

UKWIN INTERESTED PARTY REPRESENTATION

Proposed Development:

**Development of an Energy Recovery Facility (ERF),
ancillary office block and associated infrastructure**

Proposed Location:

**Land to the South of Archers Fields Close, Burnt Mills
Industrial Estate, Basildon, Essex SS13 1DN**

Appellant:

**Archers Fields Energy Recovery Ltd (wholly owned
subsidiary of Clearaway Holdings Ltd)**

Planning References:

**ESS/120/20/BAS/APP (LPA) and
APP/Z1585/W/24/3357445 (PINS)**

13TH FEBRUARY 2025



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INTRODUCTION

1. The United Kingdom Without Incineration Network (UKWIN) was founded in March 2007 to promote sustainable waste management.
2. This Interested Party (IP) submission draws upon UKWIN's planning representations from July 2021, updating our position where necessary to take account of new information and of current circumstances.
3. It may be necessary, in the interests of the Appeal, for UKWIN to supplement this submission in the future should the appellant's proofs of evidence contain new information that merits comment or if the UK Government provides updates to planning policies, etc. that merit comment.
4. Whilst UKWIN is not in a position to attend the inquiry hearings in person, we would be happy to:
 - a) provide written answers to questions relating to matters arising from this submission and/or from any of our previous submissions and associated guidance and briefing; and to
 - b) provide oral evidence at the Planning Appeal hearing virtually, e.g. via Teams, and answer questions from parties and the Planning Inspector regarding our oral and written evidence.
5. For resource reasons and to avoid duplication we will leave it to other parties to focus on visual and landscape impacts, harm to the physical and mental wellbeing of residents living within the vicinity of the site, harm to biodiversity, and the inadequacy of the appellant's pre-application engagement, and will instead focus on other material planning considerations, including the implications of Defra's recently released Residual Waste Infrastructure Capacity Note for this proposal.
6. The following documents are being submitted to accompany this Interested Party representation:
 - a) Incineration Overcapacity in England (UKWIN, September 2023)
 - b) Incineration Overcapacity Technical Annex (UKWIN, September 2023)
7. Unless otherwise indicated, any text that is emboldened and/or underlined as part of an italicised quotation is for added emphasis and does not appear as emboldened and/or underlined in the original.

DEFRA'S RESIDUAL WASTE INFRASTRUCTURE CAPACITY NOTE

8. On the 30th of December 2024 the UK Government released a Residual Waste Infrastructure Capacity Note ('the Capacity Note') produced by Defra. This was accompanied by a Government announcement in the form of a press release from Defra and the Circular Economy Minister.
9. The announcement and associated Capacity Note support the conclusion that there is no need for the incineration capacity proposed for Archers Fields that justifies the harm that would arise from this facility, and therefore the announcement and associated Capacity Note support the case for the dismissal of this Appeal.
10. The Capacity Note states that:

*"The government is committed to transitioning to a circular economy, in which we maximise resource use and minimise residual waste arisings. Where residual wastes do occur, they should be managed in the most efficient manner. **This means that we will only support the development of further residual waste treatment infrastructure where they meet a clearly defined need to facilitate the diversion of non-recyclable waste away from landfill...**"*
11. As such, the announcement increases the adverse weight to be given to proposals for new waste incineration capacity that fail to show how that proposed new capacity would 'meet a clearly defined need' and that fail to demonstrate that the waste to be used as incinerator feedstock would be comprised exclusively of non-recyclable material that would otherwise go to landfill, and not for example used to power cement kilns or as feedstock for Sustainable Aviation Fuels (SAF) production facilities.
12. The Capacity Note therefore also increases the adverse weight to be given to proposals for developments, such as the one proposed for Archers Fields, that could result in local and/or national overcapacity.
13. UKWIN produced a report entitled 'Incineration Overcapacity in England' in September 2023 (submitted alongside this representation) which also looked at the issue of how much waste will be available for use as incinerator feedstock in the future, comparing this against incineration capacity that was operational or under construction (as well as additional analysis of plants that were in the pipeline).
14. Defra's Capacity Note analysis affirms the conclusion reached by UKWIN which is that there is no compelling need for new waste incineration capacity in England.

Press release accompanying the Capacity Note

15. The Government announcement, published alongside the Capacity Note, was entitled 'Government to crack down on waste incinerators with stricter standards for new builds' and was accompanied by the following subtitle:

"Almost half of all waste collected by local authorities in 2022/23 was incinerated with resources that could be recycled being lost".

16. This subtitle confirms that the UK Government continues to hold the position that recyclable material is currently being lost to incineration, i.e. that not all of the material being used as incinerator feedstock is exclusively composed only of genuinely residual waste that could not have been treated at higher tiers of the waste management hierarchy.

17. The notion that recyclable material was being lost to incineration reflects the UK Government's most recent acknowledgment that some of the material currently being incinerated could and should have been recycled or composted.

18. This position is in line with the Government statement found in the 2018 Resources and Waste Strategy that:

"Residual waste is the mixed material that is typically incinerated for energy recovery or landfilled. Much of the products and materials contained in this waste could have been prevented, reused or recycled. This is inefficient not only because materials that hold value are being lost, but also incineration and landfill are the most expensive ways to treat waste".

19. The Government's December 2024 press release, issued to accompany the Capacity Note, quoted Circular Economy Minister Mary Creagh CBE MP declaring that:

"For far too long, the nation has seen its recycling rates stagnate and relied on burning household waste, rather than supporting communities to keep resources in use for longer.

*"That ends today, with clear conditions for new energy from waste plants – they **must** be efficient and support net zero and our economic growth mission, before they can get the backing needed to be built".*

20. This echoes a statement made by the Leader of the House of Commons on the 12th of December 2024, when Lucy Powell MP stated on behalf of the UK Government that:

*"The Government are committed to developing a circular economy **in which we do not need waste incinerators...**"*

National need for new incineration capacity

21. As set out in the Capacity Note's Executive Summary:

*"The modelling undertaken demonstrates that, following implementation of these [Extended Producer Responsibility, Simpler Recycling and Deposit Return Scheme] policies, **there will therefore be sufficient residual waste infrastructure capacity to treat forecast municipal residual waste arisings at a national level**".*

22. The Capacity Note concludes by stating that:

*"Regardless of the specific technology or advances in sustainability of energy recovery facilities, in order to meet our residual waste reduction target, all residual wastes (excluding major mineral wastes) must not exceed approximately 17.6Mt in 2042. **Residual waste infrastructure must not lock-in materials that compromises the achievement of this target, minimising waste and maximising recycling and resource efficiency. To that end, government does not support overcapacity of energy recovery treatment regardless of the technology used and all new developments must demonstrate the genuine need for additional or replacement energy recovery treatment capacity**".*

23. It should be noted that, as set out in the Capacity Note's Glossary, that the term "energy recovery" refers to *"The process of recovering energy from residual waste, usually in the form of electricity or heat, but also via conversion of waste into fuels for use in other areas of the economy, via the thermal treatment of waste feedstocks"*, and is differentiated from the use of the term "energy from waste" which is limited to *"The incineration of residual waste with energy recovery in the form of electricity generation via steam turbine or heat offtake"*.

24. This differentiation is further emphasised in the Capacity Note statement in Section 4.2 ('Forecasted residual waste infrastructure capacity') that:

"As detailed in Table 2, there is 20.6Mt of residual waste infrastructure capacity in England. Of this total, 14.3Mt is energy recovery infrastructure capacity. In the absence of existing facilities ceasing operation, it is forecast that residual waste capacity will reach 24.9Mt in 2035, of which 18.8Mt will be (operational) energy recovery infrastructure".

25. When considering the implications of the Capacity Note for determining proposals for additional incineration capacity such as that proposed for Archers Fields it is also important to take account of the following:

- a) Defra's modelling only runs to 2035 and only takes account of some of the anticipated residual waste reduction measures;

- b) The Capacity Note acknowledges the potential for waste to be treated at other types of energy recovery facilities beyond incineration, including as feedstock for the production of Sustainable Aviation Fuel (SAF) and for the production of Solid Recovered Fuel (SRF) for use in cement kilns and for the production of Recycled Carbon Fuels (RCF) to contribute to meeting the Renewable Transport Fuels Obligation (RTFO), but does not model the capacity impacts of these alternative uses for residual waste that would compete with waste incineration; and
- c) A range of the Capacity Note's acknowledged assumptions and limitations are 'conservative' in that they tend to underestimate the potential for incineration overcapacity.

Statutory Residual Waste Reduction Targets

26. The Capacity Note opens with a reference to how:

"The Environmental Targets (Residual Waste) (England) Regulations 2023 set a statutory target to ensure that the total mass of all residual waste (excluding major mineral wastes) arising in England for 2042 does not exceed 287kg per person. This is the equivalent of a 50% reduction from 2019 levels".

27. The Capacity Note focusses on the impact of the Collection and Packing Reforms, i.e. Extended Producer Responsibility for packaging, Simpler Recycling, and the Deposit Return Scheme for drinks containers.

28. Together these measures are generally expected to move England around halfway towards the achievement of the statutory target to halve all residual waste arising by 2042 relative to the 2019 base year.

29. The Government's consultation document for their target to halve residual waste stated:

"This target is ambitious, with the major changes set out in CPR [Collection and Packaging Reforms] only expected to get us halfway towards our target. Meeting the target will require progress beyond the current commitment to achieve a 65% municipal recycling rate by 2035, and would represent a municipal recycling rate of around 70-75% by 2042..."

30. The associated Defra impact assessment from 2022 anticipated further measures that could be taken to help meet the target to halve residual waste, including *"Price-based levers"* for *"making it more expensive to dispose of waste by sending it to landfill or putting it through incineration"* while acknowledging that this could result in *"Potential disruption of the economics of landfill/incineration"* and *"Reduced gate fee income for residual waste operators and exporters"*.

31. The analysis provided by UKWIN in the report 'Incineration Overcapacity in England' (UKWIN, September 2023) is more detailed than the Defra Capacity Note in this regard, as UKWIN's assessment shows the impact not just of the Collection and Packaging Reforms but also of the combined impact of other measures required to meet the statutory target.

Feedstock demands for energy recovery facilities other than incinerators

32. In addition to the potential for residual waste to be diverted away from incineration and towards the top tiers of the waste management hierarchy, when considering new incineration capacity it is necessary to also consider the potential that new incineration capacity might be diverting waste feedstock from alternative residual waste treatment options.
33. Furthermore, when considering the overall level of residual waste treatment capacity within a given area it is necessary to consider how material could be used as feedstock for other forms of energy recovery apart from energy from waste incineration.
34. Failure to take adequate account of these considerations could result in a need for incineration capacity being identified which does not in fact exist.
35. Such a failure would allow an excess of incineration capacity to be built, which would be contrary to UK Government policy which seeks to avoid incineration overcapacity at local and national levels.
36. The 'Future of energy recovery' section of Defra's 30th December 2024 Capacity note acknowledges that:

"Residual waste infrastructure outputs, specifically those produced via advance thermal treatments and advanced conversion technologies, have the potential to deliver carbon savings in other areas of the economy beyond the waste sector. In this context, competition to access residual waste feedstocks may increase significantly in future. For example, the Department for Transport has confirmed support for use of the fossil component of residual waste, in addition to the biomass portion, through the Renewable Transport Fuel Obligation (RTFO) as a feedstock to produce recycled carbon fuels for the transport sector".

37. The Capacity Note identifies three types of energy recovery apart from energy from waste, comprising:
- a) Waste-derived Sustainable Aviation Fuel (SAF) production facilities;
 - b) Plastic-derived Recycled Carbon Fuel to be used as transport fuel under the Renewable Transport Fuel Obligation (RTFO); and

- c) Cement and lime kilns using waste as an alternative to conventional fossil fuels.

38. As set out in Appendix A ('Non-Incineration Demands for Residual Waste in England', below), the non-incineration demand for residual waste is estimated to be around 7 million tonnes per annum for the Central demand estimate.

39. This is summarised in the following Table:

Demand for residual waste feedstock	Lower	Central	Higher
(4 or 5) Waste-derived Sustainable Aviation Fuel (SAF) production facilities referred to in Defra's Capacity Note	3,383	4,817	6,886
Plastic-derived Recycled Carbon Fuel to be used as transport fuel under the Renewable Transport Fuel Obligation	932	1,118	1,398
Cement and Lime Kilns using waste as an alternative to conventional fossil fuels	725	1,100	1,800
Total (ktpa)	5,040	7,035	10,084

40. These estimates do not include the further non-incineration demands for residual waste feedstock associated with:

- d) Waste to be used for hydrogen production processes, including eligible projects using residual waste feedstocks to produce low carbon hydrogen under the Net Zero Hydrogen Fund, Hydrogen Production Business Model, and the Hydrogen BECCS Innovation Programme (referred to but not quantified in the Capacity Note);
- e) Non-plastic residual waste (i.e. waste biomass) to be used as Renewable Transport Fuel Obligation (RTFO) fuel (referred to but not quantified in the Capacity Note); or
- f) Residual waste to be treated at biomass plants.

31. As such, the actual level of demand for residual waste to be used for types of energy recovery other than energy from waste incineration could be expected to exceed the figures provided in the Table above.

Relevance of NPS overcapacity policies in light of Defra's Capacity Note

41. According to the introduction to Defra's Capacity Note:

*"This note has been prepared to consider residual waste arisings in England at both a regional and national level. Local authorities consider their waste treatment capacity needs at local level and this note will support decision making regarding the need for additional or alternative residual waste management infrastructure. **A proposed plant must not compete with greater waste prevention, reuse, or recycling, or result in overcapacity of residual waste treatment.** This position is set out in the Energy National Policy Statement for renewable energy infrastructure, which establishes planning considerations for nationally significant generation projects that fall outside of local planning authority competence, including energy from waste (EfW) facilities generating more than 50 megawatts in England".*

42. The emboldened text above resonates with the acknowledgement, found in both EN-1 and EN-3, that proposals for new incineration capacity are capable of adversely impacting upon recycling rates, confirming that such concerns remain live for the Government.

43. Whilst it is recognised that the Archers Fields proposal falls well short of the 50 megawatt threshold for Nationally Significant Energy Infrastructure, some policies set out within the associated National Policy Statements (NPSs) known as EN-1 and EN-3 still constitute material planning considerations for this Appeal.

44. Attention is drawn to EN-1 Paragraphs 1.2.1 and 1.2.2 which state that:

*"In England, **this NPS, in combination with any relevant technology specific NPSs, may be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990** (as amended). Whether the policies in this NPS are material and to what extent, will be judged on a case-by-case basis and will depend upon **the extent to which the matters are already covered by applicable planning policy.** For the purposes of applications made under the Planning Act 2008, this NPS in conjunction with any of the relevant technology specific NPSs are the primary policy for Secretary of State decision making".*

45. The Waste Management Plan for England was released in January 2021 and states on pages 3-4 that the October 2014 National Planning Policy for Waste "will be updated to align with the changes to the National Planning Policy Framework and the Resources and Waste Strategy".

46. The National Planning Policy for Waste has yet to be updated to reflect the Resources and Waste Strategy, the Environmental Improvement Plan 2023, the Environmental Targets Regulations 2023, or the Capacity Note and associated Government announcement from 30th December 2024.

47. As such, the paragraphs taken from EN-1 (and mirrored in EN-3) cited by UKWIN should be afforded great weight because they reflect current Government thinking with respect to the importance of avoiding ERF incineration overcapacity at local and national levels, as well as emphasising the importance of ensuring compliance with the Government's statutory 2042 residual waste reduction targets, and the importance of protecting the top tiers of the waste hierarchy from waste incineration.
48. Simply put, by the soonest time that the proposed Archers Fields ERF incinerator could become operational (i.e. 2028), between 6 and 7 million tonnes of waste feedstock currently available for incineration could be required for energy recovery facilities other than incinerators, meaning that either the new incineration capacity proposed for Archers Fields would come at the expense of Government-backed SAF and RTFO capacity or that all of these facilities would be built, resulting in significant residual waste treatment overcapacity.
49. As the Archers Fields proposal does not accord with relevant EN-1 or EN-3 policies in this regard, the genuine prospect of a grant of this Appeal resulting in overcapacity should be given significant weight in the planning decision and should be treated as a material planning consideration that weighs significantly against the proposal in the planning balance.
50. Further evidence regarding how incineration can harm recycling is set out on page 6 of UKWIN's September 2023 Overcapacity Briefing evidence and on pages 12-14 of the associated Technical Annex.

How the capacity proposed for Archers Fields could result in over-capacity of EfW waste treatment at a national level

51. Consideration of Defra's Capacity Note supports the conclusion that consenting the Archers Fields ERF would be likely to result in over-capacity of EfW waste treatment at a national level.
52. According to Defra's Capacity Note:
- "[Defra] modelling undertaken demonstrates that, following implementation of these policies [i.e. Defra's Collection and Packaging Reforms], there will therefore be sufficient residual waste infrastructure capacity to treat forecast municipal residual waste arisings at a national level".*
53. The capacity proposed for Archers Fields was not relied upon by Defra to reach this conclusion, and as such the capacity proposed for Archers Fields should be considered surplus to national requirements.
54. EN-1 Paragraph 3.3.40, and other paragraphs found elsewhere in both EN-1 and EN-3, confirm that proposed new waste incineration capacity: "...must not...result in over-capacity of EfW waste treatment at a national...level".

55. As such, the Archers Field Appeal should be dismissed.
56. It should be noted that Defra's Capacity Note calculations are based on the anticipated impacts of the Collection and Packaging Reforms, which taken together only enables England to reach halfway to the statutory Residual Waste Reduction target, with other measures expected to bridge the gap.
57. As referred to in the Capacity Note:
- "Regardless of the specific technology or advances in sustainability of energy recovery facilities, in order to meet our residual waste reduction target, all residual wastes (excluding major mineral wastes) must not exceed approximately 17.6Mt in 2042. Residual waste infrastructure must not lock-in materials that compromises the achievement of this target, minimising waste and maximising recycling and resource efficiency. To that end, government does not support overcapacity of energy recovery treatment regardless of the technology used and all new developments must demonstrate the genuine need for additional or replacement energy recovery treatment capacity".*
58. A requirement to consider the Residual Waste Reduction target is also set out in EN-1 Paragraph 4.3.20, which reads:
- "The Government has set 13 legally binding targets for England under the Environment Act 2021, covering the areas of: biodiversity; air quality; water; resource efficiency and waste reduction; tree and woodland cover; and Marine Protected Areas. Meeting the legally binding targets will be a shared endeavour that will require a whole of government approach to delivery. The Secretary of State have regard to the ambitions, goals and targets set out in the Government's Environmental Improvement Plan 2023 for improving the natural environment and heritage. This includes having regard to the achievement of statutory targets set under the Environment Act".*
59. The Capacity Note figure of 18.8 million tonnes of energy from waste incineration capacity by 2035 (which excludes the capacity proposed for Archers Fields) exceeds the anticipated level of residual waste arising of 17.6 million tonnes.
60. The Capacity Note explains how:
- "Based on current population growth estimates, the total volume of residual waste (excluding major mineral wastes) in England in 2042 will need to be at most approximately 17.6Mt to meet the legally binding residual waste target. This is for both municipal and non-municipal residual wastes, and acts as a long-term signal for our residual waste treatment capacity needs that should be taken into account when planning or considering residual waste treatment infrastructure".*

and how:

“Based on current population growth estimates and the legally binding target for the total mass of residual waste (excluding major mineral wastes) to not exceed 287kg per person, the total volume of all residual waste (excluding major mineral wastes) in England in 2042 will need to be at most approximately 17.6Mt”.

61. If we now account for the 7 million tonnes of feedstock demand for energy recovery facilities other than EfW incinerators, the maximum level of operational EfW incineration capacity would need to fall from the 18.8 million tonnes of English capacity referred to in the Capacity Note to only around 10.6 million tonnes of EfW waste incineration capacity in England, and that is before account is taken of the fact that some residual waste is unsuitable for combustion.
62. This reinforces the notion that the 150,000 tonnes per annum of additional capacity proposed for Archers Fields could result in over-capacity of EfW (ERF) waste treatment at a national level and could prejudice the achievement of the Government’s statutory Residual Waste Reduction target.
63. In this regard it should be noted that EN-3 Paragraph 2.7.102 makes clear how:

“The Secretary of State 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...”

Assumptions and limitations underestimating incineration overcapacity

64. Defra’s Capacity Note acknowledges a series of limitations, for example they have not modelled changes in composition, e.g. Defra has not modelled how a reduction in calorific value (CV) from the diversion of plastics away from incineration would increase the quantity of waste feedstock that could be burned at existing incineration plants.
65. As such, at Appendix B of this submission, UKWIN has provided an assessment of some of the key assumptions and limitations acknowledged within the Capacity Note.
66. This shows how the issue of incineration overcapacity in England could be significantly more acute than one would infer from a cursory reading of the Capacity Note.

Implications of the above with respect to the Archers Fields proposal

67. Defra's Capacity Note had not been released, and the accompanying Government announcement had not been made public, in time to have been considered by the Planning Officer or by the Planning Committee with respect to the Archers Fields proposal.
68. Had these been available they would have constituted material planning considerations that would have been taken into account as part of the decision-making process.
69. This assumption is supported by the reference in the Capacity Note to how:
*"This note is intended to support decision makers in planning for residual waste treatment needs and to support our national resources and deliver a circular economy. **The analysis presented here will support the planning process and should be given due consideration** when proposing, designing, or considering residual waste infrastructure treatment needs. **The results presented should be used to ensure that we do not deliver overcapacity**, especially where this risks compromising waste prevention or recycling **now or in the future**".*
70. The Capacity Note highlights the central importance of meeting the statutory target to halve residual waste sent to either landfill or incineration by 2042 (relative to the 2019 base year), setting out how the need to remain within this envelope with respect to residual waste treatment capacity *"should be taken into account when planning or considering residual waste treatment infrastructure"*.
71. Defra's modelling only runs to 2035 and only takes account of some of the anticipated residual waste reduction measures.
72. Given that the Archers Fields facility could operate well into the 2050s, it is important to ensure that the plant does not result in overcapacity at any point within the lifetime of the facility once all measures to halve residual waste per person are taken into account.
73. The Capacity Note and associated announcement also highlight the adverse GHG impacts of incineration and signal a reduced tolerance for plants with poor carbon credentials, stating for example in the Executive Summary that: *"For those energy recovery developments we do need, **we will only support projects that offer the best efficiency and are future proofed towards supporting our net zero objectives**"* with specific mention of expectations regarding CHP viability and carbon capture.

74. In line with this, the Capacity Note also sets out the Government position on how energy recovery options other than energy from waste incineration, such as advanced conversion technologies, have the potential to deliver carbon savings in other areas of the economy beyond the waste sector.
75. It is reasonable to assume that had the Capacity Note and associated Government announcement been available at the time of the Planning Committee's decision these would have increased the likelihood of the Council having refused planning permission on the additional basis of the proposal going against Essex and Southend Waste Local Plan (2017) Policy 11, alongside refusing on the grounds of conflicts with Basildon District Local Plan Saved Policies Document (2007) Policies C1, E7, and E10, and conflicts with Essex and Southend Waste Local Plan Policy 10, as well as conflicts with both the National Planning Policy for Waste (NPPW) and the National Planning Policy Framework (NPPF).
76. While mention is made in the Capacity Note to a lack of 'energy recovery' (as distinct from a lack 'energy from waste') capacity in some regions, including the East of England region, this apparent shortfall could easily be addressed through non-incineration capacity, e.g. existing and emerging energy recovery capacity provided by cement kilns and waste-to-SAF facilities, RTFO plants, etc.
77. Equally, any genuine shortfall could also be addressed through the utilisation of existing and emerging EfW capacity in other nearby regions.
78. As the Capacity Note explains:
- "While regard must be given to the proximity principle, which encourages residual waste to be recovered in one of the nearest appropriate facilities, this must not be over-interpreted. It does not require using the absolute closest facility to the exclusion of all other considerations. Accepting waste from, or sending waste to, another council, city, or region in many cases may be the best economic and environmental solution and be the only outcome achievable at a given time that is the most consistent with the proximity principle. The ability to source waste from a range of locations and organisations helps ensure existing capacity is used effectively and efficiently".*
79. A range of the Capacity Note's acknowledged assumptions and limitations are explored in Appendix B, demonstrating how these could result in an underestimate of the potential for incineration overcapacity. This too constitutes a material planning consideration that should be afforded appropriate weight in the Appeal decision.

80. Such an approach would be consistent with the Capacity Note's statement that the: *"limitations that have been identified...should be taken into account when viewing these results"*.
81. The issues of national overprovision of energy from waste capacity and the level of overcapacity found within the South Eastern Cluster – which includes the East of England Region – is explored in greater depth in UKWIN's September 2023 Overcapacity Briefing, which accompanies this submission.

Combined Heat and Power (CHP) readiness and viability

82. The Government does not support new incineration capacity that fails to demonstrate that making use of the heat produced would be viable.
83. This is explained in the Capacity Note as follows:
- "We do not, however, support the development of overcapacity of energy recovery infrastructure in England and will work to strengthen planning considerations to ensure that this does not happen. For those energy recovery developments we do need, we will only support projects that offer the best efficiency and are future proofed towards supporting our net zero objectives. This means that **further developments must be able to demonstrate that making use of the heat they produce is viable...**"*
84. This implies a move away from historic expectations that proposals demonstrate merely that they are 'CHP ready', adopting instead the stricter expectation that proposals demonstrate through the planning regime that they are actually 'CHP viable' for the heat that they would generate.
85. Such an interpretation would be consistent with the Government's characterisation of the new 'stricter' standards as a 'crackdown' on incineration.
86. According to the appellant's Statement of Case (Paragraph 6.1.35), only 2 MW of the 40 MWth capacity can be confirmed to have a customer.
87. This 2 MW is proposed to be used for the drying process of the adjacent Clearaway 1 waste management facility.
88. It is unclear how much of the heat to be exported is actually required for the drying process, and it is also unclear whether or not lifecycle analysis justifies the diversion of this heat away from electricity production.
89. Given these constraints and uncertainties it cannot be said that the appellant has demonstrated compliance with the Capacity Note expectations with respect to CHP viability and the need to make genuinely beneficial use of the heat generated.

Carbon capture readiness and viability

90. Defra's December 2024 Capacity Note makes repeated references to carbon capture. For example the Note states:

*"For those energy recovery developments we do need, **we will only support projects that offer the best efficiency and are future proofed towards supporting our net zero objectives.** This means that further developments must be able to demonstrate that...they can be built carbon capture ready, in accordance with the government's 'decarbonisation readiness' requirements once they come into force...*

"...The Department for Energy Security and Net Zero (DESNZ) are updating the decarbonisation readiness requirements...to include EfW facilities. The proposals would require new build and substantially refurbished EfW facilities to be built in such a way that they can easily decarbonise by retrofitting carbon capture within the plant's lifetime".

91. The Environment Agency has no powers to require current applicants for environmental permits to demonstrate carbon capture readiness under the current permitting regime, as this requirement does not apply to proposals, such as this one, where a permit application is expected to be made to the Environment Agency prior to March 2026.

92. As such, it falls to the planning regime to either require carbon capture where this is viable or to refuse planning permission where carbon capture is not viable, e.g. due to spatial constraints, poor location (relative to carbon capture clusters, pipelines, etc.), and/or economic unviability (e.g. due to the relatively small scale of the proposed facility when compared with the scale necessary to make carbon capture schemes at ERFs viable).

93. It seems obvious from the Site Location (as per Figure 2.1 of the appellant's Statement of Case) that the proposed development site is far too small to accommodate carbon capture technology.

94. UKWIN's July 2021 planning objection highlighted how the Archers Fields proposal failed to include any evidence to demonstrate that the proposal included any element of carbon capture and storage.

95. Despite the passage of time since July 2021, amounting to some 40 months, the appellant has still not provided evidence to indicate that carbon capture would be viable for this proposal.

96. It is therefore reasonable to conclude that carbon capture would not be viable at the proposed development location.

97. Such a conclusion would not be surprising given the relatively small size of the development site (half a hectare) and the typical land take required for carbon capture technology.

98. According to page 22 of the report entitled 'Decarbonisation Readiness - Technical Studies' produced by AECOM for the Department for Business, Energy & Industrial Strategy (BEIS):

"Reference data for capture projects in biomass and waste applications is limited".

99. The only example provided by AECOM for energy from waste carbon capture was a plant in Norway which had a carbon capture plant footprint of 6,000 m² (0.6 ha).

100. If applied to Archers Fields, this setting aside of an additional 0.6 ha to accommodate a carbon capture facility would more than double the land take of the proposal (i.e. from 0.5 hectares to around 1.1 hectares).

101. The appellant has not demonstrated that such an increase in land take would be viable, nor that they would have access to the land required for carbon capture (without coming at the expense of the appellant's existing facility), and therefore the appellant has not demonstrated that the introduction of carbon capture technology would be viable from a land take perspective, let alone from the perspectives of economic and/or technological viability.

102. The potential land take required for the use of carbon capture technology was not a consideration in the appellant's Assessment of Needs and Alternatives, and so the appellant cannot rule out the possibility that a different site could offer advantages with respect to carbon capture viability.

103. Additionally, the appellant has not modelled the adverse impact of the introduction of carbon capture technology on the level of heat and/or electricity that would be capable of being exported once the parasitic load demand of that carbon capture technology has been taken into account.

104. For example, the International Energy Agency (IEA) Technology Collaboration Programme (2020) 'IEAGHG Technical Report: CCS on Waste to Energy', which is based on two waste to energy carbon capture case studies, explains how:

"...the net electricity production [of municipal waste incinerators fitted with carbon capture technology] would be almost halved due to the carbon capture energy requirement".

105. Uncertainties regarding the level of electricity and heat export and the viability of retrofitting carbon capture technology at this site should weigh heavily against this proposal in the planning balance, especially given the possibility that the intended feedstock might otherwise be treated at an incinerator, cement kiln, or other plant that is fitted with carbon capture in line with the Capacity Note.

APPELLANT'S STATEMENT OF CASE

Track record of proposed technology

106. The appellant's Statement of Case ('SoC'), at Paragraph 3.1.4, refers to their preferred technology supplier having "*several other projects based on the same technology in development*" in the UK, but the appellant does not name a single one of these projects, nor does the appellant provide any detail of the locations or the performance of these UK facilities.

107. An adverse inference can be drawn from the appellant's failure to provide such information, and this should reduce the weight given any claimed benefits that could be impacted upon by technological shortcomings.

Whether the intended feedstock would otherwise go to landfill

108. The appellant states at paragraph 5.1.27 of the SoC that the development would "*move the management of the waste up the waste hierarchy*".

109. The SoC, at Paragraph 3.1.9, also states:

"The facility's feedstock would comprise up to 150,000 tonnes per annum of non-hazardous residual waste materials. This waste is entirely comprised of the residual materials left over after recycling at the Clearaway Recycling Ltd site, which are currently sent to landfill".

110. The appellant has not provided any evidence in support of their claim that they are currently sending 150,000 tonnes of waste to landfill, let alone that they are currently sending 150,000 tonnes of Refuse Derived Fuel (RDF) to landfill.

111. The appellant's SoC statement raises a number of additional questions, including about the composition of the material currently claimed to be sent to landfill, and whether or not this material is being charged at the standard rate of Landfill Tax or at a reduced rate, e.g. due to being considered inert.

112. Furthermore, and fundamentally, the statement is at odds with other public statements made by the appellant.

113. For example, a press release from the appellant that was published in an article entitled 'Clearaway makes a smart choice' on the HUB-4 website on 19th February 2019 describes the firm as follows:

"Clearaway are a well-established Skip Hire and Waste Management company servicing businesses and the public in the Basildon, Southend and Romford areas".

114. The article goes on to refer to how:

*"While the business prides itself on extracting the maximum amount of recyclable material from its waste as possible, **customers can rest assured that none of their waste is going to be buried at landfill**. 100% of non-recyclable items go into an energy from waste facility that generates electricity from the remaining processed waste".*

115. In other words, the appellant has made public claims about how their existing Archers Fields facility is not responsible for sending any waste whatsoever to landfill, under any circumstances.

116. This apparent contradiction merits explanation.

117. As does the apparent contradiction between what the appellant is now claiming in their SoC and what they told Skip & Waste magazine back in December 2022.

118. The December 2022 edition of Skip & Waste magazine features an article entitled 'Mercedes-Benz Atego measures up as Clearaway's waste line of choice'.

119. This mirrored an identical article published a month earlier on the Logistics Voice website.

120. Both versions of the article, which was also published elsewhere, contained the following statement:

*"Established in 2010 by Ian and Paul Whitehair, Clearaway serves private and commercial customers located within a 50-mile radius of its base on the Burnt Mills Industrial Estate in Basildon, Essex. The company is committed to recycling as much as possible of the waste it collects – **any that cannot be recycled goes to an 'energy-from-waste' facility, where it is used to generate electricity**".*

121. Such public statements from the appellant cast doubt on the accuracy of their SoC's landfill claims in this respect.

122. These doubts are compounded by a Clearaway Recycling Facebook post from 13th December 2023, reproduced overleaf.

123. The Clearaway Facebook post cites "Gareth one of our expert Lorry drivers tipping the skip within our waste transfer station" explaining how "Larger items are targeted for recycling by pickers, while smaller ones move to mechanical sorting" and how metals are "machine-recovered for new metal processing", with plastics "segregated for recycling" and waste wood "graded for new products or as biomass", concluding as follows:

*“Finally, **light waste is turned into RDF for energy plants** instead of fossil fuels. Heavier items, like stones and broken glass, called fines, are cleaned for use in concrete production, highlighting Clear a ways sustainability and ability to reuse and recycle products for a greener production”.*

124. No reference whatsoever is made of sending waste or RDF to landfill.



Clearaway Recycling Ltd

13 December 2023 · 🌐

...

Here is Gareth one of our expert Lorry drivers tipping the skip within our waste transfer station.

Fancy a read on what happens to your waste once it's accepted into our station? ♻️

Once tipped, waste undergoes shredding after tipping, reducing it to pieces no larger than 450mm. This aids Clearaway's staff in easy identification and separation. Larger items are targeted for recycling by pickers, while smaller ones move to mechanical sorting.

Ferrous and non-ferrous metals are machine-recovered for new metal processing. Electrical wires are stripped for clean copper used in new cables.

Similarly plastics, ranging from toys to uPVC window frames, are segregated for recycling. Waste wood is graded for new products or as biomass. Bricks and concrete are crushed for various construction materials.

Finally, light waste is turned into RDF for energy plants instead of fossil fuels. Heavier items, like stones and broken glass, called fines, are cleaned for use in concrete production, highlighting Clear a ways sustainability and ability to reuse and recycle products for a greener production.

[#sustainability](#) [#greenerenergy](#) [#reuserecycle](#) [#carbonfootprint](#) [#waste](#)



125. If the material would otherwise be sent to a different incinerator then:

- a) The proposed development would not be driving waste management up the waste hierarchy, despite the appellant's claims; and
- b) The proposed development would not be diverting waste away from landfill, despite the appellant's claims.

126. This has profound implications for this Appeal, including the notion that the appellant's climate comparisons would no longer be comparing the proposal against the likely alternative fate for the feedstock.

127. Given the national level of incineration capacity, the demand for non-incineration energy recovery uses for residual waste feedstock, the prevalence of nearby incineration capacity, including the 595,000 tonnes per annum provided by the nearby Ravenhall incinerator, Defra's Collection and Packaging Reforms, and the other measure that can be expected to help deliver the Government's statutory target to halve residual waste per capita, it is hard to see why waste, in the form of RDF, would otherwise be sent to landfill during the lifetime of the proposed Archers Fields ERF.
128. The considerations outlined above, in combination with the appellant's repeated claim to be able to manage waste without sending any material to landfill, appear to render implausible the appellant's landfill diversion claims.
129. Even if the capacity proposed for Archers Fields reduced the distance travelled by the material to be used as incinerator feedstock, if this resulted in waste having to be sourced from further afield at other operational incinerators, this could result in an overall increase in waste transport miles.
130. Given the uncertainties regarding the wider implications of the capacity proposed for Archers Fields, no weight should be afforded to the appellant's various claims regarding benefits that derive from treating residual waste at source, reducing waste transport miles, etc.

Waste Local Plan Policy 1 and the need to demonstrate need

131. Reference is made in the appellant's SoC to Policy 1 of the Essex and Southend Waste Local Plan (adopted July 2017), e.g. at SoC Paragraph 6.1.4, and at SoC Paragraph 7.1.5 the appellant states:
- "The National Planning Policy for waste (NPPW) paragraph 7 sets out policies to assist waste planning authorities in the determination of planning applications. There are six key parts to this policy which the Development accords with as follows: Demonstrate market need only if a facility conflicts with the Local Plan of the Area..."*
132. The appellant appears to have misread NPPW Paragraph 7.
133. As noted above, Government policy requiring need for new incineration capacity to be demonstrated is evident both from the Capacity Note and from National Policy Statements such as EN-1 and EN-3, all of which are material planning considerations in this regard.
134. Turning first to the requirement found within the current National Planning Policy for Waste, NPPW Paragraph 7 includes a requirement that applicants be expected to *"demonstrate the quantitative or market need for new or enhanced waste management facilities"* where a proposal is not consistent with an up-to-date Local Plan.

135. This means that if a proposal is either inconsistent with the Local Plan (e.g. due to conflicts with that Plan identified in the grounds for refusal and with respect to adverse climate impacts), and/or if the Local Plan is out-of-date in terms of its need assessment, then there is a requirement to demonstrate need.
136. Such a requirement runs alongside the requirement set out in the Capacity Note and associated Government announcement.
137. A consideration of the Capacity Note and associated Government announcement makes clear that the Essex and Southend Waste Local Plan, adopted in 2017, should be considered out-of-date not least with respect to the Plan's inevitable failure to consider all of the capacity and other considerations set out in the Capacity Note.
138. It should be noted that since 2017:
- a) The 585,000 tonne per annum Rookery South Energy Recovery Facility, at Rookery Pit, Ampthill near Stewartby, commenced operations (from March 2022);
 - b) The 625,000 tonne per annum Medworth Energy from Waste Combined Heat and Power Facility, at land on the Algores Way Industrial Estate, Wisbech, Fenland, Cambridgeshire, was granted a Development Consent Order (in February 2024) and is progressing towards construction;
 - c) The 595,000 tonne per annum Rivenhall incinerator on Coggeshall Road, Braintree, Essex entered construction (from October 2022); and
 - d) The 379,658 tonne per annum Tilbury Green Power Facility (also known as the "Thameside Energy Recovery Facility"), at the Former Cargill Sweeteners Plant, Tilbury Dock, Essex, (less than a 20-minute drive from the application site) reached financial close in November 2024.
139. And in addition to this new ERF capacity, which is in excess of 2 million tonnes, located in the East of England region, a further 1.2 million tonnes of capacity was granted Development Consent for the Boston Alternative Energy Facility in July 2023. The feedstock for this facility included 100,000 tonnes per annum to be supplied from Essex.
140. It should be noted that the Essex and Southend Waste Local Plan does not allocate the Archers Fields site as a strategic site for the management of non-hazardous residual waste (and instead allocates the Rivenhall site for this purpose).

141. It should also be noted that the Essex and Southend Waste Local Plan has not been updated to reflect the lower incineration capacity requirements and greater emphasis on recycling found in the:
- a) Resources and Waste Management Strategy for England (2018);
 - b) Waste Management Plan for England (2021) and its 65% recycling target for municipal residual waste by 2035 (which applies equally to C&I waste that is of similar composition to household waste); and
 - c) Residual Waste Environmental Targets (Residual Waste) (England) Regulations 2023 target to halve residual waste per capita by 2042 compared to a 2019 base year.
142. As such, even if the proposal were considered to be consistent with the current Local Plan, because the Plan is not up-to-date within the meaning offered by Paragraph 7 of the National Planning Policy for Waste, it would remain necessary for the appellant to demonstrate the need for the proposed 150,000 tonnes of new incineration capacity at this location.
143. When it comes to what is required to be demonstrated by the appellant, this includes the market need for the proposed capacity which should take full account of the importance placed in EN-1, EN-3, and Defra's Capacity Note on the notion that incineration overcapacity must not be allowed.
144. To prevent the risk of incineration overcapacity that could prejudice the achievement of the residual waste reduction targets, when conducting such an assessment, all likely residual waste treatment capacity should be taken into consideration, and it should be assumed that volumes of residual waste will fall nationally in line with the statutory residual waste reduction target.
145. The consideration in Paragraph 7 of the National Planning Policy for Waste that *"...waste planning authorities should consider the extent to which the capacity of existing operational facilities would satisfy any identified need"* also means that the ability of the existing adjacent RDF production capacity, and incinerators both within and outside of the East of England region need to be fully considered.
146. An assessment in relation to the potential for the proposed facility to contribute to national incineration overcapacity is necessary, both to satisfy the requirements set out in EN-1, EN-3, and the Capacity Note, and as part of the broader requirement to demonstrate need set out in the National Planning Policy for Waste.
147. As such, the appellant has yet to provide a need assessment that demonstrates that the capacity proposed for Archers Fields is justified within the context set out above, and this provides an additional reason to dismiss the Appeal.

148. In the event that the appellant provides such new information, including a new more comprehensive need assessment, UKWIN would wish to provide further Interested Party commentary in the interests of the Inquiry, to be accepted at the discretion of the Inspector.

Waste Local Plan Policy 11 and climate change impacts

149. At the very end of SoC Paragraph 5.1.27 the appellant seeks to justify the harm that would be caused by their Archers Fields proposal by reference to how the scheme would “*help tackle climate change*”.

150. UKWIN’s position is that the climate change impacts of the development should actually weigh against the proposal and it should be concluded that the proposal conflicts with Essex and Southend Waste Local Plan Policy 11, and that the uncertainties involved mean that no weight should be given to claimed benefits.

151. This line of argument is set out in more detail in the Climate Change Impacts section below.

CLIMATE CHANGE IMPACTS

152. The appellant's initial Greenhouse Gas Assessment was from January 2021.
153. With respect to compliance with Essex and Southend Waste Local Plan Policy 11, UKWIN set out in the July 2021 planning objection (e.g. at Paragraphs 9-47) how the Archers Fields proposal goes against this Policy, including by failing to minimise greenhouse gas (GHG) emissions.
154. As part of that planning objection, UKWIN provided a copy of our July 2021 'Good Practice Guidance for Assessing the GHG Impacts of Waste Incineration' as well as our October 2018 'Evaluation of the climate change impacts of waste incineration in the United Kingdom'.
155. The appellant's original GHG assessment was also critiqued by Jacobs who, on the 8th of February 2022, criticised the report including for being generic and lacking in detail.
156. The following documents were subsequently submitted by the appellant:
- a) 'Response to Outstanding Consultee Commentary' dated 14th July 2023 (ref CRM.0123.001)
 - b) 'Greenhouse Gas Assessment' dated July 2023 (ref CRM.0123.001.AQ.R.001)
 - c) Greenhouse Gas Assessment Addendum dated September 2023 (ref CRM.0123.001.AQ Addendum.R.001)
 - d) 'Greenhouse Gas Assessment Scenario Calculation' dated October 2023 (ref CRM.0123.001.AQ Calc.R.001)

Overarching comments on weighting

157. Given the inherent uncertainties regarding the relative net GHG impacts of the proposal, the claimed climate benefits cannot be ascertained with any degree of certainty.
158. As such, no significant weight should be given to these claimed benefits.
159. If anything, negative weight should be attributed to the adverse climate impacts of the proposed facility and to the proposal's failure to minimise the facility's potential contribution to climate change by reducing greenhouse gas emissions (as is required by Policy 11).

Statements from the Environment Agency on the EA's planning remit

160. It cannot simply be assumed, for the purpose of planning decisions, that energy recovery via incineration is significantly better than landfill.
161. This means that it is therefore open to planning decision-makers to ascribe limited, neutral, or indeed negative weight to the overall GHG impacts of the proposed energy from waste (incineration) scheme.
162. In a letter dated 7th July 2017 sent by the Environment Agency (EA) to Swindon Borough Council (EA Reference: WA/2016/122998/03-L02) the EA explained how:
- “Under IED [Industrial Emissions Directive] we [the EA] are not required to consider the relative CO₂ emissions compared with other disposal methods, for example a landfill where the carbon may be ‘stored in the ground’ as **these are matters for the waste planning authority**”.*
163. The reference to carbon being stored in the ground relates to the fact that the carbon in plastic, and around half of the biogenic carbon in the feedstock, is ‘sequestered’ (stored) in landfill, but released as direct CO₂ emissions into the atmosphere when that material is incinerated.
164. This means that when comparing incineration and landfill one is not simply looking at the methane emissions from the landfill but must also consider the difference in overall GHG impact that might make incineration and landfill equivalent, especially as grid energy is progressively decarbonised and food waste is increasingly collected separately (and therefore diverted from both landfill and incineration).
165. As clarified above, the EA has set out their position that climate assessments considering the net GHG impacts of a proposed waste treatment option should be made as part of the planning system rather than the permitting system.

Precedent from national planning decisions for giving limited, neutral or negative weight to climate impacts of an Energy Recovery Facility

166. Making determinations that no weight should be given to climate benefit claims made by incinerator applicants (including applicants for facilities where energy would be generated through the incineration of waste), or indeed arriving at a determination that an incinerator proposal might have net adverse GHG impacts that should weigh against that proposal in the planning balance, are matters that fall squarely within the domain of the planning system and outside the Environment Agency's permitting process.

167. In the decision to refuse planning permission for an incinerator proposed for Consett (PINS Reference 3294182), mentioned by the appellant in their SoC (at Paragraph 6.1.39), the Secretary of State agreed with the Planning Inspector:

“that the climate change benefits should only be afforded limited weight in the overall planning balance [on the basis that...] there are inherent uncertainties, particularly regarding the biogenic carbon content of the waste and hence the extent of emissions savings, the extent to which the available heat and power would be taken up by existing and new businesses / residential developments and whether CCS may be installed; therefore while there would be some savings on CO₂ emissions over landfill, the extent of this cannot be determined with any degree of precision”.

168. As noted in the Inspector’s Report for the Consett proposal:

“...there are inherent uncertainties particularly regarding the biogenic carbon content of the waste and hence the extent of emissions savings, the extent to which the available heat and power would be taken up by existing and new businesses/residential developments and whether CCS may be installed. Whilst I accept that there would be some savings on CO₂ emissions over landfill, the extent of this cannot be determined with any degree of precision. These uncertainties lead me to conclude that the climate change benefits should only be afforded limited weight in the overall planning balance”.

169. The decision to refuse planning permission for Wheelebrator’s proposed Kemsley North incinerator (PINS Reference EN010083), where the Secretary of State agreed with the Examining Authority (ExA) in this respect, gave no weight to the applicant’s claimed GHG benefits for the proposal on the basis that *“the available evidence casts considerable doubt on whether the ‘net [climate] benefit’ can be ascertained with any great certainty, given it is highly sensitive to the assumptions applied”* and that as such *“the matter should carry little weight in the assessment”*.

170. The reference to the sensitivity of assumptions made covers a host of factors, including but not limited to the characteristics of the feedstock (in the short, medium, and longer-term) such as carbon content, moisture levels, combustibility, origin (including travel distances and modes of transportation), etc., alongside other factors such as the counterfactual(s) used as comparators, the marginal emissions factors (MEFs) applied as part of the assessment, the degree of pre-treatment prior to incineration or landfill, the level of biogenic carbon sequestration, the likelihood or otherwise of connection to a district heating scheme and/or to carbon capture and storage, and so forth.

171. In the Medworth decision (PINS Reference EN010110) the Secretary of State reached a different conclusion to the Examining Authority (ExA) who gave the climate impacts neutral weight and instead decided to give the climate impacts “*minor **negative weight***”.

172. The basis for this decision was explained as follows:

*“The Secretary of State, based on the available evidence and taking into consideration the unavoidable uncertainty as to whether there will be an overall net benefit in terms of GHG emissions when comparing the Proposed Development to landfilling, and noting the inevitable net and gross emissions from the Proposed Development, ascribes climate matters minor **negative weight** overall in the planning balance”.*

173. The cases set out above indicate that decision-makers are generally concerned about the impact of a number of inherent uncertainties that can undermine the weight given to claimed GHG benefits made by applicants for waste incineration facilities such as that proposed for Archers Fields, including but not limited to the:

- a. Alternative fate of the material that would be used as feedstock;
- b. Assumed feedstock composition;
- c. Assumed marginal fuel mix / emissions factors; and
- d. Overall net GHG emissions compared to landfill.

174. The Archers Fields appellant’s failure to adequately consider such matters within their GHG assessment, and their failure to consider these factors as part of any sensitivity analysis, raise questions about the validity of the conclusions reached by the appellant and the consistency of their proposal with relevant guidance.

175. These key uncertainties are explored below within the context of the relevant guidance.

Consistency with relevant guidance

176. The appellant claims, e.g. at Paragraph 15.3.1 of their Climate Change assessment (Chapter 15 of their Environment Statement), that they relied upon the IEMA's 2017 Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance.

177. The claim is echoed in the appellant's July 2023 Greenhouse Gas Assessment, e.g. at Paragraphs 2.4.1-2.4.3, which read as follows:

"The Institute for Environmental Management and Assessment (IEMA) 'Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance' guidance sets out the areas for consideration at all stages of the assessment, and provides guidelines for, and requirements of, an assessment.

"IEMA has also published a framework for the consideration of climate change resilience and adaptation in the EIA process. The guidance advises that the future climate at the development site should be identified, and how adaptation and resilience measures have been built into the design of a development.

"A full assessment of the Proposed Development against these policies is provided within the Planning Statement".

178. UKWIN's 'Good Practice Guidance for Assessing the GHG Impacts of Waste Incineration' 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.

179. A copy of UKWIN's guidance document is already before this appeal.

180. The comments below, regarding various uncertainties that undermine the appellant's climate conclusions, refer to the aforementioned guidance as appropriate.

181. In order to understand how the appellant falls short of IEMA guidelines it is necessary to understand the appellant's approach to each of the four primary areas of inherent uncertainty in turn, starting with the appellant's approach to the alternative fate of the material that would be used as feedstock for the Archers Fields ERF.

Alternative fate of the material that would be used as feedstock

182. The appellant's various GHG assessments are all premised on the assumption that the waste to be treated at Archers Fields would otherwise be sent to landfill, and so the GHG emissions from the proposed incinerator are 'netted off' against assumed landfill emissions.

183. For example:

a) The appellant's January 2021 Environmental Statement states:

*"effects are presented...in the context of alternative treatment options for the input waste materials (i.e. **landfill**)".*

b) The appellant's July 2023 GHG Assessment states:

*"The assessment considers an existing greenhouse gas emission baseline where the waste fuel is **disposed to landfill** against predicted emissions associated with the generation of energy from waste".*

c) Landfill is listed in the appellant's September 2023 GHG assessment as a key part of the assessment's 'Alternative Baseline'.

d) The appellant's October 2023 Greenhouse Gas Assessment Scenario Calculation notes:

*"In basic terms the calculations can be seen as direct emissions from the proposals **less emissions replaced at landfill** less emissions saved by heat export from site".*

184. However, as noted above, there is no certainty that the waste would otherwise be sent to landfill. After all, what is being discussed is what the appellant describes as 'Refuse Derived Fuels', i.e. waste intended to be used as a fuel.

185. As noted above, it is possible that this RDF could be sent for to existing and/or emerging alternative incineration capacity (which might have a greater CHP heat load and/or that might have carbon capture capability), and/or that material might be used as an alternative fuel source for Sustainable Aviation Fuels, Renewable Transport Fuel Obligation fuels, cement kilns, etc.

186. For example, in their January 2021 assessment, the appellant claims that the sort of RDF they intend to burn at Archers Fields would otherwise have been exported to the Netherlands if not for a €32 import tax and unspecified technical difficulties.

187. Defra's Capacity Note highlights how 12 energy recovery facilities are currently under construction, and together these are expected to provide around 3.9 million tonnes of additional capacity over and above the 14.3 million tonnes of currently operational capacity from the 50 energy recovery facilities located across England.

188. As set out in the planning decisions cited above, uncertainty about the alternative fate of incinerator feedstock is a common concern cited by decision makers regarding proposals for Energy Recovery Facilities, and these inherent uncertainties reduce the weight given to claimed GHG benefits with regard to assumptions about how the waste would otherwise be sent to landfill (and/or exported to other countries).

189. It should be noted that many of the incinerators in continental Europe are active CHP facilities that are connected to established district heating networks which, due to the colder weather, have high heat demand throughout the year.
190. As such, even if the waste were to be exported abroad it is likely that the RDF would be used as feedstock for an incinerator with a higher heat load than the Archers Field plant, and this would be likely offset any additional transport miles.
191. As such, preventing the waste being treated at those other plants could result in higher GHG emissions overall even when transport emissions are taken into account.
192. Furthermore, if those alternative ERF plants are forced to source their waste feedstock from even further afield to make up for feedstock shortfalls caused by the competition from the Archers Fields plant, then the ERF at Archers Fields could result in higher transport emissions overall even if that ERF only accepted relatively local waste.
193. The appellant's failure to properly consider other waste treatment counterfactuals with lower climate impacts also goes against good practice.
194. Furthermore, as also noted above, the Government has acknowledged that some of what is currently being used as incinerator feedstock is material could and should instead be recycled or composted.
195. 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".*
196. 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".*
197. Defra's Guidance on Applying the Waste Hierarchy, produced under Regulation 15(1) of the Waste (England and Wales) Regulations 2011, acknowledges that technical feasibility and economic viability can influence decisions about waste generation and management
198. As such, the availability of incineration capacity, such as the capacity proposed for Archers Fields, can be expected to have a detrimental impact on what is economic to recycle.

199. This proposal could therefore result in feedstock being locked into the bottom tiers of the waste hierarchy when it might otherwise be reduced, reused or recycled.

200. As such, the potentially significant GHG impacts of diverting waste from recycling to incineration should be taken into account when considering the potential climate impacts of the proposed Archers Fields incinerator.

IEMA Guidance on alternative feedstock fate

201. Despite their claims, the appellant's approach fails to conform to the IEMA Guidance on mitigation and the associated practitioners' guidance on the GHG Mitigation Hierarchy in the aforementioned IEMA Guidance cited by the appellant.

202. 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)".

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

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

205. 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"*.

206. 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"*.

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

UKWIN Good practice guidance on alternative feedstock fate

208. As per pages 65-79 of UKWIN's Good Practice Guidance, a body of evidence and associated 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".

209. UKWIN's recommendation draws on the earlier 2017 version of the IEMA Hierarchy, and UKWIN's supporting text explains how:

*"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**".*

210. UKWIN's guidance also provides a substantial body of evidence to support the conclusion that much of the material this is currently found in the residual waste stream could be recycled or composted in the future, and that any new waste incineration capacity could be expected to come at the expense of managing this material at the top tiers of the waste hierarchy.

211. Furthermore, as noted above, the UK Government intends to halve the amount of waste going to either incineration or landfill. This will require a reduction in the amount of waste that is incinerated. As such, the Government's intention is for the trajectory of the quantity of waste incinerated to fall rather than rise.

212. Indeed, as noted above, in December 2024 the Government explicitly stated its position that:

"The Government are committed to developing a circular economy in which we do not need waste incinerators..."

213. As noted above, measures such as Defra's Collection and Packaging Reform will free up significant capacity at existing incinerators, and if the proportion of plastic in the waste reduces then the reduction in calorific value could see even more capacity becoming available at existing plants.

214. This means that the appellant needs to be looking forwards rather than looking backwards when assessing the potential demand (or lack of it) for the proposed capacity.

215. As set out above, the appellant has failed to demonstrate that the Archers Fields plant will be needed throughout its anticipated operational lifetime.

Assumed feedstock composition

216. As set out in the planning decisions cited above, uncertainty about feedstock composition is a common concern cited by decision makers regarding proposals for ERF incinerators and this uncertainty can be seen to reduce the weight given to claimed GHG benefits.
217. The level of CO₂ released by incinerators is based on the quantity of carbon in the waste, with each tonne of carbon in the feedstock resulting in 3.67 tonnes of CO₂ being released.
218. The proportion of the carbon that is biogenic and the proportion that is fossil are relevant to the proportion of the CO₂ which is classed as fossil CO₂. The level of biogenic CO₂ is also relevant to the extent to which the waste might be converted into methane (CH₄) in landfill.
219. As such, the carbon content of the feedstock and the biogenic/carbon fraction of this feedstock are key uncertainties when comparing incineration and landfill, as well as when trying to identify the fossil carbon intensity of energy produced through incineration.
220. In their 14th July 2023 response to outstanding consultee commentary, Enzygo responded, on behalf of the Archers Fields appellant, to commentary from UKWIN by stating:
- “We can confirm that the biogenic fraction of the feedstock (circa. 15% of the total) would indeed be classed as ‘renewable’...”***
221. If c. 15% of the feedstock is biogenic then this implies that c. 85% of the energy-producing waste that would be incinerated, and therefore c. 85% of the CO₂ that would be released by the plant, would be fossil-based.
222. Despite having “confirmed” that the biogenic fraction of the feedstock is anticipated to be around 15% of the total, contradictory assumptions were adopted elsewhere by the appellant, for example:
- a) The appellant’s January 2021 Climate Change statement is based on generic assumptions to calculate the carbon intensity of energy generated (as per the Jacobs criticism noted above) and is not predicted on the confirmed 15% biogenic carbon figure.
 - b) The appellant’s July 2023 GHG Assessment assumes in Table 6 that 45.0% of the carbon would be biogenic, meaning that 55.0% would be derived from fossil sources, such as plastic. According to the footnote to Table 6, the 17% of the waste classified as ‘other’ is assumed to be half fossil and half biogenic because the content is “mixed but type unknown and variable”, implying a level of variability not reflected in the single assumption for fossil carbon of 55.0%.

- c) The appellant's October 2023 GHG Assessment Scenario Calculation assumes a 44.8% biogenic proportion (i.e. 55.2% fossil proportion).

223. Given that the appellant is all over the place regarding this key assumption and given that the appellant does not provide either adequate evidence or sensitivity analysis, these glaring discrepancies undermine their conclusions about the direct GHG impacts of the incinerator and their relative adverse climate impacts compared to landfill.

224. Further uncertainty is added by the fact that the requirement for both businesses and house holders to separately collect food waste in the coming years (as part of Simpler Recycling measures) could well reduce the biogenic carbon proportion of the residual waste stream.

IEMA Guidance on feedstock composition and sensitivity analysis

225. The appellant's questionable and inconsistent feedstock composition assumptions and their lack of sensitivity analysis also go against the 2022 IEMA Guidance principles.

226. For example, the IEMA Guidance states that:

- a. *"The methodology should result in a relevant, complete, consistent, transparent and accurate assessment of the reasonable worst case".*
- b. *"Any exclusions, limitations, assumptions and uncertainties should be justified and reported where appropriate".*
- c. *"Alternative baselines can be used to supplement the analysis and address uncertainty".*
- d. *"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.*

"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...If the scale of uncertainty provides findings that are likely to change any decision based on the data, then it should be appropriately reduced".

Assumed energy grid displacement (marginal fuel mix / emissions factors)

227. As set out in the planning decisions cited above, uncertainty regarding the marginal emissions counterfactual for electricity generation is a common concern cited by decision makers regarding proposals for ERF incinerators and is seen to reduce the weight given to claimed GHG benefits premised on assuming the waste would otherwise go to landfill.
228. One of the claimed benefits for the Archers Fields proposal is that the electricity produced by the plant would displace other electricity generation that would have a higher carbon cost.
229. As set out in the ‘Grid Offset Emissions’ section of the appellant’s October 2023 Greenhouse Gas Assessment the figure of “0.195kgCO₂/kwh” is described as the “Department of Business, Energy and Industrial Strategy Emission Factor”, presumably for 2025.
230. As the Archers Fields plant would be unlikely to be fully operational before 2028 at the earliest it would be more appropriate to apply the current Department of Business, Energy and Industrial Strategy Emissions Factor for 2028 of 0.133kgCO₂/kWh.
231. Correcting for this error would reduce the appellant’s 14,162 tonne figure for Grid Offset Emissions to 9,682 tonnes, which in turn would increase the appellant’s direct emissions figure (from below 62,000 tonnes of CO₂e to more than 66,000 tonnes of CO₂e) and the appellant’s Grid Offset in t CO₂e figures for both 2021 and 2020 (from 3,889 tonnes to 2,654 tonnes).
232. This would result in a revised Table 2 (‘Summary of Net Greenhouse Gas Emissions in Calculations’) as follows:

Emission	Opening Year Emissions (CO ₂ e tonnes using 2021 baseline)	Opening Year Emissions (CO ₂ e tonnes using 2020 baseline)
Total Proposed Development Gross Emissions	66,278	66,278
Baseline Emission Deduction	-60,364	-60,332
Heat Export Emission Saving (2MW) (committed Clearaway heat usage)	-3,267	-3,267
Net Emissions	+2,647	+2,679

233. Using the appellant's own figures and methodology, corrected to account for the change in Department of Business, Energy and Industrial Strategy Emissions Factor for the anticipated first year of full operation, it is clear from the revised Table above that the proposed Archers Fields incinerator would in fact be worse than the appellant's assumed landfill counterfactual.

234. As noted above, uncertainty regarding the marginal emissions factor to use to calculate power benefit has been cited in planning decisions to reduce the weight given to applicant-claimed GHG benefits.

IEMA Guidance on UK grid decarbonisation

235. The IEMA Guidance explicitly recognises the importance of considering "UK grid decarbonisation" within the context of future baseline (e.g. on page 18 of the aforementioned IEMA Guidance document).

UKWIN Good Practice Guidance on grid displacement

236. 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".

Overall net GHG emissions compared to landfill

237. Much of the appellant's claimed benefit for their proposal is predicated on netting off the direct emissions from the incinerator against a counterfactual of waste going to landfill.

238. As set out above, these claimed benefits are undermined by a range of uncertainties, e.g. regarding the alternative feedstock fate and composition.

239. The appellant also acknowledges several scenarios in which their proposed facility would perform worse than their landfill counterfactual:

- a) In the July 2023 Greenhouse Gas Assessment, Table 18 acknowledges adverse GHG impacts compared to landfill for 15 MWth Heat Offtake Net Emissions in the high estimate scenario.
- b) In the September 2023 Greenhouse Gas Assessment Addendum, Table 3 indicates that the proposal would have adverse impacts for the opening year in the high estimate scenarios even with 2 MW of export of 25,777 tCO₂ in the GWP 28 scenario and 16,293 tCO₂ in the GWP 36 scenario. Table 3 also indicates adverse 'lifetime' impacts over 25 years in both the low and high estimates for GWP 28 and in the high estimate for GWP 36.

240. In addition to this, there are numerous inadequacies in relation to the appellant's assessment of the climate impacts of landfill which result in them overestimating the landfill impacts compared to the incineration impacts.
241. One of the key uncertainties is the appellant's failure to give any additional credit for the biogenic sequestration of carbon in landfill.
242. Section 6.3 of the Defra carbon-based modelling approach report makes clear that:
- "Landfill...acts as a partial carbon sink for [storing] the biogenic carbon. This is a potential additional benefit for landfill over energy from waste".*
243. The Defra report sets out two methods of accounting for the way that landfill acts as a partial carbon sink for the biogenic carbon:
- Method 1 - Account for fossil CO₂ and sequestered biogenic carbon - *"Estimate the amount of biogenic carbon sequestered and include the CO₂ produced from the same amount of carbon in the EfW side of the model (or subtract it from the landfill side)"; and*
- Method 2 - Account for all carbon - *"Include all carbon emissions, both biogenic and fossil on both sides of the model".*
244. The Defra report notes that:
- "both approaches would address the issue of sequestered biogenic carbon".*
245. However, the appellant does not apply either of these two methods of accounting for the way that landfill acts as a partial carbon sink for the biogenic carbon.
246. The impact of this failure – like the impact of correcting for the initial year of operation – could be sufficient on its own to flip the results of the appellant's assessment from finding a minor benefit to identifying a significant disbenefit regarding the adverse climate impacts of their proposed ERF.
247. As set out in UKWIN's Good Practice Guidance for Calculating the GHG Impacts of Waste Incineration, if one knows the biogenic portion of the waste feedstock and the proportion of the waste that is Decomposable Degradable Organic Carbon (DDOC) then it is possible to estimate the 'additional benefit' of biogenic carbon sequestration using Defra's Method 1 approach.
248. This information is set out on Table 2 of the appellant's July 2023 Greenhouse Gas assessment and is repeated in more detail within Table 1 and further details on Page 6 of the appellant's October 2023 Greenhouse Gas Assessment Scenario Calculation.

249. While some assumptions differ between these assessments, because the relevant assumptions remain the same it is possible to calculate a single figure to account for the additional benefit of biogenic carbon sequestration for all of these scenarios.

250. In essence, the process is simply determining the proportion of biogenic carbon, which is assumed to be sequestered and, based on the knowledge that if incinerated 1 tonne of biogenic carbon results in 3.67 tonnes of CO₂ (i.e. 44/12, as per page 5 of the appellant's October 2023 Greenhouse Gas Assessment Scenario Calculation), the quantity of avoided CO₂ emissions can be determined.

251. This can be calculated as follows:

Parameter	Calculation / Source	Value
(a) Waste mass considered in calculation (tpa)	Oct 2023 - Table 1	150,000 tonnes
(b) Carbon in waste (%age of mass)	Oct 2023 - Table 1	23.9%
(c) Biogenic proportion of carbon	Oct 2023 - Table 1	44.8%
(d) Biogenic carbon (tCO ₂ /yr)	(a) × (b) × (c)	16,061 tonnes
(e) Total DDOC content (tCO ₂ /yr)	(d) × 50% - As per Oct 2023 p. 6	8,030 tonnes
(f) Sequestered biogenic carbon (tCO ₂ /yr)	(d)-(e)	8,030 tonnes
(g) Annual avoided biogenic CO ₂ (in tonnes) due to biogenic carbon sequestration in landfill compared to emissions from the ERF	(f) × 44/12 (C to CO ₂)	29,445 tonnes of CO₂

252. This shows that, based on the appellant's assumptions regarding sequestered biogenic carbon, if credit is given for this then in line with Defra methodology 1 this would reduce the impact from the landfill side of the equation by 29,445 tonnes of CO₂.

253. This could equally be described as increasing the impact on the incineration side of the equation by 29,445 tonnes of CO₂.

254. This can be applied to the various results provided by the appellant which are based on the same assumptions with respect to the level of biogenic carbon that would be sequestered in landfill by 150,000 tpa of the assumed feedstock.

255. This 29,445 tonnes of CO₂ would be sufficient to flip several of the appellant's results from indicating that the proposal would be better than the landfill counterfactual to being worse than the landfill counterfactual.

256. For example:

- a) In Table 18 of the appellant's July 2023 assessment, the claimed benefit for 2025 of 23,273 tCO₂ in the 15 MWth Heat Offtake Net Emissions Low Estimate scenario would be transformed into **a disbenefit of 6,171 tCO₂**.
- b) In Table 18 of the appellant's July 2023 assessment, the claimed benefit for 2025 of 18,330 tCO₂ in the 29 MWth Heat Offtake Net Emissions High Estimate scenario would become **a disbenefit of 11,115 tCO₂**.
- c) In Table 3 of the appellant's September 2023 Greenhouse Gas Assessment Addendum (2 MW Heat Export with a 2025 opening year), the low estimate for a GHWP of 28 has a claimed benefit of 2,037 tCO₂ and this would become **a disbenefit of 27,408 tCO₂**.
- d) In Table 3 of the appellant's September 2023 Greenhouse Gas Assessment Addendum (2 MW Heat Export with a 2025 opening year), the low estimate for a GHWP of 36 has a claimed benefit of 19,412 tCO₂ and this would become a disbenefit of 10,033 tCO₂.
- e) In Table 2 of the appellant's October 2023 Greenhouse Gas Assessment Scenario Calculations, the claimed benefit of 615 tCO₂ would become **a disbenefit of 28,830 tCO₂**.

257. As such, not only does giving an additional credit for biogenic carbon sequestration increase the disbenefit in the various scenarios where a disbenefit was already identified, but it shows that accounting for biogenic carbon sequestration can transform scenarios where there would otherwise be a benefit into ones where there is a disbenefit, even in scenarios where there are significant levels of heat export.

IEMA Guidance on assessing GHG impacts and uncertainties

258. 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".

259. However, the appellant does not quantify the carbon impact of the difference in biogenic CO₂ emissions between the baseline and the proposed development or, to put it another way, the appellant'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 ERF development proposal.

260. This failure to consider biogenic carbon sequestration adds to the uncertainty of the project and could significantly affect the outcome of the appellant's climate assessment conclusions.

261. 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..."

262. Despite this clear IEMA Guidance, the appellant has not provided any sensitivity analysis to show the impact of either providing a credit for biogenic carbon sequestration in landfill or including all CO₂ emissions on both sides of the assessment and instead adopts an approach which results in internal inconsistency and harms the accuracy of their assessment.

UKWIN Good Practice Guidance on comparing incineration and landfill

263. The failure to give credit for biogenic carbon sequestration in landfill means the Appellant's approach goes against Recommendation #5:

"To produce a valid comparison when comparing waste treatment options such as landfill and incineration that release different quantities of biogenic CO₂ it is necessary to account for these differences, especially the impact of the biogenic carbon sink in landfill".

NPPF support for renewable and low carbon energy development

264. At Paragraph 4.2.33 of their October 2020 Planning Statement the appellant cites the National Planning Policy Framework's (NPPF's) support for renewable and low carbon energy and associated infrastructure.

265. However, as the proposed Archers Fields facility is not a renewable and low carbon energy development it does not benefit from this support.

266. In line with the approach set out in UKWIN's Good Practice Guidance for Assessing the GHG Impacts of Waste Incineration, the carbon intensity of the electricity that would be exported by the Archers Fields facility can be calculated using the figures in the appellant's October 2023 Greenhouse Gas Assessment Scenario Calculation as follows:

Parameter	Calculation / Source	Value
(a) Total combustion emissions (tCO ₂ e)	Page 5 of the October 2023 Calculation	75,590 tCO ₂ e
(b) Heat Export Saving	Page 7 of the October 2023 Calculation	-3,267 tCO ₂ e
(c) Net combustion emissions attributed to electricity export (tCO ₂ e)	(a) – (b)	72,323 tCO ₂ e
(d) Net combustion emissions attributed to electricity export (kgCO ₂ e)	(c) × 1,000 unit conversion	72,323,000 kgCO ₂ e
(e) Electricity export (MWh)	9.1MW × 8,000 hours as per Page 5 of the October 2023 Calculation	72,800 MWh
(f) Fossil carbon intensity (kgCO ₂ e/MWh)	(d) ÷ (e)	993 kgCO₂e/MWh

267. As such, the appellant's figures indicate that they expect the plant would release 993 kg of CO₂ per MWh of electricity to be exported to the grid (having given credit for the claimed benefit of 2 MW of heat export).

268. This high level of carbon intensity is more than twice the carbon intensity of gas (375 kg per MWh) and more than 4.5 times the current grid average (171 kg per MWh), as per DESNZ's August 2024 Fuel Mix Disclosure Data Table.

269. Given that the UK's goal is to decarbonise the electricity grid, this proposal would hamper such decarbonisation efforts as it would constitute an increasingly high carbon source of energy compared to either the grid average (which is progressively falling) or the conventional use of fossil fuels.

270. According to the NPPF Glossary definition of 'low carbon':

"Low carbon technologies are those that can help reduce emissions (compared to conventional use of fossil fuels)".

271. The fossil carbon intensity of the electricity that would be exported to the grid by the Archers Fields ERF can be calculated by reference to the figures provided by the appellant.

272. As such, the proposal has not been shown to meet the NPPF definition of 'low carbon', and the appellant's low carbon claims should be given no weight in the planning balance.

273. A conclusion that the Archers Fields plant would not be low carbon is in line with a number of sources indicating how incineration is not a source of low carbon energy, including:

- a) As noted in UKWIN's Good Practice Guidance for Assessing the GHG Impacts of Waste Incineration (submitted alongside UKWIN's previous submission), the Climate Change Committee (CCC) stated in their 'Local Authorities and the Sixth Carbon Budget' document from 9th December 2020 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. Many facilities will need to reduce their emissions to continue to operate..."

†Footnote: "Heat produced by unabated EfW plants (i.e. without CCS) is not particularly low-carbon – burning Municipal Solid Waste releases ~335gCO₂/kWh of input (of which ~163gCO₂/kWh is fossil CO₂), compared to burning natural gas at ~184gCO₂/kWh of input (all fossil CO₂), so EfW can be worse in terms of fossil emissions once lower EfW generation efficiencies are accounted for compared to a gas boiler (although there are also upstream gas emissions as well). This will already be the case for EfW electricity generation compared to gas-fired generation. Source: CCC analysis".

- b) As also noted in UKWIN's Good Practice Guidance, the 2021 Zero Waste Scotland (ZWS) report entitled 'The climate change impacts of burning municipal waste in Scotland – Technical Report' states:

"The carbon intensity of EfW plants operating in Scotland in 2018 was higher than alternative energy sources. Electricity only plants emitted nearly twice as many greenhouse gas emissions for each unit of power generated compared to the average of energy technologies supplying the marginal electricity grid in the UK in 2018. Converting these plants to combined heat and power systems would reduce their carbon intensity but not to the level of the UK grid. As a result, EfW can no longer be considered a source of low carbon energy within a UK and Scottish context".

- c) Other quotes making it clear that electricity exported from ERFs should not be considered 'low carbon' can be found on pages 82-85 of UKWIN's Good Practice Guidance.

FURTHER CONSIDERATION OF EN-1 AND EN-3

274. Paragraphs 3.3.39 and 3.3.40 of EN-1, which came into force on 17th January 2024, state:

*“As the primary function of EfW plants, or similar processes, is to treat waste, **applicants must demonstrate that proposed facilities are in line with the government’s policy position on the role of energy from waste in treating residual waste. The proposed plant must not compete with greater waste prevention, re-use, or recycling, or result in over-capacity of EfW waste treatment at a national or local level**”.*

275. At Paragraphs 5.15.6 and 5.15.7 EN-1 goes on to say that:

*“Applicants [for new ERF capacity] must demonstrate that development proposals are in line with Defra’s policy position on the role of energy from waste in treating residual waste. **The proposed plant must not compete with greater waste prevention, re-use, or recycling, or result in over-capacity of EfW or similar processes for the treatment of residual waste at a national or local level**”.*

276. And along similar lines, Paragraph 2.7.29 of EN-3 makes clear that:

“Applicants must ensure EfW plants are fit for the future, do not compete with greater waste prevention, re-use, or recycling and do not result in an over-capacity of EfW waste treatment provision at a local or national level”.

277. The reference to ERFs needing to be “fit for the future” relates, at least in part, to the need for space to be available to introduce carbon capture technology, a matter that is discussed above.

278. Paragraphs 2.7.44 of EN-3 go on to spell out how:

“Applicants 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...”

279. The Archers Fields appellant has so far failed to carry out such an assessment.

280. Additionally, at EN-3 Paragraphs 2.7.54 we read how:

“...Applicants must ensure proposals do not result in an overcapacity of EfW waste treatment provision at a local or national level”.

281. And finally, at Paragraphs 2.7.102-2.7.104, EN-3 makes clear how decision-makers:

*"...should be satisfied, with reference to the relevant waste strategies and plans, that the proposed [ERF] 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...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".*

282. In addition to the national policies themselves, indicating significant qualifications to the Government's support for ERFs as a waste management option, these policies are also revelatory in that they reveal the Government's thinking as follows:

- a. ERFs have the potential to compete with greater waste prevention, reuse, and recycling.
- b. New ERF capacity is capable of resulting in overcapacity of waste incineration treatment provision at a local or national level.
- c. ERF capacity may be incompatible with long term recycling targets.
- d. ERF capacity may be of an inappropriate type or scale that could prejudice the achievement of local or national waste management targets.

283. The appellant's proposal does not accord with EN-1 and EN-3 policies designed to protect recycling and prevent incineration overcapacity.

284. Furthermore, the appellant's proposal does not accord with policies designed to ensure that ERF plants are located so that they are capable of hosting carbon capture technology in the future.

UKWIN'S OVERCAPACITY ASSESSMENT

285. As noted above, a number of the acknowledged limitations within Defra's Capacity Note are overcome by UKWIN's more detailed analysis of incineration overcapacity at national and regional cluster levels from September 2023, and consideration of these additional matters indicate an even greater level of overcapacity than is found in Defra's base assessment.
286. UKWIN's report on that overcapacity analysis and the associated Technical Annex are submitted alongside UKWIN's Interested Party submission.
287. If residual household and business waste in England reduces in line with the Government's legally binding targets, it would fall from the 469 kg per person baseline in 2019 to 333 kg by 2027 and then to 234.5 kg per capita by 2042. This can be combined with forecasts of population growth to estimate future arisings.
288. However, as set out in the Technical Annex accompanying UKWIN's September 2023 assessment of national waste need, not all of this residual waste would be combustible and some of the combustible residual waste would not be available for use as incinerator feedstock, e.g. because that waste would be used for other purposes such as to heat cement kilns and/or to produce Sustainable Aviation Fuel (SAF) in line with the Government's Jet Zero Strategy.
289. Taking these factors into account, UKWIN estimates that the level of potential incinerator feedstock will fall across the whole of England from around 23 million tonnes per annum (Mtpa) in 2019 to 16.4 Mtpa by 2027 and then to just 11.7 Mtpa by 2042.
290. UKWIN's assessment showed that as of September 2023, there were 51 operational English incinerators with a combined capacity of 14.8 Mtpa, with 12 additional incinerator sites under construction adding a further 4.2 Mtpa of capacity. Taken together there is estimated to be around 19 million tonnes of existing English incineration capacity.
291. As such, incineration capacity currently operational or under construction exceeds the waste that we can expect will be available in England even without RDF export.
292. UKWIN considered waste need at a local level within the context of the 'South Eastern Cluster' (which includes Essex) and finds sub-national incineration overcapacity across this cluster. This analysis is set out further in UKWIN's Briefing on incineration overcapacity and associated Technical Annex.

APPENDIX A: NON-INCINERATION DEMANDS FOR RESIDUAL WASTE IN ENGLAND

293. As set out above, at Paragraphs 38 and 39, the non-incineration demand for residual waste is estimated to be around 7 million tonnes per annum for the Central demand estimate. Details of the figures that were used to inform the table at Paragraph 39 are set out in this Appendix.

Use of waste for Sustainable Aviation Fuel (SAF)

294. The Capacity Note analysis does not model the impact of Sustainable Aviation Fuel (SAF) capacity, despite the explicit reference to how the Government's Advanced Fuels Fund is being used to support several residual waste gasification projects seeking to produce SAF.

295. According to the Capacity Note section entitled 'Future of energy recovery':

"Conventional incineration with energy recovery currently predominates the mix of energy recovery infrastructure within England with a small number of gasification facilities, generally using the syngas produced to generate electricity via a gas turbine. This mix may change in future as wider decarbonisation ambitions increasingly inform investment decisions for new infrastructure. The Advanced Fuels Fund has already awarded a total of £69,494,000 to support several residual waste gasification projects seeking to produce sustainable aviation fuel (SAF) in the UK. These include Alfanar's Lighthouse Green Fuels project in Teesside, Fulcrum BioEnergy's NorthPoint facility in Ellesmere Port, Esso's Solent SAF project, and Velocys' Altalto project in Immingham. The Department for Transport's ambition is to see 5 commercial-scale sustainable aviation fuel production facilities under construction in the UK by 2025".

296. Waste feedstock requirement of Defra's 4 named SAF plants:

SAF production facility (Capacity)	Waste feedstock requirements
Esso's Solent SAF project (179kt/y or circa 223.75 million litres of SAF)	1,705,809 ktpa
Alfanar's Lighthouse Green Fuels project in Teesside (124.2kt/y or circa 155.25 million litres of SAF)	1,000,000 ktpa
Fulcrum BioEnergy's NorthPoint facility in Ellesmere Port (83.7kt/y or circa 104.625 million litres of SAF)	600,000 ktpa
Velocys' Altalto in Immingham (37.4kt/y or circa 46.755 million litres of SAF)	500,000 ktpa
Total waste feedstock requirement (for circa 530 million litres of SAF per annum)	>3.8 million tea

297. Details of these four named SAF plants are set out below.
298. SAF plants were awarded Advanced Fuels Funding in December 2022, with Esso's Solent SAF project awarded Advanced Fuels Funding in November 2023.
299. Subsequently additional Government financial support, in the form of the Government's recently announced SAF revenue support mechanism, was made available for SAF projects following the Sustainable Aviation Fuel Mandate coming into force at the start of 2025.
300. Should the fifth SAF project referred to in Defra's Capacity Note be a waste-to-SAF plant of a similar scale and conversion efficiency to the other SAF production facilities, then the total waste feedstock requirement for these 5 SAF production facilities (as per the Central scenario outlined above) would rise from just over 3.8 million tonnes to **more than 4.8 million tonnes per annum**.
301. This analysis has fed into the following 3 SAF feedstock demand scenarios:
- a) **Lower** – Based on only the 4 named waste-to-SAF production facilities, and assuming that Esso's Solent SAF project is at the highest end of the range for conversion efficiency (which results in the lowest feedstock demand), to arrive at the **3,383 ktpa waste feedstock demand** figure set out above.
 - b) **Central** – Based on the 4 named waste-to-SAF production facilities alongside the 5th plant referred to in the Capacity Note, with the average of the known parameters from the named SAF production facilities used for any unknown parameters for Esso's Solent SAF project and for the unnamed project), to arrive at the **4,817 ktpa waste feedstock demand** figure set out above.
 - c) **Higher** – Based on the 4 named waste-to-SAF production facilities alongside the 5th plant referred to in the Capacity Note, with the higher of the known parameters from the named SAF production facilities used for any unknown parameters for Esso's Solent SAF project and for the unnamed project), to arrive at the **6,886 ktpa waste feedstock demand** figure set out above.

Use of waste for recycled carbon fuels under the RTFO

302. In addition to supporting plastic-derived ‘Recycled Carbon Fuels’ (RCFs) through the SAF Mandate, the UK Government is also expecting to support RCF through the Renewable Transport Fuel Obligation (RTFO).

303. According to the Capacity Note:

“...the Department for Transport has confirmed support for use of the fossil component of residual waste, in addition to the biomass portion, through the Renewable Transport Fuel Obligation (RTFO) as a feedstock to produce recycled carbon fuels for the transport sector”.

304. While the biogenic fraction of the RTFO fuel could come from a variety of sources, Recycled Carbon Fuels are specifically intended for non-recyclable waste plastic, and as such in theory is directly competing with waste incineration as a form of landfill diversion for plastics.

305. Development Renewable Transport Fuel certificates (dRTFc) are a key form of subsidy under the RTFO. In February 2024 the Department for Transport (DfT) announced that the Government would be providing 1 dRTFc per litre of eligible fuel supported, which was Option 1b of the preceding consultation.

306. The DfT’s Table 1 analysis of those options models projected supply of RCFs to inform their cost benefit analysis, with the Option 1b analysis stating this will reach 567.9 litres by 2032.

307. The 60%, 50% and 40% RCF conversion efficiency values and the 0.85/l conversion rates set out in the DfT’s February 2024 consultation outcome have been adopted for the analysis set out in the table below.

308. Modelling these DfT figures results in the following plastic waste feedstock demands for waste for recycled carbon fuels production under the RTFO:

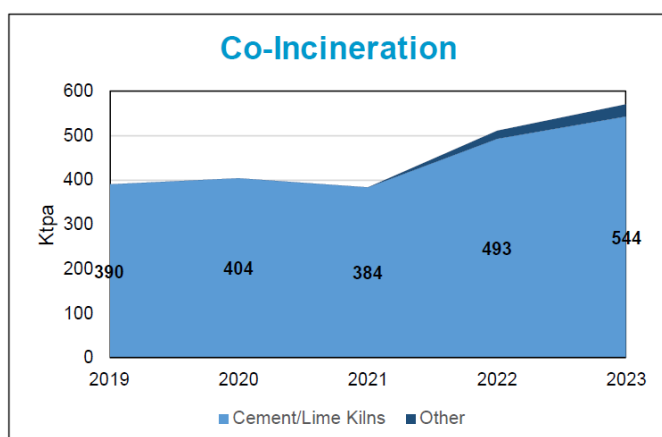
Parameter	Lower	Central	Higher
Volume (million litres)	657.9	657.9	657.9
Density (kg/l)	0.85	0.85	0.85
Yield (%)	60%	50%	40%
Total waste feedstock demand (kt)	932	1,118	1,398

Use of waste for cement kilns

309. The Capacity Note also acknowledges that cement kiln capacity had not been quantified by Defra and was therefore not modelled.

310. Data is available that indicates the level of SRF/RDF that was used for cement kilns and lime kilns in 2023.

311. Tolvik's May 2024 EfW statistics for 2023 includes the following:



In 2023, 10 cement and lime kilns (out of 11 operational facilities in the UK) accepted a total of 544kt of SRF under EWC code 19 12 10. This was a 10% increase on the tonnage in the previous year reflecting investment activity at several kilns. The total tonnages of other wastes co-incinerated at these facilities were broadly in line with previous years.

In addition, in 2023 three facilities including Lancing, consented for the processing of biomass, and / or Refuse Derived Fuel ("RDF") only – accepted 28kt of RDF.

312. This implies that at least 544 ktpa of Solid Recovered Fuel (SRF) or Refuse Derived Fuel (RDF) was treated (co-incinerated) at cement or lime kilns in the UK in 2023, the majority of which would have been in England.

313. If cement kiln use continues to increase at the historic rate of just over 100 ktpa per annum until 2027 then the quantity of residual 19 12 10 waste co-incinerated would double to around 1 million tonnes per annum.

314. Assuming continued increases in the use of SRF in cement kilns is not unreasonable and is supported by several recent announcements.

315. For example, in August 2024 SRF producer Advetec published a report which described SRF as an *"immediate way to reduce the reliance on landfill and incineration"* through using processed waste feedstock for industries such as cement kilns.

316. Advetec's report argues that:

*"As large-scale industries like cement production seek to decarbonise, **demand for alternative fuels like SRF increases**. This demand is driven by the fact that SRF can be made with a higher proportion of biogenic carbon – which is not subject to the Emissions Trading Scheme (ETS)".*

317. Another example is provided by the April 2024 Biffa announcement, published in a press release entitled *'Transforming waste into fuel: Biffa acquires Hull pellet plant'*, that it would be bringing a dormant 100ktpa waste-to-SRF plant in Hull back into operation, stating:

“Biffa...has strengthened its Resources & Energy capability following the acquisition of a business that transforms residual waste into fuel. Biffa has acquired the entire share capital of Eco-Power Green Energy Ltd, a subsidiary of Eco-Power Environmental Ltd, along with a dormant plant in Hull and seven new members of staff. The plant has the capacity to produce more than 100,000 tonnes of solid recovered fuel (SRF) pellets each year from non-recyclable household waste. SRF pellets are a high quality, sustainable, alternative to fossil fuel used primarily by the cement industry. Biffa will recommission the plant over the next few months”.

318. Were other waste types in addition to 19 12 10 included in the calculation then the quantity of waste co-incinerated at cement and lime kilns would be even higher than Tolvik’s 544 ktpa figure.

319. We note that the Mineral Products Association’s ‘Concrete Centre’ website, on a webpage entitled “Recycled content in concrete”, states:

*“In 2023 47% of the thermal energy used in the UK to manufacture cement was supplied from waste-derived fuels. These alternative fuel sources comprise hard to recycle materials **diverting over 1.2 million tonnes of waste from landfill every year.***

“This co-processing plays a vital role in the nation’s waste reduction strategy and offers opportunities for upcycling minerals into new cement – combining simultaneous material recycling and energy recovery in a single thermal process”.

320. This suggests that the extent of waste usage at cement kilns already exceeds 1 million tonnes per annum, with the potential to increase well beyond this figure.

321. This is unsurprising as according to a Cemex press release from December 2024, based on their experience of their Rugby Cement Plant, around 1.333 tonnes of SRF are required to replace each tonne of coal (as SRF has a lower calorific value (CV) than coal).

322. It should also be noted that the production of 1 tonne of SRF or RDF requires more than 1 tonne of waste feedstock, as the SRF/RDF production process entails dewatering, metals removal, etc.

323. Based on a 75% yield rate, the 544 kilotonne figure would equate to a demand for around 725 kilotonnes of ‘raw’ waste (at a rate of around 1.33 tonnes of waste per tonne of SRF, i.e. $100 \div 75 = 1\frac{1}{3}$).

324. According to the Environment Agency’s Waste Data Interrogator, in 2022 and 2023 around 780,000-800,000 tonnes per annum of non-major mineral waste from within England was treated at English cement or lime kilns.

325. This includes SRF (which is classed as ‘municipal waste’) as well as some other waste, such as end-of-life tyres, that is excluded from the Government’s definition of ‘municipal waste’ but which is included in the Government’s broader definition of ‘non-major mineral waste’ for the purpose of the target to halve residual waste per capita by 2042.
326. Cement kilns are currently included within the scope of the UK’s Emissions Trading Scheme (ETS) whereas incineration is currently excluded.
327. Incineration will soon join the UK ETS, so it would be reasonable to expect that once the current ‘ETS barrier’ is removed, i.e. once incineration is also covered by the UK ETS, even more waste will be diverted from incineration towards cement kilns in the future.
328. This analysis has fed into the following 3 SRF feedstock demand scenarios for cement and lime kilns:
- a) **Lower** – Based on the quantity of 19 12 10 incinerated at cement and lime kilns in 2023 and a 75% ‘raw’ waste to SRF yield, to arrive at the **725 ktpa** figure.
 - b) **Central** – Based on the bottom end of the range of additionally taking account of factors such as:
 - the Mineral Products Association statement regarding having diverted over 1.2 million tonnes of waste from landfill;
 - the potential for increases in the quantity of 19 12 10 incinerated at cement and lime kilns based on historic trends;
 - the economic drivers associated with the UK ETS; and
 - Biffa’s announcement that they would bring their 100 ktpa waste-to-SRF plant in Hull back into operationto arrive at the **1,000 ktpa** figure.
 - c) **Higher** – Based on the top end of the range of taking account of the factors set out above for the Central Scenario, to arrive at the **2,000 ktpa** figure (which should not be read as the theoretical maximum).

Alfanar's Lighthouse Green Fuels project in Teesside

329. January 2024 publication of 'Advanced Fuels Fund (AFF) competition winners' awarded the project £8.67m (in addition to the £15m awarded under the Green Fuels, Green Skies competition) and states:

"Based in the Industrial Cluster at Teesside, the project is developing a commercial scale plant that uses gasification and Fischer-Tropsch technology to convert biogenic and non-biogenic wastes and residues into SAF. The plant is expected to be under construction in 2025, operational in 2028, and produce 124.2 kt/y of SAF when at full operational capacity".

330. An article in Hydrocarbon Processing entitled 'Worley wins contract for Alfanar's Lighthouse Green Fuels project in North East of England' dated 1st June 2022 states:

*"The project, known as Lighthouse Green Fuels, will convert residual solid waste into SAF and green naphtha. The project will process approximately **1 M tons of residual solid waste every year – such as municipal solid waste, refuse-derived fuel or solid recovered fuel** – into approximately 3,200 bbl/day of SAF and green naphtha".*

331. An article entitled 'N+P 'actively seeking' waste for aviation fuel deal' published on 15th May 2023 by Letsrecycle opens as follows:

*"The N+P Group has unveiled a partnership with the Saudi company Alfanar to source and process **1 million tonnes of waste per year** to be used to produce sustainable aviation fuel (SAF)" and that goes on to explain how: "For the SAF plant with Alfanar, N+P says **everyday non-recyclable household and business rubbish, contaminated recycling loads and MRF residues can all be sorted by N+P for use in the process, instead of 'being sent to landfill, burnt in incinerators or exported'**".*

Fulcrum BioEnergy's NorthPoint facility in Ellesmere Port

332. The January 2024 publication of 'Advanced Fuels Fund (AFF) competition winners' awarded the project £17.76m and states:

"Based in Ellesmere Port, Cheshire, the project is developing a commercial scale plant that uses gasification and Fischer-Tropsch technology to convert black bin bag waste into SAF. The plant is expected to be operational in 2027 and produce 83.7 kt/y of SAF when at full operational capacity."

333. The website for this project states:

"Waste Delivered Per Year: 600,000 metric tonnes":

334. A press release from Jet2 from 27th April 2023 states:

“Production of SAF is expected to commence at the plant in 2027, and when at full capacity 600,000 tonnes of non-recyclable household waste, which would otherwise have been destined for incineration or landfill, will be converted into around 100 million litres of SAF annually. The NorthPoint plant will use Fulcrum’s proven waste-to-fuel process and will directly benefit from the IP gained from operations of its pioneering first commercial scale waste-to-fuels facility, Sierra BioFuels, situated outside of Reno Nevada, in the United States.

“The announcement means that Jet2.com, the UK’s third largest airline, will receive a significant volume of SAF produced at the plant once in operation. The SAF is expected to achieve net emissions reductions totalling around 400,000 tonnes of CO₂ for Jet2.com over the 15 year period of the agreement”.

335. A follow-up article published by Fastmarkets on the 26th of September 2024 quotes a Jet2 spokesperson as stating on the 17th of September 2024 that:

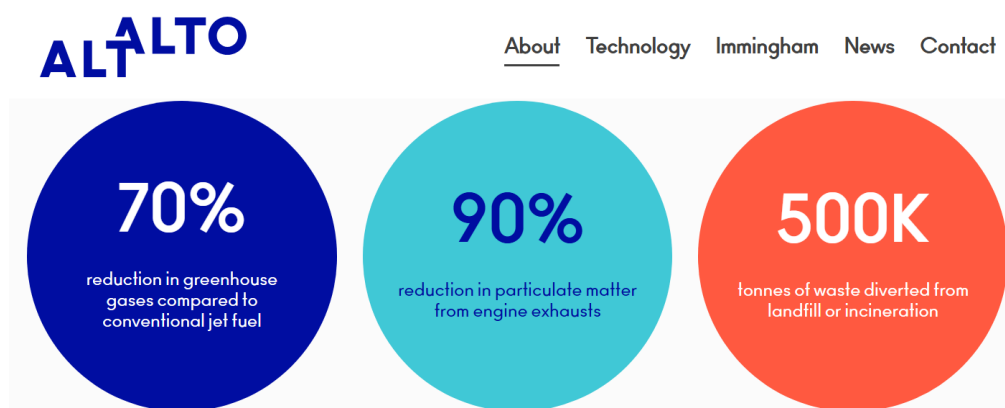
“As we announced in April 2023, production of SAF is expected to commence at the Fulcrum NorthPoint facility in 2027-2028, and there is no change to these plans”.

Velocys’ Altalto facility

336. The January 2024 publication of ‘Advanced Fuels Fund (AFF) competition winners’ awarded the project £27m and states:

“Based in Immingham, Lincolnshire, the project is developing a commercial scale plant that uses gasification and Fischer-Tropsch technology to convert black bin bag waste into SAF. The plant is expected to be operational in 2028 and produce 37.4 kt/y of SAF when at full operational capacity”.

337. Altalto's webpage for the project lists one of the benefits of the plant as avoiding 500,000 tonnes of waste going to landfill or incineration:



338. The website also states that:

*“Our proposed plant will take hundreds of thousands of tonnes per year of **household and office waste (including hard-to-recycle plastics)**, left over after recycling, and convert them into cleaner burning, sustainable fuels for aviation and road use. Otherwise this waste would end up in landfill, or be **incinerated**”.*

339. The Non-Technical Summary of the approved planning application for Immingham (DM/0664/19/FUL) states that the waste-to-SAF plant would:

“...treat approximately 600,000 tonnes per year of non-recyclable / difficult to recycle waste (including some plastics)”.

Esso's Solent SAF project

340. The January 2024 publication of 'Advanced Fuels Fund (AFF) competition winners' awarded the project £6m and states:

“Based in the Solent, the project is conducting a feasibility study into a commercial scale plant that uses gasification and methanol-to-jet technology to convert non-recyclable waste into SAF. The plant is expected to be operational in 2030 and produce 179 kt/y of SAF when at full operational capacity”.

341. We have not been able to identify a waste feedstock requirement, and so have used the average requirement input per tonne of output from the three projects where the ratio is known to estimate the feedstock requirement of 1.7mtpa. This could also be expressed as a range of a requirement between 1.44mtpa and 2.39mtpa if one takes the lowest and highest feedstock-to-output ratios.

342. On the 10th of May 2023 Velocys published an 'Altalto Immingham Project Update'. The announcement states that:

343. *“...further to the award of the grant from the UK Government's Department for Transport (“DfT”) Advanced Fuel Funds of up to £27 million for the Altalto Immingham Sustainable Aviation Fuel (“SAF”) Project, announced on 12 December 2022, Altalto Ltd...has completed the work necessary to claim the first tranche (£7 million) of the grant up to 31 March 2023. In addition, as planned, the project has obtained the first tranche of private funding for the period from 1 April 2023 from its existing private sector participants”.*

Other considerations

344. The analysis set out above is focused primarily on the sort of material typically used as incinerator feedstock.
345. However, to the extent that additional waste types are to be considered as part of the residual waste stream that is potentially available for incineration, it is also necessary to take account of the various alternative residual waste treatment options available for that material.
346. For example, if significant quantities of biomass, e.g. waste wood, are scoped into the figures for potential incinerator feedstock then account should also be made of the capacity available at dedicated biomass facilities to treat this waste type.
347. Additionally, for waste material such as sewerage sludge, account needs to be taken of sewerage sludge treatment capacity, as well as recognising the fact that sewerage sludge is unlikely to be treatable at conventional waste incinerators.
348. It is also worth noting that some waste types sent to landfill are wholly or largely not combustible and/or are not otherwise unsuitable for municipal waste incineration, e.g. soils.
349. As such, it is not methodologically sound to describe all waste types sent to landfill as providing potential incinerator feedstock.
350. Finally, as noted above, when considering potential incinerator feedstock it is also necessary to consider whether or not that material could be reduced, reused, repaired, or recycled / composted.

APPENDIX B – CAPACITY NOTE ASSUMPTIONS & LIMITATIONS

351. Appendix B of Defra's 30th December 2024 Capacity Note is entitled 'Assumptions and limitations' and states that:

"There are a number of limitations that have been identified and should be taken into account when viewing these results".

The future policies within scope of the analysis are the packaging reforms

352. Defra states in its Capacity Note that:

"There are other proposed policies and external forces that may affect the volume, composition, and treatment of residual waste over time that have not been accounted for within this analysis.

For example, the Plastic Packaging Tax, intended expansion of the UK Emissions Trading Scheme to include waste incineration and EfW, the near elimination of biodegradable waste to landfill, the introduction of mandatory waste tracking or the transition to a circular economy".

353. Given that the policies considered by Defra only take us around halfway towards achieving the statutory residual waste reduction target this limitation is likely to understate the level of incineration overcapacity.

354. UKWIN's waste assessment from September 2023 takes account of the impact of being on a pathway towards achieving the residual waste reduction target. As such, UKWIN's analysis accounts for the impact of all the measures anticipated to be introduced to support of that target.

355. It should be noted that the Government's May 2023 Call for Evidence to support the near elimination of biodegradable waste to landfill does not include any questions about measures explicitly intended to require more biodegradable waste to be sent for incineration.

356. Instead, questions 37 and 38 discuss measures to limit raw waste going to either landfill or incineration, asking:

*"Q37. Are you aware of any barriers to expanding the list of separately collected wastes that are prohibited from disposal at landfill (or **incineration**) without some form of treatment process to include wood, card, textiles, food, and garden waste?"; and*

*"Q38. In addition to the materials detailed in Q37, are there any other potentially recyclable wastes which, when separately collected, could be prohibited from being sent to landfill (or **incineration**) without some form of treatment process?".*

357. Similarly, the consultation document discussed measures such as requiring businesses to present textile waste separately for collection.

358. The Government's consultation document states that the near elimination of biodegradable waste to landfill will:

"help deliver the recommendation of the Climate Change Committee (CCC) that the landfilling of biodegradable waste is discontinued as part of the net zero pathway for waste for Carbon Budget 6".

359. In this regard, it should be noted that the Climate Change Committee (CCC), in their policies for the Sixth Carbon Budget and Net Zero report, stated that: *"Banning biodegradable waste from landfill...should be achieved via prevention, reuse and recycling, not via more energy-from-waste"* (page 185) and that: *"An expansion in Scottish EfW capacity occurred ahead of their original 2021 biodegradable municipal waste ban date, and a repeat of this should be avoided (across the UK), due to the risk of locking-in increased EfW fossil emissions"* (page 186).

360. It appears that the UK Government will primarily be trying to eliminate biodegradable waste from landfill through measures to promote the top tiers of the waste hierarchy (as per the text that precedes Question 20, on page 17 of the call for evidence document), and that this is more likely to reduce the quantity of waste requiring incineration or landfill, rather than encouraging waste to be sent directly for incineration.

Assumption that residual municipal waste composition will not change

361. Defra states in their December 2024 Capacity Note that:

"If residual municipal waste composition changes significantly in future as a result of government policy interventions in the waste sector, this may affect the calorific value of the residual waste requiring treatment and, consequently, on the effective operational capacity of existing facility".

362. This is explored in further detail in section 5.3 of the Capacity Note, entitled 'Composition of residual waste and calorific value', which includes statements:

*"As well as changes in the total tonnage, the packaging reform the forthcoming expansion of the UK Emissions Trading Scheme to include fossil carbon emissions from waste incineration and EfW, may lead to changes in the composition of municipal residual waste. In particular, through **removing or incentivising the removal of greater quantities of plastics from the residual waste stream, such as through the separate collection of plastic films.***

This may affect the calorific value of residual waste, which is a measure of how much energy is available per tonne of waste.

The higher the calorific value, the more energy can potentially be captured from the waste. Different waste components have different individual calorific values for example, food waste tends to have a relatively low value due to its high moisture content, while plastic has a much higher one. Differing proportions of these will therefore change the overall calorific value.

The volume of waste that may be processed through an EfW facility is partly determined by the calorific value of the waste combusted. In simple terms, should calorific value increase, the facility may have to process less waste to moderate combustion temperatures, should calorific value decrease, the facility may be able to process more waste within operational thermal parameters...

These considerations are not part of the analysis undertaken in this note...

Regardless, this is an important consideration and energy recovery processes, including those planning for new or replacement facilities, need to ensure that their requirements do not act as a brake, or hindrance to improved recycling, or risk being unviable due to changes in calorific value”.

363. As such, it can be anticipated that some plastic will be removed from the residual waste stream due to Simpler Recycling, the Packaging Reforms, and the inclusion of incineration in the UK ETS.
364. It can also be assumed that some food waste will be removed from the residual waste stream due to mandatory separate collection of food waste.
365. UKWIN’s September 2023 analysis identified this issue and noted that:
- “Assuming 90% of plastic film and dense plastics are removed from the feedstock, and that 50% of putrescible waste is also removed it would take around 21% more waste by weight to deliver the same calorific value”.*
366. If the Government’s assessment had assumed 21% more effective capacity from the currently operational capacity, then this would increase the Table 3 figure for operational capacity from 14.3 Mtpa to around 17.3 Mtpa (i.e. an increase of 3 million tonnes).
367. This suggests that the issue of incineration overcapacity could be far higher than set out within the Defra modelling.

Assumption that new energy recovery capacity would only be built if there is sufficient feedstock

368. Table 6 of Defra's Capacity Note states the assumption that:

"Currently consented (as of October 2024) energy recovery capacity will not come online if existing operational capacity plus new capacity exceeds available residual waste".

369. In the 'associated uncertainty' column Defra acknowledges that:

"If, in practice, there are not considerable barriers to consented capacity plants being built where these exceed available tonnages of residual waste, there is a risk that we may misestimate future energy recovery capacity".

370. In this case, 'misestimate' appears to be a synonym for 'underestimate'.

371. So long as an investor believes that feedstock can be secured, they will likely proceed with a scheme even if it results in other energy recovery plants not having enough genuinely residual waste to burn, and prospective investors can sometimes be overly optimistic in their assumptions about future feedstock availability.

372. John Ahern, when he was a Business Development Director for the UK at EfW operator Indaver, commented on the 23rd of March 2023 to EWBS's Burning Issue podcast (from around 13 minutes 15 seconds into the audio) that:

"...I think if you just leave it up to the market to decide when enough is enough – [then that is] probably not the way to go. Markets can be irrational longer than you can stay solvent".

373. Adrian Judge, who is a Director at waste consultancy Tolvik, has raised concerns about the value of some EfW incineration market due diligence reports into waste feedstock availability that his consultancy has been asked to undertake.

374. In August 2020 Mr Judge commented in an opinion piece for Letsrecycle entitled "Understanding the risk of EfW overcapacity" that:

"Tolvik is regularly asked to assess the future balance between Residual Waste supply and EfW capacity. To date we have assumed that the checks and balances of rational investors, particularly where external project finance is required, will ensure that, unlike northern Europe, the risk of EfW over-capacity in the UK is very low. However, increasingly, project developers seem willing to ignore the need for 'understanding' if it is going to give them the wrong answer.

We see this with our market due diligence reports. As the market tightens, if our analysis is not favourable then we are increasingly being asked to change our assumptions. Most often this is a variant of “can’t you just increase the size of the modelled Catchment Area?”

...At the end of the day, of course, such a decision is a developer’s risk. But..., when repeated across multiple projects, [this approach to due diligence] is starting to lead us to question whether the risk of EfW over-capacity is as low as we had previously assumed”.

375. Mr Judge is not alone in raising such concerns. Dr Colin Church is the Chief Executive of the Institute of Materials, Minerals and Mining (IOM3), and former CEO of the Chartered Institution of Wastes Management (CIWM), the professional body for resources and waste management.

376. Dr Church was the senior waste industry figure brought in by the Scottish Government to head up the independent review of the role of incineration in the waste hierarchy in Scotland.

377. Speaking about what he learned from his Scottish incineration review, Dr Church commented on the UK industry more generally, articulating concerns about due diligence regarding UK EfW feedstock availability.

378. Dr Church stated in February 2023 in an EWB podcast that:

“...I hear stories from waste consultants who do waste assessments for the people who are trying to get investors on board. And increasingly, I'm hearing, I'm going to simplify and paraphrase, but basically stories that amount to those consultants being told, “well, actually, do you think you could enlarge the hinterland a bit? Do you think you could include more types of waste” because the numbers they're coming up with aren't quite high enough.

That's OK once or twice, maybe. But if they're all having to do that to make their numbers stack up, then you are building up a potential problem for investors in Energy from Waste...”

379. As such, it is clear that even prominent figures within the waste industry are clear that there are dangers of assuming that the market will only build capacity if there is a genuine demand for that capacity.

380. It is also significant that Defra’s Capacity Note states that:

“companies are generally able to provide guaranteed minimum tonnages of approximately 15 years to developers who then raise the finance for the plant”.

381. Given that such plants can last for 30-50 years, this means that projects could go ahead which would not have feedstock contracts in place for more than half of their operational lifetime.

382. As the later years of the operational life for new waste incineration plants coincide with the period when the Government's residual waste reduction measures should have greatest effect, this raises concerns about the impact of new incineration capacity on the achievement of recycling and residual waste reduction targets even when contracts for the initial years of operation are in place prior to construction.
383. Additionally, were even a small proportion of the 9.5 Mt of consented energy from waste capacity mentioned in Table 3 of Defra's Capacity Note were to be built out, i.e. just a handful of the 35 English incinerators that have already secured planning permission, this could significantly increase the level of incineration overcapacity.