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6.0 ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

6.1 Introduction

- 6.1.1 This Preliminary Environmental Information Report (PEI Report) has been prepared to satisfy the requirements of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) ('the EIA Regulations') in relation to the proposed Development Consent Order (DCO) application (the Application).
- 6.1.2 In preparing this PEI Report, reference has been made to the following guidance and advice:
- Planning Act 2008: Guidance on the pre-application process for major infrastructure projects (Ministry of Housing, Communities and Local Government, 2015);
 - Advice Note Three: EIA Consultation and Notification (Planning Inspectorate PINS), 2017a);
 - Advice Note Seven: Environmental Impact Assessment, Preliminary Environmental Information, Screening and Scoping (PINS, 2020a);
 - Advice Note Nine: Rochdale Envelope (PINS, 2018);
 - Advice Note Ten: Habitats Regulations Assessment (PINS, 2017b);
 - Advice Note Twelve: Transboundary Impacts (PINS, 2020b);
 - Advice Note Seventeen: Cumulative Effects Assessment relevant to nationally significant infrastructure projects (PINS, 2019); and
 - Advice Note Eighteen: The Water Framework Directive (PINS, 2017c).
- 6.1.3 Reference has also been made to the Scoping Opinion received from the Secretary of State (SoS) on 22nd December 2021 (Refer to Appendix 1B in PEI Report Volume 3) and the advice contained within it regarding assessment methodology, topics and presentation of the final ES.
- 6.1.4 In response to the Scoping Opinion, the EIA and this PEI Report include assessments of the following environmental topics:
- Chapter 7: Transport and Access;
 - Chapter 8: Air Quality;
 - Chapter 9: Noise and Vibration;
 - Chapter 10: Ecology;
 - Chapter 11: Climate Change;
 - Chapter 12: Other Issues Topics

- Flood Risk, Drainage and Surface Water;
- Major Accidents and Disasters; and
- Chapter 13: Effect Interactions

6.1.5 As requested in the Scoping Opinion the final ES will consider the following:

- Visible Plume - The Inspectorate advise that the ES should demonstrate that the *“increased operational hours would not result in visible plume effects beyond those assessed as part of the consented scheme which could be significant”*; and
- Operational Waste.

6.1.6 The Scoping Opinion (Appendix 1B PEI Report Volume 3) advised that a number of topics did not need to be considered as part of the EIA accompanying the Application for the extension of the Slough Multifuel Facility (hereafter referred to as the ‘Proposed Project’) and could be scoped out. These topics and, where relevant, the response in the Scoping Opinion are described below in this chapter.

6.1.7 With regard the comment at section 6.1.5 above in relation to the Scoping Opinion statement that the Inspectorate advise that the ES should demonstrate that the *“increased operational hours would not result in visible plume effects...”*. It is important to note that the hours of operation for the Proposed Project will be the same as those of the Consented Development - the Proposed Project will not lead to an increase in operational hours.

6.1.8 The Operational Phase Hours of Operation is explained in Section 2.5.5 of this PEI Report which states that *‘It is expected that the Proposed Development will operate for approximately 8,000 hours per annum (to allow for offline periods for maintenance), which is as per the Consented Development. However, for the purpose of the PEI Report, assessments have been undertaken on the basis of the Proposed Project operating continually, for twenty-four hours per day, seven days a week) i.e., for a total of 8,760 hours per annum) so that a “worst case scenario” has been assessed. This again is as per the assessments for the Consented Development. The Proposed Project will not lead to an increase in operational hours.’*

6.2 Scoped Out Topics

6.2.1 The EIA Scoping Report (Refer to Appendix 1A in PEI Report Volume 3) and subsequent EIA Scoping Opinion (Refer to Appendix 1B in PEI Report Volume 3) concluded that 6 specific topics did not need to be considered as part of the EIA for the Proposed Project and could be scoped out. These topics, and the reasons for them being scoped out, are considered below.

Aviation

6.2.2 The existing SHP cooling tower stacks are approximately 49m in height and the existing north stack located adjacent to Edinburgh Avenue is 104m, which has

lighting at the top for aviation purposes. The engineering works comprising the Proposed Project will for the most part be internal to the buildings of the Consented Development, with no change to the size of the building envelope or stack from beyond that already approved under the Consented Development. Where a new pipe external to the building envelope is required, this connects two buildings and is below the height of the building roofline.

- 6.2.3 The Inspectorate recognises in the Scoping Opinion (Refer to Appendix 1B in PEI Report Volume 3) that all structures of the Consented Development (the height and size of which will not be exceeded by the Proposed Project) will be less than the height of the existing 'north stack' and that no aviation safeguarding objections were raised as part of the Consented Development. The Inspectorate advises in the Scoping Opinion that Aviation can be scoped out of the ES.
- 6.2.4 The Inspectorate also advised that the ES should demonstrate that the Proposed Project "increased operational hours would not result in visible plume effects beyond those assessed as part of the consented scheme which could be significant". There is no change to operational hours proposed. Due to the nature of the Proposed Project, which will increase the efficiency of the Consented Development through recovering more heat in the process, which in turn requires less cooling which should reduce the visible plume from the Site. The Proposed Project is therefore not predicted to worsen the visible plume.

Cultural Heritage

- 6.2.5 The Proposed Project will not involve any breaking of ground or underground works, and therefore has no potential to affect buried archaeology. There will be no change to the building envelope or height of the Consented Development. Furthermore, the Proposed Project is situated within an already established urban industrial estate.
- 6.2.6 The Inspectorate agrees in the Scoping Opinion that this aspect can be scoped out of the ES on the basis of:
- The limited extent of external engineering works that comprise the Proposed Project, in the context of the Consented Development; and
 - The lack of any below ground interventions required for the engineering works that comprise the Proposed Project.
- 6.2.7 The Inspectorate also notes that the ES prepared for the Consented Development concluded that there were no significant residual effects in terms of cultural heritage and archaeology and that no specific mitigation measures were proposed in reaching this conclusion. On this basis it is considered that no assessment of Cultural Heritage is required in the EIA.

Landscape and Visual Amenity

- 6.2.8 On the basis of the limited extent of external works associated with the Proposed Project, as well as its setting within an existing and long established industrial

estate in a built up urban area, the Inspectorate agrees in the Scoping Opinion that this aspect can be scoped out of the ES.

- 6.2.9 It is acknowledged by the Inspectorate in the Scoping Opinion that the ES prepared for the Consented Development included embedded mitigation as part of the design to minimise landscape and visual effects. The ES for the Consented Development concluded that there were no significant landscape effects during construction or operation. The Proposed Project is almost hidden from all sides at ground level and is a negligible change in appearance to the context of the Consented Development. On this basis it is considered that no assessment of Landscape and Visual Amenity is required in the EIA.
- 6.2.10 The Scoping Opinion does state that the ES should demonstrate that the “increased operational hours would not result in visible plume effects beyond those assessed as part of the consented scheme which could be significant”. As mentioned above, there is no proposed change to operational hours and the Proposed Project should reduce the frequency and extent of the visible plume and is not expected to increase it.

Telecommunications

- 6.2.11 The introduction of new structures of significant height and bulk into an environment can cause disruption to the reception of electromagnetic waves. The Consented Development assessed the potential effects on digital terrestrial and satellite television reception associated with the works involved and concluded that there were no significant adverse effects and negligible residual effects.
- 6.2.12 The height and the scale of the Consented Development remains unaltered by the Proposed Project and will not lead to any significant increase in construction and therefore associated temporary structures such as cranes and scaffolding, over and above that of the existing Consented Development. On this basis the Inspectorate advised in the Scoping Opinion that this aspect can be scoped out of the ES.
- 6.2.13 It is therefore considered that no assessment of Telecommunications is required in the EIA.

Ground Conditions

- 6.2.14 The works associated with the Proposed Project will involve mechanical modification and physical works to the Consented Development, including construction of heat exchanger bundles, pipework, valves, pipe supports, thermal insulation, instrumentation, and cabling and containment, to increase the thermal efficiency of the generating station. The Consented Development building envelope and architecture will remain unchanged. On the basis that no additional ground disturbance is anticipated as part of the Proposed Project the Inspectorate agrees with the Scoping Report that significant effects on ground conditions are unlikely and this aspect can be scoped out of the ES.

6.2.15 The environmental design and management measures indicated in the 2014 ES will remain valid for the works associated with the Proposed Project. The Inspectorate advised that the description of the Proposed Project should provide details regarding measures that are relied on to exclude significant effects on ground conditions. This is included in ES Chapter 2: The Existing CEMP for the Consented Development included in Appendix 2A (refer to PEI Report Volume 3).

Waste – Construction Phase

6.2.16 The Proposed Project will not lead to any significant increase in construction waste over and above that from the existing Consented Development.

6.2.17 The existing approved CEMP includes water generation, segregation, and disposal in accordance with the waste hierarchy with references to compliance with the Hazardous Waste Regulations 2005 (as amended) and the Waste (England and Wales) Regulation 2011. The existing CEMP which describes the mitigation measures relevant to, and to be followed by, the Consented Development will be directly applicable to the Proposed Project

6.2.18 The Inspectorate agrees in the Scoping Opinion that significant effects from waste during construction of the Proposed Project are unlikely to occur beyond those associated with the Consented Development and that this aspect can be scoped out of the ES.

6.2.19 There will be no change to the consented throughput of waste fuel during the operational phase attributed to the Proposed Project, and therefore no change to the quantity of waste product. This phase can therefore also be scoped out.

Human Health

6.2.20 The Inspectorate has advised that it is satisfied that matters relating to Air Quality and Noise and Vibration need not be duplicated / presented in a separate health aspect chapter, but these separate assessments should draw together the outcomes in terms of significance of effects and risks to health in accordance with Schedule 4 of the EIA Regulations.

6.2.21 At the time of the submission of the Scoping Report for the Proposed Project there was not enough assessment evidence available that air pollution or noise and vibration would not increase and therefore it could not be agreed at that stage a Human Health Risk Assessment (HHRA) could be scoped out. The air quality assessment and the noise and vibration assessment undertaken for the PEI Report now demonstrate no net change from the Consented Development.

6.2.22 On that basis a dedicated Human Health chapter is scoped out and the issues of human health will be addressed within the relevant technical topics to be submitted in the ES.

Socio Economics

- 6.2.23 Whilst there will be some minimal changes to employment through the additional 20 staff for two months during construction, there are no changes to operational staff numbers (over those proposed for the Consented Development), and the Proposed Project is not anticipated to have any significant socio-economic effects. The Inspectorate advises that socio-economic effects of the engineering works that comprise the Proposed Project are unlikely to be significant.
- 6.2.24 On this basis it is considered that no assessment of Socio Economics is required in the ES.

6.3 Preliminary Environmental Information Report (PEI Report)

- 6.3.1 This PEI Report presents a description of the Proposed Project and its likely significant environmental effects on the environment during construction, operation (including maintenance where relevant), and decommissioning based on the preliminary environmental information available at the time. It also details measures to avoid or reduce such effects and the alternatives considered.
- 6.3.2 This PEI Report includes a summary of the following activities in a level of detail considered sufficient to inform consultees for the purposes of the consultation and based on the information available:
- a description of the baseline conditions;
 - consultation with statutory and non-statutory consultees;
 - consideration of relevant local, regional and national planning policies, guidelines;
 - adherence to legislation relevant to EIA;
 - consideration of technical standards for the development of significance criteria;
 - application of specialist assessment methodologies;
 - design review;
 - review of secondary information, previous environmental studies, publicly available information and databases;
 - expert opinion;
 - physical surveys and monitoring;
 - desk-top studies;
 - modelling and calculations; and
 - reference to current guidance.

- 6.3.3 These activities enable the prediction of impacts in relation to the baseline, and a prediction based on the information available of the likely significance of effects on environmental receptors.
- 6.3.4 The term ‘impact’ refers to changes arising from the Proposed Project, whereas the term ‘effect’ is used to describe the result of the impact on a receptor.
- 6.3.5 The technical chapters within this PEI Report (Chapters 7-12) each follow the same structure for ease of reference, which is:
- Introduction;
 - Legislation and Planning Policy Context;
 - Assessment Assumptions and Limitations;
 - Assessment Methodology;
 - Stakeholder Engagement;
 - Baseline Conditions;
 - Embedded Design Mitigation;
 - Assessment of Likely Impacts and Effects;
 - Additional Mitigation and Enhancement Measures;
 - Residual Effects and Conclusions;
 - Cumulative Effects; and
 - References.

6.4 Study Areas: Spatial Scope of Assessment

- 6.4.1 The technical assessment chapters (Chapter 7-12) of this PEI Report describe as necessary their spatial scope including their rationale for determining the specific area within which the assessment is focused. The study areas are a function of the nature of the impacts and the locations of potentially affected environmental resources or receptors.

6.5 Baseline Conditions

- 6.5.1 In order to assess the potential impacts and effects of the Proposed Project, it is necessary to determine the environmental conditions that would exist on the Site and in the surrounding area without the Proposed Project, for comparison. This is referred to as the ‘future baseline’. The future baseline includes the Consented Development which is under construction (the Proposed Project could not be brought forward without the Consented Development).

- 6.5.2 In order to determine the future baseline, it is important in some cases, such as air quality, to first establish the present-day, existing environmental conditions (referred to as the 'existing baseline'). The 'existing baseline' conditions and 'future baseline' are determined using the results of site surveys and investigations or desk-based data searches, or a combination of these, as appropriate.
- 6.5.3 The assessments will present the predicted net change associated with the Proposed Project relative to the future baseline, to establish the 'effect'. In some cases, the future baseline with the Consented Development may be more favourable than was predicted in the ES for the Consented Development, which is in line with the approach for EIA, was based on maximum parameters and worst case scenarios. The future baseline against which the Proposed Project has been assessed is based on the detailed design for the Consented Development and as-built specifications, which therefore may give rise to better, more favourable environmental impacts than predicted in the ES for the Consented Development.
- 6.5.4 The assessment scenarios that have been considered for the purposes of the EIA (and considered in this PEI Report unless noted in the specific topic chapter) are as follows:
- **Future baseline scenario** – A future date when the Consented Development is built (in 2024) and with its theoretical operation (based on the detailed design);
 - **Construction scenario for the Proposed Project** – The assessment of the Proposed Project works, which are expected to last two months duration and will likely be in parallel with the construction of the Consented Development. It is not expected that there would be any change to the construction duration for the Consented Development. This is anticipated to happen in Q1 2024. The technical chapters do also consider the implications of a slight delay, in the unlikely event that the 2-month construction period run sequential to or slightly after the construction of Consented Development is completed;
 - **Operational scenario with the Proposed Project** – The assessment of the incremental change associated with the Proposed Project for comparison with the Future baseline scenario in 2024, i.e., the assessment of any operational changes relative to the Consented Development; and
 - **Decommissioning scenario** – Assessment of the decommissioning of the Proposed Project at the end of its operational life, which will occur at the same time as the Consented Development. The Proposed Project cannot be commissioned earlier or later than the Consented Development, as it will become integral to the operation of the facility.

6.6 Development Design, Impact Avoidance and Mitigation

- 6.6.1 Measures that have been integrated into the Proposed Project in order to avoid or reduce adverse environmental effects will be described. Such measures may include design and layout of the Proposed Project to avoid impacts on sensitive receptors, implementation of Environmental Management Plans, and adherence to relevant legislation, guidance and best practice.
- 6.6.2 The assessment of impacts and effects has been undertaken on the basis of these measures being implemented (i.e., they are 'embedded mitigation'). As advised in the Scoping Opinion with regard to 'Mitigation' the description of mitigation measures will clearly define those that are already implemented as part of the Consented Development and those that are additional / supplement such measures or control plans including provision of clarity regarding any new or different measures required in relation to the Proposed Project.
- 6.6.3 Key aspects relating to the reasonable alternatives are described in Chapter 3: Alternatives of the PEI Report.
- 6.6.4 Once the likely effects have been identified and quantified, consideration has then been given to any additional mitigation that may be required to mitigate any significant adverse effects identified. These measures are described in the Mitigation and Enhancement Measures sections of each technical chapter. The residual effects (after the implementation of additional mitigation) are then assessed and presented at the end of each technical chapter. Significant residual effects are also summarised in Chapter 14: Summary of Environmental Effects.

6.7 Impact Assessment Methodology and Significance Criteria

- 6.7.1 Impacts are defined as changes arising from the Proposed Project, and consideration of the result of these impacts on environmental receptors enables the identification of associated effects, and their classification (major, moderate, minor and negligible, and adverse, neutral or beneficial). Each effect has been classified both before and after additional/secondary mitigation measures have been applied.
- 6.7.2 The classification of effects is undertaken with due regard to the following:
- extent (local, regional or national) and magnitude of the impact;
 - effect duration (whether short, medium or long-term);
 - effect nature (whether direct or indirect, reversible or irreversible);
 - whether the effects occur in isolation, are cumulative or interactive;
 - performance against environmental quality standards and in the context of relevant legislation, standards and accepted criteria;
 - sensitivity of receptors;

- for some effects, the number of receptors affected;
- compatibility with environmental policies; and
- professional experience and judgment of the assessor.

6.7.3 Further details are provided in each technical assessment chapter where appropriate.

6.7.4 Where it has not been possible to quantify (quantitatively assess) effects, qualitative assessments have been carried out, based on available knowledge and professional judgment. Where any uncertainty exists, this has been noted as limitations to the assessment within the relevant technical chapter.

6.7.5 To enable comparison between technical topics and aid understanding within the PEI Report, standard terms are used wherever possible to classify potential effects (major, moderate, minor and negligible), and effects are also described as being adverse, neutral or beneficial.

6.7.6 Definitions of the standard terms are provided below:

- negligible – imperceptible effect to an environmental resource or receptor;
- minor – slight, very short or highly localised effect;
- moderate – limited effect (by extent, duration or magnitude);
- major – considerable effect (by extent, duration or magnitude) of more than local scale or in breach of recognised acceptability, legislation, policy or standards;
- adverse – detrimental or negative effects to an environmental resource or receptor;
- neutral – effects to an environmental resource or receptor that are neither advantageous or detrimental; and
- beneficial – advantageous or positive effect to an environmental resource or receptor.

6.7.7 Moderate and major effects are generally considered to be ‘significant’ for the purposes of the EIA Regulations, in accordance with standard EIA practice.

6.7.8 Each of the technical chapters provides further description and definition of the assessment criteria relevant to each topic. Where possible, this has been based upon quantitative and accepted criteria (for example, British Standards), together with the use of value judgment and expert interpretation to classify effects.

6.7.9 In general, the classification of an effect is based on the magnitude of the impact and sensitivity or importance of the receptor. An example of how impacts are assessed is shown using the matrix in Table 6.1 below. Where there are deviations away from this matrix (due to the technical guidance for a specific assessment topic), this is highlighted within the relevant technical chapter and the reason for the variation explained.

Table 6.1: Classification of Effects

<i>MAGNITUDE OF IMPACT</i>	<i>SENSITIVITY/IMPORTANCE OF RECEPTOR</i>			
	<i>HIGH</i>	<i>MEDIUM</i>	<i>LOW</i>	<i>VERY LOW</i>
HIGH	Major	Major	Moderate	Minor
MEDIUM	Major	Moderate	Minor	Negligible
LOW	Moderate	Minor	Negligible	Negligible
VERY LOW	Minor	Negligible	Negligible	Negligible

6.7.10 Short term effects are considered to be those associated with the construction phase and which cease when construction works are completed; long term effects are those associated with the completed, operational development and which will last for the duration of the operational phase. Effects may also be permanent (irreversible) or temporary (reversible) and direct or indirect.

6.8 Cumulative and Combined Effects

- 6.8.1 In accordance with the EIA Regulations, consideration is given to the potential for cumulative and combined effects to arise as a result of the Proposed Project.
- 6.8.2 Cumulative effects are those that accrue over time and space from a number of development activities. The impact of the Proposed Project will be considered in conjunction with the potential impacts from other projects or activities which are reasonably foreseeable in terms of delivery (i.e. have been submitted but not yet approved or have planning consent), located within a geographical scope where environmental impacts could act together to create a more significant overall effect on a receptor and where sufficient environmental information is available.
- 6.8.3 Combined effects are those resulting from a single development, in this case the 'Proposed Project', on any one receptor that may collectively cause a greater effect (e.g combined effects of noise and air quality/ dust impacts during construction on local residents).
- 6.8.4 Cumulative effects are assessed within each technical chapter. This takes into account other developments that are:
- EIA or major developments within a 1km distance of the Proposed Project Site;
 - Other development which have 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 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.

6.8.5 Cumulative and combined effects are summarised and discussed in Chapter 13: Effect Interactions, of this PEI Report.

6.8.6 The Proposed Project is not located within close proximity to a European Economic Area (EEA) state or non-EEA state and as such environmental effects are not apparent in any EEA or non-EEA states other than the United Kingdom. In addition, the environmental effects resulting from the construction and operation of the Proposed Project will only be apparent within and immediately beyond the Proposed Project boundary. Therefore, there will be no transboundary effects.

6.9 References

Planning Inspectorate (2017a) Advice Note Three: EIA Notification and Consultation, Version 7, August 2017

Planning Inspectorate (2017b) Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements, Version 6, December 2017

Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope, Version 3, July 2018

Planning Inspectorate (2019) Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects, Version 2, August 2019

HM Government (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017 No. 572).

The Hazardous Waste (England and Wales) Regulations 2005.