Written Representation (WR)

UKWIN'S WRITTEN REPRESENTATION

Proposed Development:
Medworth EfW CHP

Proposed Location:
Land on the Algores Way Industrial Estate to the west of Algores Way in Wisbech, Fenland, Cambridge

Applicant:
Medworth CHP Limited

Planning Inspectorate Ref:
EN010110

Registration Identification Ref:
20032985

MARCH 2023

United Kingdom Without Incineration Network

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SUMMARY

This submission explores the Examining Authority's (ExA's) Principal Issues of climate change and planning policy (including the need for the proposed development).

In RR-055 UKWIN raised concerns about the inadequacy of the Applicant's climate change assessment. UKWIN noted that the proposal was inconsistent with industry good practice and how such good practice was set out in UKWIN's July 2021 Good Practice Guidance for Assessing the GHG Impacts of Waste Incineration (which is included within REP1-096).

In response to UKWIN's criticisms, the Applicant stated in REP1-029 (electronic pages 278-279) that: "…The approach to quantifying GHG emissions from the construction, operation and decommissioning of the Proposed Development has been undertaken in line with the latest IEMA guidance for assessing GHG emissions and the infrastructure life-cycle modules set out in PAS 2080: Carbon Management Infrastructure. Assumptions remain in line with published material and the guidance documents…"

Having undertaken an evaluation of the Applicant's GHG assessment against the IEMA guidance and against PAS 2080 there are numerous inconsistencies between the Applicant's approach to GHG assessment and the guidance set out in those documents.

The Applicant's approach fails to conform to the IEMA Guidance on mitigation and the associated practitioners' guidance on the GHG Mitigation Hierarchy in the IEMA Guidance. For example, the Applicant's climate assessment fails to adequately consider "UK grid decarbonisation projection scenarios" as set out on page 18 of the IEMA guidance.

PAS 2080's general principles of 'relevance' and 'completeness' are adapted from PAS 2050:2011 and its principles of 'consistency' and 'accuracy' are adapted from GHG Protocol 2009. As such, a finding that the GHG assessment goes against those principles is also indicative that it goes against the associated principles set out in the respective standards/protocols from which they were adapted. Thus, the Applicant's failure to follow industry best practice clearly cannot be excused by reference to those documents.

The Applicant's failure to consider better ways that the waste could reasonably be managed throughout the lifetime of the proposed Medworth plant means that they are not comparing their development against a baseline which constitutes a "realistic worst-case" within the context of showing how the proposed development might have an adverse impact or that the significance of any claimed carbon saving should be given less weight because similar or better savings could be achieved through other means.

UKWIN asked the Applicant to elaborate upon the information provided in APP-041 electronic page 47 Graphic 14.2 Medworth Firing Capacity Diagram by clarifying the relationship between the average net calorific value (NCV) of the feedstock, how much of that feedstock the plant would require if operating for 8,000 hours per year, and how much MW and MWH/yr would be produced for a range of potential NCVs. As this information has yet to be provided, concerns regarding the degree of consistency, transparency, and accuracy of the Applicant's GHG assessment remain.

The Applicant's core case and sensitivity analysis are flawed and cannot be relied upon to ascertain with any great certainty the likely net climate impacts of sending the feedstock to either the Medworth incinerator or to landfill, and cannot therefore be used to ascertain the relative net climate change impacts of these two options, let alone ascertain the relative net climate change impacts of the proposal when compared with other potential fates for the feedstock throughout the lifetime of the proposed facility.

Uncertainties regarding the claimed climate change benefits of the proposal mean that these claimed benefits should be given little or no weight in the planning balance.

The proposed Medworth incineration capacity would result in both local and national incineration overcapacity, imperilling the achievement of local and national ambitions to increase recycling and reduce residual waste arisings, in contravention of EN-1 (2011), EN-3 (2011), EN-1 (2021) and EN-3 (2021) and other Government policy statements, including the statement made by Defra on 11th July 2022 and the policies that emphasise the importance of moving away from incineration and towards a more circular economy as set out in the December 2018 Resources and Waste Strategy and the January 2023 Environmental Improvement Plan (EIP).

Incineration is considered a 'leakage' from the circular economy because it results in the loss of materials and nutrients from their original cycles. Anticipated reductions in residual waste arising, for example, are expected to free up capacity at existing incinerators (including those currently under construction or in commissioning). This undermines the justification put forward by the Applicant for their proposed new capacity.

If it is concluded that this proposal could plausibly result in creating or exacerbating local, regional or national overcapacity, then consenting the capacity would, directly or indirectly, also be likely to undermine recycling and waste reduction efforts.

The proposal would be likely to use feedstock that could otherwise have been recycled, composted, or sent to existing incinerators. This undermines the Applicant's assessment of alternatives because the Applicant's assessment has not adequately considered those alternative options.

With respect to the range of relevant policies of Local Development Plans, the overcapacity that would result from the proposal would go against the ambitions set out in various Local Development Plan strategies across the affected areas, undermining ambitions in relation to recycling, self-sufficiency, and the proximity principle.

When considering the Applicant's WFAA Study Area, the 625,600 tonnes of new waste incineration capacity proposed for Medworth could be expected to result in overcapacity of around 921,000 tonnes in 2027 and around 4,774,000 tonnes by 2042.

And when considering the whole of England, the 625,600 tonnes of new waste incineration capacity proposed for Medworth could be expected to result in overcapacity of more than 3.3 million tonnes in 2027 and more than 10.7 million tonnes by 2042.

In light of existing and emerging Government policies, the overcapacity arguments constitute a robust reason for refusal. Indeed, such a refusal would align with Government statements on the need to avoid incineration overcapacity and the precedent set established by the Wheelabrator Kemsley North refusal, which took into account how that incinerator proposal was expected to divert from recycling and not simply from landfill despite the Applicant's claim that it was only intended to treat non-recyclable waste.

INTRODUCTION

1. The United Kingdom Without Incineration Network (UKWIN) is a network of anti-incineration campaigners and campaign groups founded in 2007 that acts as an environmental non-governmental organisation (NGO) to promote sustainable waste management.
2. Below we set out our Written Representation, which should be read in conjunction with the evidence submitted at Deadline 1 and the further evidence we are submitting at Deadline 2.

INITIAL COMMENTS ON NEW DATA

3. Whilst time has not allowed us to undertake a detailed review of the material that was sent to UKWIN late in the day on Friday 24th March (the day of Deadline 2), our initial assessment indicates that the Applicant has still not provided UKWIN (or the Examination) with the climate change spreadsheets requested by UKWIN at Deadline 1.

4. What was provided appears to constitute 'output' data and a disconnected list of sources and assumptions rather than spreadsheets with formulas that would enable a user to carry out sensitivity analysis or to confirm that that the various calculations made are either mathematically correct or methodologically sound.

5. No formulas were provided to show how the Applicant goes from their inputs to their outputs. Whilst in some cases the relationship between inputs and outputs is obvious, in others it appears that there simply are no connections between the two or that there must be unstated assumptions or inputs.

6. For example, the Applicant's spreadsheets neither addresses nor explains the discrepancy between their APP-088 electronic page 33 statement that "The EfW CHP Facility is designed to maintain a constant fuel thermal input capacity" and their compositional analysis which appears assume that in electricity-only mode a wide variety of NCV inputs (with fixed 8,000 hours of operational per annum and the volume 625,600 tonnes of waste feedstock) all result in the same 55 MWh net electricity generation output. The varying NCV inputs of 9.53, 9.50 and 8.85 do not seem to have any impact on the outputs, which raises questions on what the methodology can apparently arrive at an output of 55MW for such a wide array of inputs.

7. As such, we maintain our Deadline 1 request for an electronic copy of the climate change modelling data spreadsheet(s), as per APP-041 and APP-088, including both the central case modelled and the various sensitivities be provided in a manner so that we can: (a) see the full details about how the various results were derived from the source data, and the various assumptions and modelling processes used; and (b) assess the outcome of adopting additional/alternative sensitivity scenarios to evaluate the impact of adopting different assumptions and (c) receive further elaboration of the implications of the Medworth Firing Capacity Diagram with regard to the link between NCV/thermal input and MW/MWh output.

8. Whilst the remainder of UKWIN's submission was written prior to the aforementioned last-minute response from the Applicant, in light of our initial analysis of the response we believe that there is no need for us to seek a delay to allow us to amend our Written Representation because the Applicant's response does not impact on the substance of UKWIN's case.

CLIMATE CHANGE

9. This section focuses on Principal Issue 9 (Climate change).

10. As noted by UKWIN on paragraph 10 of REP1-096, on the 13th of February 2023 UKWIN wrote to the Applicant to request an electronic copy of the climate change modelling data spreadsheet(s) so that we could:

a) see the full details about how the various results were derived from the source data, and the various assumptions and modelling processes used; and

b) assess the outcome of adopting additional/alternative sensitivity scenarios to evaluate the impact on the conclusion of the report of adopting different assumptions.

11. While the Applicant responded on the 13th of February that "We acknowledge receipt of this and shall respond in due course" and on the 17th of February that "Your request has been passed to our technical team to review" UKWIN has yet to receive this information, nor have we been given any indication of when it might be available despite having prompted the Applicant on 18th February, 14th and 20th of March for a more substantive response.

12. We hope that the Applicant will provide this information soon so that UKWIN can consider the information as part of our Deadline 3 submission (alongside our consideration of the Applicant's promised revised Waste Fuel Availability Assessment) to feed into the considerations at any relevant Issue Specific Hearings on Environmental Matters.

13. UKWIN's comments below focus primarily on APP-041 and APP-088 which are the Applicant's Climate Chapter and associated appendices.

14. In RR-055 UKWIN raised concerns about the inadequacy of the Applicant's climate change assessment, noting that the proposal was inconsistent with industry good practice and how such good practice was set out in UKWIN's July 2021 Good Practice Guidance for Assessing the GHG Impacts of Waste Incineration.

15. In response to UKWIN's criticisms, the Applicant stated in REP1-029 (electronic pages 278-279) that: "…The approach to quantifying GHG emissions from the construction, operation and decommissioning of the Proposed Development has been undertaken in line with the latest IEMA guidance for assessing GHG emissions and the infrastructure life-cycle modules set out in PAS 2080: Carbon Management Infrastructure. Assumptions remain in line with published material and the guidance documents…"

16. Having undertaken an evaluation of the Applicant's GHG assessment against the IEMA guidance and against PAS 2080, the findings of which are set out below, it is clear that there are numerous inconsistencies between the Applicant's approach to GHG assessment and the guidance set out in those documents. As such, the Applicant's failure to follow industry best practice clearly cannot be excused by reference to those documents.

17. To assist the Examination with the consideration of the conformity of the proposal with these standards, UKWIN has provided copies of the IEMA Guidance and the General Principles of PAS 2080:2016 as part of our Deadline 2 submissions. UKWIN had already provided the Good Practice Guidance as part of our Deadline 1 submissions within REP1-096 (electronic pages 85-176).

Conformity with Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance – 2nd Edition, the General Principles of PAS 2080, and UKWIN's Good Practice Guidance

18. At electronic page 20 of APP-041, the Applicant cites IEMA's 'Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance – 2nd Edition' (September 2022) and the 'Publicly Available Standard (PAS) 2080: 2016 – Carbon management in infrastructure' as part of the 'Technical guidance for GHG emissions assessment'.

19. At electronic pages 39-40 of APP-041 (paragraph 14.8.5) the Applicant claims: "The approach to quantifying GHG emissions from the construction, operation and decommissioning of the Proposed Development has been undertaken in line with the latest IEMA guidance for assessing GHG emissions and the infrastructure life-cycle modules set out in PAS 2080: Carbon Management Infrastructure presented in Graphic 14.1 Infrastructure life cycle stages".

20. However, the Applicant's approach does not conform with various elements of the IEMA guidance and to the general principles of the PAS 2080 guidance.

21. PAS 2080:2016 Carbon Management in Infrastructure (internal page 9) lists the general principles of relevance, completeness, consistency, accuracy and transparency.

22. According to the context for the general principles, PAS 2080 notes that: "The principles set out in 4.2 to 4.6 are fundamental principles underpinning the carbon management process presented in PAS 2080". As such, it would not be reasonable to claim that the life-cycle modules set out in PAS 2080 were followed if the general principles of PAS 2080 were not followed.

23. PAS 2080's general principles of 'relevance' and 'completeness' are adapted from PAS 2050:2011 and its principles of 'consistency' and 'accuracy' are adapted from GHG Protocol 2009. As such, a finding that the GHG assessment goes against those principles is also indicative that it goes against the associated principles set out in the respective standards/protocols from which they were adapted.

24. In many cases these areas of Applicant non-conformity with the IEMA guidance and PAS 2080 general principles also overlap with their inconsistency with guidance set out in UKWIN's Good Practice Guidance for Assessing the GHG Impacts of Waste Incineration (electronic pages 85-176 of REP1-06).

25. UKWIN's guidance sets out ten recommendations and provides supporting evidence for these recommendations, in many cases drawing on good practice shown in GHG assessments made for other incinerator proposals and on guidance provided by climate change professionals including the IEMA.

26. We will refer to these guidance documents as the 'IEMA Guidance' and the 'UKWIN Guidance' respectively.

IEMA GHG Mitigation Hierarchy

27. The Applicant's approach fails to conform to the IEMA Guidance on mitigation and the associated practitioners' guidance on the GHG Mitigation Hierarchy in the IEMA Guidance.

28. The IEMA Guidance notes that: "Mitigation has taken a much more prominent role within the EIA. It is no longer an element to be considered towards the later stages of the EIA process (after scoping, emissions assessment and significance determination). Instead, mitigation should be considered from the outset and throughout the project's lifetime, whilst also helping to deliver proportionate EIAs. Mitigation is addressed first in the guidance (Section II) but also as part of the GHG Assessment Methodology (Section V)".

29. Section 2.1 of the IEMA Guidance provides examples of 'GHG mitigation interventions' such as "Technology or process improvements" and "Waste minimisation".

30. Figure 2 of the IEMA Guidance links consideration of mitigation to consideration of the IEMA's GHG Mitigation Hierarchy.

31. The advice on the GHG Mitigation Hierarchy on internal page 9 of the IEMA Guidance document states that the first step to consider when identifying opportunities that direct GHG mitigation action for a project is 'Do not Build', which is to "evaluate the basic need for the proposed project and explore alternative approaches to achieve the desired outcome/s".

32. Similarly, the IEMA Greenhouse Gas Management Hierarchy in Figure 3 of the IEMA Guidance puts 'eliminate' as the top tier, noting the need to consider "…alternative operation or new product/service".

33. Alternative approaches that have not been adequately considered by the Applicant could result in more of the material that the Applicant is relying on as feedstock being reduced, re-used, or recycled rather than being incinerated (domestically or abroad) or landfilled.

34. In this regard, we refer to Steve Barclay MP's case in REP1-094 that the Applicant has not adequately assessed the alternative options that could result in better environmental outcomes than the proposed facility in its current form.

35. The Applicant's failure to adequately consider what could happen in a policy-compliant 'Do not Build' scenario (as distinct from a scenario where all waste is sent untreated to landfill) goes against the IEMA Guidance that: "Alternative baselines can be used to supplement the analysis and address uncertainty. For example, it may be unclear what baseline to adopt and compare a proposed project against if the site is 'empty' (i.e. the project is not replacing an existing development). For example: different locations, designs or layouts for building developments; or alternative energy generation options in the instance of a wind or solar farm proposal. However, **a realistic worse-case baseline should still be used for assigning significance**". (**emphasis added**)

36. The need for the Applicant's worst case to be reasonable, rather than for example assuming that waste would otherwise go untreated to landfill for the duration of the project if the scheme were not to ahead, is set out in section 5.2 of the IEMA Guidance which states that: "The assessment should seek to present a reasonable worst case".

37. In paragraph 14.8.20 of APP-041 at electronic page 48 the Applicant includes "refuse derived fuel" (RDF) as one of the main types of waste that their plant might use as fuel. However, RDF is not sent to landfill because – as the name suggests – it is waste which has been prepared to be used as a fuel.

38. Furthermore, much of the waste currently sent to landfill is recyclable, and to meet the Government's residual waste reduction targets it will be necessary to divert waste currently going to landfill and incineration to the top tiers of the waste hierarchy rather than creating additional pulls for that recyclable material to be used as incinerator feedstock.

39. The Applicant's failure to consider better ways that the waste could reasonably be managed throughout the lifetime of the proposed Medworth plant means that they are not comparing their development against a baseline which constitutes a "realistic worst-case" within the context of showing how the proposed development might have an adverse impact or that the significance of any claimed carbon saving should be given less weight because similar or better savings could be achieved through other means.

40. Such failings mean that the Applicant's assessments go against Recommendation #9 of the UKWIN Guidance.

41. As per pages 150-164 of REP1-096, evidence and arguments have been provided to support UKWIN Guidance recommendation #9 which states: "When considering how waste would be treated if it were not sent to an incinerator, account should be taken of the prospect that it might otherwise have been reduced, reused, recycled or composted. Account should also be made of how landfilled waste could be bio-stabilised to reduce methane emissions".

42. UKWIN's recommendation draws on the earlier 2017 version of the IEMA Hierarchy, and UKWIN's supporting text states that: "Given the drive to support the top tiers of the waste hierarchy (reduction, preparation for re-use and recycling) and to minimise the adverse climate change impacts of waste management, it is not appropriate to simply assume that waste that is proposed to be incinerated would otherwise be sent untreated to landfill".

43. REP1-096 pages 150-164 also provides a substantial body of evidence to support the conclusion that much of what is currently in the residual waste stream could be recycled or composted in the future, and that new waste incineration capacity could be expected to come at the expense of the top tiers of the waste hierarchy.

Decarbonisation of the electricity grid

44. The Applicant's climate assessment, and especially its core case, fails to adequately consider "UK grid decarbonisation projection scenarios" as set out on page 18 of the IEMA guidance.

45. According to the Applicant at paragraph 1.2.7 of APP-088 (electronic page 4): "Further decarbonisation of UK Grid electricity generation towards 2050 would reduce the scale of savings derived from avoided emissions for the EfW CHP Facility…"

46. However, that Applicant' GHG assessment then uses as its core case the average grid mix for 2020/2021 rather than using as its starting point the appropriate emissions factors relating to the anticipated year that the plant would realistically first be capable of commercially exporting electricity to the grid, i.e. around Q4 2027.

47. This means that the core case of the Applicant's GHG assessment not only fails to take into account grid decarbonisation during the lifetime in their core case, but also fails to take into account grid decarbonisation prior to the plant becoming operational.

48. Paragraph 1.1.4 of APP-088 (electronic page 40) states that the Applicant's 'core case' assumption for displaced electricity is based on the "**current** emissions factor for average UK Grid electricity generation" of 182tCO_2/GWh. According to APP-041 electronic page 24 footnote 65 notes these are figures for 2020-2021. (**emphasis added**)

49. While the Applicant is using grid data for 2020-2021 for their core case, the Applicant states on electronic page 18 of APP-088 that the GHG assessment assumed the plant will operate from 2026 to 2066. However, given the current Examination Timetable, even a 2026 start date would be ambitious.

50. The Applicant states at paragraph 3.7.3 of APP-029 on electronic page 48 that it would take approximately 36 months to construct the facility. If consent were granted 6 months after the Examination closes on 21st August 2023, then planning consent would not be issued until February 2024. This means that the construction of the facility would be unlikely to be completed until part way through 2027 at the earliest. The plant would then need to be commissioned, and so may not start exporting electricity to the grid on a commercial basis until Q3 2027 or later.

51. It is also notable that the Applicant's sensitivity analysis considers only unabated CCGT, meaning that the Applicant has not assessed the climate impacts for the energy that would be generated by the proposed Medworth incineration plant relative to CCGT with carbon capture, despite the prospect of such technology being in place during the 40-year lifetime of the proposed facility.

52. The inadequacy of the Applicant's approach was also noted by Stephen Barclay MP in REP1-094, who fairly argued that the correct approach would be to use the "BEIS Tables which supplement HM Treasury's Green Book".

53. REP1-094 noted that: "Had the consultants properly considered the declining carbon intensity of the long-run marginal source of electricity (based on generation), then the relative performance of EfW incineration and landfill would change significantly over the lifetime of the proposal".

54. The choice of an incorrect grid electricity offset goes against general principles of PAS 2080, set out as follows:

a) "4.2 **Relevance**: Data and assessment methods relevant to the defined boundary of carbon management and assessment are to be selected, documented and used" and

b) “4.5 **Accuracy:** The quantification of carbon emissions is to neither over nor under estimate actual emissions, as far as can be judged, and uncertainties are to be reduced as far as reasonably practicable. A sufficient level of accuracy is to be achieved to enable users to make decisions with reasonable assurance as to the integrity of the reported information”.

55. Given that the proposed Medworth plant would not be operational until 2027/2028, the historic average grid factor is irrelevant to the calculation and should not have been adopted.

56. For the reasons set out above, the Applicant’s approach goes against Recommendation #8 of UKWIN’s Good Practice Guidance as set out on electronic pages 138-149 of REP1-096.

57. UKWIN’s Recommendation #8 is that: “When considering the carbon intensity of displaced energy it is necessary to take account of the progressive decarbonisation of the energy supply rather than simply assuming that a new energy source would displace fossil fuels. The carbon intensity of electricity displaced by a new incinerator can be estimated using the average BEIS Long-Run Marginal Emissions Factor (MEF) over the lifetime of the plant”.

Complete, consistent, transparent and accurate assessment

58. The IEMA Guidance states that: “The methodology should result in a relevant, complete, consistent, transparent and accurate assessment of the reasonable worst case”.

59. THE IEMA Guidance also states the GHG quantification principle that: “Any exclusions, limitations, **assumptions** and uncertainties should be justified and reported where appropriate”. (**emphasis added**)

60. PAS 2080:2016 Carbon Management in Infrastructure (internal page 9) lists the following general principles that are also of particular relevance:

a) "**4.3 Completeness:** All life cycle carbon emissions arising within the defined infrastructure system boundary which provide a material contribution to the management and assessment of carbon emissions are to be included”.

b) **“4.4 Consistency:** Consistent methodologies and data sources for carbon management and assessment are to be used to allow comparisons of emissions over time. Any changes to methodologies, assumptions or data sources are to be transparently documented”.

c) “**4.6 Transparency:** Where the outputs of a carbon management approach carried out in accordance with this PAS are to be disclosed to a third party, information shall be made available on the methodology and data sources used and any relevant assumptions to allow such a third party to make associated decisions with confidence”.

61. As UKWIN noted in the main body of REP1-096, the Applicant has provided insufficient information about their modelling assumptions and calculations in APP-041 and APP-044, and this resulted in UKWIN requesting the modelling spreadsheets for both the central case and various sensitivities.

62. Electronic page 33 of APP-088 states that “The EfW CHP Facility is designed to maintain a constant fuel thermal input capacity, so the quantity of waste inputs may be adjusted according to the calorific value of the material. i.e. less waste may be required for material with a higher calorific value and vice versa”.

63. However, the sensitivities on electronic page 42 of APP-088 are based on the same total waste input as the central case despite having a different Net Calorific Value (NCV) for the waste.

64. This does not make sense, as any internally consistent assessment would have higher tonnes of waste per annum for lower NCV, and lower tonnes of waste for higher NCV assuming a fixed number of hours of operation.

65. By failing to assess the impact on MWh output or feedstock requirements arising from their range of waste composition cases the Applicant is making it impossible to assess the impact of those potential changes in composition.

66. UKWIN has asked for the Applicant elaborate upon the information provided in APP-041 electronic page 47 Graphic 14.2 Medworth Firing Capacity Diagram by clarifying the relationship between the average net calorific value (NCV) of the feedstock, how much of that feedstock the plant would require if operating for 8,000 hours per year, and how much MW and MWH/yr would be produced for a range of potential NCVs.

67. This information has yet to be provided, and our concerns regarding the degree of consistency, transparency, and accuracy of the Applicant’s GHG assessment remain.

68. There are various reasons why giving Interested Parties access to the underlying spreadsheets to enable these Parties to carry out additional sensitivity analysis would assist the Examination. Many of these reasons derive from the Applicant’s failure to have considered a number of areas of potentially significant sensitivity and for their failure to adopt a reasonable range of cases to represent the limited sensitivities that they have identified.

69. For example, the Applicant appears to only model changes in feedstock composition which they claim would result in increased benefits of the facility. As such, it would be helpful for Parties to be positioned to assess what changes in composition might result in worse outcomes.

70. Similarly, UKWIN has provided evidence that incinerators typically produce less electricity than modelled at pre-development (e.g. at the planning stage) due, in part, to incinerators continuing to operate when the turbine or generator is not available. Providing the Applicant's underlying model would assist in modelling the impacts of such additional sensitivities.

71. These failings mean that the Applicant's GHG assessment goes against UKWIN Guidance recommendations #1, #2, #3, #6, and #7.

72. As per electronic pages 91 of REP1-096, evidence and arguments have been provided to support UKWIN Guidance recommendation #1 that: "Methodology and modelling assumptions, including underlying data and how it was derived, should be transparent and verifiable. Scrutiny of environmental claims made to support waste incineration should be facilitated rather than frustrated".

73. As per electronic pages 92-103 of REP1-096, evidence and arguments have been provided to support UKWIN Guidance recommendations #2 and #3, which relate to the impact of waste composition and technology on energy and GHG outputs.

74. UKWIN's Recommendation #2 states: "Key outputs such as power export and greenhouse gas (GHG) emissions are dependent on waste composition and the processes used. When modelling future emissions it is necessary to ensure that outputs are internally consistent with inputs".

75. UKWIN's Recommendation #3 states: "GHG impacts can be highly sensitive to waste composition. Waste composition assumptions should be justified and sensitivity analysis should be used to show the impacts of future changes such as increased food and biowaste collection".

76. As per electronic pages 128-137 of REP1-096 and the associated technical annex on pages 171-176 of REP1-096, evidence and arguments have been provided to support UKWIN Guidance recommendations #6 and #7, which relate to discrepancies between theoretical and real world performance.

77. UKWIN's Recommendation #6 states: "The carbon performance of modern waste incinerators is often significantly worse than was predicted through modelling at the planning and permitting stages. This discrepancy between predicted and actual carbon performance needs to be taken into account when modelling, and robust sensitivity analysis is needed to ensure that CO2e emissions from incineration are not significantly underestimated".

78. UKWIN's Recommendation #7 states: "Power export underperformance, e.g. due to turbine or generator failure or during commissioning, is a realistic prospect for modern waste incinerators that needs to be taken into account when modelling anticipated power output and associated climate impacts. Power export underperformance, e.g. due to turbine or generator failure or during commissioning, is a realistic prospect for modern waste incinerators that needs to be taken into account when modelling anticipated power output and associated climate impacts".

GHG quantification principles – biogenic carbon sequestration

79. Section 5.2 The IEMA Guidance states that: "The assessment should seek to quantify the difference in GHG emissions between the proposed project and the baseline scenario (the alternative project/solution in place of the proposed project). Assessment results should reflect the difference in whole life net GHG emissions between the two options" and that "The assessment must include all material emissions".

80. This is similar to the concept set out in the Government Review of Waste Policy in England 2011, which stated on paragraph 209 that: "…while energy from waste has the potential to deliver carbon and other environmental benefits over sending waste to landfill, energy recovery also produces some greenhouse gas emissions. It is important to consider the relative net carbon impact of these processes…"

81. Furthermore, page 17 of the IEMA Guidance notes that: "The ultimate goal of establishing a baseline is being able to assess and report the net GHG impact of the proposed project" and one of the examples of a matter to be considered is the ability of impacts on "sequestered GHG emission" (in that case within the context of land use and land use change, which could be relevant to the change of land use associated with landfill).

82. However, the Applicant does not quantify the carbon impact of the difference in biogenic CO_2 emissions between the baseline and the proposed development or, to put it another way, the Applicant's GHG assessment does not quantify how in the landfill option there would be a biogenic carbon sequestration benefit which would not exist for the development proposal.

83. As such, we share the concerns raised by Steve Barclay MP on electronic pages 6-7 REP1-094 that the "comparative assessment between landfill and incineration was flawed" and was "methodologically unsound" due to the Applicant's improper "treatment of non-fossil CO_2 emissions".

84. This failure to consider biogenic carbon sequestration adds to the uncertainty of the project and could significantly affect the outcome of the study.

85. According to page 21 of the IEMA Guidance: “Uncertainty can arise from quality of data, study boundaries and period of assessment, and can never be eliminated from a study. Uncertainty should be considered and if it significantly affects the outcome of the study, additional steps should be taken to reduce it and provide confidence in results. As a reminder, a relevant, complete, consistent, transparent and accurate assessment of the reasonable worst case must be undertaken despite uncertainties. Uncertainty can be considered by: … Testing for different inclusions and exclusions…”

86. Despite this IEMA guidance, the Applicant has not provided any sensitivity analysis to show the impact of either providing a credit for biogenic carbon sequestration in landfill or including all CO_2 emissions on both side of the assessment and instead adopt an approach which results in internal inconsistency and harms the accuracy of their assessment.

87. These failings mean that the Applicant’s approach goes against UKWIN Guidance Recommendation #5.

88. As per electronic pages 104-127 of REP1-096, evidence and arguments have been provided to UKWIN Guidance Recommendation #5 that: “To produce a valid comparison when comparing waste treatment options such as landfill and incineration that release different quantities of biogenic CO_2 it is necessary to account for these differences, especially the impact of the biogenic carbon sink in landfill”.

Significance – carbon intensity and impact on decarbonisation of the electricity supply

89. According to Figure 6 of the IEMA Guidance, one consideration relevant to the assessment of contextualising a project’s GHG emissions is to assess it against policy goals such as “policy measures to decarbonise electricity generation”.

90. One metric used to quantify the impact of a source of electricity on the decarbonisation of the electricity supply is to calculate the carbon intensity of that source and to compare this carbon intensity with other sources of electricity and the desired trajectory.

91. Footnote 1 of the BEIS Modelling 2050: Electricity System Analysis report from December 2020 defines carbon intensity as follows: “Carbon intensity is the amount of carbon dioxide emitted per unit of electricity generated, measured in grams of CO_2 (gCO_2) per kilowatt hour (kWh) of generation".

92. In this regard, we note that the Applicant has not stated how many tonnes of fossil CO_2e would be released by the facility per GWh of electricity exported to the grid, i.e. the fossil carbon intensity of the proposal, and how that might adversely impact on the UK Government's ambitions to decarbonise the electricity supply.

93. The Applicant discusses fossil carbon intensity of the grid average and of CCGT on paragraph 1.1.4 of APP-088 (electronic page 40), stating that current CCGT is 280tCO_2/GWh, the current UK Grid Average is 182tCO_2/GWh and that this will reduce to 23tCO_2/GWh by 2035 and 6tCO_2/GWh by 2050.

94. However, they do not discuss the equivalent carbon intensity of the proposed incinerator and how the development might impact on, or compare to, national fossil grid intensity.

95. The carbon intensity for the fossil element of the proposal can be derived from the Applicant's core case by dividing the tonnes of fossil CO_2e the facility would release by the exported GWh from the core case.

96. According to APP-048 Table 14.27 (electronic page 59), the plant would release 273,326 tonnes of "EfW Total emissions (tCO2e/yr)". The figure does not include any of the anticipated CO_2 emissions from biogenic sources, and so it should be considered that the 273,326 figure represents the core case's anticipated fossil CO_2e emissions rather than total CO_2e emissions.

97. According to APP-048 Table 14.30 (electronic page 62), the plant is expected to generate 440,000 MWh which is 440 GWh per year.

98. As such, tonnes of fossil CO_2e per GWH for the core case (i.e. the fossil carbon intensity) can be derived as follows:

Tonnes of fossil CO_2e per year ÷ GWh per year
= 273,326 ÷ 440
= 621.195/GWh

99. This implies that the plant would have a higher carbon intensity than unabated CCGT and far higher than the current and future grid average, in turn indicating that the Medworth proposal could be expected to hamper Government efforts to decarbonise the electricity grid supply.

100. Given that this 621tCO_2/GWh carbon intensity figure does not take into account UKWIN's evidence that incinerators have been found to have a far higher carbon intensity in practice compared to pre-development modelling, e.g. due to the incinerator continuing to operate in the event of turbine unavailability, it is possible that the plant could have a higher carbon intensity than this figure when treating the core case waste composition.

101. Even if changes in waste composition were to reduce the carbon intensity of the Medworth incinerator in the future, given that the wider electricity grid is set to rapidly decarbonise, the electricity that would be exported to the grid by the proposed plant could still be expected to have a significantly higher carbon intensity than the grid average throughout its operational lifetime.

102. While carbon intensity is only one metric used to assess such proposals, it is a useful metric because it shows how a proposal would impact upon efforts to reduce the carbon intensity of the electricity supply in line with Government policy, which is measured based on direct emissions and electricity generation/export rather than taking into account external factors (such as the relative net GHG impacts of potential alternative waste management options).

103. The high carbon intensity of unabated Energy from Waste plants is one of the reasons why EfW is often referred to as being a 'high carbon' form of electricity generation.

104. UKWIN has provided further evidence within the evidence base for Recommendation #10 of UKWIN's Guidance (electronic pages 165-170 of REP1-096) that relates to calculating and interpreting carbon intensity, including statements from a range of authoritative sources who note how incineration is a high carbon form of electricity generation within the context of grid decarbonisation. UKWIN's Recommendation #10 states that: "Energy from mixed waste incineration should not be described as 'low carbon'. Incineration involves the direct release of significant quantities of CO_2".

105. Electronic page 168 of REP-096 notes that in December 2020 the Climate Change Committee advised that: "Local authorities should carefully consider the fossil emissions from EfW plant. In a Net Zero world EfW facilities are likely to be significantly higher carbon than other forms of energy production…"

106. Similarly, REP1-096 electronic page 165 notes that the fossil CO_2 emissions from incineration are a concern to the UK Government and quote from a written answer provided by Department for Environment, Food and Rural Affairs on the 17th of May 2021 that: "Incineration of fossil derived waste is a contributor to greenhouse gas emissions. Total greenhouse gas emissions from waste incineration accounted for around 1.4% (6.47 million tonnes of carbon dioxide equivalent) of the UK's greenhouse gas emissions in 2019. Of this, about 6.19 million tonnes of carbon dioxide equivalent was emitted from Energy from Waste plants. It is clear that we will need to reduce that impact. That is why the Government continues to take action, including through our Environment Bill measures, to reduce, re-use and recycle more of our waste and to move to a circular economy…"

Weight to be given to the Applicant's claimed climate change benefits

107. As is apparent from UKWIN's evaluation above, the Applicant's core case and sensitivity analysis are flawed and cannot be relied upon to ascertain with any great certainty the likely net climate impacts of sending the feedstock to either the Medworth incinerator or to landfill, and cannot therefore be used to ascertain the relative net climate change impacts of these two options, let alone ascertain the relative net climate change impacts of the proposal when compared with other potential fates for the feedstock throughout the lifetime of the proposed facility.

108. Given the various methodological and other deficiencies in the Applicant's GHG assessment, as set out above, combined with the inherent uncertainties with respect to waste composition and how the waste might otherwise be dealt with if it is not treated at the proposed Medworth plant, it is clear that the Applicant has neither demonstrated that there would be significant benefits nor ruled out that there might be significant disbenefits in terms of the net GHG impacts of their proposal.

109. Uncertainties regarding the sources and composition of the proposed feedstock and its alternative fate, the net GHG impact of the proposed development, and the net GHG performance of the baseline, combine to reduce the weight that should be given to the Applicant's claimed environmental benefits with respect to the Principal Issue of climate change, i.e. the overall change in greenhouse gas emissions which may arise from the implementation of the proposed development.

110. As set out below, uncertainties regarding the claimed climate change benefits of the proposal mean that these claimed benefits should be given little or no weight in the planning balance.

111. Such an approach would be in line with that taken by the Secretary of State in the Wheelabrator Kemsley North (WKN) incinerator infrastructure decision, where at Paragraph 4.41 of the decision notice the Secretary of State explains: "In its conclusions…, the ExA [Examining Authority] sets out that, given the uncertainties in the Applicant's assessment of carbon benefits, the matter should carry little weight in the assessment of WK3 and WKN… The Secretary of State sees no reason to take different view to the ExA in this matter" (see pages 11 and 12 of the Secretary of State's 19th February 2021 Decision Letter, BEIS Ref. EN010083, which accompanies this submission).

112. At paragraph 4.14.64 of the associated Recommendation Report from the WKN refusal, the Examining Authority stated that: “The netting off of a proportion of GHG is not an unreasonable approach where there is a clear baseline alternative from which like can be compared with like with a high degree of confidence. However the levels of carbon benefit impact relating to the Proposed Development, as the Applicant accepts, is subject to several key uncertainties and limitations, such as the estimate of GHG emissions from landfill, the carbon intensity of marginal electricity generation and the proportions of waste types to be managed. All the available evidence casts considerable doubt on whether the ‘net benefit’ can be ascertained with any great certainty, given it is highly sensitive to the assumptions applied”.

113. For Medworth, a similar range of key uncertainties and limitations are acknowledged within the Applicant’s carbon assessment. This similarly casts considerable doubt on whether the Applicant’s claimed ‘net benefit’ can be ascertained with any great certainty given that, as with WKN, the Applicant’s claims are highly sensitive to the assumptions applied.

114. We also note the subsequent paragraph of the Recommendation Report states that: “…It should also be borne in mind that (notwithstanding any definitional need for the facilities found in NPSs) if the Proposed Development is not necessary to meet waste requirements for Kent or the area covered by SEWPAG, the carbon burden resulting from the proposed facilities would needlessly increase that burden to no particular purpose. Yet at the same time it would contribute to an increased risk of failure to meet international commitments…”

115. The next paragraph in the Recommendation Report, which concludes that section, notes that: “CO_2 emissions can be a significant adverse impact of waste combustion. Overall I conclude that given the level of uncertainty as to whether and if so what level of ‘net carbon benefit’ would obtain in respect of the Proposed Development this should be accorded little weight...”

PLANNING POLICY / NEED FOR THE DEVELOPMENT

116. This section focuses on Principal Issue 15, including the need or otherwise for the proposed capacity, and the planning policies and Government statements about preventing harm to recycling by avoiding EfW overcapacity.

Government policy on need to avoid incineration overcapacity

117. The proposed Medworth incineration capacity would result in creating or exacerbating local and/or national incineration overcapacity and imperil the achievements of local and national ambitions to increase recycling and reduce residual waste arisings, in contravention of EN-1 (2011), EN-3 (2011), EN-1 (2021) and EN-3 (2021) and other Government policy statements.

118. EN-3 (2021) states: “2.10.4 As the primary function of EfW plants is to treat waste, applicants must demonstrate that proposed EfW plants are in line with Defra’s policy position on the role of energy from waste in treating municipal waste” and: "2.10.5 The proposed plant must not result in over-capacity of EfW waste treatment at a national or local level”.

119. This policy approach is especially relevant to the determination of this application, with Defra’s endorsement on 11th July 2022 when Defra explained current Government policy, stating: “The Government’s view is that Energy from Waste (EfW) should not compete with greater waste prevention, re-use, or recycling. Proposed new plants must not result in an over-capacity of EfW waste treatment provision at a local or national level” (Reply to Question for Department for Environment, Food and Rural Affairs. UIN 28465).

120. The Government’s stated position adds great weight to the current requirements of EN-3 (2011) that:

a) "2.5.66 An assessment of the proposed waste combustion generating station should be undertaken that examines the conformity of the scheme with the waste hierarchy and the effect of the scheme on the relevant waste plan or plans where a proposal is likely to involve more than one local authority".

b) “2.5.70 The IPC should be satisfied, with reference to the relevant waste strategies and plans, that the proposed waste combustion generating station is in accordance with the waste hierarchy and of an appropriate type and scale so as not to prejudice the achievement of local or national waste management targets in England...Where there are concerns in terms of a possible conflict, evidence should be provided to the IPC by the applicant as to why this is not the case or why a deviation from the relevant waste strategy or plan is nonetheless appropriate and in accordance with the waste hierarchy”.

c) "2.17.3 An assessment of the proposed waste combustion generating station should be undertaken that examines the conformity of the scheme with the waste hierarchy and the effect of the scheme on the relevant waste plan or plans where a proposal is likely to involve more than one local authority".

d) "2.17.4 The application should set out the extent to which the generating station and capacity proposed is compatible with, and supports long-term recycling targets, taking into account existing residual waste treatment capacity and that already in development".

121. The Government's stated position also adds weight to the EN-1 (2011) statement that: "3.4.3 …Only waste that cannot be re-used or recycled with less environmental impact and would otherwise go to landfill should be used for energy recovery…"

122. These Government statements increase the relevance of the conclusion highlighted in the Wheelabrator Kemsley North (WKN) refusal to the Medworth proposal. This is further explored later in this submission, but in summary the WKN decision found that large-scale EfW development can undermine local recycling efforts and divert waste from recycling rather than from landfill and that these can justify the refusal of planning consent.

123. The Applicant has not demonstrated that their proposed capacity for Medworth would not result in overcapacity at a local or national level, and they have not demonstrated that their proposed new incineration capacity would not undermine the achievement of long-term recycling and residual waste reduction targets.

124. Government policies, such as those set out in the December 2018 Resources and Waste Strategy and the Environmental Improvement Plan (2023), emphasise the importance of moving away from incineration and towards a more circular economy.

125. As set out in REP1-06 paragraphs 32-48 (electronic pages 8-10), and as explored further in UKWIN's evaluation of the Applicant's WFAA, it is important to give full consideration to the implications of the 2027 and 2042 residual waste reduction targets in the Government's Environmental Improvement Plan 2023 and the Environmental Targets (Residual Waste) (England) Regulations 2023.

126. This especially important in light of the UK Government's Jet Zero strategy which, alongside the potential increase in the use of SRF at cement kilns, could create increased competition with incineration for residual waste feedstock and therefore increase the chance of incineration overcapacity. It would also increase the likelihood that Medworth plant would be displacing recycling or other forms of Energy from Waste rather than landfill.

The proposed capacity could undermine recycling and the circular economy

127. Anticipated reductions in residual waste arising are expected to free up capacity at existing incinerators (including those currently under construction or in commissioning).

128. This undermines the justification put forward by the Applicant for their proposed new capacity.

129. Reducing the amount of plastic in incinerator feedstock can increase the effective capacity of UK incinerators by 21-31% (with the lower end of the range assuming decreases in plastic coincide with decreases in food waste).[1]

130. The proposed incineration capacity would constitute a wholly unnecessary barrier to the circular economy, and the facility could be expected to destroy valuable materials and nutrients, thus removing them from contributing to the economy.

131. As the Government's 2018 Resources and Waste Strategy puts it: "Our goal is to move to a more circular economy which keeps resources in use for longer – for that to happen, we must all reduce, reuse and recycle more than we do now...We want to minimise the amount of residual waste that we create because it is a loss to the circular economy and so will have to be replaced by using virgin materials with associated carbon emissions. Residual waste is also an indicator of avoidable waste in that residual waste will include material that could have been recycled".

132. As explained by the Climate Change Committee (CCC), moving towards a circular economy requires a move away from incineration: "Achieving significant emission reductions in the waste sector requires a step-change **towards a circular economy**, moving **away from** landfill and **incineration** (and the associated methane and fossil CO_2 emissions), and towards a reduction in waste arisings and collection of separated valuable resources for re-use and recycling. This applies at local, regional and national levels..."[2] (**emphasis added**)

133. Incineration is considered to be a 'leakage' from the circular economy because it results in the loss of materials and nutrients from their original cycles.

134. Furthermore, money invested in incineration cannot then be invested in better collection, sorting and treatment infrastructure, and the presence of expensive residual waste treatment infrastructure results reduces the financial incentives to reduce, re-use and recycle.

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[1] 'Incineration Overcapacity Methodology: Technical paper on UKWIN's incineration overcapacity modelling' (UKWIN, September 2022). p. 7

[2] Reducing UK emissions: 2020 Progress Report to Parliament (June 2020), p. 183

135. A basic theory of how incineration can harm recycling is that:

a) much of what is in the incinerator feedstock is material that could and should have been collected for recycling or composting, or could have been avoided or re-used, or at the very least removed prior to incineration;

b) the same material cannot be sent for recycling if it has been destroyed through incineration;

c) incineration overcapacity drives down gate fees, as rather than competing with the landfill tax, incinerator operators complete with one another, and this makes recycling relatively less competitive compared to incineration;

d) economic considerations inform both waste management practices and investment in collection, sorting, and reprocessing infrastructure; and

e) there is a financial incentive for operators to maximise how much they burn in order to maximise the income generated from gate fees, and there are operational difficulties that can arise if an incinerator is operating below capacity.

136. The proposed capacity would impact on a market that already includes a significant quantity of incineration capacity. This means that even if the Medworth facility were to limit itself to processing feedstock that is 100% genuinely non-recyclable combustible material, over the lifetime of the facility a significant proportion of that feedstock would consist of material that would otherwise have been used to keep a different existing incinerator supplied with feedstock. This would require that existing incinerator to look further afield for their feedstock, and it could result in a lowering of standards (i.e. increasing the incineration of recyclable and compostable material), as well as increased travel distances.

137. The proposed new incineration capacity would make it more difficult for local authorities to escape unfavourable existing incinerator lock-in, hindering efforts to renegotiate existing waste contracts to remove put-or-pay clauses or minimum tonnage guarantees. This is because incineration overcapacity makes waste feedstock harder to source, thus driving down gate fees.

138. So, if local authorities wished to reduce their financial commitment to sending waste for incineration – in order to focus on reduction, reuse, and recycling instead – their negotiating position would be constrained by any further increase in the level of incineration capacity.

139. Similarly, as increased incineration capacity lowers incinerator gate fees, increases in incineration capacity can make it more difficult for recycling to be considered economically viable.

140. Concerns about the long-term viability of recycling and reprocessing capacity, arising from competition for feedstock, can discourage much-needed investment in the top tiers of the waste hierarchy. As such, even the plausible risk of incineration overcapacity is therefore harmful for recycling, because it harms potential investment in recycling and reprocessing infrastructure.

141. If it is concluded that this proposal could plausibly result in creating or exacerbating local, regional or national overcapacity, then consenting the capacity would, directly or indirectly, also be likely to undermine recycling and waste reduction efforts.

142. The proposal would be likely to use feedstock that could otherwise have been recycled, composted, or sent to existing incinerators. This undermines the Applicant's assessment of alternatives because the Applicant's assessment has not adequately considered those alternative options.

143. With respect to the range of relevant policies of Local Development Plans, the overcapacity that would result from the proposal would go against the ambitions set out in various Local Development Plan strategies across the affected areas, undermining ambitions in relation to recycling, self-sufficiency, and the proximity principle.

Defra's concerns regarding the recyclability of residual waste

144. Defra's August 2020 Resources and Waste Strategy Monitoring Report revealed that most of what is currently burnt in incinerators is recyclable, stating: "Of total residual waste from household sources in England in 2017, an estimated 53% could be categorised as readily recyclable, 27% as potentially recyclable, 12% as potentially substitutable and 8% as difficult to either recycle or substitute".

145. The report from Defra observed that: "The message from this assessment is that a substantial quantity of material appears to be going into the residual waste stream, where it could have at least been recycled or dealt with higher up the waste hierarchy".

146. As is clear from the reasoning behind the WKN refusal, Regulation 12 of the Waste Regulations 2011 cannot be relied upon to guarantee that waste would be collected and processed in ways that would prevent avoidable, reusable, and/or recyclable or compostable material from being used as incinerator feedstock.

147. As noted above, this issue is explored in greater depth in UKWIN's Good Practice Guidance, including at pages 150-164 of REP1-096.

Secretary of State's concerns regarding incineration diverting from recycling

148. In February 2021 the Business Secretary refused planning permission for the proposed Wheelabrator Kemsley North (WKN) incinerator (PINS Ref EN010083). A copy of this decision accompanies this submission.

149. Establishing one of the reasons why it is necessary to consider whether or not need has been demonstrated for an incinerator proposed as part of the national infrastructure regime, Paragraph 4.13 of the WKN decision states: "4.1.3 The National Policy Statements set out that energy from waste is a type of infrastructure that is needed. However, the National Policy Statement for Renewable Energy Infrastructure, NPS EN-3 states that an applicant for development consent must assess 'the conformity with the waste hierarchy and the effect on relevant waste plans...' NPS EN-3, notes that the decision-maker should be satisfied, with reference to the relevant waste strategies and plans, that the proposed waste combustion generating station is in accordance with the waste hierarchy and of an appropriate type and scale so as not to prejudice the achievement of local or national waste management targets".

150. In relation to recycling, Paragraphs 4.19 and 4.20 of the WKN decision state: "4.19…the ExA [Examining Authority] noted that WKN would be in conflict with the National Planning Policy for Waste because it would put at risk the achievement of revised recycling and composting targets in the Kent Minerals and Waste Local Plan. 4.20 The Secretary of State sees no reason to disagree with the ExA's conclusions in this matter".

151. In his decision letter, the Secretary of State adopted the ExA's view that "…the projects would divert a significant proportion of waste from recycling rather than landfill" despite the Kemsley applicant's familiar claim that the proposed incinerator would only be burning non-recyclable material.

152. While the Secretary of State did allow the proposed additional capacity at "Kemsley K3" to go ahead as part of the same decision, it is worth noting that the Kemsley K3 facility already had planning permission, and so the principle of development had already been established. The DCO allowed for increasing electricity output but only an additional 107ktpa of waste input, which is a significantly lower amount of new waste incineration capacity than is proposed for Medworth.

153. Furthermore, the additional Kemsley K3 capacity was consented in February 2021 which was prior to EN-3 (September 2021) and the associated July 2022 Government statement about the need to avoid incineration overcapacity, and prior to the residual waste reduction target being announced in December 2022, and prior to the interim targets set out in the Environmental improvement Plan in January 2023. That decision also pre-dates additional incineration capacity entering construction.

154. The refused WKN proposal was for an annual throughput of “up to 390,000 tonnes of waste”, while the Medworth proposal is much higher than this, with a stated capacity of up to 625,600 tonnes per annum.

UKWIN’s assessment of the impact of residual waste reduction targets

155. As set out in UKWIN’s Deadline 1 submission [REP1-096], the UK Government has targets to reduce residual waste, with a 2042 target to halve residual waste and several interim targets for 2027 based on a 2019 base year. The most relevant interim target is the target to reduce municipal residual waste by 26%.

156. The way that the Applicant has approached their Waste Fuel Availability Assessment (WFAA), and the fact that it is out of date, makes it difficult to assess whether or not there are conflicts between the achievement of these Government targets and the addition of the proposed capacity and/or whether there would be incineration overcapacity at a local, regional or national level in the even that these targets are met.

157. As such, UKWIN has carried out a top-down assessment of residual waste availability in 2027 and 2042 against the incineration capacity currently operational and under construction.

158. UKWIN’s approach also takes into account other forms of energy from waste that might rely on municipal residual waste as feedstock and that would therefore either compete with or potentially be displaced by any new incineration capacity.

159. UKWIN’s approach can be summarised as follows:

a) Estimate waste arisings available as fuel:

- Establish baseline level of municipal residual waste per capita in 2019

- Estimate how much this waste will reduce in line with the 2027 and 2042 residual waste reduction targets (taking account of anticipated rises in population)

- Multiply the per capita figure by the anticipated population for the relevant year

- Estimate how much of this municipal residual waste would be available as a fuel

b) Take into account how much of this fuel should be assumed to be used for purposes other than municipal waste incineration, e.g. used as a fuel for co-incineration at cement kilns and as feedstock for waste-to-SAF (sustainable aviation fuel)

c) Take into account existing operational EfW capacity and EfW capacity under construction, including the impact of changes in feedstock composition on processing capacity

160. The result of following this procedure is summarised in the following two tables:

ENGLAND

	2027	**2042**
Population (Persons)	58,527,723	61,549,624
Municipal residual waste per capita (kg)	333	234.5
Total municipal residual waste (t)	19,489,732	13,212,450
Total municipal residual waste available as fuel (t)	**17,540,759**	**11,891,205**
Co-incineration (t)	750,000	1,000,000
Waste-to-SAF (t)	600,000	2,100,000
Total waste available for use as incinerator feedstock (t)	**16,190,759**	**8,791,205**
Operational incineration capacity in WFAA (t)	15,588,000	15,588,000
Incineration under construction in WFAA [avoiding double counting] (t)	3,300,500	3,300,500
Total existing capacity	**18,888,500**	**18,888,500**
Overcapacity (without Medworth) (t)	**2,697,741**	**10,097,295**
Overcapacity (with Medworth 625,600 capacity) (t)	**3,323,341**	**10,722,895**

WFAA STUDY AREA

	2027	**2042**
Population (Persons)	30,417,734	31,976,919
Municipal residual waste per capita (kg)	333	234.5
Total municipal residual waste (t)	10,129,105	6,858,962
Total municipal residual waste available as fuel (t)	**9,116,195**	**6,173,066**
Co-incineration (t)	390,000	520,000
Waste-to-SAF (t)	312,000	1,092,000
Total waste available for use as incinerator feedstock (t)	**8,414,195**	**4,561,066**
Operational incineration capacity in WFAA (t)	7,280,000	7,280,000
Incineration under construction in WFAA [avoiding double counting] (t)	1,429,500	1,429,500
Total existing capacity	**8,709,500**	**8,709,500**
Overcapacity (without Medworth) (t)	**295,305**	**4,148,434**
Overcapacity (with Medworth 625,600 capacity) (t)	**920,905**	**4,774,034**

161. A step-by-step description of applying this procedure for the whole of England is set out below.

162. **Estimating waste arisings available as fuel begins with establishing the baseline level of municipal residual waste per capita in 2019.**

a) For England as a whole, the baseline level of municipal residual waste per capita in 2019 is assumed to have been **469 kg per person**.

b) As set out at paragraph 43 of UKWIN REP1-096, this is the 2019 base level implied by Defra's 2023 Environmental Improvement Plan (EIP).

c) As set out on paragraph 38 of REP1-096, the Government's definition of 'municipal waste' for the purpose of informing their residual waste reduction targets is a broad one that includes "households plus waste similar in composition to household waste, such as commercial waste". It is noted that around 55% of English municipal waste in 2016 was non-household waste.

d) Energy from waste (EfW) plants are also called 'municipal waste incinerators' because they are designed to treat municipal waste. As such, it is appropriate to use municipal residual waste (rather than total residual waste) as the starting point for assessing the quantities of waste that would be available as a fuel within the context of assessing incineration capacity versus available feedstock.

163. **Estimate how much this waste will reduce in line with the 2027 and 2042 residual waste reduction targets (taking account of anticipated rises in population)**

a) For England as a whole, this base level is expected to reduce to **333 kg per person in 2027** in line with EIP Interim Target 3.

b) For England as a whole, the 2019 base level is expected to reduce to **234.5 kg per person by 2042** in line with the Government's target to halve residual waste by 2042 as enshrined in The Environmental Targets (Residual Waste) (England) Regulations 2023 and as set out in the EIP.

c) 234.5 kg per person figure is half of the 2019 base figure of 469 kg per person mentioned above.

164. **Multiply the per capita figure by the anticipated population for the relevant year**

a) The population for England as a whole is projected to be **around 58.5 million in 2027 and around 61.5 million in 2042** (based on 2018-based subnational population projections data from the Office of National Statistics (ONS)). See table below for greater detail.

b) This results in total municipal waste for the whole of England of **19,489,732 tonnes for 2027 and 13,212,450 tonnes for 2042**.

165. **Estimate how much of this municipal residual waste would be available as a fuel**

a) Assuming 90% of this municipal residual waste would be available as a fuel, the total municipal waste that would be available as a fuel would, for the whole of England of, be **17,540,759 tonnes for 2027 and 11,891,205 tonnes for 2042.**

166. **Take into account how much of this fuel should be assumed to be used for purposes other than municipal waste incineration, e.g. used as a fuel for co-incineration at cement kilns and as feedstock for waste-to-SAF**

a) Cement kilns are expected to use approximately 750,000 tonnes of municipal residual waste would be available as a fuel in 2027, rising to 1 million tonnes by 2042.

b) Waste-to-SAF projects that have been awarded funds under the Government's Advanced Fuel Fund are expected to use approximately 600,000 tonnes of municipal residual waste would be available as a fuel in 2027, rising to 2.1 million tonnes by 2042.

c) This means that **in 2027 a total of around 1.35 million tonnes** of municipal residual waste should be assumed to be used for purposes other than municipal waste incineration, rising to **3.1 million in 2042**.

d) When these figures are subtracted from the totals, the figures for English municipal waste available for use as incinerator feedstock would be **16,190,759 tonnes in 2027 and 8,791,205 tonnes in 2042.**

167. **Take into account existing EfW capacity and EfW capacity under construction, including the impact of changes in feedstock composition on processing capacity**

a) According to the Applicant's original Waste Fuel Availability Assessment [APP-094] existing operational EfW capacity and EfW capacity under construction in England amounts to

b) In APP-094 the Applicant provides figures for the grand total of existing operational EfW capacity and EfW capacity under construction for the WFAA Study Area as follows: 7,280,000 tonnes of existing operational EfW capacity (electronic page 92) and 1,924,500 tonnes of EfW capacity under construction (electronic page 91).

c) Added together this amounts to 9,204,500 tonnes for the WFAA Study Area – which should be reduced by 495,000 tonnes to account for the New Edmonton incinerator will replace existing Edmonton capacity. This provides a figure of **8,709,500 tonnes of existing operational EfW capacity and EfW capacity under construction for the WFAA Study Area**.

d) In APP-094 the Applicant provides figures for the grand total of existing operational EfW capacity and EfW capacity under construction for the rest of England as follows: 8,308,000 tonnes of existing operational EfW capacity (electronic page 92) and 1,871,000 tonnes of EfW capacity under construction (electronic page 91). Added together this amounts to **10,179,000 tonnes for the rest of England**.

e) Adding the 'rest of England' figures to the WFAA Study Area figures, this amounts to 15,588,000 tonnes of existing operational EfW capacity in England, and 3,300,500 tonnes of English EfW capacity under construction (when 495,000 tonnes have been subtracted to avoid double counting the existing Edmonton capacity), amounting to a grand total of **18,888,500 tonnes of existing EfW capacity and EfW capacity under construction for England as a whole.**

168. This means that when considering the Applicant's WFAA Study Area, the 625,600 tonnes of new waste incineration capacity proposed for Medworth could be expected to result in **overcapacity of around 921,000 tonnes in 2027 and around 4,774,000 tonnes by 2042**.

169. And when considering the whole of England, the 625,600 tonnes of new waste incineration capacity proposed for Medworth could be expected to result in **overcapacity of more than 3.3 million tonnes in 2027 and more than 10.7 million tonnes by 2042**.

170. The results of a similar exercise carried out with respect to the Applicant's WFAA Study Area is included in a summary table above.

Comments on the Applicant's Waste Fuel Availability Assessment (WFAA)

171. While the Applicant relies heavily on their Waste Fuel Availability Assessment (WFAA) to justify, for example, why they believe the proposed facility is consistent with current and emerging policies and would not result in incineration overcapacity or harm to the waste hierarchy, the conclusions of the WFAA [APP-094] are deeply flawed and therefore the Applicant's original WFAA cannot be relied upon.

172. As can be seen above, when the impact of residual waste reduction targets is properly taken into account, there is likely to be significant overcapacity across both England and the Applicant's WFAA Study Area, and the Medworth plant would exacerbate that overcapacity.

173. In REP1-096 UKWIN suggested a number of factors that would need to be included in any updated WFAA and UKWIN provided an associated rationale for those suggestions, noting that "UKWIN's initial review of the Applicant's Waste Fuel Availability Assessment has identified a number of shortcomings that should be remedied in the Applicant's updated WFAA".

174. In summary, UKWIN set out how the WFAA needed to be revised to account for:

a) UK Government recycling and residual waste targets being met, including the 2027 and 2042 waste reduction targets;

b) Increases in domestic incineration capacity from 2019 onwards;

c) Impact of changes in waste composition on waste processing capacity, including how reduced CV increases effective processing capacity; and

d) Increases in other capacity that could take municipal residual waste, such as increases in cement kiln and waste-to-SAF capacity.

175. Given that the Applicant has already acknowledged the need to update their WFAA and given that there are numerous areas of concern that have been raised by UKWIN but have yet to be adressed, it is clear that the WFAA will need to undergo significant improvement if it to be relied upon as evidence.

176. In light of existing and emerging Government policies, the overcapacity arguments constitute a robust reason for refusal. Indeed, such a refusal would align with Government statements on the need to avoid incineration overcapacity and the precedent set established by the Wheelabrator Kemsley North refusal, which took into account how that incinerator proposal was expected to divert from recycling and not simply from landfill despite the Applicant's claim that it was only intended to treat non-recyclable waste.

IEMA Transforming the world to sustainability

Institute of Environmental Management & Assessment (IEMA) Guide:

Assessing Greenhouse Gas Emissions and Evaluating their Significance

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Contents

Acknowledgements

Working group

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About IEMA

The Institute of Environmental Management & Assessment (IEMA) is the professional home of over 18,000 environment and sustainability professionals from around the globe. We support individuals and organisations to set, recognise and achieve global sustainability standards and practice. We are independent and international, enabling us to deliver evidence to governments, information to business, inspiration to employers and great stories to the media that demonstrate how to transform the world to sustainability.

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List of Abbreviations / Glossary

BaU – Business as Usual

BIM – Building Information Modelling

BREEAM – Building Research Establishment Environmental Assessment Method

CEEQUAL – Civil Engineering Environmental Quality assessment scheme

CEMP – Construction Environmental Management Plan

CEN – European Committee for Standardization

Climate change – changes in general weather conditions over 30 years (seasonal averages and extremes)

Climate Change Adaptation – the process that a receptor or project must go through to ensure it maintains its resilience to climate change

Climate Change Resilience – a measure of ability to respond to changes in climate. If a receptor or project has a good climate change resilience, it is able to respond to the changes in climate in a way that ensures it retains much of its original function and norm

CCC – Climate Change Committee

DBEIS – Department for Business, Energy & Industrial Strategy

DEFRA – Department for Environment, Food & Rural Affairs

DfT – Department for Transport

EIA – Environmental Impact Assessment

EMP – Environmental Management Plan

EPD – Environmental Product Declaration

ES – Environmental Statement

F-gases – a group of greenhouse gases called fluorinated gases, consisting of HFCs, PFCs and SF6

GHG – Greenhouse Gases

GHG practitioner – an environmental consultant with specific experience and knowledge pertaining to GHG modelling and reporting; not to be confused with EIA practitioners who typical have a wider EIA delivery role overseeing the coordination of all environmental topics in an ES

IA – Impact Assessment

IEMA – the Institute of Environmental Management and Assessment

IPCC – Intergovernmental Panel on Climate Change

kWh – kilowatt-hour

LCA – Life Cycle Assessment is a cradle-to-grave or cradle-to-cradle analysis technique to assess environmental impacts associated with all the stages of a product's life, which is from raw material extraction through materials processing, manufacture, distribution, and use.

LICR – Large Infrastructure Carbon Rating

LPA – Local Planning Authority

LULUCF – Land Use, Land-Use Change and Forestry

TCFD – Task Force on Climate-related Financial Disclosures

tCO_2e – tonnes of carbon dioxide equivalent

UK – United Kingdom

UNFCCC – United Nations Framework Convention on Climate Change

WBCSD – World Business Council for Sustainable Development

WRI – World Resource Institute

I – Introduction

1.1 The aim of this guidance

The aim of this guidance is to assist greenhouse gas (GHG) practitioners (hereinafter referred to as 'practitioners') with addressing GHG emissions assessment, mitigation and reporting[1] in statutory and non-statutory Environmental Impact Assessment (EIA). It is a revision of the 2017 IEMA guidance on Assessing Greenhouse Gas Emissions and Evaluating their Significance[2] (Box 1 lists the key updates from the 2017 version of the guidance). It complements IEMA's latest guide on Climate Change Resilience and Adaptation[3] published in 2020 and builds on the Climate Change Mitigation and EIA overarching principles (as in the previous version of the GHG Guidance). The requirement to consider this topic has resulted from the 2014 amendment to the EIA Directive (2014/52/EU), the Town and Country Planning (Environmental Impact Assessment) Regulations 2017[4] and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017[5], hereafter referred to as the 'EIA Regulations'.

A lot has changed since 2017. Climate change has moved up the national and international agenda with local authorities across the UK declaring a climate change emergency. The UK's legally binding Climate Change Act 2008[6] was amended in 2019[7] in response to the Paris Agreement, setting a new and challenging target to reduce UK GHG emissions to net zero by 2050, accounting for residual emissions which are offset. Devolved administrations in Scotland and Wales have also set net zero targets. In December 2020, the UK Government's independent advisors, the Climate Change Committee (CCC), set the sixth[8] carbon budget at 965 million tCO_2e from 2033 to 2037, which has since been enshrined in to law. There is a distinct requirement for deeper cuts in emissions across all sectors of the economy to meet the net zero target according to the CCC.

1 Note: Statutory EIA reports are called 'Environmental Statements' in England, Wales and Northern Ireland and 'Environmental Reports' in Scotland.

2 IEMA (2017) Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at: [redacted]

3 IEMA (2020) Climate Change Resilience and Adaptation. Available at: [redacted]

4 UK Legislation (2017) The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/571/contents/made

5 UK Legislation (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/572/contents/made

6 UK Legislation (2008) Climate Change Act 2008. Available at: https://www.legislation.gov.uk/ukpga/2008/27/contents

7 UK Legislation (2019) The Climate Change Act 2008 (2050 Target Amendment) Order 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111187654

8 UK Legislation (2021) The Carbon Budget Order 2021. Available at: https://www.legislation.gov.uk/uksi/2021/750/contents/made

Box 1: Key updates to the 2017 guidance

Mitigation has taken a much more prominent role within the EIA. It is no longer an element to be considered towards the later stages of the EIA process (after scoping, emissions assessment and significance determination). Instead, mitigation should be considered from the outset and throughout the project's lifetime, whilst also helping to deliver proportionate EIAs. Mitigation is addressed first in the guidance (Section II) but also as part of the GHG Assessment Methodology (Section V).

The guidance presents more nuanced levels of significance. The 2017 guidance stated that "...in the absence of any significance criteria or defined threshold, it might be considered that all GHG emissions are significant...". This update of the guidance does not change IEMA's position (or the science) that all emissions contribute to climate change, however specifically in the EIA context it now provides relative significance descriptions to assist assessments. Section VI describes five distinct levels of significance which are not solely based on whether a project emits GHG emissions alone, but how the project makes a relative contribution towards achieving a science-based 1.5°C aligned transition towards net zero.

In November 2021 Glasgow hosted COP26 – widely regarded as the most important climate summit since the 2015 Paris Agreement and acknowledging the urgency (as evidenced by latest IPCC reports), the Glasgow Climate Pact was agreed. This set the agenda on climate change for the next decade. Pledges made to further cut emissions, and a plan set to reduce the use of coal and phase-out fossil fuel subsidies are some of the commitments made at COP26. The nations present at COP26 collectively agreed to work to reduce the 'emissions gap' and to ensure that the world continues to advance during the present decade, so that the rise in the average temperature is limited to 1.5°C.

With climate change taking centre stage, projects are increasingly scrutinised and challenged for not mitigating GHG emissions in line with the net zero ambition and the associated required pace of reductions[9]. This critical change is known as the transition imperative. EIA Climate chapters are receiving a lot more attention with clients, project developers and stakeholders often asking: *'what do we need to do and how can we be net zero?'*. Addressing significance and contextualising projects' emissions is an increasingly challenging exercise, especially under a tapestry of national and sectoral carbon targets and budgets, regional and local plans and sectors all on different pathways. This guide aims to provide practitioners with the best advice on how to tackle these questions.

Through a working group facilitated by Arup on behalf of IEMA, this guidance helps practitioners take an informed approach to the treatment of GHG emissions within an EIA. It sets out areas for consideration at all stages of the assessment and offers methodological options that can be explored. It highlights some of the challenges to the assessment, such as establishing study boundaries and what constitutes significance. However, this guidance is not a prescriptive 'how to' guide and will be updated as the process of incorporating GHG assessment in EIA continues to mature.

1.2 EIA and project linkage

EIAs can often be undertaken in silo, separate from the full design process, resulting in an accounting exercise rather than realising the full potential of the GHG emissions reduction opportunity. This can be addressed by delivering the EIA in close cooperation with the project design team.

9 The pace of reduction should align with a credible 1.5°C transition scenario (for example Science Based Targets Initiative Net Zero or Tyndall Centre aligned carbon budget)

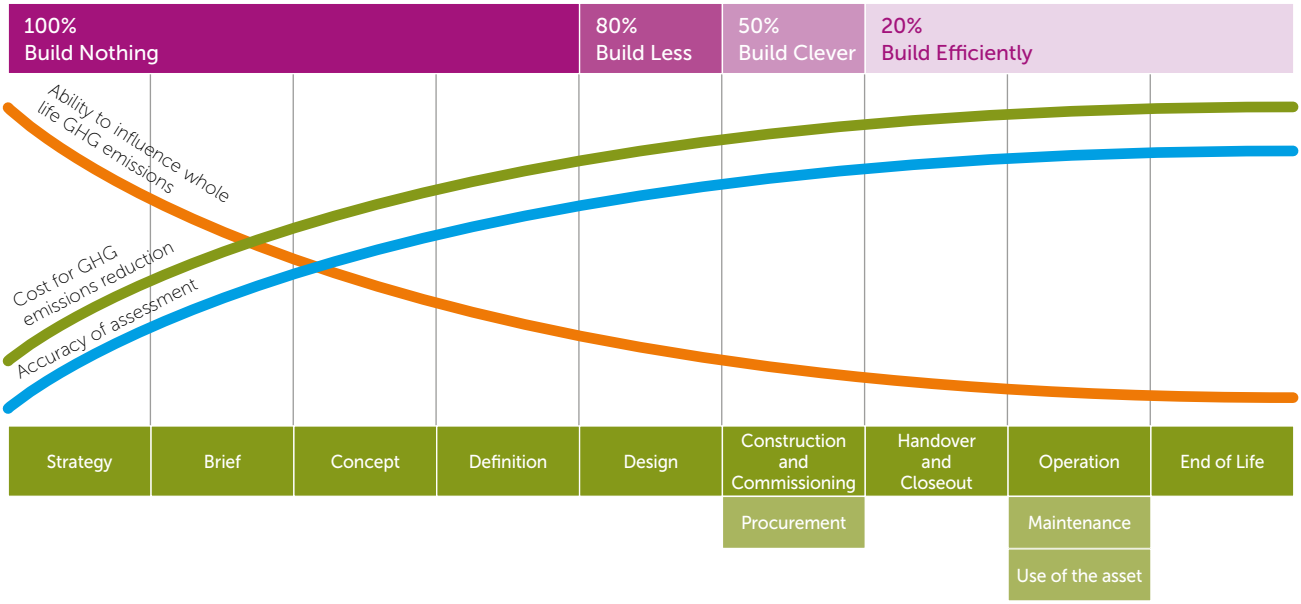


Figure 1: The ability to effect change to achieve GHG emissions reduction for the project reduces over time. This makes it important that the emissions reduction is considered from the outset or at the earliest practical point. (Source: Infrastructure Carbon Review & PAS 2080).

Early stakeholder engagement is fundamental to maximising GHG emissions savings. GHG reductions are likely to be greater if mitigation is considered at project inception and throughout all subsequent work phases: planning, construction and operation stages – enabling mitigation measures to be identified and implemented throughout the life cycle of the proposed project. Examples of stakeholders can be found in Appendix A. Figure 1 illustrates how the potential to achieve GHG emissions reduction declines with time over a project life cycle.

The interaction between the design process and EIA process is underpinned by four key principles:

1. Early, effective and ongoing interaction
2. Appropriate stakeholder engagement
3. Managing consenting risk
4. A clear narrative

For further detail on these principles and ensuring that GHG mitigation measures are built in rather than bolted on at a later stage, refer to IEMA's EIA guide on Shaping Quality Development[10].

The need to ensure that GHG mitigation measures are implemented does not end at the pre-application EIA stage, but extends after consent has been granted to the proposed project. To ensure that GHG mitigation measures are carried forward, the development of Environmental Management Plans (EMP) and Construction Environmental Management Plans (CEMP) are the primary mechanisms. For further information refer to IEMA's EIA guide to Delivering Quality Development[11].

The scope of this document is presented in Figure 2.

10 IEMA (2015) Environmental Impact Assessment Guide to Shaping Quality Development. Available at: https://www.iema.net/download-document/7018

11 IEMA (2016) Environmental Impact Assessment Guide to Delivering Quality Development. Available at: https://www.iema.net/download-document/7014

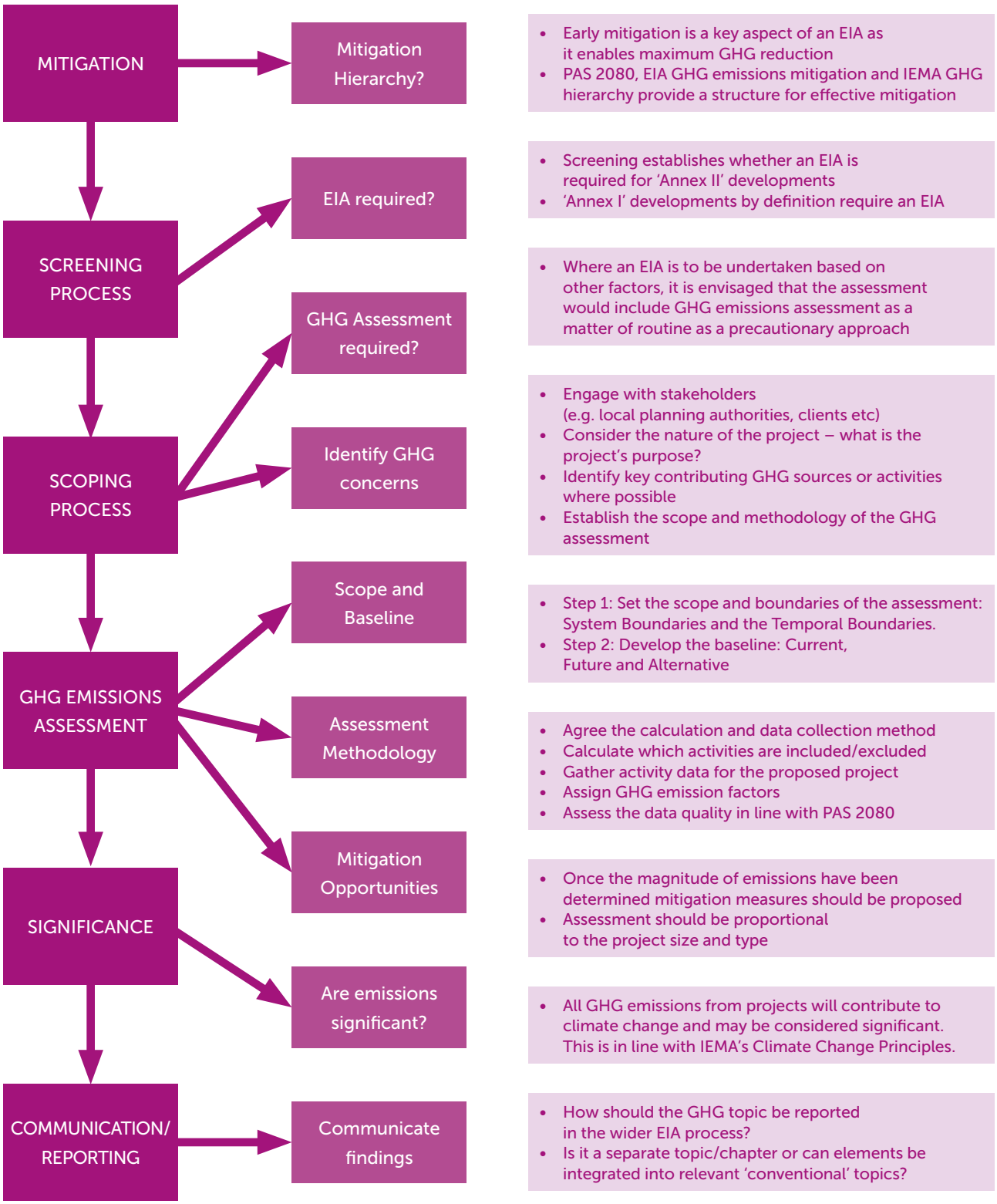


Figure 2: Scope of this guide

II – Mitigation

2.1 Early design mitigation

It is important that project designers incorporate measures to reduce GHG emissions at an early stage. This means evaluating what GHG emissions reduction measures may be appropriate to include in the design. Mitigation should be considered at all stages of design development – from optioneering through to detailed design, not just as a part of the EIA process (see Figure 1). To successfully address GHG emissions at an early stage, it is good practice to ensure there is a 'carbon coordinator' within the design team, who focuses on promoting GHG saving opportunities and ensures GHG reduction is a focus of the design team.

GHG mitigation is best achieved by taking a planned and focused approach following the IEMA GHG management hierarchy principles[12]. There are many different variations on the use of hierarchies in environmental management and assessment, with the commonality that they set out a graded structure of interventions with generally more favourable options presented over others. Such structures typically start with first avoiding or reducing harm, before suggesting compensations. Depending on the proposed project and contextual setting, the practical outcomes of this can be many and diverse. In addition to mitigations listed in IEMA's GHG Management Hierarchy, BS EN ISO 14064-1: 2019[13] on GHG quantification and reporting provides an example list of GHG mitigation interventions such as:

- Energy demand and use management
- Energy efficiency
- Technology or process improvements
- GHG capture and storage in, typically, a GHG reservoir
- Management of transport and travel demands
- Fuel switching or substitution
- Afforestation
- Waste minimisation
- Alternative fuels and raw materials (AFR) use to avoid landfilling or incinerating the wastes
- Refrigerant management

2.2 Mitigation hierarchy

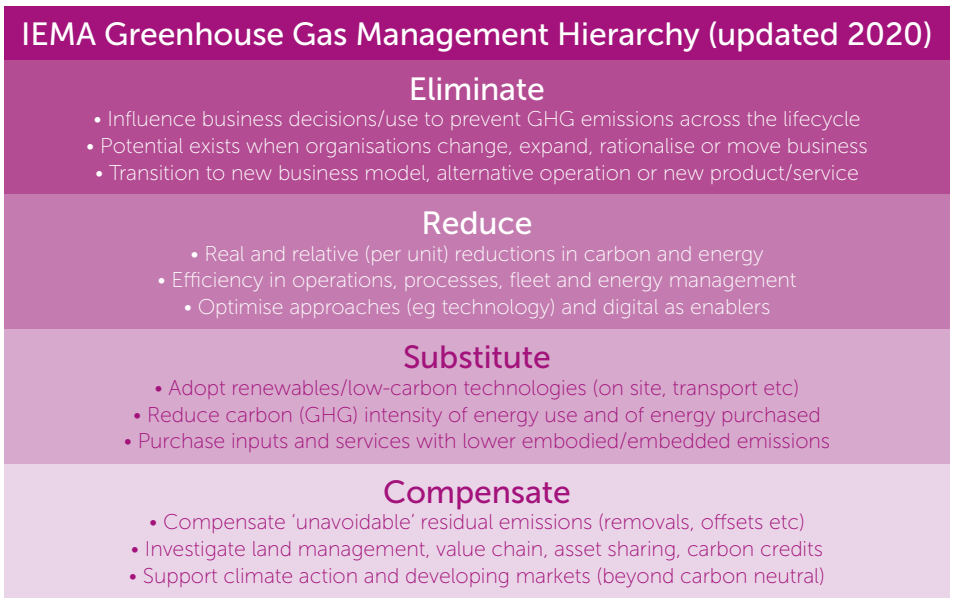
For EIA GHG emissions mitigation, PAS 2080 also provides a useful structure for working through and identifying potential opportunities and interventions. The IEMA GHG Management Hierarchy[14] (see Figure 3) provides a similar structure set out as **eliminate**, **reduce**, **substitute** and **compensate**. A variation of these steps is set out below and can be followed by practitioners in the EIA to identify opportunities that direct GHG mitigation action for a project:

- **Do not build:** evaluate the basic need for the proposed project and explore alternative approaches to achieve the desired outcome/s
- **Build less:** realise potential for re-using and/or refurbishing existing assets to reduce the extent of new construction required
- **Design clever:** apply low carbon solutions (including technologies, materials and products) to minimise resource consumption and embodied carbon during the construction, operation, user's use of the project, and at end-of-life
- **Construct efficiently:** use techniques (e.g. during construction and operation) that reduce resource consumption and associated GHG emissions over the life cycle of the project

12 IEMA (2020) Pathways to Net Zero: Using the IEMA GHG Management Hierarchy. [redacted]

13 BS EN ISO 14064-1: 2019 Greenhouse gases – Part 1: specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals.

14 IEMA (2014) Position Statement on Climate Change and Energy. Available [redacted]



Updated from original IEMA GHG Management Hierarchy, first published in 2009

Figure 3: IEMA GHG Management Hierarchy

- **Offset and remove emissions:** as a complementary strategy to the above, adopt off-site or on-site means to offset and/or sequester GHG emissions to compensate for GHG emissions arising from the project

2.3 Offsetting residual emissions

Multiple terms are used to describe how offsets are used to mitigate residual emissions, and projects may sometimes be promoted as 'carbon neutral' or 'net zero'. It is important that the EIA is clear in defining any terms used. Figure 3 above sets out the position of carbon offsets (referred to as 'Compensate' in Figure 3) in the mitigation hierarchy. There is a distinction between carbon offsets that provide a financial payment to avoid emissions and offsets that remove and sequester atmospheric GHG emissions, and this should be communicated transparently where offsetting is assessed in an ES chapter.

The October 2021 IEMA's Net Zero Explained report[15] summarises the concept of net zero, its origin and science behind the definition. The report also links to alternative sites providing some clarity behind evolving definitions, such as net zero, carbon neutral and zero carbon. The UNFCCC's Race to Zero Lexicon[16] provides the following definitions:

- Net Zero: *"When anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period."* Net zero is achieved where emissions are first reduced in line with a 'science-based' trajectory with any residual emissions neutralised through offsets.
- Carbon Neutral: *"When anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period... irrespective of the time period or magnitude of offsets required."*

15 IEMA (2021) Net Zero explained. Available at: [redacted]

16 UNFCCC (2021) Race to Zero Lexicon. Available at: [redacted]

- Absolute Zero or Zero Carbon: *"When no GHG emissions are attributed"* to an activity or project without the need for offsets.

After following the mitigation hierarchy, projects can seek to compensate residual emissions by the use of either carbon credits (purchased from credible eligible schemes) or by removals within the organisation or entity itself (e.g. nature based solutions on owned land or land with partners). In order to avoid significant adverse effects, mitigation and compensation (if required) would need to be implemented at a magnitude and in a timescale that is consistent with measures required to achieve a 1.5°C compatible trajectories, as discussed in Section VI on determining significance of effects.

III – Screening

The purpose of screening is to establish whether or not an EIA is required for 'Schedule 2' developments (Schedule 1 developments by definition require an EIA). The EIA Regulations require specific information at the screening stage. This includes the consideration of likely significant effects of the proposed project on the environment, taking into account the following:

- The magnitude and spatial extent of the impact (e.g. the geographical area and size of the population likely to be affected)
- The nature of the impact
- The transboundary nature of the impact
- The intensity and complexity of the impact
- The probability of the impact
- The expected onset, duration, frequency and reversibility of the impact
- The cumulation of the impact with the impact of other existing and/or approved projects
- The possibility of effectively reducing the impact

Applying screening criteria (Schedule 3) will allow a judgement to be made on whether there is potential for likely significant environmental effects to arise which may trigger the need for an EIA. Occasionally, this may apply to only a very limited number of topics, for example in a sensitive location for a relatively small-scale project. Generally, however, where an EIA is required, it is common for there to be several topics that require assessment. As the assessment of most topic areas is well established (e.g. ecology, water, heritage), it is usually clear cut which topics trigger the need for EIA.

Sensitivity of receptor(s)

GHG emissions are not geographically limited. They have a global effect rather than directly affecting any specific local receptor to which a level of sensitivity can be assigned. The receptor for GHG emissions is the global atmosphere. The receptor has a high sensitivity, given the severe consequences of global climate change and the cumulative contributions of all GHG emission sources.

It is always good practice to consider whether the effects associated with GHG emissions are likely to be significant enough to trigger an EIA. At the screening stage, proposed mitigation measures that the developer has committed to which aim to avoid or prevent significant adverse effects, may be taken into account when determining whether significant effects are likely to occur.

It should be noted that, as with most environmental topics, there are likely to be only limited cases in which GHG emissions alone are the decisive factor in whether an EIA is needed for a particular project, but in almost all cases GHG emissions are likely to be a relevant factor at the screening stage.

For proposed projects where the need for an EIA has been screened out, it is still important that its GHG emissions are minimised wherever possible, as emissions of any scale contribute cumulatively to global climate change. Undertaking a proportionate assessment of GHG emissions on non-EIA projects is therefore good practice to support decisions that reduce GHG emissions.

IV – Scoping

4.1 Introduction

The scoping process should be used to determine the approach to considering GHGs within the ES. The approach should be proportionate[17] to the proposed project and may, in some cases, not require an ES chapter where it can be justified that GHGs can be addressed within upfront sections of the ES (see further detail in Section V: Methodology, Section VI: Significance and Section VII: Communication/ Reporting). Additionally, ES chapters may differ in scope or assessment detail on a project-by-project basis. The scoping process should therefore consider both the scope of the EIA and the scope of the GHG assessment.

The scoping process should provide an explanation of the likely significant effects of a proposed project. Section VI: Significance sets out the principles in determining likely significant GHG effects which should be reviewed at the scoping stage.

The following should be considered when determining a proportionate approach:

- The type, size, location and temporal scale of the proposed project
- Whether other assessment work has already considered life cycle GHG emissions
- Whether mitigation has already been agreed with the design team, particularly if this is beyond minimum policy requirements
- Whether the proposed project has specific goals or aspirations (e.g. achieving BREEAM certification)

In selecting or developing an approach for an EIA GHG emissions assessment, the aim should be to deliver a robust, proportionate, appropriate and consistent assessment.

During scoping, it is also important to set out in principle the methodological approach that will be taken to assessing project GHG emissions. This means documenting in outline aspects such as baseline setting, assessment approach, how significance will be determined and strategies for mitigation. These are commonly recorded in a project scoping report, and this can form a useful first record of the approach to delivering the GHG emissions assessment. Each of these steps for the EIA are addressed in the following sections, which should be consulted for further detail.

4.2 Stakeholder engagement

Stakeholder engagement is an important part of undertaking an EIA, especially during the scoping stage. It will provide useful information and support the goals of the GHG emissions assessment.

Stakeholder engagement will provide the practitioner better contextual understanding of the project including on key issues, opportunities, constraints and information pertinent to the assessment. Stakeholders will include clients, project developers and statutory consultees who all have an interest and influence on the project.

Depending on the nature of the proposed project, GHG emissions can be discussed during public consultation. Initial consultation with the project team and wider EIA topic specialists may also reveal parallel activities where input from the GHG assessment would be beneficial. For example, clients may wish to report on the sustainability performance of their projects using assessment schemes such as PAS 2080, CEEQUAL and BREEAM. Being able to report on the proposed project's GHG performance will help with such assessments. It may be sensible that a single GHG assessment is carried out which provides evidence for the EIA's GHG scope as well as CEEQUAL or BREEAM assessment requirements. Depending on contractual agreements there are efficiencies to be gained in minimising effort and avoiding duplication of work.

17 IEMA (2017) Delivering Proportional EIA. Available at: [redacted]

Other project management decisions may include the desire to manage the project in an integrated manner, combining 3D models with performance data (including environmental data) such as BIM (Building Information Modelling).

4.3 Benefits and challenges of raising GHG emissions as part of project scoping

By going through the scoping process, the practitioner gains an early and informed understanding of the project's impact and potential sources of GHG emissions. This provides an opportunity to influence and even mitigate GHG emissions early in the design process as well as consider emissions from alternative options.

The challenge at the scoping stage is that there is often limited project information available from the design team at this early stage, resulting in a qualitative-based decision and professional judgement from the practitioner. Nevertheless, by engaging with key stakeholders, the practitioner should be able to define the boundaries of the GHG assessment (see Section 5.3), as well as start to form a view of where the majority of emissions are likely to arise from and appropriate mitigation strategies.

Where the competent authority (e.g. LPA) provides a scoping opinion, the subsequent ES must be 'based on' the expectations set out in the opinion, including any reference to GHG assessment. This underlines the importance of the scoping stage; however, case law has established that the ES can also adapt to development design evolution that occurs post-scoping.

V – GHG emissions assessment methodology

5.1 Introduction

There are many different assessment methods available for measuring and quantifying GHG emissions associated with the built and natural environment. These range from general guidance to formal standards, and many will be appropriate for use in EIA depending on the goals and scope of the assessment required. There is ample GHG quantification guidance in the public domain. However, undertaking an EIA is different to other GHG assessments as the total net impact of the proposed project must be quantified. Therefore, any assessment should follow the principles set out below (see Section 5.2). A list of relevant methods can be found in Appendix B.

Given the wide variation of working situations and the particular aims and objectives of the EIA process, this guidance does not recommend a particular approach. Rather, it sets out advice for the key common components necessary for undertaking a GHG emissions assessment. This guidance does, however, outline a framework of six steps that an assessment should incorporate, which are set out in Section 5.3.

5.2 GHG quantification principles

- GHG quantification within EIA should follow the principles outlined in key documents such as the GHG Protocol Corporate Standard, BS EN ISO 14064-2 or PAS 2080 (see Appendix B) – Relevance, Completeness, Consistency, Transparency and Accuracy
- The assessment should seek to quantify the difference in GHG emissions between the proposed project and the baseline scenario (the alternative project/solution in place of the proposed project). Assessment results should reflect the difference in whole life net GHG emissions between the two options
- The assessment must include all material emissions (defined by magnitude, see Section 5.3, Step 3 *for the exclusion threshold*), direct or indirect (based on the point above), during the whole life of the proposed project. The boundary of the assessment should be clearly defined, in alignment with best practice
- The assessment should seek to present a reasonable worst case
- Any exclusions, limitations, assumptions and uncertainties should be justified and reported where appropriate

5.3 Six Steps of GHG emissions assessment

In developing the approach, the aim should be to deliver a robust, proportionate, appropriate and consistent assessment. The following six steps outline the framework a GHG emissions assessment should incorporate:

1. Set the scope and boundaries of the GHG assessment
2. Develop the baseline
3. Decide upon the emissions calculation methodologies
4. Data collection
5. Calculate/determine the GHG emissions inventory
6. Consider mitigation opportunities and repeat steps 4 & 5

The following sections explore these aspects in more detail. The contextualisation of emissions and determination of significance is addressed in Section VI: Significance.

Step 1: Set the scope and boundaries of the GHG assessment

In the first instance the assessment should set out the rationale for the assessment and its scope, as well as provide background and context. This will normally incorporate a description of the proposed project, its purpose and activities, the system boundary to apply and life cycle stages scoped in and out (including justification) of the assessment.

System boundaries

All material existing sources and removals of GHG emissions prior to project construction and operation (i.e. without the project) should be identified and clearly described.

EIAs should use data that is consistent with and report using the modular approach (Figure 4). A detailed and complete GHG emissions assessment typically covers all life cycle modules.

As projects vary in size, so does the scale of GHG assessments in the spirit of delivering proportionate EIAs. Certain life cycle modules (or stages) can be excluded if these exclusions are clearly highlighted and justified by the practitioner using professional judgement and in accordance with the materiality and cut-off guidance.

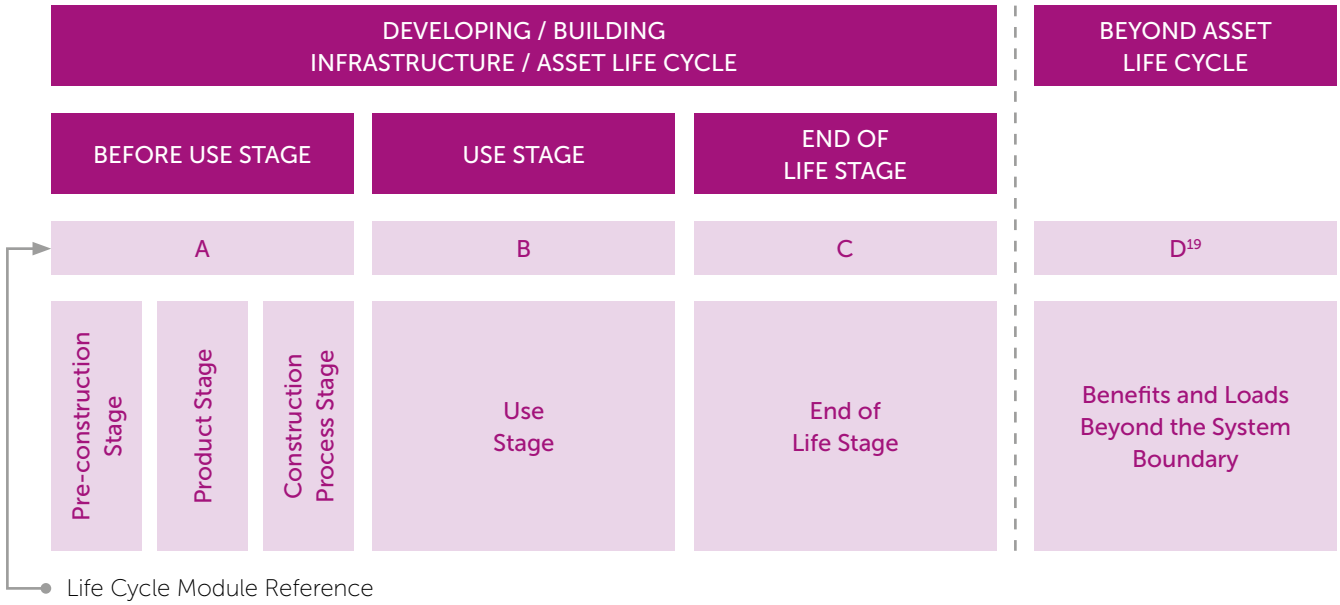


Figure 4: Modular approach of life cycle stages and modules for EIA GHG emissions assessment; the module references are widely used in construction GHG emissions assessment and reduction activities. The figure provides a simplified presentation of the modular approach that can be used for boundary definition and the gathering and reporting of information associated with the assessment. A more detailed presentation of this structure can be found in PAS 2080 and BS EN 15978[20].

18 'For clarity, Module D in Figure 4 (Benefits and Loads Beyond the System Boundary) refers to wider impacts that may not be appropriate to attribute (in part or whole) to the project when calculating net impacts within the study boundary but are nevertheless relevant context to consider. Examples include the benefits of a project sending waste materials for recycling rather than disposal (which is properly attributed to the user of recycled products, but still relevant to acknowledge) or where a major project such as an airport or rail line might affect regional or national travel patterns and emissions (properly attributable to a wider group of transport users, but relevant to acknowledge in the project context).'

19 BS EN 15978:2011 Sustainability of construction works, Assessment of environmental performance of buildings, Calculation method

Temporal boundaries

A reference study period shall be chosen as the basis for the GHG emissions assessment, and this should be based on the expected service life of the construction asset. Additional assistance is available in ISO 15686-1[20], RICS Whole life Carbon Assessment[21] and TAG GHG Assessment guidance[22].

Step 2: Develop the baseline

A baseline is a reference point against which the impact of a new project can be compared against; sometimes referred to as 'business as usual' (BaU) where assumptions are made on current or future GHG emissions. Baseline can take the form of:

A. GHG emissions within the boundary of the GHG quantification but without the proposed project; or

B. GHG emissions arising from an alternative project design and/or BaU for a project of this type.

The ultimate goal of establishing a baseline is being able to assess and report the net GHG impact of the proposed project.

Current baseline

The current baseline represents existing GHG emissions from the assessment prior to construction and operation of the project under consideration. This may include emissions from existing projects (e.g. energy consumption from a building which is scheduled for refurbishment, demolition or replacement) and infrastructure (e.g. current operational and end-user emissions of a road due to be upgraded).

Depending on the nature of the project, in addition to the project baseline, it may also be necessary to establish a sectoral baseline. For example, baseline emissions from BaU power generation would also be important to consider due to the interconnected nature of the electricity grid. This will equally apply to other project types that have wider interlinkages beyond a site level, e.g. many transport, industrial and waste projects.

It may not always be possible to report on current baseline emissions, particularly with projects situated in areas with no physical development or activity. In this instance there would be zero GHG emissions to report at a site level, although particular attention should be paid where changes in land use are expected. For example, land use and land-use change such as woodland creation can sequester carbon over their lifetime and therefore contribute to climate change mitigation. Their disturbance or removal through construction will release previously sequestered GHG emissions.

20 ISO 15686-1:2011Buildings and constructed assets — Service life planning — Part 1: General principles and framework

21 RICS (2021) Whole Life Carbon Assessment for the Built Environment, 1st edition. Available at: https://www.rics.org/uk/upholding-professional-standards/sector-standards/building-surveying/whole-life-carbon-assessment-for-the-built-environment

22 Department for Transport (2021) TAG unit A3 environmental impact appraisal. Available at: https://www.gov.uk/government/publications/tag-unit-a3-environmental-impact-appraisal

Future baseline

Future baseline should capture both operational[23] and user[24] GHG emissions irrespective of their source (i.e. direct and indirect emissions). The distinction between operational and user GHG emissions is important. For example, an existing motorway will have operational emissions (i.e. lighting, maintenance, upgrades) as well as user emissions associated with vehicles travelling along the route. Current baseline travel patterns should be assessed as projected change (e.g. changes in mode share, increased efficiency in vehicles and trip numbers). With regards to energy supply and demand (e.g. electricity use in a commercial building), future baseline should report on operational GHG emissions and how these may change over time (e.g. based on occupancy changes, UK grid decarbonisation projection scenarios or the adoption of renewables).

Box 2 lists potential sources of information which can be considered when establishing future baseline emissions.

Box 2: Potential sources of information on GHG and energy projections (see Appendix A for further details)

- Modelled or projected future scenarios and pathways to net zero published by authoritative bodies such as the CCC[25]
- The Department for Business, Energy & Industrial Strategy (previously DECC)[26]
- The Department for Transport (DfT) TAG (the Transport Analysis Guidance) – Data Book[27]
- BEIS Electricity emissions to 2100 factor projections[28]
- GHG emissions from the operation of existing buildings can be estimated using published benchmarks (e.g. CIBSE Guide F – Energy Efficiency in Buildings (2012) or BSRIA Rules of Thumb Guidelines for Building Services (5th Edition, 2011)) where primary data such as annual metered energy consumption is not available
- GHG emissions associated with other sources or activities such as playing fields may be harder to estimate. It may be appropriate to assume zero baseline GHG emissions in such cases to ensure a reasonable worse-case approach to establishing the net GHG effect of the project. It could in such cases be important to also quantify (estimate) emissions release from the land used change and soil disturbance

23 PAS 2080:2016 Carbon Management in Infrastructure defines operational carbon as GHG emissions associated with the operation of infrastructure required to enable it to operate and deliver its service

24 PAS 2080:2016 Carbon Management in Infrastructure defines user carbon as GHG emissions associated with Users' utilisation of infrastructure and the service it provides during operation

25 Climate Change Committee (2020) The Sixth Carbon Budget. Available at: https://www.theccc.org.uk/publication/sixth-carbon-budget

26 The Department for Business, Energy & Industrial Strategy. Available at: https://www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy

27 The Department for Transport (2021) Transport Analysis Guidance (TAG). Available at: https://www.gov.uk/guidance/transport-analysis-guidance-tag

28 The Department for Business, Energy & Industrial Strategy (2021) Energy and emissions projections – Net Zero Strategy Baseline. Available at: https://www.gov.uk/government/collections/energy-and-emissions-projections

Alternative baselines

Alternative baselines can be used to supplement the analysis and address uncertainty. For example, it may be unclear what baseline to adopt and compare a proposed project against if the site is 'empty' (i.e. the project is not replacing an existing development). For example: different locations, designs or layouts for building developments; or alternative energy generation options in the instance of a wind or solar farm proposal. However, a realistic worse-case baseline should still be used for assigning significance.

In many instances, alternatives may not have been considered by the developer. Ideally, alternatives would have been considered earlier in the project life cycle, and the EIA is viewed as the platform for improving the preferred design. Nevertheless, where alternative baselines were considered, even a qualitative assessment of their GHG impact would be acceptable as part of the overall assessment.

Step 3: Assessment methodology

Once the scope and baseline is set, the calculation method can be agreed along with data collection. The methodology should result in a relevant, complete, consistent, transparent and accurate assessment of the reasonable worst case. In most cases, the assessment should use activity data and emissions factors. However, where possible, it may be preferable to generate bespoke emissions factors (e.g. through mass balance calculations) or use actual monitored data. The methodology chosen should follow best practice guidance, such as the GHG protocol, and it is not the aim of this guidance to provide this.

Inclusions & exclusions

The project boundary should include its spatial extent and life cycle stages relevant to the scope of the assessment.

Activities that do not significantly change the result of the assessment can be excluded where expected emissions are less than 1% of total emissions, and where all such exclusions total a maximum of 5% of total emissions; all exclusions should be clearly stated.

Step 4: Data collection

Project activity data

To calculate GHG emissions of a proposed project it is necessary to gather data on the activities occurring and associated GHG emissions factors. It is important that data for both these aspects, and particularly the activity data, is specific to the proposed project.

Activity data consists of information that defines and describes the size, magnitude and physical nature of the proposed project. It will take many different forms, including material specifications and quantity, energy and water demand, waste generation, transportation distances and modes, and works techniques/ technologies.

GHG emission factors

GHG emission factors are a value for 'GHG emissions per unit of activity'. Examples of this are:

- HGV: kg CO_2e / tonne.km
- UK electricity grid: kg CO_2e / kWh
- Concrete: kg CO_2e / tonne

GHG emission factors vary in their scope and coverage and will be representative of a single process/activity or multiple of these, sometimes incorporating multiple life cycle stages. Care should be taken to select and reference the right factors for the proposed project.

When undertaking a study, it is often necessary to apply multiple GHG factors for the same activity or material particularly when the assessment is studying a life cycle with a long time period. This may be appropriate when future GHG emissions for that activity are expected to

change; this might occur, for example, when accounting for reduced GHG emissions associated with a national electricity grid and the benefit this brings to demand side GHG emissions of using electric trains.

For examples of sources of GHG factors refer to Appendix A.

Data quality

The following aspects, in line with PAS 2080[29], should be considered when collecting assessment data:

- Primary (measured), secondary (estimated) or benchmarks
- Age (age of data, and the period over which they have been collected)
- Geography (the region or country from where the data have originated)
- Technology (whether the data are specific to a particular technology or mix of many)
- Methodology (the approach applied to gather or calculate the data)
- Competency (proficiency of entity that developed the data)

Baseline GHG emissions from the operation of existing buildings can be estimated using published benchmarks (e.g. CIBSE Guide F – Energy Efficiency in Buildings (2012) or BSRIA Rules of Thumb Guidelines for Building Services (5th Edition, 2011)) where primary data (e.g. annual metered energy consumption) is not available.

Baseline GHG emissions associated with other sources or activities such as agricultural fields may be harder to estimate. It may be appropriate to assume zero baseline GHG emissions in such cases to ensure a reasonable worse-case approach to establishing the net GHG effect of project proposals.

Types of data

The type of data used by the practitioner will vary depending on how detailed the project design is. Most assessments are based on design-stage information, hence activity data specific to the project should in theory be available from the engineering and design teams. If this is not the case, an alternative approach would be to fall back on generic or publicly available information that best represents the project and its activities.

Studies undertaken as part of the planning application for the proposed project outside of EIA process can provide a useful source of information for GHG assessments, for example:

- BREEAM Pre-assessment (especially RIBA 2 evidence for Mat 01 Construction Materials LCA)
- Energy Statement
- Whole Life Carbon Assessment (e.g. London Plan)
- Circular Economy Statement (e.g. London Plan)
- Sustainability Statement

Step 5: Calculate GHG emissions inventory

GHG emissions calculation method

Quantification of the GHG emissions for an EIA may be associated with either a measured or calculated approach or a combination of both for the emissions associated with the project. It is expected that in almost all cases a calculated approach for quantifying GHG emissions will be taken because an EIA is completed in advance of supply chain mobilisation and associated construction works.

29 PAS 2080:2016 Carbon Management in Infrastructure.

When undertaking a quantification calculation the formula for determining a GHG emission (or removal value), associated with the construction works, should have the following structure:

GHG emission factor × Activity data = GHG emission or removal

Calculations may be taken at different scales reflecting specific activities, components or elements of construction. Therefore, individual calculations should be summed to form a GHG emissions inventory for the quantification as a whole.

Study uncertainty

Uncertainty can arise from quality of data, study boundaries and period of assessment, and can never be eliminated from a study. Uncertainty should be considered and if it significantly affects the outcome of the study, additional steps should be taken to reduce it and provide confidence in results. As a reminder, a relevant, complete, consistent, transparent and accurate assessment of the reasonable worst case must be undertaken despite uncertainties.

Uncertainty can be considered by:

- Testing upper and lower limits
- Testing for different inclusions and exclusions
- Modifying study period
- RAG (red, amber, green) rating input data based on data quality criteria presented above
- If the scale of uncertainty provides findings that are likely to change any decision based on the data, then it should be appropriately reduced.

Cumulative GHG emissions

The atmospheric concentration of GHGs and resulting effect on climate change is affected by all sources and sinks globally, anthropogenic and otherwise. As GHG emission impacts and resulting effects are global rather than affecting one localised area, the approach to cumulative effects assessment for GHGs differs from that for many EIA topics where only projects within a geographically bounded study area of, for example, 10km would be included.

For example, air pollutant emissions are dispersed and diluted after emission and only the cumulative contributions of other relatively nearby sources contribute materially to the pollutant concentration, and hence effect, at a particular sensitive receptor in the study area. Due to the persistence of GHGs in the atmosphere, that same dispersion effect contributes to the global atmospheric GHG emissions balance. There is no greater local climate change effect from a localised impact of GHG emission sources (or vice versa).

All global cumulative GHG sources are relevant to the effect on climate change, and this should be taken into account in defining the receptor (the atmospheric concentration of GHGs) as being of 'high' sensitivity to further emissions.

Effects of GHG emissions from specific cumulative projects therefore in general should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other.

The contextualisation of GHG emissions, as discussed in Section 6.4, should incorporate by its nature the cumulative contributions of other GHG sources which make up that context. Where the contextualisation is geographically – or sector-bounded (e.g. involves contextualising emissions within a local authority scale carbon budget, or a sector level net zero carbon roadmap), then the consideration of cumulative contributions to that context will be within that boundary.

Step 6: Mitigation opportunities

Once the magnitude of emissions has been determined (as discussed in Section 5.3, Step 4), mitigation measures (as discussed in Section 2) should be proposed. Any mitigation measures that are committed to need to be included within the assessment. This means recollecting new activity data where this has changed due to mitigation measures, and new emissions calculations need to be undertaken. Steps 4 & 5 should be repeated as necessary.

5.4 GHG assessment and proportionality

GHG emissions should be assessed and reported as part of a good practice approach to EIA.

Projects will vary by type and size, and so will GHG emissions. An effective scoping exercise ensures that a balance is struck between the amount of GHG emissions emitted or saved by the project and the effort committed to the actual GHG assessment. For example, if most impacts occur during a project's construction phase and operational impacts are negligible, then the GHG assessment can reflect this. A high-level or qualitative GHG assessment for certain project elements or activities can be carried out as long as it is justified and agreed during the scoping stage with stakeholders. This will help contribute towards delivering a proportionate assessment.

It should also be recognised that qualitative assessments are acceptable, for example: where data is unavailable or where mitigation measures are agreed early in the design phase with design and engineering teams.

VI – Significance

6.1 Introduction

IEMA's 2010 principles on climate change mitigation and EIA identify climate change as one of the defining environmental policy drivers and that action to reduce GHG emissions is essential. Specifically, three overarching principles are particularly relevant in considering the aspect of significance[30]:

1. The GHG emissions from all projects will contribute to climate change, the largest interrelated cumulative environmental effect
2. The consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive (e.g. human health, biodiversity, water, land use, air quality)
3. GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit[31]; as such any GHG emissions or reductions from a project might be considered to be significant[32]

This document builds on those principles as follows:

- When evaluating significance, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a project's emissions should therefore be based on its net impact over its life time, which may be positive, negative or negligible
- Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages
- Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered

The guidance in this document provides further detail of how those principles can be applied, particularly how the net effect of a project and its beneficial or adverse effects can be evaluated in the context of emission reductions on a trajectory towards net zero.

6.2 Background to significance

The goal of the Paris Agreement is to limit global temperature rise to well below 2°C, aiming for 1.5°C, compared with pre-industrial levels, in order to stand a greater chance of avoiding severe adverse effects from climate change.

The UK has set a legally binding GHG reduction target for 2050 with interim five-yearly carbon budgets which define a trajectory towards net zero. The 2050 target (and interim budgets set to date) are, according to the CCC, compatible with the required magnitude and rate of GHG emissions reductions required in the UK to meet the goals of the Paris Agreement, thereby limiting severe adverse effects. Further budgets are set by the devolved administrations in Wales and Scotland, which are also in line with advice from the CCC. Carbon budgets allow for continuing economic activity, including projects in the built environment, in a controlled manner.

To meet the 2050 target and interim budgets, action is required to reduce GHG emissions from all sectors, including projects in the built and natural environment. EIA for any proposed project must therefore give proportionate consideration to whether and how that project will contribute to or jeopardise the achievement of these targets.

30 IEMA (2010) Climate Change Mitigation & EIA. Available at: https://www.iema.net/document-download/33006

31 There is a global GHG emission budget that defines a level of dangerous climate change, and any GHG emission that contributes to exceedance of that budget or threatens efforts to stay within it can be considered as significant.

32 The third principle is related to the IPCC carbon budget definition. The IPCC's Sixth Assessment Report (WG1: The Physical Science Basis, Table SPM.2) indicates that the remaining global carbon budget from 2020 that provides a two-thirds likelihood of not exceeding 1.5°C heating is 400 $GtCO_2$; for an 87% likelihood it is 300 $GtCO_2$.

However, it is important to note that:

(a) The UK's and devolved administrations' GHG targets incorporate a staged set of reductions between the present day and 2045 or 2050, defined by five-yearly carbon budgets. A continuing, but, over time, reduced level of GHG emissions is compatible with national and international climate change commitments. Going above and beyond these commitments and achieving net zero at an earlier date is strongly desirable and a high priority.

(b) The necessary level and rate of GHG emission reductions will be unevenly distributed across different economic sectors, activities and types of projects. Net zero for the UK in 2050 (and in the interim) will include some activities with net negative emissions and some with residual emissions greater than zero.

A key goal of EIA is to inform the decision maker about the relative severity of environmental effects such that they can be weighed in a planning balance. Therefore, it is essential to provide context for the magnitude of GHG emissions reported in the EIA in a way that aids evaluation of these effects by the decision maker.

The crux of significance therefore is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050[33].

Often a project will cause a change in GHG emissions compared to the baseline which should be assessed, as discussed in Sections 5.3. When setting this impact into context to determine significance, it is important to consider the net zero trajectory in line with the Paris Agreement's 1.5°C pathway[34].

The timing of reductions is critical due to the cumulative effect of GHG emissions in the atmosphere. Achieving net zero or very low emissions by 2025 instead of 2040 would avoid 15 years of cumulative heating.

The specific context for an individual project and the contribution it makes must be established through the professional judgement of an appropriately qualified practitioner, drawing on the available guidance, policy and scientific evidence[35].

The following principles are a guide to determining significance.

6.3 Significance principles and criteria

Figure 5 illustrates how to determine significance depending on the project's whole life GHG emissions and how these align with the UK's net zero compatible trajectory. The following section provides further explanation on the different levels of significance and should be read in conjunction with Figure 5.

33 (or other date as defined in targets for devolved administrations or as may be defined for the UK or specific economic sectors in future).

34 IEMA (2021) Net Zero explained. Available at: [redacted]

35 At the time of publication, the applicable evidence is that provided by the IPCC and UNFCCC, supporting the commitments defined in the Paris Agreement, and in the UK that provided by the CCC with regard to GHG budgets and policies that are compatible with the UK's Paris Agreement commitments. Evidence will continue to be developed, for example, through the IPCC's Sixth Assessment Report, future international treaty negotiations and further advice of the CCC or other expert bodies, and the practitioner must evaluate the prevailing evidence at the time.

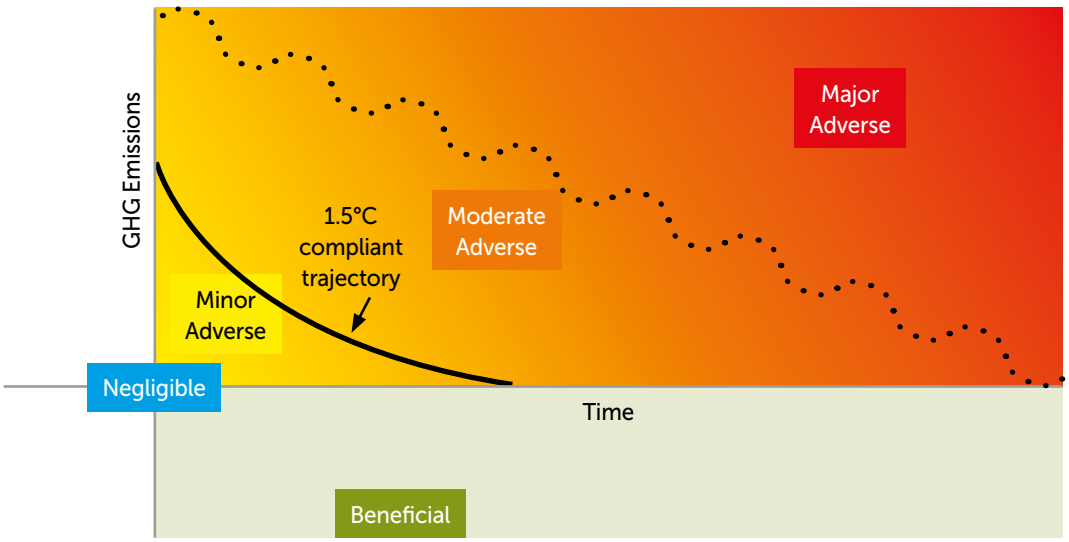


Figure 5: Different levels of significance plotted against the UK's net zero compatible trajectory[36]

A project that follows a 'business-as-usual' or 'do minimum' approach and is not compatible with the UK's net zero trajectory, or accepted aligned practice or area-based transition targets, results in a **significant adverse** effect. It is down to the practitioner to differentiate between the 'level' of significant adverse effects e.g. '**moderate**' or '**major**' adverse effects (see Box 3 for an example of such a differentiation).

A project that is compatible with the budgeted, science-based 1.5°C trajectory (in terms of rate of emissions reduction) and which complies with up-to-date policy and 'good practice' reduction measures to achieve that has a **minor adverse** effect that is **not significant**. It may have residual emissions but is doing enough to align with and contribute to the relevant transition scenario, keeping the UK on track towards net zero by 2050 with at least a 78% reduction by 2035[37] and thereby potentially avoiding significant adverse effects.

A project that achieves emissions mitigation that goes substantially beyond the reduction trajectory, or substantially beyond existing and emerging policy compatible with that trajectory, and has minimal residual emissions, is assessed as having a **negligible** effect that is **not significant**. This project is playing a part in achieving the rate of transition required by nationally set policy commitments.

A project that causes GHG emissions to be avoided or removed from the atmosphere has a **beneficial** effect that is **significant**. Only projects that actively reverse (rather than only reduce) the risk of severe climate change can be judged as having a beneficial effect.

36 Ideally, the curve will be quantitative, derived from a set of carbon budgets that show the rate of reduction to be achieved; but where this is not available, it will need to be evaluated qualitatively based on policy goals and advice of expert guidance bodies on the actions needed to achieve the necessary rate of reductions.

37 or other science-based 1.5°C compatible trajectory as may be defined for a specific sector or local area, as applicable

For the avoidance of doubt, a 'minor adverse' or 'negligible' non-significant effect conclusion does not necessarily refer to the *magnitude* of GHG emissions being carbon neutral (i.e. zero on balance) but refers to the likelihood of avoiding severe climate change, aligning project emissions with a science-based 1.5°C compatible trajectory, and achieving net zero by 2050[38]. A project's impact can shift from significant adverse to non-significant effects by incorporating mitigation measures that substantially improve on business-as-usual and meet or exceed the science-based emissions trajectory of ongoing but declining emissions towards net zero.

A 'minor adverse' effect or better is therefore a high bar and indicates exemplary performance where a project meets or exceeds measures to achieve net zero earlier than 2050. However, in the context of the severe threat of climate change, such an effect cannot be judged as significant beneficial – this category is reserved for projects with effects that directly or indirectly remove or avoid GHG emissions in the without-project baseline.

An example of how these principles may be applied in practice is given in Box 3.

Box 3: Examples of significance criteria

For the avoidance of doubt IEMA's position that all emissions contribute to climate change has not changed. This Box 3 provides practitioners with examples of how to distinguish different levels of significance. Major or moderate adverse effects and beneficial effects are **considered to be significant**. Minor adverse and negligible effects are **not considered to be significant.**

Major adverse: the project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.

Moderate adverse: the project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.

Minor adverse: the project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.

Negligible: the project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.

Beneficial: the project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

38 or other date as defined in targets for devolved administrations or as may be defined for the UK or specific economic sectors in future.

A modification to this approach is required for the very largest-scale developments, those that in themselves have magnitudes of GHG emissions that materially affect the UK's or a devolved administration's total carbon budget. An indicative threshold of 5% of the UK or devolved administration carbon budget in the applicable time period is proposed, at which the magnitude of GHG emissions irrespective of any reductions is likely to be significant. A project that meets this threshold can in itself materially affect achievement of the carbon budget.

Practitioners should note that existing policy and regulation may in some cases lag behind the necessary levels of GHG emission reductions (or types of actions to achieve those) that are compatible with the UK's or devolved administrations' targets and with a science-based 1.5°C compatible trajectory towards net zero. Meeting the minimum standards set through existing policy or regulation cannot necessarily be taken as evidence of avoiding a significant adverse effect, and it is recommended that practitioners consider and have reference also to emerging policy/standards and the guidance of expert bodies such as the CCC on necessary policy developments, particularly for multi-phased projects with long timescales. This must be evaluated by the practitioner as part of the evidence base used in the assessment of effects. References to 'existing' and 'emerging' policy in the principles of significance and example criteria above must be interpreted with this in mind.

In following this guidance, the practitioner is contextualising the project to understand whether committed mitigation represents best endeavours, to avoid significant adverse effects in line with the principles and example criteria defined above.

The assessment process for GHG emissions will therefore require a review of the current and emerging policy/regulatory position together with a review of expert scientific advice from bodies such as the CCC or IPCC about where existing policy or regulation is insufficient or not, relative to the science.

It bears reiterating that an ES should inform decision makers about both adverse and beneficial effects, so that all significant effects can be weighed in decisions. Where the fundamental reason for a proposed project is to combat climate change (e.g. a wind farm or carbon capture and storage project) and this beneficial effect drives the project need, then it is likely to be significant.

6.4 Contextualising a project's carbon footprint

The context of a project's carbon footprint determines whether it supports or undermines a trajectory towards net zero. Determining that trajectory and the position of a project within it, however, is the challenge for practitioners.

It is down to the practitioner's professional judgement on how best to contextualise a project's GHG impact.

The UK has a defined national carbon budget and budgets set by devolved administrations which have been determined as being compatible with net zero and international climate commitments. The starting point for context is therefore the percentage contribution to the national or devolved administration carbon budget as advised by the CCC. However, the contribution of most indivdual projects to national-level budgets will be small and so this context will have limited value.

The available contextual information base is rapidly developing and will continue to grow in the coming years as developments such as sector initiatives, locally set carbon budgets and the Task Force on Climate-Related Financial Disclosures (TCFD) and transition risk scenario analysis progress.

Existing government policy will in many cases define goals and necessary action for GHG emissions reduction that is compatible with national climate commitments. However, it is also essential to evaluate this in the context of expert advice/commentary on policy gaps and emerging policy recommendations.

Industry bodies for many sectors crucial to reducing GHG emissions have published analyses, strategies and net zero compatible reduction trajectories for their sectors. This can provide useful and highly specific evidence of what constitutes the necessary type and rate of GHG reduction actions for a particular project type.

For example, the Green Construction Board[39] has calculated carbon budgets for each of the UK built environment sectors. Similarly, the CCC[40] has determined a UK wide carbon budget broken down into the following key sectors: surface transport, buildings, manufacturing and construction, electricity generation, fuel supply, agriculture and land use, land-use change and forestry (LULUCF), aviation, shipping, waste, F-gases, and greenhouse gas removals. Researchers at the Tyndall Centre at the University of Manchester have proposed local authority scale carbon budgets that are compatible with the UK's commitments under the Paris Agreement[41]. Further examples of sectoral strategies and budgets are given in Figure 6 below.

The good practice approach included in Figure 6 below provides an example of how to contextualise your project's carbon footprint against pre-determined carbon budgets or against emerging policy and performance standards where a budget is not available.

Where quantified carbon budgets or a net zero trajectory is lacking, a more qualitative or policy-based approach to contextualising emissions to evaluate significance may be necessary. In these instances, uncertainty and the likelihood of effect should be discussed.

It is good practice to draw on multiple sources of evidence when evaluating the context of GHG emissions associated with a project. The practitioner should be aware that sources of evidence are still emerging, subject to revision as understanding develops and innovation occurs, and in some cases will be contested and conflicted. Professional judgement will therefore be vital in integrating these sources of evidence and evaluating them. Table 1 sets out further sources of contextual information against which the GHG emissions and reduction actions of project can be evaluated.

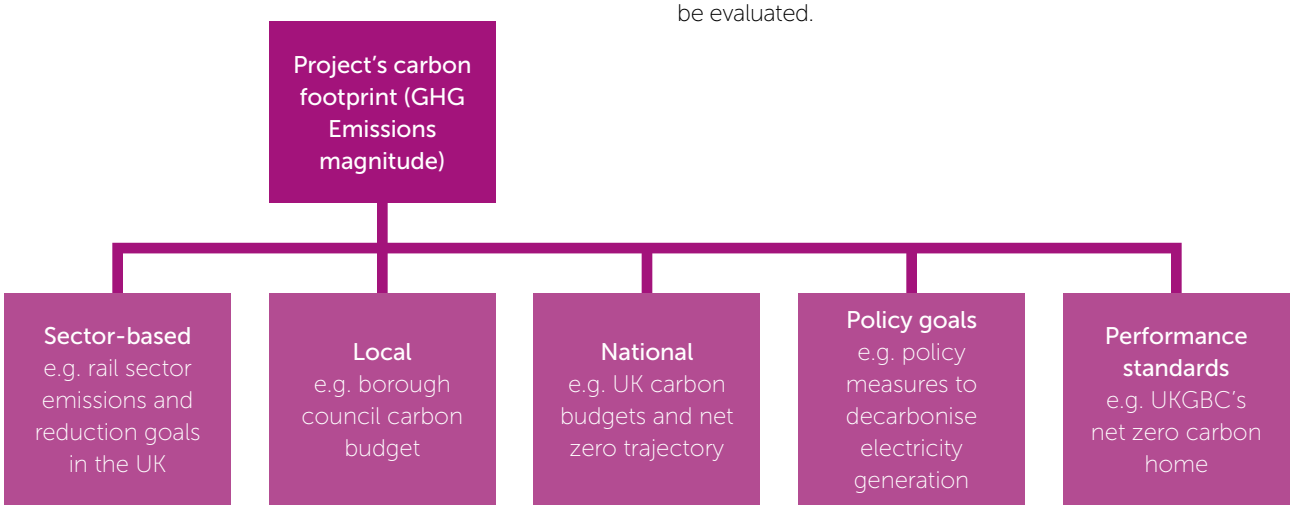


Figure 6: Good practice approaches for contextualising a project's GHG emissions

39 The Green Construction Board (2015) Green Construction Board Low Carbon Routemap for the Built Environment. Available at: http://www.hwa.uk.com/site/wp-content/uploads/2020/10/CD-17.13-Low-Carbon-Routemap-for-the-Built-Environment-Technical-Report-Green-Construction-Board-2015.pdf

40 Climate Change Committee (2020) The Sixth Carbon Budget: The UK's path to Net Zero. Available at: https://www.theccc.org.uk/publication/sixth-carbon-budget

41 Tyndall Centre for Climate Change Research (2022) Quantifying the implications of the United Nations Paris Agreement for local areas. Available at https://carbonbudget.manchester.ac.uk

Table 1: Sources of contextual information against which projects can be evaluated.

Context	Advantages	Limitations
National or devolved administration carbon budget and NDC	• Clearly defined and based on robust scientific evidence	• Too high level for most individual projects
Local or regional carbon budgets developed by local authorities and researchers (e.g. the Tyndall Centre at the University of Manchester[42])	• A more pertinent scale for individual projects and local decision-making • Will reflect regional factors such as concentration of industry	• Effects of GHG emissions are not geographically circumscribed, so a geographic budget (below a national budget defined based on negotiated NDCs to commitments to a global budget agreed through the UNFCCC) is not very meaningful • Displacing GHG emissions from one local authority or region to another within the UK has no benefit • It's unclear whether emerging local authority or regional budgets will add up coherently to the UK budget
Sectoral budgets or reduction strategies	• These are available for many crucial sectors (e.g. the Energy Transitions Commission[43] presents net zero strategies for a wide range of sectors) • They often contain detailed, staged measures (and several scenarios) for GHG reductions with interim targets, providing a clearly defined trajectory	• There is a risk that some sectoral strategies represent a lobbying position rather than science-based target setting
Current and future GHG emissions intensity of an activity	• This provides useful context in cases where a project is meeting an established demand, such as for electricity generation, and may have a GHG benefit by displacing a legacy source (e.g. renewable generators displacing gas-fired baseload)	• This would not be applicable context for absolute emissions changes, (e.g. construction emissions or land-use change at a site level), so would need to be combined with other sources of information
Existing and emerging national and local policy or regulation	• This is extensive, providing context for all development types • It will often provide relatively detailed and specific goals and implementation measures • Policy should be compatible with the UK's national GHG commitments and actions to achieve those	• There can be significant policy gaps or policy lag • It will not always be clear that compliance with policy measures, or a subset of them, amounts to a net zero carbon compatible trajectory
Expert advice of guidance bodies Voluntary performance standards (e.g. the UK Green Building Council's 'Net Zero Carbon Building' framework[44])	• Extensive publications and strategies are available, providing context for all development types • Considerable reliance can be placed on the advice of the CCC, which has the statutory duty of advising the government on policy that is necessary to achieve national climate commitments • Expert advice of guidance bodies can identify existing policy/regulatory gaps • Expert advice of guidance bodies can be used as a source to define what constitutes achievable best practice for many development types • Voluntary performance standards provide a framework for evaluating what constitutes best practice for emissions performance, and the means to predict and then monitor this	• Guidance and advice may be contested or conflicting • There is a risk that some guidance represents a lobbying position rather than science-based GHG reductions
Company-specific TCFD reporting, transition risk assessments or Science-Based Targets	• This can provide context that is highly specific to the project in question, where the developer has already set science-based targets and/or undertaken climate risk assessments with scenario analysis that includes a best practice measures / minimum climate risk scenario	• This may not be available for the majority of projects

42 Tyndall Centre for Climate Change Research (2022) Quantifying the implications of the United Nations Paris Agreement for local areas. Available at: [redacted]

43 Energy Transitions Commission (2022) A global coalition of leaders from across the energy landscape committed to achieving net zero emissions by mid-century. Available [redacted]

44 UKGBC (2019) Net Zero Carbon Buildings: A Framework Definition. Available at [redacted]

6.5 Embedded or committed mitigation

When determining significance, any embedded/committed mitigation measures that form part of the design should be considered.

It is valuable and strongly encouraged for GHG emissions mitigation to be considered and embedded at the earliest stages of design, where the greatest influence can be achieved, as discussed in Section II and in IEMA's 'Pathways to Net Zero: GHG Management Hierarchy' guidance[45].

Where embedded/committed mitigation is relied upon in the assessment of effects, the practitioner must form a clear judgement that this mitigation is:

1. Evidenced in the design for the project
2. A committed goal that is secured, e.g. forming part of the description of development, a specific planning condition/requirement, or a legal agreement
3. Realistic and achievable to deliver

In some cases, mitigation commitments (especially in the form of targets or commitments to actions at a later design stage) may not offer sufficient certainty at the time of undertaking the assessment that the practitioner can rely upon in judging the significance of effects.

In this case, the significance of effects should initially be stated without this mitigation, and it should then fall into the assessment of additional mitigation and residual effects.

6.6 Additional mitigation and residual effects

Where the initial assessment identifies significant adverse effects, additional mitigation should be considered to reduce these effects to an acceptable and non-significant level where feasible.

As a matter of good practice, available mitigation to reduce non-significant effects or further enhance beneficial effects should also be considered where possible.

As noted above, where there is embedded mitigation in the form of project commitments to GHG emission reductions but the details of this are not secured within the project design at the time of assessment, further detail of the potential mitigation measures to achieve that commitment can also be considered within the additional mitigation section and assessment of residual effects.

The assessment of potential residual effects, with incorporation of additional mitigation, must be expressed in conditional terms. The residual effects would depend on the additional mitigation recommendations being accepted, secured and delivered in practice. An example of appropriate wording would be:

"Residual effects: with the implementation of [the additional mitigation measures as set out above] and the achievement of [measurable GHG emissions goal] the residual effect could be [reduced to not significant / negligible / beneficial]".

45 IEMA (2020) Pathways to Net Zero: Using the IEMA GHG Management Hierarchy November 2020. Available at: [redacted]

VII – Communication / Reporting

When reporting on GHG emissions assessment in EIA, the text should conform to Schedule 4: Information for inclusion in environmental statements, of the EIA Regulations document.

7.1 Where should GHG emissions be reported within an ES chapter?

There are three main ways in which GHG emissions can be reported on within an ES chapter. These are as follows:

- Within a GHG emissions ES chapter that focuses on the effects of the proposed project on climate change only
- Within an integrated climate change ES chapter that focuses on both the effects of the proposed development on climate change and of the effects of climate change on the proposed development (i.e. climate change resilience and adaptation)
- It may be proportionate for a section in the project description or an appendix to provide information on GHG emissions to support a conclusion about whether these are significant, without a full ES chapter

Regardless of where GHG emissions are reported within the ES chapter, it is crucial that the assessment is transparent and a conclusion on the significance of effects is reached and clearly stated.

7.2 How does reporting on GHG emissions fit with related EIA topics?

The effects of potential future climate change based on the net GHG impact from a project are likely to be interrelated with other key EIA topics. To ensure consistency is provided throughout the ES, the GHG team will need to liaise with other key EIA topics including (but not limited to):

- Logistics/Transport (Transport Assessment)
- Resources and waste management (construction and demolition)
- Noise/vibration and air quality (construction activities, hours of work, fuel uses, list of plant and energy use)
- Ecology, landscaping and Sustainable Urban Drainage Systems (green infrastructure and land-use change)

7.3 What should be included when reporting on GHG emissions within an ES chapter?

Consistent reporting of GHG emissions in EIA will highlight the importance of accounting for GHG emissions from project inception. It will encourage clients, project developers and engineering design teams to consider the impacts of GHG emissions during early design stages. It is suggested that a brief introduction to climate change and the role of GHG emissions as a contributing factor is included where the effects of GHG emissions are reported within the ES chapter. This will help explain the interrelationship between GHG emissions and climate change with other relevant topics to the readers. This may further be supported with relevant links to documents and information on the topic.

When reporting on GHG emissions and mitigation in EIA, the following steps should be presented where available:

- Baseline emissions: the existing and future emissions within the assessment boundary without construction and operation of the project
- Net emissions (Year 1 and lifetime): the direct and indirect emissions of the project during the first year of operation and for the full lifetime of the project expressed as a change compared to the current and/or future baseline
- Significance: a significance value should be assigned to effects based on the criteria set out
- Further mitigation: the GHG reductions that could be achieved through the application of further mitigation (this will be expressed conditionally and may be quantitative or qualitative)
- Residual effects: a new significance value is assigned to effects taking account the further mitigation measures that have been outlined

7.4 What are the challenges associated with reporting on GHG emissions in EIA?

There are a number of challenges, difficulties and opportunities associated with integrating GHG assessment into EIA practice. These challenges and ways to overcome them are presented below:

- The possible effects identified from a GHG emissions assessment can be interlinked with other EIA topic chapters. Therefore, it is important to liaise with other EIA topic specialists where necessary (e.g. transport, waste management, air quality) – and indeed with practitioners providing assessments such as energy modelling and BREEAM/CEEQUAL. This also needs to be considered when reporting on significant effects within the ES.
- GHG emissions associated with a proposed project are often reported as a whole life figure that takes account of both construction and operation. This whole life approach is often at odds with the sub-headings set out in ES chapter templates provided by EIA co-ordinators. However, due to the nature of GHG emissions, it is good practice to include a section that reports on the whole life GHG emissions associated with the proposed project, alongside the sections that assess construction and operation effects in isolation. Additionally, if there is other data or information that needs to be included that doesn't fit into the provided ES chapter template, then additional sub-sections should be added in order to present all the data from the GHG emissions assessment; to inform the EIA and account for the possible effects on future climate change.
- It is challenging to identify fixed numerical thresholds against which to identify the significance of a proposed project regarding the net change in GHG emissions. The GHG assessment should therefore present context for the GHG emissions as discussed in Section VI: Significance.
- Where GHG assessment is used to inform early design stages, it is vital to get stakeholders to understand the importance of minimising the GHG contribution of a project and designing a project that will limit the net change in future GHG emissions.

Appendix A – Potential Stakeholders and Sources of GHG Information

A1 Potential stakeholders, sources of environmental information and carbon tools

Source	Description
Climate Change Committee (CCC) – The Sixth Carbon Budget[46]	The CCC reports on UK carbon budgets, by sector, and reductions that need to be achieved if the UK is to achieve its carbon reduction target of net zero by 2050. This includes reports for GHG emissions by UK industrial sector: surface transport, buildings, manufacturing and construction, agriculture & LULUCF, aviation, shipping, waste, F-gases and GHG removals. Reports for the UK's electricity and fuel supply are also reported.
The Department for Business, Energy & Industrial Strategy (previously DECC)[47]	The UK Government regularly reports on UK energy and emissions projections by source: agriculture, business, energy supply, industrial processes, land-use change, public, residential, transport and waste management. Currently, GHG emissions reach back to 1990 and project into the future up until 2035 and 2040 (for the 2019 projections).
The Department for Business, Energy & Industrial Strategy (previously DECC)[48] UK greenhouse gas emissions statistics	The UK Government also reports on GHG emissions from a geographical perspective, by UK local authority. Current and historical emissions are available which may be used to establish current baseline emissions.
The Department for Transport (DfT) TAG (the Transport Analysis Guidance) – Data Book[49]	TAG provides UK transport modelling values and information including projections on how the UK's modal mix (diesel, petrol, electric) is expected for change over time, current and future fuel efficiency projections (litres or kWh per kilometre travelled) up to 2050. Also reported are carbon dioxide emissions per litre of fuel burnt or kWh used for: petrol, diesel, gas oil and electricity used on road and rail travel.

46 Climate Change Committee (2020) Sixth Carbon Budget. Available at: [redacted]

47 Department for Business, Energy & Industrial Strategy (2021) Energy and emissions projections. Available at: https://www.gov.uk/government/collections/energy-and-emissions-projections

48 Department for Business, Energy & Industrial Strategy (2018) UK greenhouse gas emissions statistics. Available at: https://www.gov.uk/government/collections/uk-greenhouse-gas-emissions-statistics

49 Department for Transport (2021) TAG data book. Available at: https://www.gov.uk/government/publications/tag-data-book

Source	Description
The Green Construction Board – Infrastructure Carbon Review, Technical Report[50]	The GCB has developed a tool that allows stakeholders to model policy changes associated with the built environment and visualise what this means in terms of GHG emissions. Also available is the Low Carbon Routemap report[51] which explores various GHG emissions projections for both building and infrastructure at the UK level.
Inventory of Carbon and Energy (ICE) – University of Bath: Sustainable Energy Research Team[52]	The Inventory of Carbon and Energy (ICE) database is a leading embodied energy and carbon database for building materials.
The Department for Business, Energy & Industrial Strategy (previously DECC)[53] – Government emission conversion factors for greenhouse gas company reporting	The Government conversion factors for greenhouse gas reporting are suitable for use by UK based organisations of all sizes, and for international organisations reporting on UK operations.
Examples of publicly available carbon assessment tools. The list of carbon tools is non – exhaustive and constantly changing. It is up to the practitioner's professional judgement to decide which tool is most appropriate for the project at hand. It is perfectly appropriate to develop bespoke assessment sheets which may provide more flexibility and transparency.	• Scottish Government Windfarm Carbon Assessment tool[54] • Environment Agency Carbon Planning Tool[55] • RSSB Carbon Tool[56] • National Highways Carbon Tool[57] • MacKay Carbon Calculator[58] • Transport Scotland: Carbon Management System (CMS)

50 The Green Construction Board (2013) Infrastructure Carbon Review Technical Report. Available at [redacted]

51 Institution of Civil Engineers (nd.) Low Carbon Concrete Routemap. Available at: [redacted]

52 Circular Ecology (2019) Embodied Carbon – The ICE Database. Available at: https://[redacted]

53 Department for Business, Energy & Industrial Strategy (2021) Government conversion factors for company reporting of greenhouse gas emissions. Available at: https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

54 Scottish Government (2018) Carbon calculator for wind farms on Scottish peatlands: factsheet. Available at: https://www.gov.scot/publications/carbon-calculator-for-wind-farms-on-scottish-peatlands-factsheet

55 Environment Agency (2016) Carbon planning tool. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/571707/LIT_7067.pdf

56 RSSB (2021) Rail Carbon Tool. Available at: h[redacted]

57 National Highways (2021) Carbon emissions calculation tool. Available at: [redacted]

58 Department for Business, Energy & Industrial Strategy (2020) Carbon calculator. Available at: https://www.gov.uk/guidance/carbon-calculator

Appendix B – List of Standards*

- BRE IMPACT LCA standard – allows the embodied carbon, life cycle environmental (LCA) and life cycle cost (LCC) performance of buildings to be measured and compared in a standardised way.
- BS EN 15686-1:2011 – Buildings and construction assets – service life planning, general principles and framework.
- BS EN 15804:2012 – Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products.
- BS EN 15978:2011 – Sustainability of construction works, Assessment of environmental performance of buildings, Calculation method.
- BS EN ISO 14021:2016 – Environmental labels and declarations. Self-declared environmental claims (Type II environmental labelling).
- BS EN ISO 14025:2006 – Environmental Labels and Declarations. Quantified environmental performance declarations (Type III Environmental Labelling) – guiding principles and procedures.
- BS EN ISO 14044:2006 – Environmental Management. Life cycle assessment. Requirements and guidelines.
- BS EN ISO 14064-1:2018 – guidance on reporting GHG emissions at an organisational level.
- BS EN ISO 14065:2020 – guidance on principles and requirements for bodies performing validation and verification of environmental information statements.
- BS EN ISO 14604-2:2018 – guidance on reporting GHG emissions at the project level.
- ENCORD: the European Network for Construction Companies for Research and Development – a network for active members from the construction industry who have published a 'Construction CO_2e Measurement Protocol'.
- Greater London Authority – draft Whole Life-Cycle Carbon Assessments Guidance.
- PAS 2050:2011 – Specification for the assessment of the life cycle greenhouse gas emissions of goods and services.
- PAS 2070:2013 – Specification for the assessment of greenhouse gas emissions of a city.
- PAS 2080:2016 – Carbon Management in Infrastructure – the world's first standard for managing infrastructure GHG emissions.
- PD CEN ISO/TS 14067:2018 – Greenhouse gases. Carbon footprint of products. Requirements and guidelines for quantification and communication.
- RICS (2021) Whole Life Carbon Assessment for the Built Environment, 1st edition.
- UK Green Building Council – Net Zero Carbon Buildings: A Framework Definition.
- WRI GHG Protocol – the World Resource Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) partnered to develop internationally recognised guidance and standards on GHG accounting and reporting, and includes advice on:
  - Corporate Standards;
  - Corporate Value Chain (Scope 3);
  - Product Life Cycle assessments;
  - Project Protocol (The GHG Protocol for Project Accounting);
  - GHG Protocol for Cities; and
  - Agricultural Guidance.

*Please note this list is not exhaustive, and subject to updates

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Mr David Harvey
[redacted]

Our Ref: EN010083

19 February 2021

Dear Mr Harvey

PLANNING ACT 2008

APPLICATION FOR THE WHEELABRATOR KEMSLEY K3 GENERATING STATION AND WHEELABRATOR KEMSLEY NORTH WASTE-TO-ENERGY FACILITY ORDER

1. Introduction

1.1 I am directed by the Secretary of State for Business, Energy and Industrial Strategy ("the Secretary of State") to advise you that consideration has been given to the report dated 19 November 2020 of the Examining Authority ("the ExA"), comprising a single examining Inspector, Grahame Kean, who conducted an examination into the application ("the Application") submitted on 11 September 2019 by WTI/EFW Holdings Limited ("the Applicant") for a Development Consent Order ("the Order") under section 37 of the Planning Act 2008 ("the 2008 Act") for the Wheelabrator Kemsley K3 and Wheelabrator Kemsley North waste-fuelled electricity generating stations.

1.2 The Application was accepted for examination on 8 October 2019. The examination began on 19 February 2020 and was completed on 19 August 2020. The Secretary of State received the report containing the ExA's conclusions and recommendation on 19 November 2020.

1.3 The Order as applied for would grant development consent for an increase in generating capacity from 49.9MW to 75MW and an increase in the throughput of waste that is permitted to be utilised at the operational Wheelabrator Kemsley K3 generating station ("WK3") and permit the construction, operation and decommissioning of a new energy from waste generating station, Wheelabrator Kemsley North ("WKN"). The projects would be located on adjoining sites next to the DS Smith Paper Mill near

Sittingbourne in Kent. The WK3 and WKN sites would be within the boundary of Swale Borough Council in the County of Kent.

1.4 As applied for, WK3 and WKN would comprise (in general terms):

- **Work No 1 [WK3]** – Construction and operation of an onshore generating station with a generating capacity of up to 75MW and permissible waste throughput of 657,000 tonnes per annum;
- Work 1A – Installation of grid connection for Work No 1;
- Work 1B – Installation of steam connection for Work No 1;
- Work 1C – Alteration of existing private access road to construct, use and maintain Work No 1;
- Work 1D – Creation of a temporary construction compound and laydown area for the construction of Work No 1;
- Work 1E – Construction and operation of a surface water outfall for Work No 1;

- **Work No 2 [WKN]** – Construction and operation of a waste-to-energy facility capable of processing 390,000 tonnes of waste per annum, with a generating capacity of up to 42MW;
- Work No 3 – Installation of a grid connection for Work No 2;
- Work No 4 – Alteration of existing private access road to construct, use and maintain Work No 2;
- Work No 5 – Temporary construction or alteration of existing private haul road for the construction of Work No 2;
- Work No 6 – Creation of a temporary construction compound and laydown area for the construction of Work No 2; and
- Work No 7 – Construction and operation of a new surface water outfall for Work No 2.

1.5 No compulsory acquisition powers are sought by the Applicant.

1.6 Published alongside this letter on the Planning Inspectorate's website is a copy of the ExA's Report of Findings, Conclusions and Recommendation to the Secretary of State ("the ExA Report"). The main features of the development proposals, as applied for, and site are set out in section 2 of the ExA's Report. The ExA's findings are set out in sections 4 - 6 of the ExA Report, and the ExA's conclusions on the terms of the Order and the case for development consent and are set out at sections 7 and 8 respectively.

2. Summary of the ExA Report and Recommendation

2.1 The ExA's recommendation in the 'Overview' section of the ExA Report is as follows:

*"*The Examining Authority recommends that the Secretary of State should grant consent for the K3 Generating Station only and should make the Order in the form attached at Appendix D".

3. The Secretary of State's Consideration of the ExA Report

3.1 The Secretary of State notes that a total of 9 Relevant Representations (as defined in the Planning Act 2008) were received from statutory and non-statutory authorities, local councils and local residents. In addition, the Secretary of State notes that during the examination of the Application, the ExA accepted two individuals and two organisations (Royal Mail and the South East Waste Planning Advisory Group) as Interested Parties to enable their views to be heard during the examination.

3.2 The principal matters considered by the ExA, as set out in the ExA Report are:

- the principle and need for the proposed developments;
- conformity with the National Policy Statements for Energy
- conformity with Development Plan policies;
- waste hierarchy and fuel availability;
- air quality;
- archaeology and cultural heritage;
- ecology;
- greenhouse gases and climate change;
- ground conditions;
- landscape and visual impact;
- noise and vibration;
- traffic and transport;
- water environment; and
- Habitats Regulations Assessment.

3.3 The Secretary of State has considered the ExA Report and all other material considerations, including further representations received after the close of the ExA's examination ("the post-examination representations"). The Secretary of State's consideration of the ExA's Report and the post-examination representations is set out in the following paragraphs. All numbered references, unless otherwise stated, are to paragraphs of the ExA's Report ["ER *.*.*"].

3.4 The Secretary of State notes that the ExA concluded [ER 8.2.7] that for WK3, with the mitigation proposed through the DCO recommended by the ExA, there would be no adverse effects that would outweigh the benefits of the project. He further notes the ExA's conclusion for WKN [ER 8.2.14] was that the identified harms did outweigh the benefits. As noted above, the ExA's overall conclusion [ER 8.3.1] was that development consent should be granted for WK3 only. The Secretary of State agrees with the ExA's conclusion.

<u>The Principle and Need for the Development</u>

4.1 The Planning Act 2008 sets out a process for decision-makers to follow in considering applications for nationally significant infrastructure projects. In the first instance, the decision-maker needs to consider whether the proposed nationally significant infrastructure projects are in accordance with the relevant National Policy Statement(s). WK3 is a 'Nationally Significant Infrastructure Project' as defined in

sections 14 and 15 of the Planning Act 2008 by virtue of having a generating capacity of more than 50MW.

4.2 WKN is not a nationally significant infrastructure project as defined in the Planning Act 2008 as its proposed generating capacity is 42MW. However, WKN was 'directed in' to the Planning Act regime by the Secretary of State under section 35 of the Planning Act 2008 on 27 June 2018 following a request by the Applicant. The Secretary of State considered that the project would be of national significance given that it would be located on the same site as two other projects of national significance, which together comprised a significant facility of sustainable energy supply and taking into account the fact that the WKN project would be applied for at the same time as the WK3 project. There would also be benefits from the two projects being considered together in a consistent manner.

4.3 Section 104 of the Planning Act 2008 sets out that decisions on nationally significant infrastructure projects where a National Policy Statement has effect must have regard to the relevant statement and any other matters that are both important and relevant to the decision. Any decision must be taken in accordance with the relevant National Policy Statement except where doing so would: lead to a breach of the UK's international obligations; lead to the Secretary of State being in breach of any duty imposed on him by or under any enactment; be unlawful by virtue of any enactment; or where the adverse effects of a development outweigh its benefits (the last at section 104(7) of the Act).

4.4 Section 105 of the Planning Act 2008 sets out that decisions on nationally significant infrastructure projects where a National Policy Statement does not have effect must have regard to any local impact reports, any matters prescribed in relation to development of the description to which the application refers and any other matters which the Secretary of State considers are relevant and important.

4.5 National Policy Statements EN-1 (the Overarching National Policy Statement for Energy - "NPS EN-1") and EN-3 (the National Policy Statement for Renewable energy Infrastructure "NPS EN-3") set out a national need for development of new nationally significant electricity generating infrastructure of the type proposed by the Applicant. NPS EN-1 sets out that the assessment of development consent applications for electricity generating infrastructure should start with a presumption in favour of granting consent. The ExA noted the strong need case for electricity generating projects that is set out in NPS EN-1 and NPS EN-3 but considered that the presumption in favour of granting consent did not apply to the WKN project because it had been directed into the Planning Act process and, therefore, did not fall to be considered under section 104 of the Planning Act 2008, but rather under section 105 of that Act. Instead, the ExA concluded that, while the National Policy Statements were important and relevant matters in the consideration of the development consent application for WKN, the primary consideration in determining the development should be the local development plan.

4.6 The Secretary of State takes the view that the Application should be treated as a whole and determined under section 104 of the Planning Act 2008. This section, and section 105 would seem to be mutually exclusive and it would not be correct to determine different parts of the Application under different provisions. It is also noted

that WKN is a type of generating station which would generally fall to be considered under EN-3 had it met the 50MW threshold by itself and was directed into the Planning Act regime on the basis of its combined significance with the WK3 project. In any event, the Secretary of State does not consider that determining the whole application under section 104 has a material impact on the overall outcome in this case. Section 104(2)(d) of the 2008 Act enables the Secretary of State to give consideration to any important and relevant matters appropriate to this aspect of the application as fully considered by the ExA.

4.7 The Energy White Paper, "Powering our Net Zero Future", was published on 14 December 2020. The White Paper announced a review of the suite of energy National Policy Statements but confirmed that the current National Policy Statements were not being suspended in the meantime. The relevant energy National Policy Statements therefore remain the basis for the Secretary of State's consideration of the Application.

Consideration of Alternatives

4.8 The Applicant considered the question of alternatives in section 2.14 of Chapter 2 of its Environmental Statement that was submitted to the Planning Inspectorate as part of its application for development consent. The Applicant's position was that, in relation to WK3, the fact that it had been constructed meant that it was not necessary to consider alternatives, while for WKN, the need to locate it next to the sister WK3 generating station and the proximity to viable feedstock also meant that it was not necessary to consider alternatives.

4.9 The ExA did not explicitly consider alternatives to the proposed developments that are the subject of the Applicant`s request for a development consent order. However, in considering the need for WKN, the ExA states at ER 6.2.20 of its Report that "there is no proven need for the plant to be located in Kent" and at ER 6.2.31 that "… an alternative location outside Kent….. would appear to better serve the strategic purposes of member authorities of SEWPAG [the South East Waste Planning Advisory Group]….in particular the KMWLP [Kent Minerals and Waste Local Plan]".

4.10 The Secretary of State notes the ExA's comments in this matter and has considered these in the overall 'planning balance' section of this decision letter.

Conformity with Development Plan Policies

4.11 The ExA considered in general terms the conformity of WK3 and WKN with policies in the relevant local development plans [ER 4.6.1 et seq]. The ExA took the view that there were supportive statements in the plans that referenced sustainability and none that were in conflict with the policy directions of the National Policy Statements. However, in its analysis of this point, the ExA again indicates that the National Policy Statements are the primary source of policy direction for WK3 but that the local development plans have primacy for WKN.

Waste Hierarchy and Fuel Availability

4.12. The ways that the waste hierarchy (a set of priorities for making efficient use of resources) and fuel availability apply to WK3 and WKN were key issues in the ExA's assessment of the development consent application for the two projects.

4.13 The National Policy Statements set out that energy from waste is a type of infrastructure that is needed. However, the National Policy Statement for Renewable Energy Infrastructure, NPS EN-3 states that an applicant for development consent must assess "the conformity with the waste hierarchy and the effect on relevant waste plans…..". NPS EN-3, notes that the decision-maker should be satisfied, with reference to the relevant waste strategies and plans, that the proposed waste combustion generating station is in accordance with the waste hierarchy and of an appropriate type and scale so as not to prejudice the achievement of local or national waste management targets.

4.14 The ExA notes that there are a number of national and local policies and plans that come into play in considering such applications [ER 4.10.8 et seq]. The ExA notes [ER 4.10.24 et seq] that the Kent Minerals and Waste Local Plan refers to the potential for waste management proposals to contribute towards local energy supply. The ExA also notes [ER 4.10.28 et seq] that policies within the Kent Minerals and Waste Local Plan state that, in order to deliver sustainable waste management solutions for Kent, proposals for waste management must demonstrate how waste is being driven to ascend the waste hierarchy.

4.15 The ExA considered the case made by the Applicant in support of WK3 and WKN and notes that the Applicant's starting position [ER 4.10.31] is that the projects would be wholly in accordance with the waste hierarchy and not prejudicial to the achievement of national or local waste management targets. The ExA sets out in detail the Applicant's consideration of waste capacities and sourcing of its fuel supplies which would come from a number of local authority areas in the South East of England in addition to Kent. The Applicant concluded that bringing fuel sources in from outside Kent should not be the subject of an objection. In its overall conclusion, the Applicant stated [ER 4.10.44] that WK3 and WKN would meet objectives of national and local policy through: delivering the waste hierarchy; contributing to self-sufficiency at national level; and being part of a network of facilities from which value would be recovered from appropriate residual wastes.

4.16 The ExA sets out the key issues that were considered during the examination in respect of the application. It notes [ER 4.10. 46 et seq] that both Kent County Council and the South East Waste Planning Advisory Group (an organisation which seeks to coordinate the planning of waste management within the South East of England) objected to the grant of consent for WK3 and WKN. Kent County Council stated that the projects would be counter to the waste hierarchy in diverting waste from more sustainable solutions such as preparation for re-use and recycling [ER 4.10.54]. The Council also stated that existing waste disposal capacity was sufficient to deal with capacity demand – additional waste capacity was not required or expected during the existing contract period [ER 4.10.56].

4.17 The ExA notes [ER 4.10.74 et seq] that there were several matters still outstanding in relation to Waste Hierarchy and Fuel Availability at the end of the examination: Local Policy Principles; Waste Hierarchy; Energy Production; the Relevance of the National Policy Statements to WK3; and the Kent Minerals and Waste Local Plan Policy. In its conclusion on the Waste Hierarchy and Fuel Availability, the ExA weighs up the relevant considerations that have been presented by the Applicant, Kent County Council, the South East Waste Planning Advisory Group and other Interested Parties. The ExA sums up its overall position in relation to WK3 and WKN as follows:

Wheelabrator Kemsley K3 [ER.4.10.139 et seq]

4.18 While Kent County Council submits that there is no need in Kent for additional waste capacity for the period of the Kent Minerals and Waste Local Plan (up to 2030) and that neither WK3 nor WKN should benefit from the National Policy Statements' presumption in favour of energy development infrastructure, the Applicant submits that both projects are important and relevant to meeting a number of critical national needs including on net zero and waste management. The ExA notes that WK3 would, in addition to generating electricity, also provide steam and heat to local customers which is a factor in its favour. The ExA's overall conclusion is that the need for WK3 should carry significant weight in the decision-making process and the small increase in the proposed generating capacity with related increase in waste throughput would not prejudice the principles of sourcing waste locally and aiming for self-sufficiency.

Wheelabrator Kemsley North [ER 4.10.142 et seq]

4.19 The project would contribute 42MW of electricity to the electricity grid. Whilst noting this, the ExA states that the Applicant has not provided robust arguments to support the new plant and that there is no proven need for it to be located in Kent. WKN would be inconsistent with the Kent Mineral and Waste Local Plan and the revisions to it that were the result of the 'Early Partial Review' carried out on the Plan. (The Early Partial Review is an independent report carried out by the Planning Inspectorate which checks whether local plans are 'sound'.) The ExA considered that WKN did not accord with paragraph 2.5.70 of NPS EN-3 as it was not in compliance with the Kent Minerals and Waste Local Plan and there was no evidence provided as to why an exception should be made. Following on from that, WKN would not satisfy the statement in paragraph 2.2.4 of NPS EN-1 that the planning system should provide a framework which permits the construction of the infrastructure needed in the place where it is acceptable in planning terms. Finally, the ExA noted that WKN would be in conflict with the National Planning Policy for Waste because it would put at risk the achievement of revised recycling and composting targets in the Kent Minerals and Waste Local Plan.

4.20 The Secretary of State sees no reason to disagree with the ExA's conclusions in this matter.

Air Quality

4.21 The ExA points out [ER 4.11.1 et seq] that the National Policy Statements and the National Planning Policy Framework include the policy considerations that should

be taken into account in determining the acceptability of proposed developments in relation to impacts on air quality. The National Policy Statements acknowledge that the construction, operation and decommissioning of energy infrastructure can lead to emissions to air which have the potential to adversely impact human health as well as protected habitats and species and the wilder environment. The ExA also notes that the Swale Local Plan includes a policy which sets out to address climate change through, among other things, the management of emissions.

4.22 The ExA notes [ER 4.11.8 et seq] the Applicant provided a detailed assessment of potential air quality impacts arising from the construction and operation of WK3 and WKN as part of its application for development consent.

4.23 The Applicant assessed that during the construction of WKN, the impacts of dust emissions and emissions from construction traffic would be low as a result of mitigation and utilisation of best practices. The Applicant's assessment of potential impacts from the operation of WKN was that the design of the facility, including the use of a 90-metre-tall emissions chimney would ensure that any pollutant concentrations would be adequately dispersed before they reached ground level. A 'Continuous Emissions Monitoring System' would ensure emissions would be controlled and regulated under an Environment Agency permit. The impacts of operational traffic were assessed as being negligible.

4.24 During the examination of the Application, the ExA asked questions of the Applicant and other Interested Parties about a range of air quality and emissions topics [ER 4.11.18 et seq]. The ExA notes that the Statement of Common Ground between the Applicant and Natural England set out agreement between the two parties on the absence of significant adverse effects arising from emissions linked to the construction and operation of WK3 and WKN. However, Kent County Council and Swale Borough Council both expressed concerns about potential impacts arising from WK3 and WKN but the ExA notes that no evidence was provided about the projects exceeding local Air Quality Objectives.

4.25 In its conclusion [ER 4.11.26 et seq], the ExA states that appropriate mitigation measures would be put in place to avoid any significant adverse impacts on air quality arising from WK3 and WKN either on their own or in-combination with other developments. WK3 and WKN would, therefore, accord with national and local policies as regards to air quality. The Secretary of State sees no reasons to disagree with the ExA's conclusions in this matter.

Archaeology and Cultural Heritage

4.26 The National Policy Statements and the National Planning Policy Framework set out the policy considerations that should be taken into account in determining the acceptability of proposed developments in relation to archaeological and cultural heritage. The ExA [ExA 4.12.6] also notes the policies in the Swale Local Plan which seek to conserve and enhance the historic environment and prevent adverse effects on Scheduled Monuments and their setting.

4.27 The ExA considered the potential impacts of WK3 and WKN on archaeology and cultural heritage during the examination of the Application. The ExA notes that

there would be no external changes to WK3 and that the Applicant states there are no designated heritage assets within the site of the two projects although there are a number of listed buildings at a minimum of 1 km distance from the development site. The Applicant's Environmental Statement [ER 4.12.7 et seq] sets out that no listed buildings within 3km of the development site would experience more than a minor adverse impact [ER 4.12.16]. In addition, the Environmental Assessment set out that the in-built mitigations of WK3 and WKN projects would limit any effects on designated heritage assets. Finally, the Environmental Statement also considered the cumulative impacts of WK3 and WKN with other relevant projects and concluded there would be no significant effects.

4.28 The ExA notes that no significant concerns about impacts on cultural heritage assets were raised during the examination of the Application. However, Historic England (the statutory adviser on all matters relating to the historic environment and its heritage assets) raised the likelihood that WK3 and WKN would be visible across a wide area and could affect the significance of some heritage assets located some distance away from them. Historic England did, however, agree with the Applicant that any harm would be low level and might, therefore, be found to be outweighed by the benefits of the projects [ER 4.12.22 et seq]. Kent County Council also made representations to the examination suggesting that a Written Scheme of Investigation should be produced by the Applicant which should be agreed with the Council before any works commenced. This was included as a Requirement in the development consent order recommended to the Secretary of State by the ExA.

4.29 In assessing potential impacts on archaeological and cultural heritage, the ExA concludes [ER 4.12.29 et seq and 6.2.38 et seq] that there would be no significant effects on archaeological or heritage assets from the construction, operation or decommissioning of WK3 and WKN (including on the setting of any Scheduled Monument, listed building or other designated heritage asset). All impacts were addressed in a way which complies with the relevant sections of the National Policy Statements and the local development plan.

4.30 The Secretary of State notes the Infrastructure Planning (Decisions) Regulations 2010 set out the desirability of preserving listed buildings or scheduled monuments or their setting and require him to give substantial importance and weight to these matters. Noting the benefits of WK3 and WKN, he must be satisfied that these outweigh any harm. The Secretary of State must also agree that there is a clear and convincing justification for any harm that would result, both individually and collectively, upon designated heritage assets and that overall, historic environment matters would accord with NPSs EN-1 and EN-3 and do not weigh significantly against the Order being made. The Secretary of State believes that the position set out above meets the requirements of the regulations and that impacts on archaeology and cultural heritage have been minimised to an acceptable level. He sees no reason, therefore, to disagree with the ExA's conclusions.

Ecology

4.31 The National Policy Statements set out that energy infrastructure development should avoid significant harm to ecological interests through mitigation measures and the use of alternatives where possible. The National Policy Statements and the

National Planning Policy Framework set out a range of other considerations that are of relevance in assessing the potential impacts of energy infrastructure projects on those interests. The Kent Minerals and Waste Local Plan and the Swale Local Plan also set out the need for developments to avoid adverse impacts on ecological features.

4.32 The Applicant set out in the Environmental Statement that was submitted with the Application information about a range of international and nationally designated nature conservation sites. While there were no such sites within the boundaries of WK3 and WKN, there were a number of such sites within a reasonable distance (10km), including Swale Special Protection Area ("SPA" – originally designated under the EU Birds Directive) and Ramsar site (designated under the Convention on Wetlands of International Importance), the Medway Estuary and Marshes SPA and Ramsar site, the Thames Estuary and Marshes SPA and Ramsar site, the Outer Thames Estuary SPA and the Queendown Warren Special Area of Conservation ("SAC" – originally designated under the EU Habitats Directive). A number of the nationally designated sites (Sites of Special Scientific Interest) are within one kilometre of WK3 and WKN's site boundaries.

4.33 The Applicant also set out its consideration of potential impacts arising from the construction and operation of WK3 and WKN projects and the mitigations that were proposed to be put in place to avoid or reduce impacts. It noted that during the construction of WKN, there were potential impacts on a number of receptors including on Schedule 1 breeding birds (including, Marsh Harrier, Bearded Tit and Cetti's Warbler) and on reptiles [ER 4.13.17 et seq]. The Applicant also assessed possible impacts from the operation of WKN [ER 4.13.38 et seq] including from drainage run off into sensitive sites, light spill, disturbance from people and plant, recreation and noise and vibration. The Applicant`s assessment of operational impacts also covered [ER 4.13.43 et seq] potential impacts on breeding birds in the vicinity of the projects and on reptiles. Finally, the Applicant looked at the provision of habitat enhancement measures to mitigate impacts on relevant species and set out mitigation measures in its proposed development consent order [ER 4.13.48] including the approval of an 'Environmental Mitigation and Management Plan' and the timing of piling. The Applicant's overall conclusion was there would be no significant effects on sites or species important for the conservation of biodiversity as a result of WK3 and WKN.

4.34 The ExA notes that during the examination, both Natural England (the Government's statutory advisers on nature conservation matters) and Kent County Council agreed with the Applicant that WK3 and WKN would not result in adverse impact on ecological factors. The ExA concluded [ER 4.13.57] that with the mitigation measures proposed by the Applicant in place the construction and development of WK3 and WKN would result in no significant harm to biodiversity conservation interests and the aims of the National Policy Statements, the National Planning Policy Framework and relevant local development policies would be met.

4.35 The Secretary of State sees no reason to disagree with the ExA's conclusions in this matter.

Greenhouse Gases and Climate Change

4.36 The ExA notes the many policy and legislative provisions that address the need to reduce emissions of greenhouse gases.

4.37 The ExA's Report set out that the Applicant assessed the likely significant effects resulting from WK3 and WKN resulting from greenhouse gas emissions and the resultant impact on climate change [ER 4.14.24].

4.38 The Applicant considered the direct greenhouse gas emissions from the operation of WK3 and WKN but also set these against notional emissions figures for emissions from landfill disposal of waste and from conventional electricity generation which would be avoided [ER 4.14.24 et seq]. The Applicant estimated that the annual greenhouse gas emissions from the already consented WK3 project would be 255,000 tonnes of carbon dioxide equivalent per year of operation. However, when greenhouse gas emissions from landfill were taken into account, there would be a net reduction 232,000 tonnes of carbon dioxide equivalent per year of operation. The Applicant predicted that the requested increase in generating capacity and throughput of waste capacity at WK3 would produce a reduction of 60,000 tonnes of carbon dioxide equivalent per year of operation when set against emissions from landfill and from conventional electricity generation which would be avoided. The comparable figures for WKN are 163,000 tonnes of carbon dioxide equivalent per year of operation emitted but an overall reduction in emissions of 64,000 tonnes of carbon dioxide equivalent per year of operation. It is noted [ER 4.14.36] that these reductions in emissions are based on some uncertainties but the overall assessment is that they are of significant benefit.

4.39 During the examination, Kent County Council and Swale Borough Council queried the figures provided by the Applicant because there were too many unknowns in the assessments. The ExA's Report notes [ER 4.14.47] that both councils objected to WK3 and WKN because they were not necessary to meet waste requirements for Kent and conflicted with policies for self-sufficiency and promotion of recycling. Swale Borough Council is recorded as being concerned that the projects would result in significant carbon impacts and lead to an increase in heavy goods vehicle movements within the borough and impact negatively on climate change.

4.40 The ExA's Report [ER 4.4.19 and 4.15.54] refers to the Climate Change Committee's 2020 Progress Report which expresses concerns about the proliferation of energy from waste plants because of its competition with recycling and seeks mechanisms to reduce carbon emissions from those plants.

4.41 In its conclusions [ER 4.14.58 et seq], the ExA sets out that, given the uncertainties in the Applicant's assessment of carbon benefits, the matter should carry little weight in the assessment of WK3 and WKN. However, the ExA notes that, while they are conjoined in the Application, there are differences between the two projects so that the 'environmental burden' of WKN should not apply to WK3. As far as the possibility of waste being diverted from landfill to fuel the two projects is concerned, the ExA considers that the projects would divert a significant proportion of waste from recycling rather than landfill. Finally, with respect to the level of guaranteed heat utilisation for the WK3 and WKN, the ExA considers that, taken together, neither

project is particularly energy efficient. However, the ExA goes on to say that WK3 project provides the greater benefit as a result of its better Combined Heat and Power performance. The Secretary of State sees no reason to take different view to the ExA in this matter.

Ground Conditions

4.42 As indicated above, WK3 project is already operational as an electricity generating station. The ExA, therefore concluded [ER 4.15.5] that it was anticipated that there would be no potential for ground condition-related effects for this part of the Application.

4.43 The ExA set out the Applicant's case that no significant issues had been raised by consultees during the scoping exercise for WKN. There were no concerns raised by Interested Parties during the examination of the Application. A Statement of Common Ground between the Applicant and the Environment Agency agreed that the Applicant`s assessment of ground conditions and potential contamination impacts was appropriate. The Statement of Common Ground also agreed that conditions in the proposed development consent order would ensure appropriate management regimes would be put in place in the event that consent was granted.

4.44 The ExA concluded [ER 4.15.13] that WK3 and WKN were in accord with all relevant legislation and policy and that ground condition matters would be provided for and secured in the proposed development consent order. The Secretary of State sees no reason to disagree with the ExA's conclusions in this matter.

Landscape and Visual Impact

4.45 The ExA notes [ER 4.16.5 et seq] the National Policy Statements set out that virtually all nationally significant energy infrastructure projects will have effects on the landscape but that the aim should be to minimise any harm. Any harm should be assessed against the benefits of the projects in question. The National Policy Statements also set out how assessments of landscape and visual impacts should be undertaken. The ExA also notes that the Kent Minerals and Waste Local Plan sets out that proposals for developments should aim to 'protect and enhance the character of the Site's setting'. The Swale Local Plan sets out similar ambitions for development within its area.

4.46 The ExA sets out the Applicant`s assessment of the landscape and visual effects of WK3 and WKN. In respect of the WK3 project, the Applicant stated that the additional generating capacity and waste throughput for which development consent was being sought would not result in any changes to the physical structure of the already consented and constructed development and no additional visual impacts were likely. However, WK3 would be taken into account in considering any 'in-combination' impacts.

4.47 In respect of WKN, the Applicant noted that the site of the proposed development was currently an area of hard-standing which was being used for the storage of construction material for WK3. The site was not currently visible from most of the nearby town of Sittingbourne because of existing developments around the

town. The Applicant assessed that for landscape and townscape character impacts, the constructed WK3 and WKN would become an element of the existing industrial setting provided by the DS Smith Paper Mill and the constructed WK3. However, it also notes that walkers on the Saxon Shore Way (a designated long-distance footpath) would notice the introduction of another industrial element to the landscape although the Applicant's assessment is that this would only lead to a moderate adverse effect for those people. The Applicant set out mitigation measures in its environmental statement but notes that certain features are dictated by function of the development and cannot be mitigated.

4.48 As far as the cumulative visual and landscape impacts of WK3 and WKN projects are concerned, the Applicant's view is that, while there would be increased visibility with some substantial adverse impacts for walkers using the Saxon Shore Way, the contribution of the projects would vary between a moderate adverse effect to negligible.

4.49 During the examination, the ExA noted that no significant matters of concern about visual and landscape impacts were raised by Interested Parties [ER 4.16.32]. Nonetheless, the ExA did pursue a large number of matters with the Applicant and other parties [ER 4.16.33 et seq]. The ExA also considered the Local Impact Report submitted by Swale Borough Council [ER 4.16.36 et seq] which noted the possible visibility of WK3 and WKN albeit as part of a wider industrial scene. The ExA also noted the unsigned and undated draft Statement of Common Ground between Swale Borough Council and the Applicant and a submission by the Council during the examination which stated that WK3 and WKN would be unlikely to result in significant adverse visual or landscape character effects [ER 4.16.41]. Finally, the ExA considered the potential impact of the lighting at WK3 and WKN [ER 4.16.42 et seq] and noted that this would lead to an intensification of baseline conditions in the vicinity of the projects when combined with the lighting at the existing developments in the area.

4.50 The ExA's conclusions [ER 4.16 46 et seq] were that while WK3 and WKN would give rise to adverse impacts on visual and landscape receptors, the overall impact would at its worst be moderately adverse (for walkers on the Saxon Shore Way). The ExA also concluded that there would be no significant landscape effects as a result of WKN during its construction, operation or decommissioning. The Secretary of State sees no reason to disagree with the ExA's conclusions in this matter.

Noise and Vibration

4.51 The ExA notes [ER 4.17.1 et seq] that the National Policy Statements and the National Planning Policy Framework set out relevant matters for the assessment and consideration of noise and vibration impacts from nationally significant energy infrastructure noting that excessive noise can have adverse impacts on human health as well as on wildlife and biodiversity.

4.52 The ExA also notes that the Applicant predicted that there would be no significant changes to noise emissions as a result of WK3 and WKN (including from increases in levels of traffic associated with them).

4.53 During the examination, the ExA sought to clarify the potential sources of noise, what the impacts might be and how they could be mitigated. The ExA draws attention to the draft Statement of Common Ground between Swale Borough Council and the Applicant which sets out mitigation measures that would be included in any development consent order that the Secretary of State might issue and records the Council's position of no objection to WK3 and WKN in respect of their potential noise impacts [ER 4.17.12 et seq].

4.54 In its conclusion [ER 4.17.22 et seq], the ExA sets out that it found there would be no significant impacts arising from the construction and operation of WK3 and WKN projects and that the projects would comply with the National Policy Statements and the National Planning Policy Framework in respect of noise and vibration. The Secretary of State sees no reason to disagree with the ExA's conclusions in this matter.

Traffic and Transport

4.55 The National Policy Statements acknowledge that traffic movements into and out of nationally significant infrastructure projects during its development life cycle can have a wide variety of impacts on the surrounding transport infrastructure. However, the National Policy Statements also note that it is possible to mitigate those impacts. The National Planning Policy Framework sets out that development should only be refused on traffic and transport grounds if there would be unacceptable impacts on road safety or on the road network more generally. Both Kent County Council's fourth Local Transport Plan and Swale Borough Council's Local Plan and Swale Borough Council's draft Transportation Strategy 2014 – 2031 include matters that are potentially impacted by the increase in traffic density arising from WK3 and WKN.

4.56 The ExA notes [ER 4.18.10 et seq] that the Applicant submitted an assessment of potential traffic impacts arising from WK3 and WKN as part of the environmental statement that accompanied its application for development consent. The assessment covers a range of transport links including roads, footpaths and local rail and bus routes. The Applicant notes that WK3 and WKN, particularly if operated together would lead to an increase in traffic flow movements in the vicinity of the plants. However, the Applicant's overall conclusion was that [ER 4.18.37] WK3 and WKN would not result in an unacceptable or severe impact on the transport network.

4.57 The question of potential impacts of WK3 and WKN on traffic and transport matters with Highways England and Kent County Council (the Local Highways Authority) both raising concerns in relation to the 'Strategic Road Network' [motorways and major 'A' roads] and local routes respectively. The concerns related to the increase in the number of Heavy Goods Vehicle movements along the already congested local and strategic road network that would result from the increase in waste throughput at WK3 and the operation of the new WKN project. There would also be impacts from the transport arrangements necessary to remove Incinerator Bottom Ash from WK3 and WKN for disposal.

4.58 The ExA considered the traffic and transport issue in great detail during the examination with a number of questions being asked of the Applicant, Highways

England and Kent County Council to seek clarification on relevant issues related to potential impacts and mitigations. If both WK3 and WKN were consented and developed to their requested generating and waste throughput capacities, there would be a total increase of 318 additional Heavy Goods Vehicle movements per day in the vicinity of the projects and on the wider road network. The individual daily increases would be 68 additional movements for WK3 and 250 additional movements for WKN [ER 4.18.55]. This total would be in addition to the 348 daily movements arising from the existing consented WK3 project. It was also noted that other infrastructure developments in the vicinity of WK3 and WKN – particularly proposals for a new housing development – that would also impact on the local and strategic road networks with the potential to adversely affect road congestion (the carrying capacity at certain important road junctions would be exceeded) and road safety.

4.59 Kent County Council and Highways England considered that mitigation measures to limit the numbers of Heavy Goods Vehicles on the road network at particular points during the day was necessary to minimise impacts on congestion and road safety. These matters were outstanding at the end of the examination.

4.60 The ExA concluded [ER 4.18.79 et seq] that with a number of mitigation measures in place then WK3 and WKN would not give rise to adverse impacts on the Strategic Road Network. The mitigation measures that would apply are:

- a prohibition on the timing of Heavy Goods Vehicle movements at the M2 Junction 5 and A249 Grovehurst Road traffic junctions until such time as suitable upgrades to those junctions had been out in place;

- the prohibitions should continue to apply until the Applicant can demonstrate an absence of an unacceptable impact on the Strategic Road Network which can only happen once the road improvements are in place and WK3 and WKN have been operational for a minimum of twelve months;

- there would be no need to restrict further the existing limitation of Heavy Goods Vehicle movement numbers for WK3. However, there should be limits on the number of Heavy Goods Vehicle movements in relation to the increased generation and waste throughout for WK3 project; and

- approval for the relevant local planning authority would be needed for construction and operational travel management plans.

4.61 The ExA's overall conclusion [ER 4.18.90] is that mitigation for impacts would ensure that WK3 and WKN would accord with the requirements of the National Policy Statements, local development plan and other policies.

4.62 The ExA notes that there was no completed Statement of Common Ground between the Applicant and Highways England at the close of the examination and that this omission adversely affected the conduct of the examination by making it difficult to know which key issues were still in dispute and how those issues might be resolved. The Applicant did submit a 'working draft' of a Statement of Common Ground with Highways England to the ExA on the last afternoon of the examination along with a 'Position Statement on Highways Matters' but the documents were not accepted into

the Examination as the ExA decided that there would be no opportunity for Interested Parties to review them and provide comments.

4.63 The Applicant subsequently wrote to the Secretary of State drawing his attention to the existence of the two documents and asking that they should be taken into account in the Secretary of State's decision-making. The Applicant also asked whether it would be asked to continue to discussions with Highways England to try to seek agreement on some of the key issues. The Applicant copied its correspondence to Highways England which responded that it was unable to enter into any further discussions with the Applicant and that the draft Statement of Common Ground did not reflect Highways England's position.

4.64 The Secretary of State does not consider that the correspondence from the Applicant and the response from Highways England add any new information to that which is available to the Secretary of State from the ExA Report.

Water Environment

4.65 The National Policy Statements and the National Planning Policy Framework set out policy considerations that should be taken into account by developers and decision-makers in relation to flood risks to and arising from nationally significant energy infrastructure projects and in relation to potential impacts on water courses and other resources. In relation to flood risk, the general presumption is to avoid locating energy infrastructure in areas at highest risk of flooding: all energy projects with an area greater that 1 hectare in Flood Zone 1 and all proposals for energy projects in Flood Zones 2 and 3 should be accompanied by a Flood Risk Assessment. [The Flood Zone Level reflects the probability of a flooding event occurring over a defined geographical area, with Flood Zone 1 being the lowest risk category] [ER 4.19.2 et seq].

4.66 The ExA [ER 4.19.8 et seq] notes that the Applicant assessed that the overall location of the WK3 and WKN would fall into each of the Flood Zone categories, however much of the land on which the developments would be located had been elevated as part of previous construction work and so most of it now was categorised as Flood Zone 1. Where parts of the development site are still in Flood Zone 2 or 3, then mitigation is in place to limit the impacts of flooding on and from the proposed developments. As indicated above, the WK3 facility has already been constructed so has already been assessed for its flood risk potential. However, for WKN, the Applicant's assessment is that with mitigation measures employed, there would be a minor adverse – not significant – impact on flood risk.

4.67 The ExA notes [ER 4.19.25] that there were no concerns raised during the examination about the Applicant's Flood Risk Assessment. It also notes [ER 4.19.26 et seq] that the Environment Agency considered the potential flood risk to be acceptable and that WK3 and WKN would not pose a risk to surface water quality and the nearby River Swale provided that appropriate mitigation measures were included in any development consent order which might be granted by the Secretary of State. Similarly, the Environment Agency agreed that WK3 would not pose a risk to groundwater, while the WKN would manage any potential contamination through mitigation measures in the development consent order [ER 4.19.30].

4.68 The ExA asked a number of questions of the Applicant and other parties to the examination about the 'water environment' and about the mitigation measures that were being proposed by the Applicant [ER 4.19.31]. In particular, there was an exchange of information with the Marine Management Organisation and the Environment Agency about the permitting regime necessary for two water outfall pipes that would take clean water from WK3 and WKN into the River Swale. There was agreement that the existing Marine Licences that covered the two outfall pipes would remain in place (so there would be no deemed Marine Licence within any development consent order that might be issued by the Secretary of State) and discharges from the pipes would be covered by an Environmental Permit issued by the Environment Agency.

4.69 The ExA concluded [ER 4.19.44 et seq] that for flood risk, WK3 and WKN would be acceptable and would comply with relevant policies in the National Policy Statements, the National Planning Policy Framework and local development plan policies. In addition, the Applicant had demonstrated compliance with the provisions of the Water Framework Directive and that there would be no impacts on designated sites. Further, the potential impacts of WKN on the water environment would be avoided by the use of mitigation measures including the design of the project. The ExA's overall conclusion was that WK3 and WKN would comply with all relevant national and local policy requirements. The Secretary of State sees no reason to disagree with the ExA's conclusions in this matter.

Submissions to the Secretary of State after Receipt of the ExA's Report

4.70 In addition to the Applicant submitting representations about traffic and transport issues to the Secretary of State after receipt of the ExA Report (see paragraphs 4.66 – 4.67 above), it also asked the Secretary of State to consider additional matters related to waste management. These matters were submitted to the ExA at the very close of the examination but as with the representations about traffic and transport, the ExA declined to accept them into the examination because Interested Parties would not have had a chance to review them or offer comments.

4.71 The Applicant also wrote to the Secretary of State on 27 January 2021 to inform him that the Environment Agency was minded to grant an Environmental Permit for WKN subject to any final comments from Natural England. (The Applicant notes that Natural England did not raise any objections to the project during the examination.)

4.72 While noting the late representations above (and the one set out at paragraphs 4.63 – 4.64 above about Traffic and Transport), the Secretary of State does not consider that these late representations materially add to the information that was already available through the ExA. The Secretary of State has not, therefore, taken them into account in the decision-making process.

5. **Findings and Conclusions in Relation to Habitats Regulations Assessment**

5.1 The Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations") require the Secretary of State to consider whether the proposed

Development would be likely, either alone or in combination with other plans and projects, to have a significant effect on any site forming part of the national site network as defined in the Habitats Regulations (a "protected site"). If likely significant effects cannot be ruled out, then an Appropriate Assessment must be undertaken by the Secretary of State pursuant to regulation 63(1) of the Habitats Regulations to address potential adverse effects on site integrity. The Secretary of State may only agree to the project if he has ascertained that it will not adversely affect the integrity of a protected site. This process is collectively known as a Habitats Regulations Assessment.

5.2 The preparation of the Habitats Regulations Assessment ("HRA") that is published alongside this decision letter was prepared by environmental specialists in BEIS. The HRA concludes that a likely significant effect cannot be ruled out in respect of two protected sites, the Swale SPA and Ramsar site, when considered alone. No potential in-combination likely significant effects were identified. The potential impact pathways identified were changes to air quality during construction and decommissioning, and noise and visual disturbance and changes to water quality during construction and operation. It is, then, necessary to consider whether the proposed WK3 and WKN projects alone would have an adverse effect on the integrity of those sites. An appropriate assessment was, therefore, undertaken to determine whether an adverse effect on the sites could be ruled out in light of the sites' conservation objectives. The overall conclusion of the assessment was that the proposed Development would have no adverse effects on the integrity ("AEoI") of any protected sites subject to the implementation of suitable mitigation. The Secretary of State does not, therefore, consider that there would be any breach of his duty under the Habitats Regulations in the event he was to grant development consent for WK3 [and WKN].

5.3 The Secretary of State also notes that the ExA also concluded that the proposed Development, subject to the inclusion of suitable mitigation in any development consent order that might be granted, would not have any AEoI on the integrity of any protected sites. The Secretary of State further notes that neither Natural England nor any other Interested Parties disagreed with the ExA in this matter [ER 5.7.1 et seq]

6. The Secretary of State's Consideration of the Planning Balance

6.1 All nationally significant energy infrastructure developments will have some potential adverse impacts. In the case of WK3 and WKN, most of the potential impacts have been assessed by the ExA as being acceptable subject in some cases to suitable mitigation measures being put in place to minimise or avoid them completely. As set out above, the ExA determined that consent should be granted for WK3 only. The adverse impacts for the WK3 project did not outweigh the significant weight attaching to the need case established by the National Policy Statements.

6.2 However, the ExA's consideration of all the issues, particularly in respect of arguments about where the incineration of waste stood in the waste hierarchy and how this related to adopted policies in relevant local plans, led to the conclusion that WKN, while offering some benefits (particularly from the 42MW of electricity that would be generated), did not accord with the relevant provisions in the National Policy

Statements, the National Planning Policy Framework and in relevant local plans. The ExA recommended, therefore, that WKN should not benefit from the grant of consent.

6.3 As set out in above, sections 104 and 105 of the Planning Act 2008 set out the procedures to be followed by the Secretary of State in determining applications for development consent where National Policy Statements have and do not have effect. In both cases, the Secretary of State has to have regard to a range of policy considerations including the relevant National Policy Statements and development plans and local impact reports prepared by local planning authorities in coming to a decision. However, for applications determined under section 104, the primary consideration is the policy set out in the National Policy Statements, while for applications that fall to be determined under section 105, it is local policies which are specifically referenced although the National Policy Statements can be taken into account as 'important and relevant considerations'.

6.4 The Secretary of State adopts a different approach to the ExA's in this matter and is of the view that the whole application (including the benefits and impacts of WKN) fall to be considered under section 104 of the Planning Act 2008. This means that in the consideration by the Secretary of State, more weight has been given to the National Policy Statements. However, the Secretary of State does not consider that this different approach to the planning process results in a different conclusion to that reached by the ExA, namely that development consent should not be granted for WKN and that the benefits of WKN are outweighed by the non-compliance with policies elsewhere, in particular, the policies regarding compliance with the NPS EN-1 and the policies referencing both the waste hierarchy and local waste management plans in NPS EN-3.

6.5 The determination of applications for development consent for nationally significant infrastructure projects is a balancing exercise and the weight afforded to different elements of the matrix of impacts and benefits may affect the overall conclusion. The ExA identifies that there are undoubtedly concerns that WKN would have adverse impacts on local and regional targets for moving waste up the waste hierarchy. As noted, the ExA has had regard to these matters in framing its recommendation. However, the Secretary of State is not bound to follow that recommendation if he feels that the evidence presented to him can support a different conclusion.

6.6 The Secretary of State has considered the arguments in the ExA Report together with the strong endorsement of developments of the type that is the proposed Development. He notes the ExA's comments that WK3's anticipated provision of steam to nearby industrial facilities is a further benefit in its favour. He considers that the overall planning balance supports the grant of consent for the increase in generating capacity and an increase in waste-fuel throughput at WK3. As noted, whilst taking a different approach to the application of sections 104 and 105 of the Planning Act 2008 and consequently to the application of the planning balance in considering WKN, the Secretary of State nevertheless agrees with the ExA's conclusion that even though there are benefits from WKN, these do not outweigh the adverse impacts. The Secretary of State does not, therefore, consider that development consent should be granted for WKN.

7. Other Matters

Human Rights

7.1 The Applicant has not requested powers of compulsory acquisition as part of the Application. The Secretary of State has considered the potential infringement of human rights in relation to the proposed Development and notes there were no human rights concerns raised during the Examination. He has no reason to believe, therefore, that the grant of the Order would give rise to any unjustified interference with human rights so as to conflict with the provisions of the Human Rights Act 1998.

Equality Act 2010

7.2 The Equality Act 2010 includes a public sector equality duty ("PSED"). This requires a public authority, in the exercise of its functions, to have due regard to the need to (a) eliminate discrimination, harassment and victimisation and any other conduct prohibited by or under the Planning Act 2008; (b) advance equality of opportunity between persons who share a relevant protected characteristic (e.g. age; gender; gender reassignment; disability; marriage and civil partnerships[1]; pregnancy and maternity; religion and belief; and race.) and persons who do not share it; and (c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

7.3 In considering this matter, the Secretary of State (as decision-maker) must pay due regard to the aims of the PSED. This must include consideration of all potential equality impacts highlighted during the examination. There can be detriment to affected parties but, if there is, it must be acknowledged and the impacts on equality must be considered.

7.4 The ExA states [ER 8.2.4] that it had due regard to the relevant provisions of the Equality Act 2010 during the examination and in writing its Report. It concluded that the WK3 project "would not harm the interests of persons who share a protected characteristic or have any adverse effect on the relationships between such persons and persons who do not share a protected characteristic" and on that basis "there would be no breach of the PSED".

7.5 The Secretary of State is confident that, in taking the recommended decision, he has paid due regard to the above aims when considering the potential impacts of granting or refusing the Application and can conclude that the WK3 project will not result in any differential impacts on people sharing any of the protected characteristics. The Secretary of State concludes, therefore, that neither the grant nor refusal of the Application is likely to result in a substantial impact on equality of opportunity or relations between those who share a protected characteristic and others or unlawfully discriminate against any particular protected characteristics.

[1] In respect of the first statutory objective (eliminating unlawful discrimination etc.) only.

Natural Environment and Rural Communities Act 2006

7.6 The Secretary of State has considered the Secretary of State's duty in accordance with section 40(1) of the Natural Environment and Rural Communities Act 2006, where he is required to have regard to the purpose of conserving biodiversity, and in particular to the United Nations Environmental Programme Convention on Biological Diversity of 1992, when granting development consent.

7.7 The Secretary of State is of the view that the ExA Report, together with the environmental impact analysis, considers biodiversity sufficiently to inform his decision to grant consent to the proposed Development.

Climate Change Act and the Net Zero Target

7.8 On 2 May 2019, the Climate Change Committee recommended the UK reduce greenhouse gas emissions by net zero by 2050. This was proposed to deliver on the commitments the UK made by signing the Paris Agreement in 2016. On 26 June 2019, following advice from the Committee on Climate Change, Government announced a new carbon reduction 'net zero' target for 2050 which resulted in an amendment to the Climate Change Act 2008 requiring the UK to reduce net carbon emissions by 2050 from 80% to 100% below the 1990 baseline.

7.9 The Secretary of State notes the Energy White Paper states that National Policy Statements continue to form the basis for decision-making under the Planning Act 2008. The Secretary of State does not consider that the amendment to the Climate Change Act 2008 has lessened the need for development of the sort represented by WK3 which is, therefore, still in accordance with the National Policy Statements.

8. Modifications to the draft Order

8.1 The ExA records that there were a number of changes to the development consent order submitted by the Applicant as part of its Application as it progressed through the examination process. Many of the changes were minor in nature but others were more substantive. All potential changes the development consent order were subject to discussion and consultation during the examination. The ExA recommended draft DCO contained at Annex D of the report is on the basis that only the K3 plant should be granted development consent. This is the version that the Secretary of State has adopted as the basis for the consented development consent order.

8.2 In addition to the above, the Secretary of State has made various changes to the draft Order which do not materially alter its effect, including changes to confirm with the current practice for statutory instruments and changes in the interests of clarity and consistency. In particular:

- an amendment to Article 3 to confirm that the undertaker is granted development consent for the authorised development within the Order limits;

- a provision (article 7) has been included confirming that the provisions for the benefit of the order have effect for the undertaker unless the benefit is transferred in accordance with article 8;

- under article 8, the undertaker must notify the Secretary of State and the relevant planning authority at least 14 days before any transfer if no consent is otherwise required;

- the provision in relation to human remains has been removed on the basis that it does not appear to be relevant or necessary in relation to WK3;

- a provision in relation to the service of notices has been added (article 19);

- a reference to the waste capacity of WK3 has been included in the description of the generating station in Schedule 1.

9. Challenge to decision

9.1 The circumstances in which the Secretary of State's decision may be challenged are set out in the Annex to this letter.

10. Publicity for decision

10.1 The Secretary of State's decision on this Application is being publicised as required by section 116 of the Planning Act 2008 and regulation 31 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

Yours sincerely

Gareth Leigh
Head of Energy Infrastructure Planning

ANNEX

LEGAL CHALLENGES RELATING TO APPLICATIONS FOR DEVELOPMENT CONSENT ORDERS

Under section 118 of the Planning Act 2008, an Order granting development consent, or anything done, or omitted to be done, by the Secretary of State in relation to an application for such an Order, can be challenged only by means of a claim for judicial review. A claim for judicial review must be made to the Planning Court during the period of 6 weeks beginning with the day after the day on which the Order is published. The decision documents are being published on the date of this letter on the Planning Inspectorate website at the following address:

https://infrastructure.planninginspectorate.gov.uk/projects/south-east/wheelabrator-kemsley-generating-station-k3-and-wheelabrator-kemsley-north-wkn-waste-to-energy-facility/

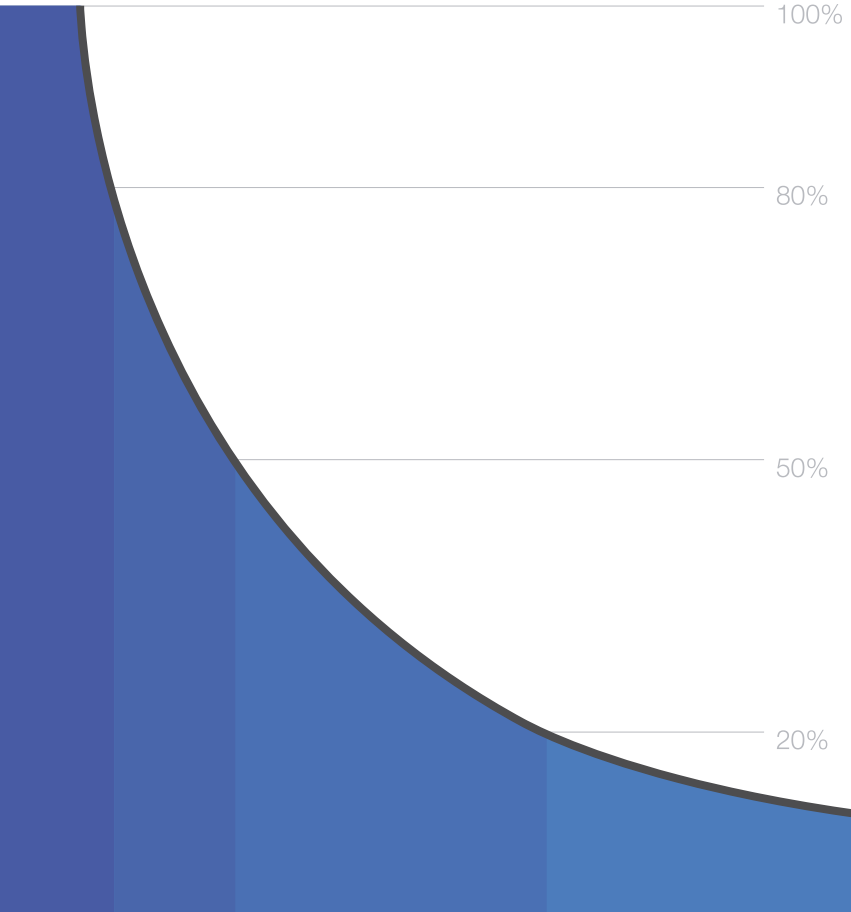
These notes are provided for guidance only. A person who thinks they may have grounds for challenging the decision to make the Order referred to in this letter is advised to seek legal advice before taking any action. If you require advice on the process for making any challenge you should contact the Administrative Court Office at the Royal Courts of Justice, Strand, London, WC2A 2LL (0207 947 6655).

PAS 2080:2016

Carbon Management in Infrastructure

Construction Leadership Council

The **Green Construction Board**



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4 General Principles

4.1 Context

The principles set out in **4.2** to **4.6** are fundamental principles underpinning the carbon management process presented in PAS 2080. Their application ensures that practitioners undertaking carbon management activities are able to demonstrate that a true and fair approach has been adopted.

4.2 Relevance

Data and assessment methods relevant to the defined boundary of carbon management and assessment are to be selected, documented and used.

[adapted from PAS 2050: 2011]

4.3 Completeness

All life cycle carbon emissions arising within the defined infrastructure system boundary which provide a material contribution to the management and assessment of carbon emissions are to be included.

[adapted from PAS 2050: 2011]

NOTE *Clause **7.1.3.2** sets out criteria which identify how to identify emissions which are deemed to be material.*

4.4 Consistency

Consistent methodologies and data sources for carbon management and assessment are to be used to allow comparisons of emissions over time. Any changes to methodologies, assumptions or data sources are to be transparently documented.

[adapted from GHG Protocol: 2009]

4.5 Accuracy

The quantification of carbon emissions is to neither over nor under estimate actual emissions, as far as can be judged, and uncertainties are to be reduced as far as reasonably practicable. A sufficient level of accuracy is to be achieved to enable users to make decisions with reasonable assurance as to the integrity of the reported information.

[adapted from GHG Protocol: 2009]

4.6 Transparency

Where the outputs of a carbon management approach carried out in accordance with this PAS are to be disclosed to a third party, information shall be made available on the methodology and data sources used and any relevant assumptions to allow such a third party to make associated decisions with confidence.

Department
for Environment
Food & Rural Affairs

Resources and Waste Strategy

Monitoring Progress

This publication is available at www.gov.uk/government/publications

Any enquiries regarding this publication should be sent to us at:

RRW.Strategy@defra.gov.uk

PB Number: 14602

www.gov.uk/defra

Contents

WP2. Avoidable residual waste from household sources

In the Resources and Waste Strategy, we committed to eliminating all avoidable waste by 2050 and all avoidable plastic waste through the lifetime of the strategy (by the end of 2042).

The Clean Growth Strategy defines the aim of zero avoidable waste as eliminating all waste where it is *"technologically, environmentally and economically practicable (TEEP) to do so, [while] working to support innovation in new materials, products and processes that extend the range of materials covered by this categorisation".* In the Resources and Waste Strategy, we also talk about plastic waste being 'avoidable' when the plastic *"could have been reused or recycled; when a reusable or recyclable alternative could have been used instead; or when it could have been composted or biodegraded in the open environment"* (page 7).

It is important to note that quantifying avoidable waste is challenging and subject to varying definitions, interpretations and potential methodologies.

One approach to quantifying avoidable waste is to try to assess the amount of waste which could have been avoided becoming residual given current recycling technologies and opportunities for material substitution. Residual waste here refers to waste that has not been prevented, reused or recycled. It is usually collected from households or businesses in a black bag or wheelie bin to ultimately end up at an energy recovery plant or landfill.

Residual waste is problematic, as its treatment is often the most polluting waste-management option. It also prevents the value of materials and products being retained in the economy. It is important to note that such an approach represents a subset of avoidable waste, as it does not include other forms of waste e.g. that sent for recycling which could have been prevented or avoided further up the waste hierarchy. We may look to expand this method as data becomes available.

Here, we draw on waste composition data from recent National Waste Composition studies undertaken by WRAP, which indicate proportions of materials within residual and recycling waste from household and household-like sources (household waste recycling centres, bulky collection and street sweepings). These proportions have been used to estimate national volumes of the same materials within the residual stream. It is important to note that by drawing on sample-based compositional data, final proportions and values presented here are subject to sampling error.

Using the compositional studies outlined, we have categorised waste using a tiered definition of avoidability and summed the quantity of residual waste from household and household-like sources falling into each category. This modulated approach allows for final values within each category to be combined, so that different interpretations of avoidability can be formulated as desired. The categories used are:

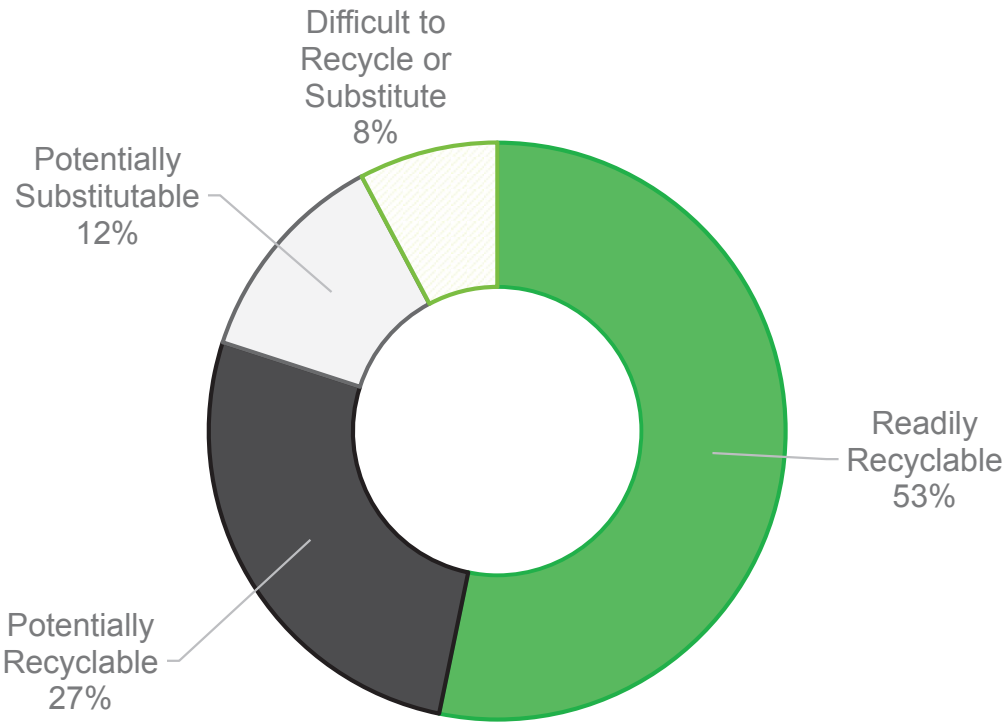
1. **Readily recyclable with current technologies** – items which shouldn't be in the residual waste stream whatsoever because they are recyclable or compostable at the kerbside or household waste recycling centres (HWRCs);[33]
2. **Potentially recyclable with technologies in development** – recycling of this material either: a) happens already but not at scale due to collection or technical challenges; or b) could be possible with technological/methodological changes that are already on the market and can be readily envisaged;
3. **Potentially substitutable to a material which could be recycled** – it is hard to envisage a recycling route for these materials, but they could be substituted for something else which could be recycled;
4. **Difficult to recycle or substitute** – the material is difficult to avoid becoming residual and no feasible alternative can be envisaged without entailing substantial cost.

Where a material type falls into two categories e.g. readily recyclable or potentially recyclable, we've chosen to place it into the category closer to being readily recyclable. Please see Appendix B for how we have categorised material types for the purpose of this assessment.

The message from this assessment is that a substantial quantity of material appears to be going into the residual waste stream, where it could have at least been recycled or dealt with higher up the waste hierarchy. This is something we will continue to monitor into the future in line with our commitment to reduce avoidable waste.

[33] This doesn't necessarily mean that all local authorities will recycle these despite being recycled in some places, just that they are potentially recyclable with current technologies in use in some local authorities

Chart 13. Avoidable residual waste from household sources, England, 2017, proportion of total residual waste, by category (WP2a)

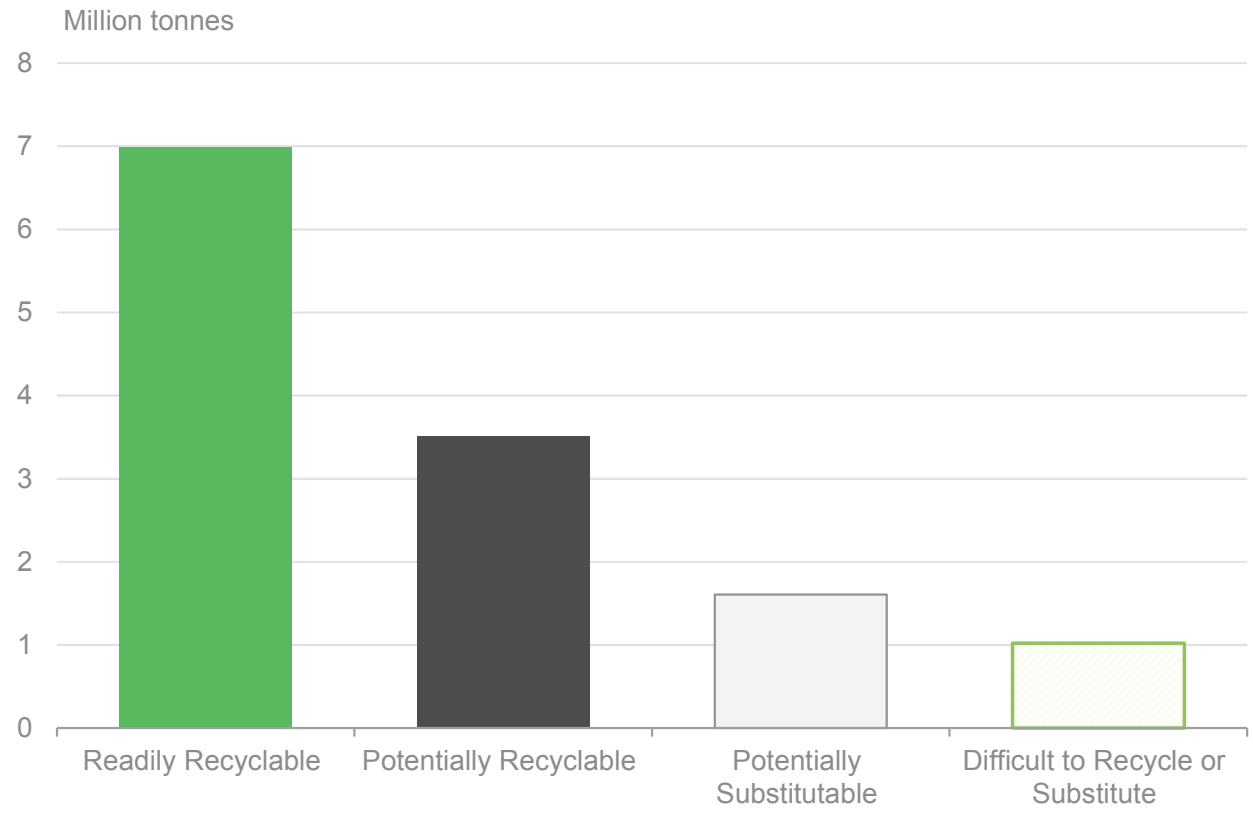


Source(s): WRAP (2020) Quantifying the composition of municipal waste

Chart 13 uses the compositional data described on page 33 and 34 to estimate the proportions of residual waste from household sources[34] falling into each category of 'avoidability'. Of total residual waste from household sources in England in 2017, an estimated 53% could be categorised as readily recyclable, 27% as potentially recyclable, 12% as potentially substitutable and 8% as difficult to either recycle or substitute. All figures are estimates. Further information available in Appendix B.

[34] Including household kerbside residual collections, household waste recycling centre residual waste, bulky collections and street sweepings

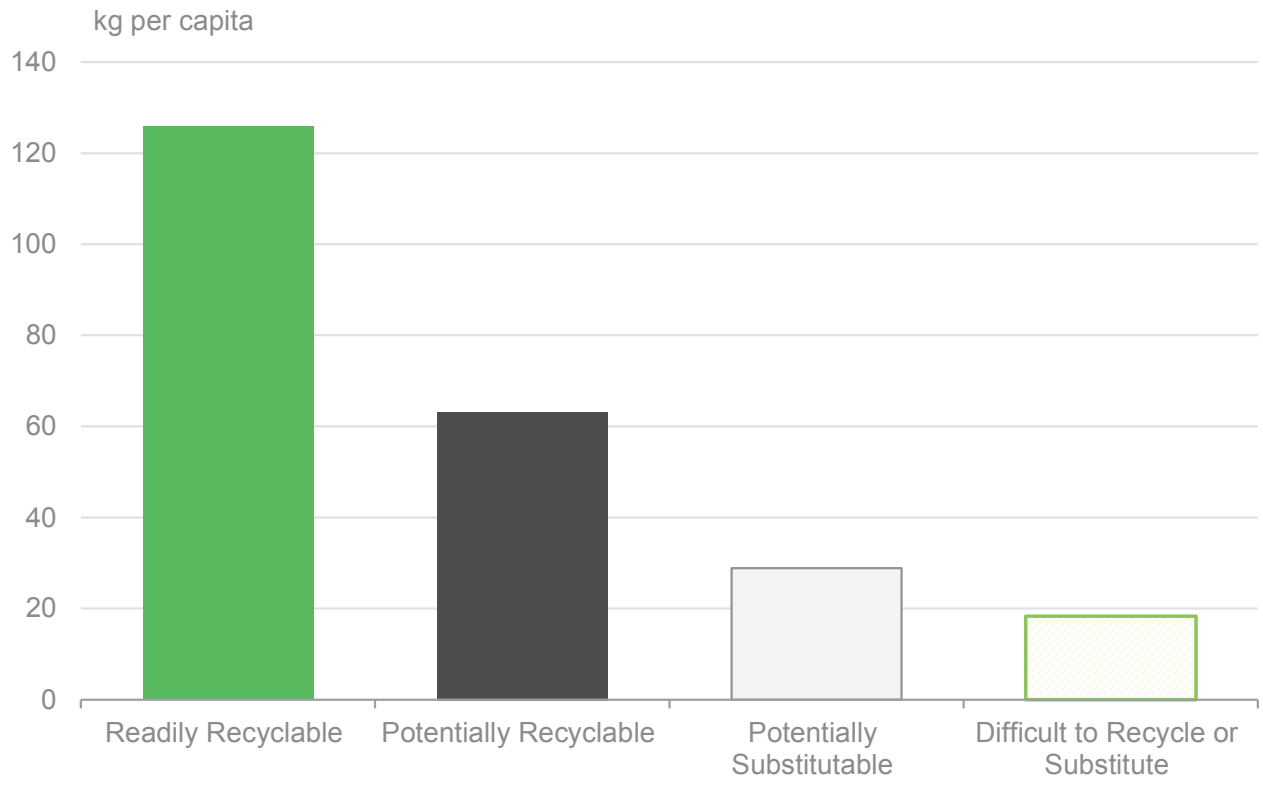
Chart 14. Avoidable residual waste from household sources, England, 2017, million tonnes (WP2b)



Source(s): WRAP (2020) Quantifying the composition of municipal waste

Of approximately 13.1 million tonnes of residual waste generated by household sources in England in 2017, around 7 million tonnes could be categorised as readily recyclable, 3.5 million tonnes as potentially recyclable, 1.6 million tonnes as potentially substitutable, and 1.0 million tonnes as difficult to recycle or substitute. All figures are estimates. Further information available in Appendix B.

Chart 15. Avoidable residual waste from household sources, England, 2017, kg per Capita (WP2c)



Source(s): WRAP (2020) Quantifying the composition of municipal waste

Office for National Statistics (2019) Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland

Chart 15 places the figures in chart 14 onto a per capita basis. In 2017, and of 236 kg of residual household generated on average per person in England, 126 kg could be categorised as readily recyclable, 63 kg as potentially recyclable, 29 kg as potentially substitutable and 18 kg as difficult to recycle or substitute. All figures are estimates. Further information available in Appendix B.

WP2. Avoidable residual waste from household sources

Headline Indicator	**WP2.** Avoidable residual waste from household sources
Measure Name(s)	**WP2a.** Avoidable residual waste from household sources, England, proportion of total residual waste **WP2b**. Avoidable residual waste from household sources, England, million tonnes **WP2c**. Avoidable residual waste from household sources, England, kg per capita
Proxy Indicator and Measures (where applicable)	N/A
Time Period of Data	2017
Description of Indicator and Measures Used	Indicator provides an estimate of residual waste from household sources in England categorised according to different categories of 'avoidability' and measured: 1) as a proportion of total residual waste from household sources; 2) in tonnes: and 3) kg per capita
Desired Direction of Travel	Down
Relevant Goal in the 25 YEP	Goal 8 - minimise waste
Priority Area(s)	Reduce waste production
Relevant Legislative Targets/Commitments/ Ambitions	Strategic ambition: To work towards eliminating avoidable waste of all kinds by 2050 (RWS, 2018)
National/Experimental/ Official Statistics	
Geographical Scope	England
Definitions and Details of Calculation(s)	**WP2a**. Estimates are based on WRAP's National Household Waste composition study, a compilation of survey data collected from over 100 local authorities for the year 2017, collated and grossed up to England level to approximate the composition of residual and recycling waste from households and household-like sources (HWRCs, bulky waste collection and street cleaning). Waste is disaggregated based on material type in the study. Each material type has been categorised according to their degree of

Headline Indicator	**WP2.** Avoidable residual waste from household sources
	'avoidability'. Avoidable residual waste here refers to residual waste generated by household sources which could have avoided entering the residual waste stream because it: 1. *Is readily recyclable with current technologies* – items which shouldn't be in the residual stream whatsoever because they are recyclable or compostable at the kerbside or HWRC; 2. *Is potentially recyclable with technologies in development* – recycling of this material either: a) happens already but not at scale due to collection or technical challenges; or b) could be possible with technological/methodological changes that are already on the market and can be readily envisaged; or 3. *Could be substituted for a material which is recyclable* – where it is hard to envisage a recycling route for these, but the material could be substituted for something else which could be recycled. Indicator calculated as avoidable residual waste, by category, divided by total residual waste, multiplied by 100 and expressed as a percentage. Please note that 'avoidable food waste' within the material list refers to food and drink that is thrown away untouched or opened/started but not finished. 'Unavoidable food waste' refers to the elements of food that is not edible under normal circumstances, such as bones, cores, peelings, and egg shells. **WP2b**. Indicator presents the proportions in WP2a on a total annual tonnage basis **WP2c.** Population for England defined in accordance with the Office for National Statistics. Further details available at data source. Indicator calculated as the ratio of avoidable residual waste from households (in mass unit) over the total population (in number).

Material Category			Avoidability Classification			
1st Tier	2nd Tier	3rd Tier	Readily recyclable	Potentially recyclable	Potentially substitutable	Difficult to recycle or substitute
Food Waste		Avoidable food waste	X			
		Unavoidable food waste	X			
		Consumable liquids, fats & oils	X			
Garden waste			X			
Other organic		Pet excrement and bedding		X		
		Other organic		X		
Paper	*Recyclable paper*	Packaging paper	X			
		News, mags, brochures, catalogues & directories	X			
		Other recyclable paper	X			
	Non-recyclable paper	Non-recyclable paper			X	
Card		Thin card	X			
		Thick and corrugated card	X			
		Cartons	X			
		Other card		X		
Glass		Packaging glass	X			
		Non-packaging glass		X		
Ferrous metals	*Ferrous cans, all*	Ferrous drink cans	X			
		Ferrous food cans	X			
	Ferrous non-cans	Ferrous aerosols	X			
		Other ferrous packaging	X			
		Other ferrous non-packaging	X			
Non-ferrous metals	*Non-ferrous cans, all*	Non-ferrous drink cans	X			
		Non-ferrous food cans	X			
	Non-ferrous non-cans	Non-ferrous aerosols	X			
		Aluminium foil		X		
		Other non-ferrous	X			
Dense plastic	*Plastic bottles*	PET bottles	X			
		HDPE bottles	X			
		Other plastic bottles	X			
	Dense plastic non-bottles	Pots, tubs & trays	X			
		Other dense plastic packaging			X	
		Other dense plastic non-packaging			X	
		Polystyrene			X	
Plastic film		Carrier bags		X		
		Other packaging plastic film		X		
		Non-packaging plastic film			X	
Textiles	*Clothing, shoes, bags & belts*	Clothing		X		
		Shoes, bags & belts		X		
	All non-clothing textiles	Carpet & underlay			X	
		Other non-clothing textiles		X		
WEEE		Large WEEE	X			

		Small WEEE		X		
Hazardous		Household batteries	X			
		Paints and varnishes				X
		Other household hazardous waste				X
Wood		Treated wood	X			
		Non-treated wood	X			
Miscellaneous combustible		Absorbent Hygiene Products		X		
		Other sanitary		X		
		Furniture		X		
		Mattresses		X		
		Other miscellaneous combustible				X
Miscellaneous non-combustible		Soil	X			
		Rubble	X			
		Plasterboard	X			
		Other miscellaneous non-combustible				X
Fines						X
Other wastes						X