Comments on any further information and submissions received by Deadline 5

UKWIN'S D6 COMMENTS ON REP5-019/20, REP5-032 & REP5-035

REP5-019: 7.3 WASTE FUEL AVAILABILITY ASSESSMENT (TRACKED) – REV 3
REP5-020: 7.3 WASTE FUEL AVAILABILITY ASSESSMENT (CLEAN) – REV 3
REP5-032: 14.2 APPLICANT RESPONSE TO EXQ2
REP5-035: 14.4B APPLICANT COMMENTS ON D4 SUBMISSIONS FROM IPS

Proposed Development:

Medworth EfW CHP

Proposed Location:

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

Applicant:

Medworth CHP Limited

Planning Inspectorate Ref:

EN010110

Registration Identification Ref:

20032985

JULY 2023

UKWIN
United Kingdom Without Incineration Network

CONTENTS

INTRODUCTION

1. REP5-019 and REP5-020 provide the Applicant's updated baseline positions and conclusions with respect to their national and local waste fuel availability assessment in both tracked and clean formats respectively.
2. This submission from UKWIN comments on these updated conclusions. For convenience, this submission refers to both REP5-019 and REP5-020 as 'the D5 WFAA' and to both REP2-009 and REP2-010 as 'the D2 WFAA'.
3. Where relevant, we also comment on the Applicant's REP5-032 response to the ExA's second set of Written Questions (ExQ2) and to the Applicant's REP5-035 response to UKWIN's Deadline 4 submissions.
4. In REP1-096 UKWIN set out the following series of factors to be taken into account by the Applicant as part of their D2 WFAA:
    - Accounting for UK Government recycling and residual waste targets being met at local and national levels;
    - Accounting for domestic incineration capacity from 2019 onwards (including the need to account for co-incineration and Waste-to-SAF capacity); and
    - Accounting for the impact of changes in waste composition on waste processing capacity.
5. UKWIN subsequently set out numerous concerns about the Applicant's D2 WFAA in various later submissions, including in UKWIN's D3 Comments on the D2 WFAA which was included as electronic pages 15-49 of REP3-050 and in UKWIN's REP4-038 D4 Post-Hearing Submission including summary of ISH3 Oral Submissions.
6. The Applicant has still not adequately adressed many of these concerns in their D5 WFAA. This failure ranges from instances where the Applicant's response to our concerns is provided but where that response is wholly unsatisfactory to instances where the Applicant appears to misunderstand or completely ignore the issues rather than genuinely engaging with them.
7. This latest submission from UKWIN therefore sets out some key outstanding concerns arising from our previous analysis, as well as noting several new concerns raised by the Applicant's latest submissions.
8. As previously promised by UKWIN, this submission also includes UKWIN's updated analysis of national and local waste fuel availability.
9. This submission can be used in its own right to assess waste fuel availability and EfW overcapacity, and to help assess the soundness (or otherwise) of the Applicant's WFAA conclusions and analysis.

UKWIN'S D6 ASSESSMENT OF THE IMPACT OF RESIDUAL WASTE REDUCTION TARGETS

10. In UKWIN's Written Representation [REP2-066] we set out an initial assessment of the impact of England achieving the residual waste reduction targets for 2027 and 2042.

11. UKWIN is now providing an updated version of that assessment in light of:

    - The Applicant's comments on REP2-066 in REP3-040;
    - The most recent ONS England population forecasts, which are lower than those used for previous assessments; and
    - the most recent information from Tolvik regarding EfW treatment capacity existing and under construction, and the Applicant's D5 estimate of this capacity with respect to England.

12. Considering the comments made at ISH3 and ISH7, in contrast with the Applicant's D5 WFAA, UKWIN's updated analysis looks not only at 2027 and 2042 but also at all the intervening years to show the impact of a linear fall in waste between 2027 and 2042.

13. Based on comments made by the Applicant and others regarding the Applicant's use of a 2-hour drive time, UKWIN's local assessment considers local waste and local EfW (incineration) capacity with consideration given to how much of the Applicant's D5 WFAA Study Area falls within the Applicant's ~2-hour boundary.

Results of UKWIN's assessment of local waste fuel availability

14. The results of UKWIN's local analysis are as follows:

UKWIN Assessment of capacity balance at a local level if 2027 & 2042 residual waste reduction targets are met based on 88% availability of capacity currently operational and under construction (ktpa)

Year	Total residual waste available as fuel	Effective EfW capacity in local area	Waste available for Medworth (sub-total)	Account for local use of Medworth capacity	Waste after Medworth (negative value indicates overcapacity)
2027	1,482	-1,296	**186**	-500	**-314**
2028	1,460	-1,296	**165**	-500	**-335**
2029	1,438	-1,296	**142**	-500	**-358**
2030	1,415	-1,296	**119**	-500	**-381**
2031	1,391	-1,296	**95**	-500	**-405**
2032	1,367	-1,296	**71**	-500	**-429**
2033	1,343	-1,296	**47**	-500	**-453**
2034	1,318	-1,296	**22**	-500	**-478**
2035	1,292	-1,296	**-3**	-500	**-503**
2036	1,267	-1,296	**-29**	-500	**-529**
2037	1,241	-1,296	**-55**	-500	**-555**
2038	1,215	-1,296	**-81**	-500	**-581**
2039	1,189	-1,296	**-107**	-500	**-607**
2040	1,162	-1,296	**-133**	-500	**-633**
2041	1,136	-1,296	**-160**	-500	**-660**
2042	1,109	-1,296	**-187**	-500	**-687**

15. This indicates that the proposed Medworth EfW plant would create and/or exacerbate local EfW overcapacity even if it is assumed that no local waste ends up going to produce Sustainable Aviation Fuel (SAF) or to fuel co-incineration plants such as cement kilns.

16. This is based on only 88% of the permitted capacity of the local EfW plants currently operating or under construction.

17. If a 31% 'plastic reduction uplift' were applied, to account for anticipated changes in waste capacity associated with changes in waste composition and calorific value, the level of local EfW overcapacity would be far higher.

18. The Medworth capacity is assumed to be 500ktpa based on an assumption that only 80% of the waste feedstock would come from the local area. The level of overcapacity would be higher if a higher Medworth capacity figure were used.

UKWIN Assessment of capacity balance at a local level if 2027 & 2042 residual waste reduction targets are met based on 88% availability of capacity currently operational and under construction with a 31% plastic reduction uplift (ktpa)

Year	Total residual waste available as fuel	Effective EfW capacity in local area	Waste available for Medworth (sub-total)	Account for local use of Medworth capacity	Waste after Medworth (negative value indicates overcapacity)
2027	1,482	-1,697	**-215**	-500	**-715**
2028	1,460	-1,697	**-237**	-500	**-737**
2029	1,438	-1,697	**-260**	-500	**-760**
2030	1,415	-1,697	**-283**	-500	**-783**
2031	1,391	-1,697	**-306**	-500	**-806**
2032	1,367	-1,697	**-330**	-500	**-830**
2033	1,343	-1,697	**-355**	-500	**-855**
2034	1,318	-1,697	**-380**	-500	**-880**
2035	1,292	-1,697	**-405**	-500	**-905**
2036	1,267	-1,697	**-430**	-500	**-930**
2037	1,241	-1,697	**-456**	-500	**-956**
2038	1,215	-1,697	**-482**	-500	**-982**
2039	1,189	-1,697	**-509**	-500	**-1,009**
2040	1,162	-1,697	**-535**	-500	**-1,035**
2041	1,136	-1,697	**-562**	-500	**-1,062**
2042	1,109	-1,697	**-589**	-500	**-1,089**

19. Because none of the incinerators considered would be more than 40-45 years old by 2042 no sensitivity analysis has been carried out for these plants closing during the period considered.

Results of UKWIN's assessment of national waste fuel availability

20. In line with UKWIN's previous submissions, the national assessment of waste fuel availability is based on waste arising within England and residual waste treatment capacity that exists within England.

UKWIN Assessment of capacity balance at a national level if 2027 & 2042 residual waste reduction targets are met based on ~88% availability of capacity currently operational and under construction (ktpa)

Year	Total residual waste available as fuel	Effective EfW capacity in England	Cement kiln use of feedstock	Waste-to-SAF use of feedstock	Waste available for Medworth	Medworth capacity	Waste after Medworth (negative values indicates overcapacity)
2027	17,401	-17,900	-1,000	-540	**-2,039**	625	**-2,664**
2028	17,107	-17,900	-1,000	-1,890	**-3,683**	625	**-4,308**
2029	16,809	-17,900	-1,000	-1,890	**-3,981**	625	**-4,606**
2030	16,507	-17,900	-1,000	-1,890	**-4,283**	625	**-4,908**
2031	16,200	-17,900	-1,000	-1,890	**-4,590**	625	**-5,215**
2032	15,890	-17,900	-1,000	-1,890	**-4,900**	625	**-5,525**
2033	15,576	-17,900	-1,000	-1,890	**-5,214**	625	**-5,839**
2034	15,260	-17,900	-1,000	-1,890	**-5,530**	625	**-6,155**
2035	14,941	-17,900	-1,000	-1,890	**-5,849**	625	**-6,474**
2036	14,619	-17,900	-1,000	-1,890	**-6,171**	625	**-6,796**
2037	14,296	-17,900	-1,000	-1,890	**-6,494**	625	**-7,119**
2038	13,972	-17,900	-1,000	-1,890	**-6,818**	625	**-7,443**
2039	13,646	-17,900	-1,000	-1,890	**-7,144**	625	**-7,769**
2040	13,320	-17,900	-1,000	-1,890	**-7,470**	625	**-8,095**
2041	12,992	-17,900	-1,000	-1,890	**-7,798**	625	**-8,423**
2042	12,662	-17,900	-1,000	-1,890	**-8,128**	625	**-8,753**

21. The 17,900-tonne figure used in the 'Effective EfW capacity in England' column of the table above is taken from the Applicant's D5 WFAA [REP5-020] paragraph 5.1.20.

22. The data indicates that even if no new incinerators enter construction in England there will be significant EfW overcapacity. While the level of this overcapacity is higher if account is made of Waste-to-SAF capacity (assuming 90% availability of the capacity funded as part of the UK Government's Advanced Fuels Fund) and/or if the use of co-incineration such as cement kilns is considered there would still be EfW overcapacity.

23. As with the local analysis, sensitivity analysis has also been carried out to show the potential impact of plastic reduction reducing the calorific value of the waste stream and increasing the effective capacity of incinerators that are currently operational and under construction.

UKWIN Assessment of capacity balance at a national level if 2027 & 2042 residual waste reduction targets are met based on ~88% availability of capacity currently operational and under construction with a 31% plastic reduction uplift (ktpa)

Year	Total residual waste available as fuel	Effective EfW capacity in England	Cement kiln use of feedstock	Waste-to-SAF use of feedstock	Waste available for Medworth	Medworth capacity	Waste after Medworth (negative values indicates overcapacity)
2027	17,401	-23,449	-1,000	-540	**-7,588**	-625	**-8,213**
2028	17,107	-23,449	-1,000	-1,890	**-9,232**	-625	**-9,857**
2029	16,809	-23,449	-1,000	-1,890	**-9,530**	-625	**-10,155**
2030	16,507	-23,449	-1,000	-1,890	**-9,832**	-625	**-10,457**
2031	16,200	-23,449	-1,000	-1,890	**-10,139**	-625	**-10,764**
2032	15,890	-23,449	-1,000	-1,890	**-10,449**	-625	**-11,074**
2033	15,576	-23,449	-1,000	-1,890	**-10,763**	-625	**-11,388**
2034	15,260	-23,449	-1,000	-1,890	**-11,079**	-625	**-11,704**
2035	14,941	-23,449	-1,000	-1,890	**-11,398**	-625	**-12,023**
2036	14,619	-23,449	-1,000	-1,890	**-11,720**	-625	**-12,345**
2037	14,296	-23,449	-1,000	-1,890	**-12,043**	-625	**-12,668**
2038	13,972	-23,449	-1,000	-1,890	**-12,367**	-625	**-12,992**
2039	13,646	-23,449	-1,000	-1,890	**-12,693**	-625	**-13,318**
2040	13,320	-23,449	-1,000	-1,890	**-13,019**	-625	**-13,644**
2041	12,992	-23,449	-1,000	-1,890	**-13,347**	-625	**-13,972**
2042	12,662	-23,449	-1,000	-1,890	**-13,677**	-625	**-14,302**

24. This indicates that changes in waste composition through reduced plastic in the residual waste stream and/or through plastics being removed prior to incineration could increase the effective capacity of existing incinerators and significantly exacerbate the level of EfW overcapacity.

25. Based on the Applicant's comments in their D5 WFAA we have also modelled the impact of all incinerators closing after 40 years of operation, although we do not believe this to be likely to come to pass.

UKWIN Assessment of capacity balance at a national level if 2027 & 2042 residual waste reduction targets are met based on ~88% availability of capacity currently operational and under construction <u>assuming all incinerators are closed and not replaced after 40 years</u> (ktpa)

Year	Total residual waste available as fuel	Effective EfW capacity in England	Capacity closed after 40 years of operation	Cement kiln use of feedstock	Waste-to-SAF use of feedstock	Waste available for Medworth	Medworth capacity	Waste after Medworth (negative values indicates overcapacity)
2027	17,401	-17,900	0	-1,000	-540	**-2,039**	-625	**-2,664**
2028	17,107	-17,900	0	-1,000	-1,890	**-3,683**	-625	**-4,308**
2029	16,809	-17,900	0	-1,000	-1,890	**-3,981**	-625	**-4,606**
2030	16,507	-17,900	0	-1,000	-1,890	**-4,283**	-625	**-4,908**
2031	16,200	-17,900	0	-1,000	-1,890	**-4,590**	-625	**-5,215**
2032	15,890	-17,900	0	-1,000	-1,890	**-4,900**	-625	**-5,525**
2033	15,576	-17,900	386	-1,000	-1,890	**-4,827**	-625	**-5,452**
2034	15,260	-17,900	386	-1,000	-1,890	**-5,144**	-625	**-5,769**
2035	14,941	-17,900	386	-1,000	-1,890	**-5,463**	-625	**-6,088**
2036	14,619	-17,900	773	-1,000	-1,890	**-5,398**	-625	**-6,023**
2037	14,296	-17,900	1,161	-1,000	-1,890	**-5,333**	-625	**-5,958**
2038	13,972	-17,900	2,115	-1,000	-1,890	**-4,704**	-625	**-5,329**
2039	13,646	-17,900	2,115	-1,000	-1,890	**-5,029**	-625	**-5,654**
2040	13,320	-17,900	2,115	-1,000	-1,890	**-5,356**	-625	**-5,981**
2041	12,992	-17,900	2,301	-1,000	-1,890	**-5,497**	-625	**-6,122**
2042	12,662	-17,900	2,301	-1,000	-1,890	**-5,826**	-625	**-6,451**

26. This indicates that the closure of all incinerators after 40 years of operation would not start having an impact until around 2033 and would not change the conclusion of UKWIN's analysis.

27. At ISH7 the Applicant referred to a range of 40-45 years of operation for a typical incinerator. If decommissioning were to commence after 45 years, this would delay the impact by five years, as shown overleaf.

UKWIN Assessment of capacity balance at a national level if 2027 & 2042 residual waste reduction targets are met based on ~88% availability of capacity currently operational and under construction <u>assuming all incinerators are closed and not replaced after 45 years</u> (ktpa)

Year	Total residual waste available as fuel	Effective EfW capacity in England (operational and under construction)	Capacity closed after 40 years of operation	Cement kiln use of feedstock	Waste-to-SAF use of feedstock	Waste available for Medworth	Medworth capacity	Waste after Medworth (negative values indicates overcapacity)
2027	17,401	-17,900	0	-1,000	-540	**-2,039**	-625	**-2,664**
2028	17,107	-17,900	0	-1,000	-1,890	**-3,683**	-625	**-4,308**
2029	16,809	-17,900	0	-1,000	-1,890	**-3,981**	-625	**-4,606**
2030	16,507	-17,900	0	-1,000	-1,890	**-4,283**	-625	**-4,908**
2031	16,200	-17,900	0	-1,000	-1,890	**-4,590**	-625	**-5,215**
2032	15,890	-17,900	0	-1,000	-1,890	**-4,900**	-625	**-5,525**
2033	15,576	-17,900	0	-1,000	-1,890	**-5,214**	-625	**-5,839**
2034	15,260	-17,900	0	-1,000	-1,890	**-5,530**	-625	**-6,155**
2035	14,941	-17,900	0	-1,000	-1,890	**-5,849**	-625	**-6,474**
2036	14,619	-17,900	0	-1,000	-1,890	**-6,171**	-625	**-6,796**
2037	14,296	-17,900	0	-1,000	-1,890	**-6,494**	-625	**-7,119**
2038	13,972	-17,900	386	-1,000	-1,890	**-6,432**	-625	**-7,057**
2039	13,646	-17,900	386	-1,000	-1,890	**-6,757**	-625	**-7,382**
2040	13,320	-17,900	386	-1,000	-1,890	**-7,084**	-625	**-7,709**
2041	12,992	-17,900	773	-1,000	-1,890	**-7,026**	-625	**-7,651**
2042	12,662	-17,900	1,161	-1,000	-1,890	**-6,967**	-625	**-7,592**

28. If all EfW plants were assumed to close and not be replaced after 45 years of operation, this would delay the start of the impact until 2038, meaning that the impact in 2042 would be less than the previous data table. As before, such closures would not impact on the conclusions.

29. Even if there are more widespread closures, it is likely that this would be more than outweighed by the introduction of new EfW plants and capacity which already have planning permission.

30. As set out in the Technical Annex below, there are 30 incinerators with planning permission that are considered to be in development that have yet to enter construction. These plants have a combined permitted capacity of 9,922ktpa.

31. If 90% of this capacity is utilised, this would amount to an additional 8,930ktpa of capacity.

32. Even if only a small proportion of these plants were to come forward it could significantly increase the level of English EfW overcapacity.

Consideration of other local and national EfW capacity 'in development'

33. The analysis reflected in the tables above only considers EfW incineration facilities that are existing or under construction.

34. However, draft EN-3 (March 2023) paragraph 3.7.45 refers to 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**." (**emphasis added**)

35. Similarly, in order to "ensure proposals do not result in an over-capacity of EfW waste treatment provision at a local or national level" as expected by paragraph 7.4.5 of EN-3 (March 2023), and by the similar wording at paragraphs 3.7.7 and 3.7.29, logic dictates that one cannot ignore the potential for capacity which is in development but which has yet to enter construction to come forward combining with existing capacity and the proposed new capacity to result in overcapacity.

36. As set out in the Technical Annex (below), UKWIN has identified eight facilities that are 'in development' and located within around a 2-hour drive time of the proposal (two of which are only 1 hour away from the proposed Medworth EfW facility), with planning consent that amount to a combined headline capacity of more than 2.9mtpa with a reasonable prospect of coming forwards to be built (or in one case, to be brought back into use).

37. If the Tilbury Dock EfW facility, which is located around 2 hours and 20 minutes from the Medworth plant, is included then there would be an additional nine EfW facilities with a combined headline capacity of more than 3.2 million tonnes per annum.

38. At a national level, UKWIN has identified 30 incinerators that are considered 'in development' with planning permission but which have not yet entered construction; these have a combined headline capacity of more than 9.9 million tonnes per annum.

39. As noted above, it is possible that these plants might operate below their headline capacity, but it is also possible that changes in waste composition will result in some or all of them operating above their headline capacity.

40. UKWIN's list of EfW facilities considered to be 'in development' is adapted from the list produced by the North Lincolnshire EfW NSIP Applicant, based on their definition, which included EfW projects where planning permission has been secured and which are considered to be still under development, even where the projects had yet to reach financial close ("a final investment decision").

41. It should be noted that UKWIN's approach to interpreting the phrase 'in development' is more conservative than the approach taken by Tolvik in their May 2022 UK EfW Statistics report.

42. Tolvik describes 'in development' to mean "new additional EfWs" that are included in "Tolvik's database of active development projects", which includes both consented and as yet unconsented EfW projects considered by Tolvik to be in active development.

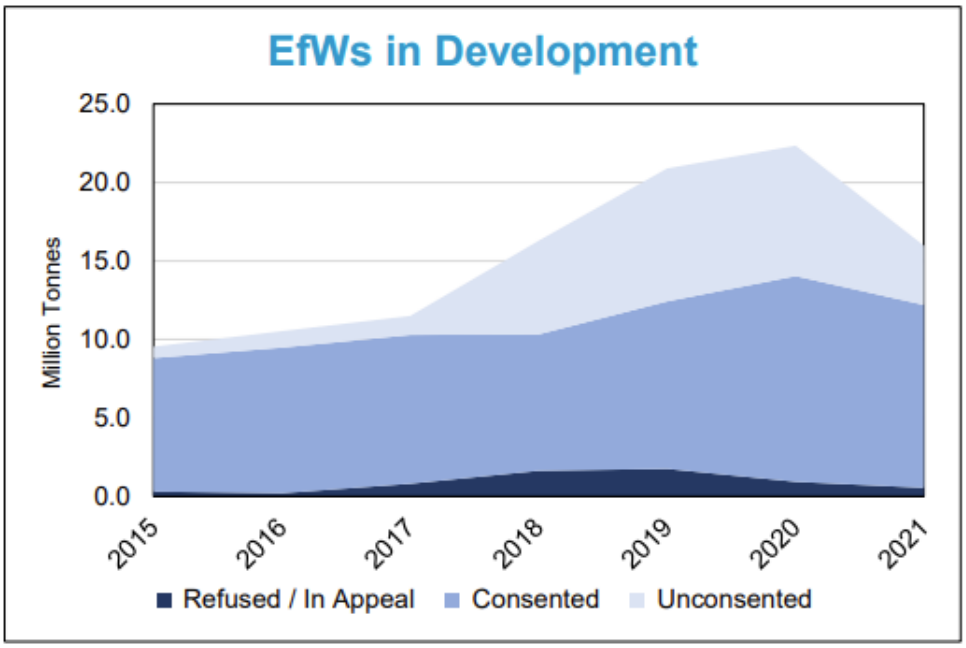


Figure 33: Historic EfW Capacity in Development

43. Tolvik's data indicated that more than 15 million tonnes of EfW capacity across the UK (which had yet to enter construction) was considered in development at the end of 2021.

44. If it was assumed that 84% of that UK capacity was located in England, this would amount to more than 13 million tonnes of EfW capacity in development at the end of 2021.

45. This 13 million tonnes figure for 2021 contrasts with UKWIN's 2023 figure of between 8.9 and 9.9 million tonnes.

46. When assessing which projects are or are not active there is of course an element of judgement that must be applied. It is possible that some might consider a few of the projects listed by UKWIN as not constituting active projects, but they might also consider some projects omitted by UKWIN to constitute active projects.

47. If even a small proportion of this capacity in development is built in the future, it would mean that the EfW overcapacity situation would be far worse than modelled by UKWIN.

COMMENTS ON THE APPLICANT'S D5 WFAA

Comments on the Applicant's updated national analysis

48. While we welcome the shift in focus from UK to England, UKWIN remains concerned about the inadequacy of the Applicant's nation analysis. A number of UKWIN's concerns regarding this matter are set out by in our oral and written ISH7 representation, with other concerns set out by UKWIN below, and in other UKWIN submissions.

Comments on the Applicant's updated local analysis

49. The Applicant appears to include all waste under the 19 12 12 code as being suitable for incineration. As set out in greater detail in the Technical Annex below, only a proportion of this material would be suitable for combustion as this waste stream includes materials specifically excluded from incinerator feedstock, e.g. due to low combustibility or to material being too fine to be compatible with the moving grate typically used by incinerators.

50. According to the UK Government's Call for evidence to support the near elimination of biodegradable waste disposal in landfill from 2028 (dated May 2023) a large proportion of material that is landfilled is actually soil:

    "In 2020 'waste soils' made up 58% and 'mineral wastes' 6% of the tonnages received at landfills across the UK, making up the largest proportion of material to landfill by some margin when compared to the next largest tonnages. We recognise that large tonnages of soil and soil like material are recorded for disposal in landfill, which for the purposes of waste classification can be labelled as 'active'…"

51. As such, a notable proportion of the 19 12 12 code material, and a large proportion of what is landfilled, is material that would be unsuitable for incineration. This limits the extent to which incineration capacity can be said to be capable of treating waste currently sent to landfill.

52. A large proportion of the remaining material that incinerators might be able to treat is comprised of materials that would be more suitable for reduction, re-use and recycling.

53. Even if the Applicant's assessment is correct with respect to the levels of waste within the spatial scope that was historically sent to landfill, this does not mean that such waste would:

    - still be produced in the future,
    - not be recyclable/compostable, and
    - be available for (and suitable for) incineration.

54. It is also important to consider that Waste Local Plans that pre-date the 65% municipal recycling target and/or those that pre-date the target to reduce municipal residual waste by 29% by 2027 and to halve residual waste by 2042 may not fully take into account the latest Government measures and policy expectations.

55. It is therefore crucial to assess whether the proposed 625,600 tonnes of new waste incineration capacity would be needed in the event the Government's 65% municipal recycling target, and the Government's 2027 and 2042 residual waste reduction targets, are met at a local level, and not just at a national level.

Accounting for UK Government residual waste Reduction targets being met at local and national levels

56. UKWIN set out some concerns in relation the Applicant's D2 WFAA from electronic pages 15 of REP3-050. Many of the issues we identified with respect to the Applicant's failure to account for the UK Government's residual waste reduction targets being met at local and national levels, which are set out on electronic pages 23-31 of REP3-050 have not been adequately resolved by the Applicant's D5 WFAA.

57. Further details regarding a number of concerns about the Applicant's D5 WFAA and the Applicant's failure to adequately assess the impact on waste fuel availability of the achievement of the Government's residual waste reduction targets were set out as part of ISH7 and are detailed within UKWIN's D6 Post-Hearing submission.

58. On internal page 5 of the Applicant's D5 WFAA they state that: "By 2028, even if the Government's ambitious interim residual waste reduction targets set out in their 2023 Environmental Improvement Plan are achieved there is anticipated to be 21.4 million tonnes of residual HIC waste in England requiring management. Based on operational capacity available by 2027, there would remain a minimum shortfall of 3.5 million tonnes of residual HIC capacity in England".

59. For the reasons set out elsewhere by UKWIN, we disagree with the 21.4Mtpa estimate because it includes non-combustible and non-suitable waste, and we note that the operational capacity figure does not include non-MWI capacity, both of which undermine the Applicant's 3.5Mtpa figure.

60. UKWIN's analysis set out above shows that there would be EfW overcapacity if the residual waste reduction targets are met.

61. The Applicant's D5 WFAA statement (internal page 5) that "…the Proposed Development will not result in an over-supply of EfW capacity at…the local/regional level…" fails to note that the Applicant has not carried out a local analysis of EfW capacity which takes into account the residual waste reduction targets being met at a local level (as noted by UKWIN at ISH7).

62. UKWIN's analysis set out above shows that there would be local EfW overcapacity if the Government's residual waste reductions targets were met at a local level.

63. UKWIN's ISH7 submissions set out how the Applicant's D5 WFAA footnote 13 figure of 3.2Mtpa for facilities that could close is misleading.

64. While we do not believe it appropriate to assume that all incinerators would close after 40-45 years of operation, we have modelled this and shown that it does not impact on the conclusions that there would be EfW overcapacity at a local and national level.

Waste-to-SAF capacity

65. UKWIN maintains our position that the Applicant's failure to properly account for Waste-to-SAF capacity continues to undermine their Waste Fuel Availability Assessments.

Impact of changes in waste composition on waste processing capacity

66. As set out in this and in other representations submitted to the Examination by UKWIN and others, the Applicant's approach fails to adequately account for changes in waste feedstock composition.

Waste Hierarchy protections

67. UKWIN maintains our position that the Waste Hierarchy protections identified by the Applicant would be incapable of preventing the harm to recycling and the management of waste at the top tiers of the Waste Hierarchy that would be caused by local and/or national EfW overcapacity.

Overarching National Policy Statement for Energy ('NPS EN-1') and the National Policy Statement for Renewable Energy Infrastructure ('NPS EN-3')

68. At Paragraph 2.2.15 of the Applicant's D5 WFAA they claim that: "Draft EN-1 reiterates the presumption in favour of granting consent in paragraph 4.1.3, and further states that all applications for development consent for energy infrastructure should be assessed on the basis that the government has demonstrated that there is an urgent need for those types of infrastructure, that "substantial weight" should be given to this need when considering applications for development consent, and that the specific contribution of any individual project to satisfying the need is not required to be separately considered (paragraphs 3.2.5 to 3.2.7)".

69. This misrepresents Government policy on EfW, which makes clear that the 'waste need' for proposed NSIP EfW incinerator developments must be demonstrated, and that preserving the Waste Hierarchy takes precedence over energy generation.

70. EN-1 (2011) paragraph 3.4.3, which is repeated at paragraph 3.3.38 of Draft EN-1 (March 2023), states: "…Only waste that cannot be re-used or recycled with less environmental impact and would otherwise go to landfill should be used for energy recovery…"

71. As such, current Government policy is that the benefit of energy generation does not justify allowing capacity that could undermine the Waste Hierarchy.

72. As Draft EN-3 (March 2023) puts it at paragraphs 3.7.6 and 3.7.7: "As the primary function of EfW plants is to treat waste, applicants must demonstrate that proposed EfW plants are in line with Defra's policy position on the role of energy from waste in treating waste from municipal or commercial and industrial sources. 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".

73. As such, while energy generation is a benefit of the proposal, the primary purpose of the plant is waste management so it is necessary to justify that the proposal would demonstrably be contributing to, rather than undermining, the Waste Hierarchy.

74. Policies on the 'need to demonstrate waste need' in existing and emerging Government policy have been previously set out by UKWIN and do not need repeating, but this helps to explain why Draft EN-3 places such an emphasis on preventing local and national EfW overcapacity on the basis that EfW is different from other forms of energy generation due to its unique potential to undermine recycling and residual waste reduction efforts and to undermine the management of waste at the top tiers of the Waste Hierarchy.

75. It is clear that the Government's proposed residual waste reduction targets are specifically intended to reduce EfW waste incineration. As such UKWIN's analysis – that as residual waste arisings are reduced in line with meeting the target the current level of incineration capacity will be more than enough because residual waste will reduce in line with the targets – is wholly in line with Government statements on the topic.

76. In this regard, we draw attention to the statement made on behalf of the Government by the Parliamentary Under-Secretary of State for Environment, Food and Rural Affairs (Rebecca Pow) on 25th May 2023 that: "We [the Government] want to see less waste being sent to incinerators, which is why we set a statutory target to halve the 2019 level of residual waste by 2042..."

77. The Statement from Defra's Under-Secretary of State went on to refer to incineration plants as "energy from waste plants", making clear that EfW, such as that proposed for Medworth, are within the scope of her statement.

78. The Government's explanation that sending less waste to incinerators is a reason for their introduction of the target to halve residual waste supports UKWIN's interpretation of how to assess the impact of meeting that target on the Medworth Applicant's need case and the weight to be given to current and proposed (emerging) Government policies.

79. Such policies include measures to protect the top tiers of the Waste Hierarchy, prevent EfW overcapacity, fulfil the duties under the Environment Act 2021 in relation to environmental targets, and to have regard to policies set out in the Government's Environmental Improvement Plan (EIP).

80. As such it would be wrong to assume that the Government's existing or proposed policy is intended to prioritise energy generation at the expense of the Waste Hierarchy.

81. Instead, it is clearly the Government's intention that the NSIP system will prioritise protecting the top tiers of the Waste Hierarchy over energy generation, and following the precedent set by cases such as Wheelabrator Kemsley North, refuse proposals where the evidence indicates that a grant of permission would give rise to EfW overcapacity.

RDF and biomass

82. At Paragraph 5.1.23 of their D5 WFAA the Applicant states: "It is unclear from the data available the extent to which consented capacity relates specifically to the waste streams being targeted by the Proposed Development – for example, a large number of projects are designed to manage RDF or biomass".

83. If the Applicant is not targeting RDF as potential feedstock for their Medworth incinerator then it is curious why they include EWC code 19 12 10 ('combustible waste (refuse derived fuel')) on page 2 of their WFAA as part of the material that forms "the main focus of the WFAA".

84. It is also curious why the Applicant, e.g. at REP5-020 paragraph 4.1.22, includes in their WFAA waste exported as RDF as part of the potential feedstock that would be available for treatment at their Medworth EfW.

85. Even if the Medworth plant would not treat any RDF, because RDF is generated from mixed waste then more domestic RDF plants coming online would mean less waste feedstock will be available for incineration at Medworth and other non-RDF EfW incineration plants.

86. The Applicant also excludes biomass capacity, but it should be noted that some of the residual waste that they include in their waste fuel availability assessments (e.g. feedstock within the national definition of residual waste excluding non-major mineral waste, used by the Applicant to assess compliance with England meeting the UK Government's residual waste reduction targets) includes waste wood that could be treated at biomass plants.

87. According to Table 14C.1 of the Applicant's Climate Appendices [APP-088] the Applicant's Core Case lists wood as comprising 2.3% of the Medworth EfW's feedstock, i.e. more than 14,000 tonnes per annum. This figure rises to 3.3% (more than 20,000 tonnes per annum) in the Applicant's 'Reduced food and plastic' case.

88. Even if their Medworth EfW plant does not receive any waste wood, then – as with RDF – non-EfW waste wood treatment capacity would reduce the amount of waste available in the market overall which in turn would reduce the quantity of material that would be available to feed the Medworth EfW plant.

89. Further commentary on UKWIN's concerns regarding Paragraph 5.1.23 are set out in our comments on the Applicant's response to PND 2.7 ('HIC availability if planned development is built in East Midlands') below.

Capacity 'in development'

90. At paragraph 5.1.24 of the Applicant's D5 WFAA they state: "Importantly, it is noted that the May 2023 version of the Tolvik report does not report on capacity that is either consented and unbuilt or in the planning system. Instead, the Tolvik 2023 report provides a view on the level of capacity that will be available by 2027 (based upon existing and committed projects). In this regard, this WFAA has considered it appropriate and more robust to draw upon the more certain Tolvik 2023 definition of capacity when evaluating compliance with the provisions of the emerging NPS EN-3 i.e. that which is operational or under construction".

91. Such an approach is wholly out of step with the Government's emerging requirement to consider all EfW capacity that is 'in development'.

92. As set out above, Tolvik's May 2022 report on 2021 EfW statistics included capacity 'in development' which went well beyond capacity which is currently operational or under construction, as did the definition of 'in development' adopted by the North Lincolnshire EfW NSIP Examination.

Assessment of Local Plans – Lincolnshire County Council

93. Reasonable concerns were raised at ISH7 by the Examining Authority with respect to the Applicant's continued failure to contact waste collection and waste disposal authorities (local councils) to confirm that the Applicant's assessment of their respective local plans and capacity situation are accurate, up-to-date, and a proper representation of their current position.

94. The Applicant's response, that such effort is unnecessary because the information they cite is in the public domain, fails to grapple with the potential for the Applicant to inaccurately portray one or more of the local authorities' current position.

95. One example where the Applicant's assessment appears to miss out crucial information is in their assessment of Lincolnshire County Council on internal pages 62-63 of the D5 WFAA.

96. The Applicant refers to the "Review of the Lincolnshire Minerals and Waste Local Plan (February 2021)" which stated that "For energy recovery, the plan notes that additional capacity is still required to address a growing capacity gap going forward".

97. However, the Applicant does not then go on to consider the subsequent report dated 24th June 2021 entitled 'Lincolnshire Waste Needs Assessment 2021 – Overview Report – Final Issue'.

98. This more recent document is part of the Lincolnshire Minerals and Waste Local Plan Evidence Base, and Table 20 of that document finds that Lincolnshire is now forecast to have a surplus of energy recovery capacity:

Table 20: Lincolnshire Residual (Non-Inert) Waste Management Energy Recovery Capacity Requirement at Forecast Milestone years (tonnes)

	2025	2030	2035	2040	2045
Total from Table 11	201,485	171,824	147,730	138,528	140,763
Capacity (Table 13)	321,000	321,000	321,000	321,000	321,000
Surplus/ Shortfall	**+119,500**	**+149,000**	**+173,000**	**+182,500**	**+180,000**

99. Table 20 of the Lincolnshire County Council document from June 2021 estimates a surplus of Energy Recovery (EfW) Capacity that increases from an overcapacity of 119,500 tpa in 2025 to an overcapacity of 182,500 by 2040, reducing to 180,000 tonnes of EfW overcapacity in 2045.

100. The assessment caried out by Lincolnshire County Council predates the grant of planning permission for the 1.2 million tonnes of additional capacity approved for Boston, which is located within Lincolnshire.

PND.2.3 – Total and In-Scope East Midlands Capacity

101. The Applicant's list of 'total' and 'in scope' East Midlands capacities appears to have significant omissions. It also lists Newhurst as under construction, however this facility entered full operation in June 2023.

102. The data can be summarised as follows:

Applicant and UKWIN East Midlands EfW Incineration Capacities

Type of capacity	Total East Midlands from WFAA Appendix C	Corrected Total Midlands Capacity	'In Scope' East Midlands Capacity in REP5-032	Corrected 'In-Scope' East Midlands Capacity
Operational	446	882	246	682
Under Construction	520	170	350	0
Consented and not yet entered construction	1,099	2,536	154	1,614
In planning	1,000	230	1,000	0

103. One reason for the differences in the figure for waste operational or under construction relates to the Applicant's omission of the Boston Aviva capacity (86ktpa) which was historically limited to biomass but has now been converted into treating RDF.

104. A list of EfW incineration plants used in UKWIN's calculations above are set out overleaf.

List of EfW plants from UKWIN's East Midlands Capacity Corrections

Status	EfW Plant	County	'In-Scope'?	Headline capacity (ktpa)
Consented and not yet entered construction	Boston BAEF	Lincolnshire	Yes	1,200
Consented and not yet entered construction	EMERGE	Nottinghamshire	No	525
Operational	Newhurst	Leicestershire	Yes	350
Consented and not yet entered construction	Corby (Shelton Road)	Northamptonshire	Yes	260
In Planning	Swadlincote	Derbyshire	No	230
Operational	Eastcroft (Lines 1 & 2)	Nottingham	No	200
Operational	North Hykeham	Lincolnshire	Yes	190
Under Construction	Drakelow ACT	Derbyshire	No	170
Consented and not yet entered construction	Bulwell	Nottingham	No	160
Consented and not yet entered construction	Corby (Gretton Brook Road)	Northamptonshire	Yes	154
Consented and not yet entered construction	Eastcroft (Lines 3)	Nottingham	No	140
Consented and not yet entered construction	Bilsthorpe	Nottinghamshire	No	97
Operational	Boston (Aviva)	Lincolnshire	Yes	86
Operational	Newlincs	Lincolnshire	Yes	56

105. Capacity shown is Tolvik's reported permitted capacity where available, and otherwise is based on publicly stated headline capacities for the plant.

PND.2.7 – HIC availability if planned development is built in East Midlands

106. In their response to PND.2.7 the Medworth Applicant makes similar arguments as those in section 5.1.23 their D5 WFAA. We dispute what they say in both sections.

107. The 1.2 million tonnes of capacity associated with the Boston Alternative Energy Facility (BAEF) is no longer "at the same stage in the consenting process as the Proposed [Medworth] Development" as development consent for the BAEF was granted on the 6th of July 2023.

108. The Medworth Applicant makes a number of incorrect assertions in their attempted justification of Excluding the Boston capacity from their WFAA.

109. The Medworth Applicant states: "The Boston facility, however, is in the East of England region".

110. As confirmed in the UK Government's Renewable Energy Planning Database, the BAEF facility is located within the East Midlands region rather than in the East of England region.

111. The Medworth Applicant states: "The facility would utilise Advanced Thermal Conversion technology…"

112. This comment is years out of date. While the original BAEF proposal was for an Advanced Thermal Conversion gasification technology from Outotec, the Applicant withdrew and subsequently re-submitted their scheme as one for conventional EfW incineration and it was this varied scheme for the use of conventional EfW incineration technology that was approved.

113. The Medworth Applicant states: "the Boston facility requires RDF fuel to arrive at the facility via boat at a purpose-built dock; no waste or RDF may be transported to the facility by road".

114. Whilst the BAEF plant is intended to treat primarily waste transported to the wharf, the DCO does not preclude delivery by road.

115. DCO Requirement 17 (on DCO pages 48 and 49) allows transport by road to be authorised subject to it not causing unacceptable traffic impacts.

116. The Statement of Common Ground between the BAEF developer and Boston Borough Council envisages the potential delivery of waste fuel via a private road between the nearby Slippery Gowt Waste Transfer Station (operated by Lincolnshire County Council) which currently transfers waste to the 190ktpa EfW incinerator at North Hykeham.

117. It appears to be the Borough Council's position that diverting this local waste to the new Boston EfW plant would not increase HGV movements as waste was already travelling via HGV to the Waste Transfer Station.

118. If this waste were diverted to the BAEF plant then this would of course free up capacity at the North Hykeham incinerator which is also within the Applicant's WFAA Study Area.

119. Furthermore, one of the ports identified as a source of waste for the BAEF is Great Yarmouth which is in Norfolk and is therefore within the Medworth Applicant's study area set out in Graphic 3 of their D5 WFAA.

120. The BAEF Applicant anticipates taking waste from a 2-hour drive time from that port, which means there is significant overlap between the potential feedstock area for the BAEF and the EfW proposed for Medworth.

121. While the BAEF operator might end up taking waste from a variety of ports, there is no planning restrictions that would prevent a significant quantity of the waste coming via the Great Yarmouth port and this could include waste coming from Norfolk, Suffolk, Essex, and indeed Cambridgeshire.

122. An extract from Figure 1 'Proposed Port Locations and Indicative Waste Catchment Area Travel Time' from the BAEF Applicant's 'Addendum to Fuel Availability and Waste Hierarchy Assessment' is reproduced overleaf, with the proposed Mewdworth facility added to show both the close proximity between the Boston site and the Medworth site, and to show how the Boston site and much of its Great Yarmouth catchment area falls within the Medworth Applicant's WFAA Study Area.

123. The graphic also shows that Hull is another of the proposed BAEF supply ports and how BAEF's 2-hour drive time around Hull includes the northern portion of the Medworth Applicant's WFAA Study Area.

Boston facility and nearby supply ports, with coloured areas showing regions included in Medworth study area from WFAA D5 Graphic 2 with proposed Medworth plant shown with a star symbol

BAEF proposed catchment extract, with colours showing the BAEF's 2-hour drive time in green and 1-hour drive time in purple, with proposed Medworth plant shown with a star symbol

124. The Medworth Applicant claims: “The RDF fuel base this [BAEF] project is looking to capture is UK-based material currently being exported to Europe”.

125. The BAEF Applicant’s stated objectives for the Boston plant includes the objective to “reduce the quantity of waste exported abroad” but it also includes the objective to “reduce the quantity of waste disposed to landfill”.

126. This means that they were not intending to solely target waste that is exported abroad.

127. The BAEF Applicant modelled the GHG impacts of the facility based on the facility diverting between 0% and 50% from RDF Export with the remaining 100%-50% being diverted from domestic landfill.

128. Indeed, the Waste Fuel Availability Assessment Addendum for the BAEF stated that the intended ***primary*** source of waste was waste currently being landfilled in the UK, not waste currently being exported, stating: “Primary sources of fuel will comprise wastes that are currently being landfilled that will be diverted and processed into RDF…”

129. This means that the BAEF Applicant intends to take waste which was historically being landfilled and was not previously being converted into RDF, putting that emerging facility into direct competition for feedstock with the proposed Medworth plant.

130. Waste which was historically exported as RDF is considered by the BAEF Applicant as an additional source of RDF rather than as their primary source of feedstock.

131. However, even if the BAEF plant were to limit feedstock only to material previously exported as RDF, the 1.2 million tonnes of capacity would still impact on the local and national levels of waste fuel available for treatment at the proposed Medworth EfW plant.

132. The Medworth Applicant states: “Only ~160,000 tonnes of RDF is identified as coming from the Study Area”.

133. The 160ktpa figure is explained at paragraph 4.1.20 of the Medworth Applicant’s D5 WFAA, which shows that it is based on a Medworth Applicant adjusted figure for historic RDF exported from Suffolk alone.

134. This flawed approach ignores the fact that, whilst the port of Great Yarmouth is located in Norfolk, the BAEF applicant anticipates taking waste from up to a 2-hour drive from supply ports, and they do not limit themselves to waste currently being exported as RDF.

135. The Medworth Applicant’s D5 WFAA also fails to account for the proximity of Medworth to the port of Hull.

136. As set above, much of the Medworth Applicant's WFAA Study Area would be covered by the BAEF 2-hour catchments for Great Yarmouth and Hull.

137. When assessing the impact of RDF within the context of waste fuel availability, it should be noted that it takes more than one tonne of raw waste to produce one tonne of RDF.

CE.2.2 – Worst case composition for climate change

138. In the first paragraph of their reply to ExQ2 CE.2.2 on electronic 21 of REP5-032 the Applicant's assessment of worst case scenario relates to the worst case for landfill, not the worst case for their proposed incinerator.

139. UKWIN's D5 submissions included an assessment of the impact of changes in waste fuel composition that could result in worse GHG emissions than modelled by the Applicant in their reply to CE.2.2.

140. We note that the Applicant does not show how their "maximum adverse composition" would impact on the results, but we expect it would result in a significant net adverse GHG impact.

141. We await the Applicant's Deadline 6 further submissions which we hope will take into account the various relevant considerations that UKWIN noted in our D5 submission such as the importance of modelling the impact of the crediting biogenic carbon sequestration in their landfill baseline.

CE.2.3 – Availability of waste of stated composition in study area

142. As noted above, much of what has historically gone to landfill is either suitable for reduction, re-use or recycling or ended up in landfill because it was not suitable for incineration.

143. The Applicant talks about how much HIC is available but not compare the composition of that HIC against their assumed feedstock composition used for their climate assessment.

144. It is possible that no HIC waste available within their study area matches the composition that they assume because composition is not based on waste in the study area.

145. For example, the Applicant's approach to the inclusion of food waste in their 'current case' scenario does not take into account the comments made by the Applicant at ISH7 that there is already a high degree of food waste collection in the WFAA Study Area, meaning the feedstock assumed by the Applicant in its 'current case' analysis does not reflect their knowledge of the current level of food waste composition in the area.

DCO.2.5 – Waste Hierarchy Requirement 14

146. The Applicant cites Riverside Requirement 16 as precedent for Waste Hierarchy Requirement 14.

147. However, changes in circumstances since the Riverside DCO was approved in April 2020 that could reduce the level of confidence that could be placed in the efficacy of such a requirement for a mixed waste feedstock and therefore the weight it should be given in the planning balance include:

- the increase in incineration capacity (operational and under construction) since April 2020, and the expansion of existing capacity;
- the publication of Defra's first Resources and Waste Strategy Monitoring Progress report, which found that a significant proportion of the residual waste stream comprised material that could have been recycled or composted (August 2020);
- the publication of the Waste Management Plan for England (January 2021);
- the dischargement of Condition 16 of the Riverside Energy Park Order 2020 (as amended) through adoption of a relatively ineffectual Waste Hierarchy Scheme (April 2022);
- the proposed changes to EN-1 and EN-3 (September 2021 and March 2023);
- Government statements about the importance of avoiding EfW overcapacity (e.g. as made in July 2022);
- the publication of the UK Government's Jet Zero Strategy and announcement of funding for Waste-to-SAF capacity (July 2022 and December 2022);
- the publication of the Environmental Improvement Plan (EIP), including the interim waste reduction targets for 2027 (January 2023);
- the adoption of a legally binding target to halve residual waste by 2042 as part of the Environmental Targets (Residual Waste) (England) Regulations (January 2023); and
- new evidence about the increased use of residual waste for cement kilns (May 2023).

148. Further details on a number of these differences are set out in previous UKWIN submissions, including a detailed study of why the Riverside Waste Hierarchy Scheme ended up being so much less effective than the original Condition might have implied would be the case.

149. Similar concerns remain regarding how much a Medworth scheme could resolve in practice, especially in line of the comments made by the Applicant's expert at ISH6 which disclaimed responsibility for recyclable material being incinerated at other plants operated by the Applicant.

150. Furthermore, as previously noted by UKWIN, even if the Applicant could prevent any potentially recyclable material from being incinerated, this would not prevent the plant from harming recycling if it resulted in local or national EfW overcapacity as other plants could end up receiving more recyclable material to be incinerated.

151. In 'UK33' of REP5-035 the Applicant states: "The Applicant has not been able to identify a clear question on biogenic carbon sequestration within the submissions from UKWIN. However, it understands that UKWIN are asking whether or not the Applicant disputes the methodology provided in REP2-064, and whether a revised calculation would result in significant adverse effects. The Applicant refers to its response above to UK14 in Table 8.2 regarding the Applicant's approach to accounting for carbon sequestration in landfill based on standard methodologies. The Applicant does not consider that there would be significant adverse effects".

152. The Applicant has misstated UKWIN's clearly expressed question, which is not about whether or not the Applicant stands by their methodology, but about whether or not the Applicant disputes the numerical calculations and associated impact of following the methodology proposed by UKWIN.

153. The methodology applied by Equanimator in REP2-064 was one of two approaches to giving credit for the climate benefit of biogenic carbon sequestration in landfill, as set out in the Defra Carbon Based Modelling Approach and as detailed in UKWIN's Good Practice Guidance which is in evidence before the Examination [REP1-096].

154. UKWIN did not anticipate any valid reasons for the Applicant to dispute the faithfulness of UKWIN application of the methodology for crediting biogenic carbon sequestration in landfill as set out in Defra's Carbon Based Modelling Approach report.

155. However, given the significant implications of applying the methodology with respect to the net GHG impacts of the proposal compared to the Applicant's baseline, we thought it would be in the interest of the Examination to give the Applicant an opportunity to point out any numerical errors in UKWIN's calculations and/or our characterisation of the impact of adopting such a methodology with respect to the resulting assessment.

156. As set out at paragraph 21 of UKWIN's D4 Post-Hearing Submission including Summary of UKWIN's ISH4 Oral Submissions [REP4-042] UKWIN expressed our straightforward question as follows: "to ask the Applicant to confirm that they do not dispute that <u>if one follows the methodology set out in REP2-064, and kept all other assumptions as per the Applicant's climate assessment</u> [APP-041], this will result in reducing the GHG benefit of the facility by 171,846 tonnes of CO2 per annum, which would be sufficient to tip the balance of the Medworth proposal to 'adverse', which the Applicant clarified – based on their ISH3 comments about how all climate impacts are considered 'Significant' – would be considered to constitute an 'adverse Significant effect'." (<u>emphasis added</u>)

157. Whilst the Applicant's REP5-035 response confirms that their adopted approach does not give credit for biogenic carbon sequestration, they fail to directly answer UKWIN's question which related to whether or not they dispute the implications of following the aforementioned methodology (proposed by both Equanimator and UKWIN, based on the approach set out by Defra) to provide such credit.

158. Given that UKWIN's question was worded clearly in REP4-042, we take the Applicant's response – which does not directly dispute the impacts of applying the aforementioned methodology to giving credit for biogenic carbon sequestration – as confirmation that the Applicant does not dispute that if one applied that methodology as described in REP2-064 then one would obtain the results set out in REP2-064 (as summarised in REP4-042) in line with one of the two approaches to giving such credit set out in Defra's Carbon Based Modelling Approach report.

159. UKWIN followed the same approach set out in REP2-064 (and summarised in REP4-042) in our D5 sensitivity analysis of biogenic carbon sequestration [REP5-053] paragraphs 24-31, with respect to both the Applicant's main composition case and UKWIN's sensitivity composition cases.

Approach to assessing ~2-hour local capacity

160. At paragraph 3.2.5 of the Applicant's original Waste Fuel Availability Assessment (WFAA) [APP-065], dated June 2022, the Applicant stated:

> "Professional judgement is that it is generally commercially viable to transport non-hazardous household, industrial and commercial waste from up to approximately (~) 2 hours away from the Proposed Development. Distances over 2 hours travel time from the Proposed Development become increasingly expensive for those seeking to dispose of waste. As such, a 2-hour travel time from the centre of the Proposed Development site was applied in a GIS (geographical information systems) model, which resulted in the identification of a likely 'catchment area'".

161. This language was retained in the Applicant's Rev 2 WFAA submitted at Deadline 2 in March 2023 [REP2-010].

162. The Applicant's language was slightly tweaked in the Revision 3 version of the WFAA submitted at deadline 5 in June 2023 [REP5-020] with the word "can" inserted before "become increasingly" and the term "catchment area" replaced with "geographic area from which the facility is likely to draw waste".

163. When asked about the proposed catchment area at ISH3, the Applicant's response included the following argument (as per page 11 of REP4-019):

> "Ms Brown explained that, in terms of local need, the study area has been broadly defined by a 2-hour drive time. However, where this defined area then enters a waste planning authority area, the Applicant has included the entirety of that area within the Study Area. This is because data is collected in this manner and future local waste management needs are planned at a local waste planning authority level".

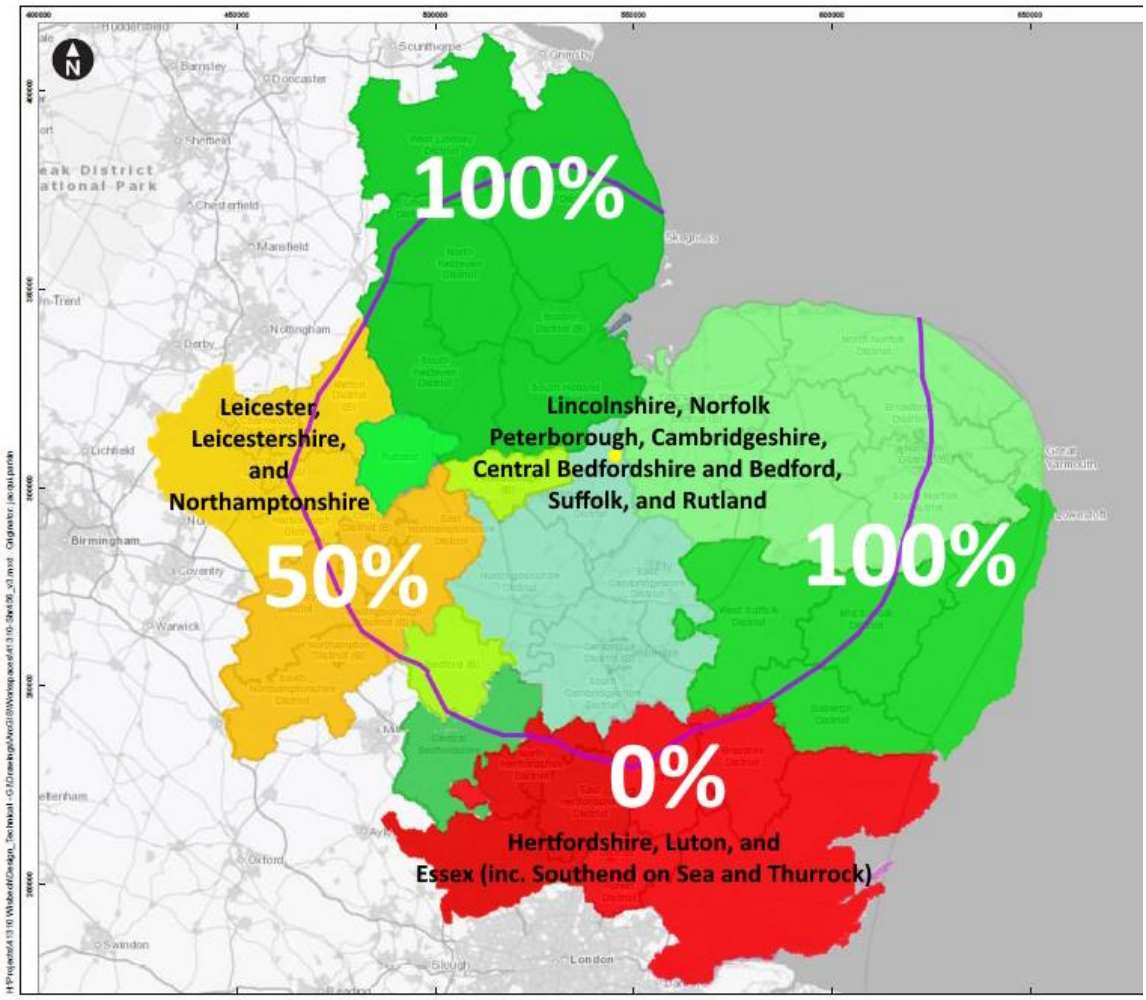
164. Whatever the merits of this approach to including significantly more land in their analysis than the c. 2-hour drive time would indicate, an approach that UKWIN and others criticise elsewhere, there is no need for UKWIN to follow the same approach in our local need analysis.

165. UKWIN's assessment is based on national per-capita waste reduction targets being met at a local level, and so we can combine this per-capita figure with population data and known information on local waste capacity to carry out our assessment of the balance between anticipated residual waste arisings and residual waste treatment capacity.

166. UKWIN has assessed REP5-020's Graphic 2 ('Medworth Location Plan for 2 Hour Travel Time of Heavy Goods Vehicles (HGV)') and it remains clear that a large proportion of the Applicant's study area goes beyond the 2-Hour Travel Time for HGVs.

167. Given the need to assess <u>local</u> capacity within the context of Draft EN-3 policies and for other purposes, we have adopted the '~2-hour Local Area' as depicted in the map below, which shows the Local Authorities (and relevant percentages) used for the population and EfW (incineration) capacity included in our '~2-hour Local Area' calculations.

UKWIN Local WFAA Study Area
(i.e. local EfW incineration capacity and waste fuel arising areas assessed by UKWIN based on Medworth Applicant's 2-hour drive time)



168. The area shown above has been generated using the Applicant's depiction of what they deem to be within a 2-hour drive time (the Applicant's purple line), and based on this we include:

- 100% of the population and available existing EfW incineration capacity for areas wholly or largely within the purple 2-hour boundary;
- 50% of the population and available existing EfW incineration capacity for areas that are roughly half in and half outside the purple 2-hour boundary (i.e. Leicester, Leicestershire and Northamptonshire); and
- 0% of the population and available existing EfW incineration capacity for areas entirely (or primarily) outside of the boundary (i.e. Hertfordshire, Luton, and Essex, inc. Southend on Sea and Thurrock).

169. 'Available existing EfW incineration capacity' has been calculated using the Applicant's suggested 88% availability rate, which is based on historic operational data as collated and reported by Tolvik.

170. However, as noted at ISH7, EfW plants may increase their permitted capacity and/or operate closer to their permitted levels if a reduction in calorific value, e.g. due to a reduction in the proportion of plastics incinerated, increases the effective treatment capacity of incinerators.

171. Furthermore, as further explored later in this submission, there are many incinerators that are currently 'in development' (the term used in the emerging updated version of EN-3) but which have yet to enter construction that are not included within the Tolvik EfW capacity forecast.

172. As such, in addition to showing the impact of capacity at 12 percentage points below current permitted capacities of existing EfW plants (operational and under construction), UKWIN's assessment also models the impact of capacity based on 88% availability of capacity currently operational and under construction with a 31% plastic reduction uplift (which equates to effective capacity at 15.28% above the current headline permitted capacity.

173. For the avoidance of doubt, UKWIN's approach to assessing the local balance scopes out all EfW capacity in Essex, i.e. the 595,000 tpa Rivenhall facility, and limits inclusion of the 350,000 tpa Newhurst facility to only 154,000 tonnes (which is only 44% of Newhurst's headline permitted capacity) because that EfW facility is located in Leicestershire.

174. Overall the approach adopted by UKWIN results in a rather generous definition of a 2-hour drive time, as the slight loss of land in the south of the Applicant's D5 WFAA Study Area that falls within the purple 2-hour boundary (in the northern extremes of Essex and Hertfordshire) is more than offset by the inclusion of larger areas of land to the north and east (including the whole of Lincolnshire, Norfolk, and Suffolk) where significant proportions of these counties fall outside the purple 2-hour boundary.

175. This approach is far more reasonable in terms of representing local waste than the Applicant's method of including 100% of all areas within, and in some cases beyond, the East of England region even where only a tiny portion of those areas falls within the 2-hour boundary (including Luton which is entirely outside and beyond the purple 2-hour boundary, which appears to have been included just to 'complete the set' of councils within the East of England region).

176. 102k of potential capacity from Ratty's Lane in Hoddesdon has been included because it was reported by ENDS on the 6th of July 2023 that: "…the plant was being mothballed early last year, however a new business has now taken over the facility, which could be started up again".

Consented EfW Plants considered 'in development' in England that have yet to enter construction

EfW Plant	Region	Headline capacity	90% of headline capacity
Boston BAEF	East Midlands	1,200	1,080
South Humber Bank Energy Centre	Yorks. & Humber	753	678
Cory Riverside Energy Park (REP)	London	665	599
East Midlands Energy Re-Generation (EMERGE) Centre	East Midlands	525	472
Darwen EfW Plant	North West	500	450
Graythorp Energy Centre (Hartlepool)	North East	500	450
North Beck Energy EfW plant	Yorks. & Humber	500	450
Walsall EfW Plant	West Midlands	478	430
Redcar Energy Centre	North East	450	405
Red Scar Industrial Estate - EfW (Preston EfW)	North West	395	356
Heysham EfW Plant (Lancaster West Business Park)	North West	330	297
Tilbury Docks - Phase 2 (EfW)	Eastern	300	270
Doncaster EfW Plant	Yorks. & Humber	300	270
Hay Hall Bio Power	West Midlands	277	249
Corby Energy Recovery Centre (Shelton Road EfW)	East Midlands	260	234
Kingmoor Park	North West	250	225
Solar 21 EfW plant (Melton EfW)	Yorks. & Humber	250	225
Northacre RRC	South West	243	219
3Rs EfW Plant (Britannia Crest) (Horsham)	South East	230	207
Billingham EfW Haverton Hill extension (Suez)	North East	200	180
Haverton Hill (Billingham) EfW Plant (EQTec)	North East	200	180
Bloomfield Recycling Depot	West Midlands	180	162
Moody Lane (Former Acordis site)	Yorks. & Humber	169	152
Reading EfW plant	South East	150	135
Hams Hall Energy Centre	West Midlands	145	131
Eastcroft EfW (3rd Line)	East Midlands	140	126
Greengate EfW Plant	North West	130	117
Ratty's Lane	Eastern	113	102
Land to the South of Knapton Quarry Landfill Site	Yorks. & Humber	65	59
Beccles ERF	Eastern	24	22
TOTAL		**9,922**	**8,930**

Consented EfW Plants that have yet to enter construction located within c. 2-hours from Medworth considered 'in development'

EfW Plant	HGV Drive Time from Medworth (approx.)	Location	Headline capacity	90% of headline capacity
Boston BAEF	1 hour	Boston, East Midlands	1,200	1,080
East Midlands Energy Re-Generation (EMERGE) Centre	2 hours	Nottinghamshire, East Midlands	525	473
North Beck Energy EfW plant	2 hours	Humberside	500	450
Tilbury Docks - Phase 2 (EfW)	2 hours and 20 minutes	Essex, Eastern	350	315
Corby Energy Recovery Centre (Shelton Road EfW)	1 hour	Northamptonshire, East Midlands	260	234
Moody Lane (Former Acordis site)	2 hours	Grimsby, Yorks. & Humber	169	152
Ratty's Lane	2 hours	Herts, Eastern	113	102
Eastcroft EfW (3rd Line)	2 hours	Nottinghamshire, East Midlands	140	126
Beccles ERF	1 hour and 45 minutes	Suffolk, Eastern	24	22
TOTAL			**3,281**	**2,953**

Drive time calculated using Google Maps travel time estimate between postcodes on 29th June 2023.

Note: Tolvik's 2022 EfW Statistics provided a headline capacity for Tilbury Docks of 300ktpa, but as per Appendix C of REP5-020 this has subsequently been increased to 350ktpa as the permission was varied.

Incineration capacity currently existing and under construction

177. For national capacity, UKWIN uses the Applicant's interpretation of the figure from Tolvik's 2022 EfW Statistics published in May 2023. This is based on the Tolvik estimate of future operational capacity based on 88% of the permitted capacity of the EfW plants currently operating or under construction taken from the 17.9mtpa figure in the Applicant's D5 WFAA [REP5-020] paragraph 5.1.20.

178. The local plants are calculated using 88% of the headline permitted capacity listed by Tolvik for those plants in the 2022 EfW Statistics. Only half of the Newhurst capacity was included and none of the Rivenhall capacity.

Facilities considered/excluded by UKWIN in local analysis

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EfW Plant	Area (approx.)	Tolvik Permit / Headline Capacity (ktpa)	% of effective capacity included	Status
SUEZ Suffolk - EfW Facility / Great Blakenham	Suffolk	295	100%	Operational
Rookery South ERF (Central Bedfordshire)	Central Bedfordshire	585	100%	Operational
Peterborough EfW Facility	Peterborough	85	100%	Operational
Lincolnshire EfW Facility / North Hykeham	Lincolnshire	190	100%	Operational
Boston Energy Production Facility	Lincolnshire	86	100%	Operational
NewLincs ERF	Lincolnshire	56	100%	Operational
Newhurst ERF	Leicestershire	350	50%	Operational
Rivenhall	Essex	595	0%	In Construction

Waste-to-SAF Capacity

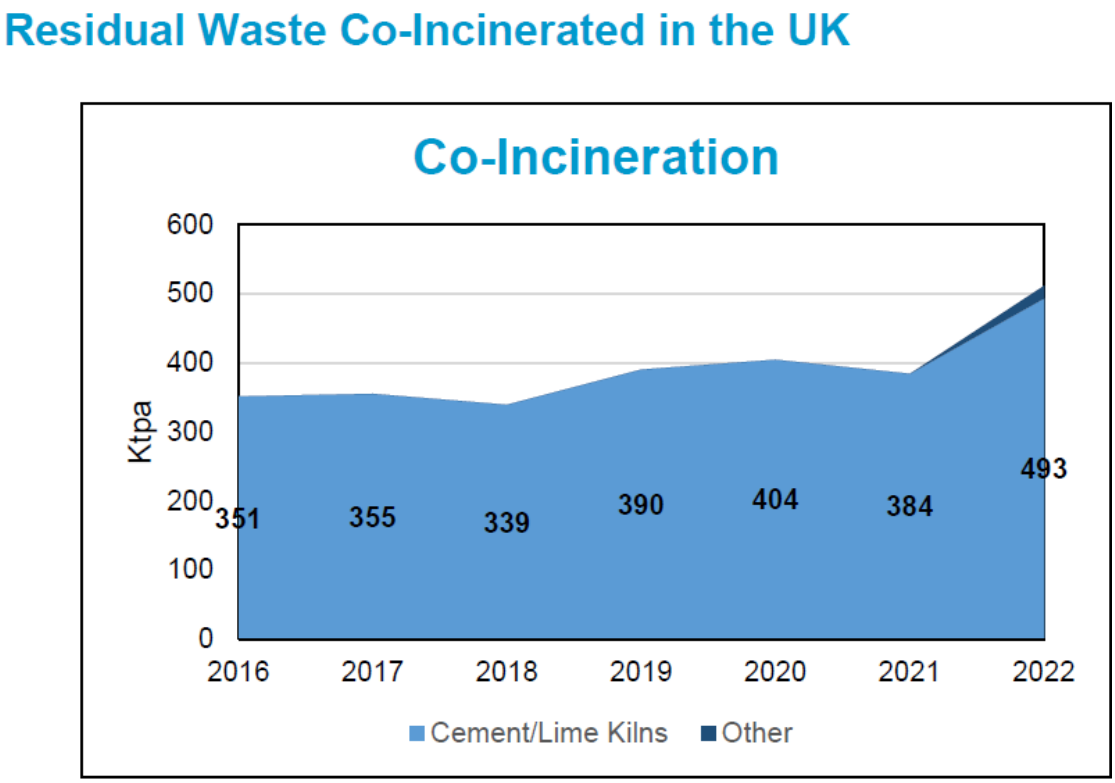
179. UKWIN sets out its approach to quantifying the impact of Waste-to-SAF capacity in UKWIN's Written Representation [REP2-066] paragraphs and UKWIN's Comments on the Applicant's D2 WFAA [REP3-050] paragraphs 126-146.

180. In UKWIN's D6 submission we apply a more 'conservative' approach by only including 90% of the anticipated feedstock requirements of those facilities.

Co-incineration capacity

181. Tolvik's May 2023 report on 2022 EfW Statistics shows the upwards trend of residual waste (in the form of SRF) being accepted at UK cement and lime kilns, alongside the variation of existing biomass permits to allow them to burn RDF, which rose by 109ktpa (from 284ktpa to 493ktpa) in 2022 compared to 2021.

Graphic from Tolvik's May 2023 report on 2022 EfW Statistics



182. If cement kiln use continued to increase at this rate of just over 100ktpa per annum until 2027 then the amount of residual waste co-incinerated would double to around 1 million tonnes per annum.

183. It would be reasonable to expect that this upwards trend of the use of residual waste at cement and lime kilns will continue as these sectors seek to decarbonise by moving away from the conventional use of fossil fuels.

184. To illustrate this intention, we note that in November 2022 waste production and supply specialist N+P published an article on their website entitled 'Why alternative fuel use in the cement industry is working so well'.

185. The article included the following passage:

> "Harnessing waste instead of using fossil fuels always promised monetary savings for kilns, but that is particularly so in the current geopolitical and economic environments where energy prices are at record highs.
>
> Purchasing domestically sourced alternative fuels allows kilns to avoid wholesale fossil fuel prices, eliminate currency fluctuations, and dodge geopolitical disruption. The current economic reality means that some kilns may not be viable if they continue to rely on fossil fuels.
>
> Fortunately, many of the beliefs preventing cement kilns from accessing the financial benefits of alternative fuels have been dispelled. In the past, it was often assumed that alternative fuels could only be used in newer

kilns, would require major modifications to production processes, and would lead to process instability. In fact, alternative fuels can be adopted even by older kilns with many examples in operation today."

186. As the production of 1 tonne of SRF requires more than 1 tonne of 'raw' waste (e.g. due to dewatering as waste dries), the figure of 493ktpa of SRF being co-incinerated in 2022, and the 1Mtpa figure reflecting a continuation of this trend to 2027, understate the impact of such increases on the level of waste available for conventional incineration.

187. As such, the assumption that demand for residual waste for use in powering cement kilns could double from around 500ktpa in 2022 to around 1,000ktpa by 2027 is considered conservative, especially as it is assumed to remain stable rather than to continue increasing.

188. UKWIN has carried out modelling of anticipated waste arisings and residual waste treatment capacity, including cement kilns, below.

189. This shows that even without increases in cement kiln capacity there will be incineration overcapacity, and if it is assumed that trends in cement kiln usage of RDF/SRF will increase to 1Mt by 2027 then the level of overcapacity would be worse.

Per capita basis for waste as fuel forecasts

190. As previously set out by UKWIN, there are three interim residual waste reduction targets for 2027 set out in the Environmental Improvement Plan 2023:

- Interim Target 1: "By 31 January 2028, the total mass of residual waste excluding major mineral wastes in the most recent full calendar year does not exceed 437 kg per capita."
- Interim Target 2: "By 31 January 2028, the total mass of residual waste excluding major mineral waste in the most recent full calendar year does not exceed 25.5 million tonnes."
- Interim Target 3: "By 31 January 2028, the total mass of municipal residual waste in a year does not exceed 333 kg per capita."

191. Interim Targets 1 and 2 are based on all residual waste excluding major mineral waste, which would presumably include material that would not be suitable for incineration, such as non-major mineral waste.

192. The Interim Target 3 figure for municipal residual waste goes beyond just household waste.

193. As the EIP 2023 puts it: “Interim target 3 covers the narrower scope of municipal waste. This is waste from households plus waste similar in composition to household waste, such as commercial waste. We propose this target because it captures where current policy interventions, the Collection and Packaging Reforms, are focused. It also provides a reference point for the material-based interim targets, which currently can only be satisfactorily measured at a municipal level. Achieving this target will reduce the total mass of municipal residual waste by 29% compared to 2019 levels”.

194. Estimates for municipal waste are a better fit for the feedstock that incinerators are expected to treat. Even if a quantity of non-municipal waste is treated at incinerators, this could be expected to be exceeded by the quantity of municipal waste that would be treated at biomass plants or that would be unavailable for incineration due to being non-combustible or too small to be compatible with the moving grates used by incinerators.

195. According to Tolvik municipal waste primarily includes waste falling within European Waste Catalogue (EWC) codes 19 12 10, 19 12 12 and 20 03 01.

196. Tolvik’s November 2017 report, which the Applicant used for forecasting future municipal waste, states on internal page 15 that:

> “DEFRA reported that in 2015 15.3Mt of (Residual) Municipal Waste was landfilled. However, this potentially over-estimates the tonnage of Municipal Waste to landfill.
>
> Separate analysis of publicly available data suggests that (with the probable exception of Scotland), the DEFRA figure includes all waste to landfill coded under the European Waste Catalogue as 19 12 12. In fact, a review of waste treatment facilities in England producing 19 12 12 reveals that this code is being used for a range of different outputs, some of which are almost certainly inert and fall within the lower landfill tax band (and so not suitable for treatment alongside Household Waste).
>
> Analysis of all sites in England would suggest that at least 65% of 19 12 12 was derived from active waste inputs. Further analysis is contained in Appendix 1.
>
> Across the UK as a whole in 2016 it is estimated that around 8.8Mt of 19 12 12 was produced and sent to landfill, of which it is therefore estimated circa 2.8Mt was inert-derived. This would suggest that the total tonnage of Residual Waste sent to landfill in 2016 was 15.3Mt less 2.8Mt, i.e. 12.2Mt. If instead it is assumed that c.80% of 19 12 12 was active waste, then the total tonnage of Residual Waste to landfill in 2016 is estimated to have been 13.6Mt. On balance this review assumes a figure of 12.2Mt.”

197. On internal page 33 the Tolvik UK Residual Waste Capacity Gap report from 2017 states:

> "Section 3.2 notes the uncertainty surrounding the tonnage of Residual Waste being sent to landfill. This is likely to be in part due to the misclassification (whether deliberate or otherwise) of Residual Waste at the "lower tax" rate and in part due to the misclassification of wastes under the EWC codes.
>
> In 2016, EWC code 19 12 12 was used for in excess of 9 Mt of landfilled waste in the UK. A site by site review reveals patterns which suggest some waste producers are using 19 12 12 to describe all Residual Waste. This appears to be on the basis that the waste has previously undergone treatment (and so cannot be coded as 20 03 01), but that it is not a "Refuse Derived Fuel" (and so cannot be coded as 19 12 10). Others use 19 12 12 to describe fines – whether or not inert. These differences will have a direct impact on the future assessment of landfill inputs."

198. The potential unsuitability of some 19 12 12 waste for incineration is noted on paragraph 3.4.5 on page 25 of the Scottish Incineration Review carried out by Dr. Colin Church for the Scottish Government which states that: "…some waste classified as sorting residues (EWC 19 12 12) may be unsuitable for incineration with the dominant moving grate technology".

199. Footnote 23 of the Scottish Incineration Review report noted that even for waste that might be potentially combustible it would not always be suitable for combustion, stating that: "…sorting residue particles are often too fine to be put through a moving grate incinerator".

200. As such, a large quantity of 19 12 12, which is generally categorised as part of the municipal waste stream, is material that is deemed unsuitable for incineration either due to its low calorific value or to it being so fine as to not being compatible with use at a moving grate incineration.

201. Or, to put it another way, in some processes the material deemed suitable for incineration ended up being coded as 19 12 10 (or as waste wood), and the remaining waste which is deemed unsuitable for combustion at EfW plants is coded as 19 12 12.

202. It therefore makes sense that 19 12 12 includes a high proportion of material that ends up in landfill due it not being considered suitable for combustion.

203. Given the potential non-suitability of incineration for some of the municipal stream, it is considered that using 90% of the municipal waste target, as UKWIN has done, is more likely to underestimate than overestimate the amount of residual waste available for incineration.

204. This is especially true due to the potential for some of the waste not to be available for other reasons not otherwise considered.

205. UKWIN therefore adopts 90% of the municipal residual waste reduction target as the starting point and assumes that by 2042 the feedstock will be 90% of half of the 2019 level of municipal waste assuming it falls in line with the other waste streams.

206. A linear fall between the 2027 and 2042 targets is applied to represent the need for waste to halve by 2042 relative to the 2019 base year.

207. Further details on the basis for this approach is set out in UKWIN's Written Representation [REP2-066].

Calculation of future arisings based on per capita figures.

208. For arisings UKWIN uses the most recent ONS forecasts available, which are the 2018-based SNPP forecasts for the local assessment and the 2020-based interim forecast for the England-wide assessment.

209. The population forecasts are then multiplied by the per-capita figures.

National waste as fuel arisings figures

Year	Thousand people in England (ONS)	Kg total municipal residual waste per person (based on EIP Targets)	Kt total municipal residual waste (Population multiplied by waste per person)	Kt waste as fuel (90% of total)
2027	58,061	333	19,334	**17,401**
2028	58,230	326	19,008	**17,107**
2029	58,389	320	19,060	**16,809**
2030	58,541	313	18,341	**16,507**
2031	58,684	307	18,000	**16,200**
2032	58,819	300	17,656	**15,890**
2033	58,948	294	17,307	**15,576**
2034	59,071	287	16,955	**15,260**
2035	59,189	280	16,601	**14,941**
2036	59,304	274	16,243	**14,619**
2037	59,419	267	15,885	**14,296**
2038	59,533	261	15,524	**13,972**
2039	59,648	254	15,162	**13,646**
2040	59,764	248	14,799	**13,320**
2041	59,880	241	14,435	**12,992**
2042	58,061	235	14,069	**12,662**

Note: Displayed values are rounded to the nearest whole number

Local ~2-hour waste as fuel waste arisings figures

Year	Thousand people in England (ONS)	Kg total municipal residual waste per person (based on EIP Targets)	Kt total municipal residual waste (Population multiplied by waste per person)	Kt waste as fuel (90% of total)
2027	4,946	333	1,647	**1,482**
2028	4,970	326	1,623	**1,460**
2029	4,994	320	1,630	**1,438**
2030	5,017	313	1,572	**1,415**
2031	5,039	307	1,546	**1,391**
2032	5,061	300	1,519	**1,367**
2033	5,081	294	1,492	**1,343**
2034	5,101	287	1,464	**1,318**
2035	5,120	280	1,436	**1,292**
2036	5,140	274	1,408	**1,267**
2037	5,159	267	1,379	**1,241**
2038	5,178	261	1,350	**1,215**
2039	5,196	254	1,321	**1,189**
2040	5,215	248	1,292	**1,162**
2041	5,235	241	1,262	**1,136**
2042	5,254	235	1,232	**1,109**

Note: Displayed values are rounded to the nearest whole number