration; this radius was based on the maximum Study Area from any technical topics considered as part of the EIA process (which is 350m for dust) and extended to the nearest kilometre to identify any other developments which have the potential to influence conditions within this Study Area. This list was subsequently screened based on the criteria set by AECOM and shared for consideration with Slough Borough Council (SBC), which would define the other developments planned or consented.
- 13.3.7 Cumulative effects are assessed within each technical chapter. They take into account other developments that are:
- EIA or major developments within a 1km distance of the Proposed Project Site;
 - Other development which has criteria where cumulative effects may be considered to occur (e.g. if a neighbouring development within 1km has

construction works at the same time but it is not classified as EIA or major development); or

- Development which is undertaken in accordance with the Slough Trading Estate, Simplified Planning Zone ('SPZ') Scheme (2014-2024). The SPZ allows developers on the estate to undertake demolition activities without prior notification and to build up to heights of 16m or 20-23m depending on the size of their site and the SPZ 'Sub-Zone' it is located within.

13.3.8 The final ES will also consider cumulative effects with developments identified on relevant plans and programmes (i.e., identified on Local Plans) if any are expected to influence conditions within the Study Areas that have been assessed as part of the EIA, although it is noted that the available information on the environmental effects of the development of allocated land is expected to be very limited.

13.3.9 In determining the possible significance of cumulative effects, the location and timing of the identified other developments and their associated impacts/ effects have been taken into account wherever possible.

13.3.10 The cumulative effects assessment only considers those receptors that would experience a residual negative effect greater than negligible associated with the Proposed Project. For receptors where the Proposed Project's residual effects are deemed to be neutral/ negligible as reported in this PEI Report, it is considered that such receptors could not experience cumulative effects. This level of effect is not expected to have the potential to aggregate with impacts from other developments.

13.3.11 Following information gathering from available sources, the effects of the Proposed Project have been considered by each technical discipline in conjunction with the potential effects from the developments where there is potential that environmental impacts could act together to create an effect that is more (or less) significant overall than the effect of the individual developments alone.

13.3.12 In assessing cumulative effects, it is important to acknowledge the relative contributions the different developments make to a cumulative effect and to consider whether a cumulative effect could occur at all.

Study Area

13.3.13 Cumulative effects are generally unlikely to arise unless the other development sites are in close proximity to the Proposed Project, recognising that actual distance varies with the nature of the potential effect and the nature of the receptor, e.g., cumulative air quality effects could occur for developments a greater distance apart than noise effects. Construction projects are, as a matter of routine, required to employ regulatory and managerial controls and follow best practice to mitigate construction impacts wherever possible. Nevertheless, consideration has been given to the presence of common pathways from nearby developments to a single receptor, and whether there is potential for impacts of a sufficient magnitude whereby a particular receptor could experience cumulative effects.

- 13.3.14 The study area is defined by the specialist authors of each chapter, who have all adopted a precautionary approach in the definition of their own study areas to help ensure that all potentially significant effects (including cumulative effects) have been effectively identified. Information on the likely extent of impacts associated with other developments with potential to result in cumulative impacts in the area has also been considered.
- 13.3.15 The study area for each environmental assessment topic is defined in the relevant PEI Report technical chapters (Chapters 7 to 12). A summary of each environmental topic and its Study Area which is the area in which an impact is expected from the Proposed Project, is included below within Table 13.1.

Table 13.1 Study Area Summary Table

<i>Environmental Topic</i>	<i>Study Area</i>
Transport and Access	<p>The Study Area for transport and access is made up of several individual areas of the local road network where a potential impact or constraint has been identified. For this reason, a 'linear' or 'radial' set distance from the Site cannot be provided, however, the eight links within the transport statement study area include the roads surrounding the Site and the temporary car park, which includes the following:</p> <ul style="list-style-type: none"> • Edinburgh Avenue • Fairlie Road • A355 Farnham Road • Liverpool Road • Buckingham Avenue • Leigh Road • Burnham Lane • Whitby Road <p>Refer to Chapter 7: Transport and Access for more information.</p>
Air Quality	<p>The Study Area for the stack emissions from the operational development extends up to 15km from the Site.</p>

The Study Area for construction dust and Non-Road Mobile Machinery (NRMM) emissions has been applied, in line with IAQM guidance (IAQM, 2014), extending:

- up to 350m beyond the Site boundary and 50m from the construction traffic route (up to 500m from the Site entrances) for human health receptors; and
- up to 50m from the Site boundary and/or construction traffic route (up to 500m from the Site entrances) for ecological receptors.

Refer to Chapter 8: Air Quality for more information.

Noise and Vibration	<p>The construction noise Study Area includes an area within 300m of the Site.</p> <p>The construction traffic study area is defined as a distance of 50m from the kerb line of public roads.</p> <p>The operational noise Study Area includes receptors within 500m of the Site.</p> <p>Refer to Chapter 9: Noise and Vibration for more information.</p>
Ecology	<p>The Study Area for ecology includes :</p> <ul style="list-style-type: none"> • international statutory designated sites: 15km radius • national statutory designated sites for nature conservation within a 5km radius; • other statutory designated sites for nature conservation within a 2km radius; • all other habitats within a 1km radius; <p>Refer to Chapter 10: Ecology for more information.</p>
Climate	<p>The GHG Study Area is global and therefore not defined further. The assessment includes all GHG emissions from within the Site boundary arising during all stages of the construction, operation and decommissioning of the Proposed Project. It also includes emissions arising from offsite activities which are directly related to the onsite activities.</p>

The Study Area for the CCR review is the Proposed Project Site.

Refer to PEI Report Chapter 11: Climate for more information.

Flood Risk, Drainage and Surface Water (Chapter 12: Other Issues)	<p>The Study Area for the Flood Risk Assessment is the Proposed Project Site.</p> <p>Refer to PEI Report Volume 3, Appendix 12A for more information.</p>
Major Accidents and Disasters (Chapter 12: Other Issues)	<p>The Study Area for Major Accidents and Disasters is the Proposed Project Site.</p> <p>Refer to PEI Report Volume 3, Appendix 12A for more information.</p>

13.4 Consultation

- 13.4.1 As part of the PEI Report, consultation has been undertaken with public consultees through a two-staged consultation process, as described in Chapter 5: Consultation of this PEI Report.
- 13.4.2 A summary of comments raised in the EIA Scoping Opinion are presented in each of the technical chapters of this PEI Report. The Scoping Opinion is provided as Appendix 1B (refer to PEI Report Volume 3).

13.5 Combined Effects

- 13.5.1 The assessment of 'combined effects' considers the potential for several direct or indirect effects arising from the Proposed Project to give rise to an effect on a single receptor. The combination of such predicted environmental effects resulting from the Proposed Project may collectively cause a greater (or lesser) effect than each effect in isolation. The potential for combined effects is assessed within this section.
- 13.5.2 Table 13.2 identifies the potential for combined effects and assesses them in further detail with regard to the Proposed Project.

Table 13.2: Potential for Combined Effects

<i>Chapter</i>	<i>Summary of Conclusions</i>
Transport and Access	Construction Phase

The traffic flows are considered negligible for construction meaning no potential for in-combination effects.

Operational Phase

As there is no change relative to the Consented Development during operation for air, noise or traffic, there is no potential for in-combination effects in relation to the operational phase of the Proposed Project.

Decommissioning Phase

Decommissioning will be undertaken in accordance with the decommissioning of the Consented Development and will lead to no change relative to the Consented Development.

Air Quality

Construction Phase

The construction phase is expected to lead to negligible residual effects on air quality during construction and decommissioning, as reported in *Chapter 8: Air Quality*. There is not anticipated to be the potential for combined effects from air quality, therefore.

Operational Phase

The implementation of BAT will minimise emissions to air during operation and is predicted to lead to no change to air quality relative to the Consented Development. There is therefore no potential for in-combination effects.

Decommissioning Phase

Decommissioning will be undertaken in accordance with the decommissioning of the Consented Development and will lead to no change relative to the Consented Development.

Noise and Vibration

Construction Phase

The construction phase is expected to lead to no significant effects during construction and decommissioning, and a negligible effect with respect to construction traffic noise. No significant noise effects are anticipated at local receptors which would have the potential for a combined effect.

Operational Phase

There is no net change relative to the Consented Development and therefore no combined effects are anticipated with noise during the operational phase in relation to the Proposed Project.

Decommissioning Phase

Decommissioning will be undertaken in accordance with the decommissioning of the Consented Development and will lead to no change relative to the Consented Development.

Ecology	<i>Construction, Operational and Decommissioning Phase</i> Following implementation of mitigation measures, including the mitigation measures established for the Consented Development for biodiversity, all impacts are negligible or minor beneficial with regards to ecology. This, along with the mitigation measures established for noise and air quality, is not expected to lead to the potential for any combined effects on ecological receptors.
Climate	There are no in-combination effects from climate change. This is due to the fact that the receptor is uniquely the climate and is only affected by Green House Gases (GHGs). Not applicable.
Flood Risk, Drainage and Surface Water (<i>Chapter 12: Other Issues</i>)	<i>Construction, Operational and Decommissioning Phase</i> There is no potential for combined effects from flood risk, drainage and surface water as there is no net change relative to the Consented Development and therefore no combined effects anticipated in relation to the Proposed Project.
Major Accidents and Disasters (<i>Chapter 12: Other Issues</i>)	<i>Construction, Operational and Decommissioning Phase</i> There is no net change relative to the Consented Development in relation to the risk and threat of major accidents occurring or potential vulnerability to natural disasters.

- 13.5.3 Following implementation of the CEMP, CTMP, in-built design measures, good industry practice measures, embedded and additional mitigation measures, no significant adverse combined effects are anticipated.

13.6 Cumulative Effects

- 13.6.1 The list of developments considered within the screening exercise are presented in *Chapter 6: Environmental Impact Assessment Methodology*.
- 13.6.2 The Proposed Project will have no effect on the environment relative to the Consented Development, except for construction traffic, which is considered to lead to a negligible adverse effect due to a small number of extra road trips. As indicated in paragraph 13.3.10 above, there are no cumulative effects because there are no effects of the Proposed Project greater than negligible (and the cumulative effects assessment only considers those receptors that would experience a residual negative effect greater than negligible associated with the Proposed Project). There is therefore no potential for cumulative effects to occur when considering the Proposed Project alongside other nearby developments. There are therefore no significant cumulative effects.

13.7 Limitations

- 13.7.1 The list of cumulative schemes considered in the EIA will be refreshed prior to completion of the ES, to check for any changes in the status of schemes presented in this PEI Report or new schemes not currently known about.

13.8 Conclusions

- 13.8.1 The assessment of in-combination effects has considered the potential for combined direct or indirect effects arising from the Proposed Project to give rise to an effect on a single receptor. The assessment has also considered cumulative effects of a number of proposed developments within the vicinity of the Proposed Project and the potential for cumulative impacts to arise from one or several of the other developments, together with the Proposed Project.
- 13.8.2 Through consideration of the information currently available, it has been concluded there is no potential for significant cumulative effects or in-combination effects.