

Planning Application Representation

OBJECTION AND COMMENTS ON CLIMATE CHANGE AND NEED ISSUES

Proposal:

Energy from Waste Facility

Location:

Hownsgill Industrial Park, Templetown, Consett

Applicant:

Enzygo Ltd

Durham County Council Planning Reference:

DM/20/03267/WAS

JUNE 2021



INTRODUCTION

1. The United Kingdom Without Incineration Network (UKWIN) was founded in March 2007 to promote sustainable waste management.
2. **UKWIN objects to this proposal** and calls upon Durham County Council to **refuse** the planning application on the grounds of its adverse climate change impacts, the lack of need for the proposed capacity, and any other grounds justified by the circumstances.
3. This submission focuses on a number of significant matters arising from:
 - a) Appendix 5 ('Response to Low Carbon Economy') and
 - b) Chapter 12 of the Environmental Statement ('Climate Change').
4. Many of the issues overlap between the various application documents, and to avoid duplication we have not highlighted every instance where an issue arises. As such, it should be taken as read that a criticism of the applicant's approach in one part of their application constitutes a broader criticism of the applicant's approach.
5. Furthermore, where others such as the Low Carbon Team have already raised a relevant concern we will not belabour the point and will instead only comment when there are additional considerations and evidence that should be taken into account with respect to that topic.
6. The issues that provide the focus for this objection are the applicant's:
 - Claim of better carbon performance than landfill and other options;
 - Claim of 200g of CO₂ per tonne savings relative to landfill;
 - Claim of carbon performance based on unspecified other plant;
 - Claim of accordance with the requirements of the County Plan;
 - Claim that the facility would only displace fossil fuels or CCGT plants; and
 - Claim of benefit from Paragraph 154 of the NPPF
7. Underlining used in quotes within this submission is added for emphasis.

COMMENTS ON APPENDIX 5

Claim of better carbon performance than landfill and other options

8. Page 4 of the applicant's response to the Low Carbon Economy Team claims:
"It is widely accepted that EfW is the lowest carbon solution for managing residual waste. It diverts material from landfill (avoiding methane emissions) and generates useable electricity and heat".
9. The applicant refers to benefits of avoiding methane emissions, but according to the section of the document on concerns regarding 'smell' the applicant claims that *"No food, perishable or organic waste will be used at the plant meaning that the RDF is relatively dry in composition and therefore odour-free"*.
10. This means that the waste / RDF would not rot down if sent to landfill and so would not produce methane. Instead, the vast majority of the carbon would be sequestered (stored) which would render the landfill a 'carbon sink'. By contrast, if the waste / RDF were incinerated (e.g. at the proposed Energy from Waste plant) then significant quantities of CO₂, most of which would be fossil CO₂, would be immediately released into the atmosphere, thereby exacerbating climate change.
11. Different material streams behave differently in landfill. As noted in the UK Government's Energy from Waste (EfW) Guide:
"...considering the landfill route, all the fossil carbon stays in the ground and doesn't break down. The fossil carbon is sequestered, as is potentially up to half of the biogenic carbon depending on the exact conditions in the landfill. However, some of the biogenic material does break down with the carbon converted to a mixture of carbon dioxide and methane, known as landfill gas. A large proportion of this landfill gas would be captured and burnt, generating energy and offsetting power station emissions. Burning landfill gas produces biogenic carbon dioxide which, as for energy from waste, is considered short cycle. Crucially however, some of the methane would escape into the atmosphere".
12. The amount of biogenic material which is converted into greenhouse gasses depends on the specific material stream and on any processing prior to landfill.
13. For waste sent untreated to landfill, the quantity of biogenic carbon which is assumed to biodegrade (i.e. dissimilable degradable organic carbon, known as DDOC) can be estimated using the assumptions from the UK Government's MELMod model (see overleaf).
14. The Government's MELMod data highlights how excluding *"food, perishable or organic waste"* from the RDF, the proposed feedstock would have low degradability and so would not produce methane if landfilled.
15. The Government's MELMod data also highlights how a significant proportion of the feedstock could be plastic, which has a high fossil carbon content.

16. This means that the proposed feedstock would produce significant quantities of fossil CO₂ if incinerated, but would be sequestered in a carbon sink if landfilled.

MATERIAL PROPERTIES OF (UNTREATED) RESIDUAL WASTE STREAMS

Material stream	Fossil carbon content	Biogenic carbon content	Degradability of biogenic carbon (DDOC percentage)
Food		32.0%	67.5%
Garden		44.0%	51.3%
Mixed Paper and Card		14.0%	49.4%
Miscellaneous combustibles	19.0%	17.0%	44.5%
Textiles (and footwear)	20.0%	19.0%	33.4%
Sanitary / disposable nappies	4.0%	20.0%	28.7%
Wood		15.0%	28.5%
Soil and other organic waste		7.0%	3.6%
Miscellaneous non-combustibles	3.5%	3.5%	0.0%
Glass		0.3%	0.0%
Plastics	52.0%	0%	0.0%
Metals, White Goods and Other Non-biodegradable products		0%	0.0%
Non-organic fines	7.0%	0%	0.0%

Based on MELMod Calculations using the AR5 (2014) data set (provided by BEIS)

17. Furthermore, it is possible that the processing relied upon to produce the RDF could further bio-stabilise any biogenic material, turning the RDF production process into a form of MBT-Landfill or MRBT-Landfill option.
18. It is generally accepted that sending the residues from MBT/MRBT to landfill results in lower GHG emissions than sending residual waste to incineration.
19. 'Economics of Waste and Waste Policy' (Defra, 2011)¹ states that:

"MBT (mechanical biological treatment)-landfill provides the best emissions performance in terms of the treatment/disposal of residual waste. It essentially involves landfilling somewhat stabilised wastes with some material recovery. The magnitude of the environmental impact depends on the extent to which the waste is stabilised."

20. 'Building a bridge strategy for residual waste: Material Recovery and Biological Treatment to manage residual waste within a circular economy' (Zero Waste Europe, January 2021)² states that:

"...a 'Material Recovery and Biological Treatment (MRBT)' system that combines biological treatment and sorting equipment allows us to 'stabilise' the organics that are included in residual waste, so as to minimise their impact once buried in a landfill..."

¹

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69500/pb13548-economic-principles-wr110613.pdf

² https://zerowasteurope.eu/wp-content/uploads/2020/06/zero_waste_europe_policy-briefing_MRBT_en_with-annex.pdf

Claim of 200g of CO₂ per tonne savings relative to landfill

21. Also on page 4, the applicant goes on to claim:

"The Environmental Statement refers to the carbon savings of diverting material from landfill to EfW, referencing the widely cited figure from a study by the Green Investment Bank that for every tonne of waste diverted from landfill to EfW 200g of CO₂ is saved".

22. Given that the Green Investment Bank ceased to exist under that name in 2017,³ this is clearly a historic rather than a recent assessment and so does not take into account current energy and waste contexts.

23. The Consett applicant's un-sourced claim could be a reference to a figure provided in a Green Investment Bank (GIB) market report in July 2014.⁴

24. The 2014 GIB report stated that:

"Energy from waste facilities typically save up to 200 kg CO₂e per tonne waste on a lifecycle basis compared to landfill by both avoiding landfill's harmful methane leakage and displacing fossil fuels by producing exportable electricity and heat. The exact saving is influenced by a number of factors, including the efficiency of the plant, the nature of the waste and the extent of materials recycling".

25. As such, the historic GIB report makes it clear that their figure was based on assumptions such as the nature of the waste which may differ between plants.

26. As set out above, with respect to the proposal currently under consideration, the nature of the waste to be used as feedstock for the proposed incinerator indicates that incinerating the material would result in more CO₂e emissions than landfilling the material because the intended feedstock would not produce significant quantities of methane if landfilled, but would result in the direct release of significant quantities of CO₂ if incinerated.

27. There is also a footnote to the aforementioned GIB statement in the UK GIB Report, which states that the 200 kg claim is based on *"anticipated performance of GIB's portfolio of three conventional energy from waste plants"*. As such, the figure is based on anticipated rather than real-world performance from three unspecified incinerators back in 2014 when there was a different electricity mix.

28. It would not be appropriate to rely on historic and irrelevant GIB figures based on unspecified incineration plants operating with different efficiencies, different feedstocks, and different energy generation contexts as the basis of assessing the likely impacts of the proposed development.

³ <https://www.gov.uk/government/news/uk-governments-sale-of-green-investment-bank-completed>

⁴ <https://www.greeninvestmentgroup.com/assets/gig/news/gib-residual-waste-report-july-2014-final.pdf>

Claim of carbon performance based on unspecified other plant

29. Later on page 4 the applicant claims:

"We have undertaken these calculations for an almost identical facility which utilises the same technology, has the same efficiencies, has a very similar annual throughput and a broadly similar feedstock, i.e. RDF from MSW."

30. The Consett applicant has not provided sufficient detail to assess their claims or validate their calculations, assumptions and methodologies.

31. Indeed, they have not even provided the name of the supposedly similar facility. Our expectation is that these figures relate to a planning application. Given that they seemed to find it appropriate to submit details on anticipated emissions in that planning application it is unclear why the applicant is not providing a proper assessment for their Consett proposal.

32. Given that these claims are not sustained with supporting information they should be given no weight in the planning balance and should not be relied upon to determine the likely effects of the proposed Consett incinerator development.

Claim of accordance with the requirements of the County Plan

33. Page 6 of the applicant's response to the Low Carbon Economy Team claims that the proposed development accords with the County Durham Plan by reference to a partial quote from that Plan, as follows:

"the council will consider positively planning applications to provide additional treatment capacity. It is recognised that such facilities could assist in managing waste towards the top of the waste hierarchy and could contribute both to net and regional self-sufficiency. Such proposals will be looked upon favourably where the proposal is acceptable in all other respects taking into account all relevant Plan policies."

34. Taken out of context, this partial quote is misleading.

35. Paragraph 5.586 of the County Plan features the following text, which precedes the applicant's partial quote:

"...a significant quantity of Non-Hazardous residual waste treatment capacity is in the planning pipeline across the North East and may come on stream in future years depending on the waste management industries ability to deliver the proposed schemes".

36. The applicant also fails to mention that since the County Durham Plan was adopted in October 2020 planning permission was granted for a 450,000 tonne per annum RDF incinerator at the Redcar Bulk Terminal⁵. This capacity exceeds, by between 305,000 and 383,000 tonnes, the identified capacity gap.

⁵ <https://planning.redcar-cleveland.gov.uk/Planning/Display?applicationNumber=R%2F2020%2F0411%2FFF> and <https://www.mrw.co.uk/news/green-light-for-redcar-efw-02-02-2021/>

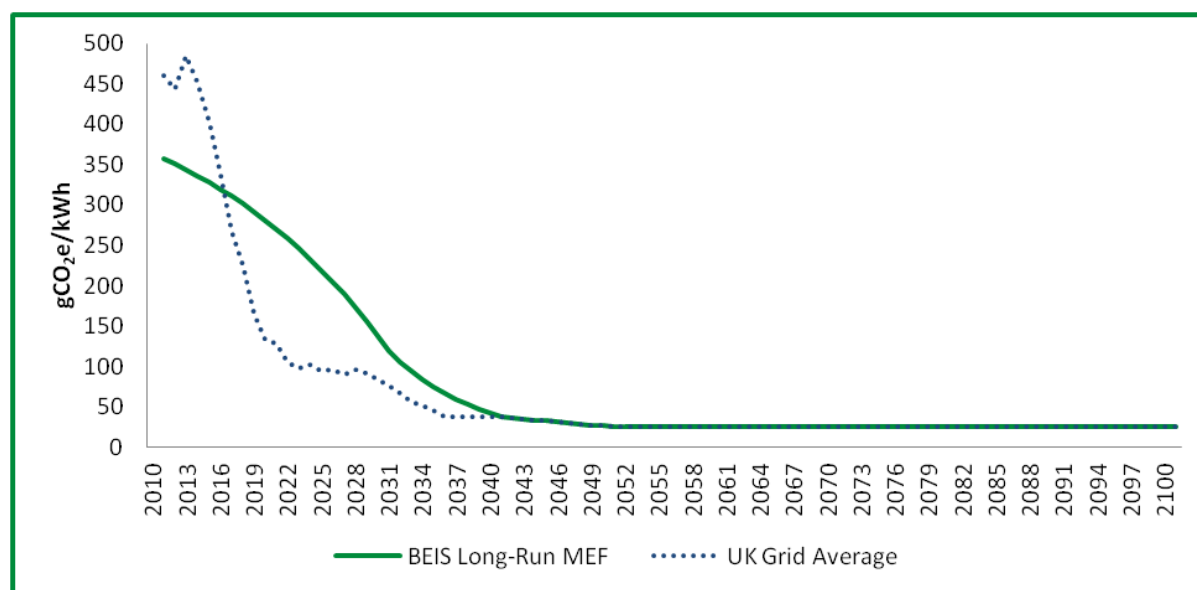
37. The wording at Paragraph 5.586 of the County Plan is clear; the Authority is committed to achieving net and regional self-sufficiency. There is no suggestion that the Authority is eager to welcome overcapacity of residual waste treatment, let alone overcapacity of between 365,000 and 443,000 tonnes.
38. It should also be noted that, as the applicant concedes, the quoted excerpt from the County Plan specifies that: *"additional residual waste treatment/disposal capacity" would only be "looked upon favourably where the proposal is acceptable in all other respects taking into account all relevant Plan policies"*.
39. As there are conflicts with other relevant Plan policies, and as the Consett proposal is accompanied by adverse climate change impacts, the applicant cannot rely on Paragraph 5.586 of the County Plan in support of their proposal.

COMMENTS ON CHAPTER 12

Claim that the facility would only displace fossil fuels or CCGT plants

40. At Paragraph 12.6.4 of Chapter 12 of the Environmental Statement ('Climate change') the applicant states that:
"In addition to the reduction in emissions from disposing waste to landfill, it is also widely accepted that energy produced by energy from waste facilities replaces that generated by other fuels such as coal, oil and natural gas".
41. This false statement is relied upon as the basis for the applicant's conclusion regarding the anticipated impact of their proposal with respect to climate change.
42. First of all, as noted above, the applicant does not anticipate using any food, perishable or organic waste at their proposed incineration plant. This means that there is no good reason to expect a reduction in landfill emissions if the feedstock to be used for the incinerator were being diverted from landfill.
43. Secondly, it is simply incorrect to suggest that the energy that would be generated from incinerating the proposed RDF feedstock would directly displace energy generated from burning coal, oil, and/or natural gas. There is no reason to assume the energy would not displace significant quantities of zero-carbon renewable energy, e.g. from solar and wind sources.
44. Elsewhere the applicant refers to the prospect of their energy displacing energy generated from a combined cycle gas turbine (CCGT), e.g. in the applicant's Appendix 5 and Appendix 7. This too is an incorrect approach to using a counterfactual for comparative purposes.
45. When considering the carbon intensity of displaced electricity and heat 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 CCGT, let alone coal or oil.
46. To do this it would be reasonable to use the current and future grid averages as a basis for comparison, as noted by the Low Carbon Economy Team.

47. If one were to try to adopt an alternative counterfactual to the Grid Average in order to determine the carbon intensity of the energy that would be displaced by the proposed incinerator then the starting point would not be CCGT but instead would be the Department for Business, Energy & Industrial Strategy (BEIS) Long-run Marginal Emissions Factors (MEF).
48. Throughout the lifetime of the proposed incineration facility the carbon intensity of both the BEIS Long-Run MEF (of between 25 and 205 gCO₂e/kWh) and the UK Grid Average (of between 25 and 96 gCO₂e/kWh) are significantly below the carbon intensity of CCGT (of between 340 and 400 gCO₂e/kWh).
49. The UK Government BEIS values are as follows:⁶



50. Throughout the lifetime of the proposed Consett incineration facility the carbon intensity of both the BEIS Long-Run MEF (of between 25 and 205 gCO₂e/kWh) and the UK Grid Average (of between 25 and 96 gCO₂e/kWh) are significantly below the carbon intensity of CCGT (of between 340 and 400 gCO₂e/kWh).
51. In their 'Greenhouse Gas and Air Quality Impacts of Incineration and Landfill' report (ClientEarth, March 2021)⁷ Eunomia explained their use of the BEIS Long Run Marginal Emissions Factor for modelling the impacts of waste incineration:

"The sources of electricity generation which supply the grid are chosen, largely through the wholesale electricity markets, to meet a given level of demand. The cheapest source of generation is selected, then the next cheapest etc., until selected generation equals demand. The short-run marginal source of electricity is the source of electricity that would be brought online to meet a small increase in demand."

⁶

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/793632/data-tables-1-19.xlsx

⁷ <https://www.clientearth.org/latest/documents/greenhouse-gas-and-air-quality-impacts-of-incineration-and-landfill/>

The short-run marginal source of electricity is often assumed to be CCGT plant fuelled by natural gas. However, it is extremely likely that the contribution of gas generation will fall over the next decade; BEIS data indicates that the contribution of CCGT to total electricity demand will halve by 2035 from current day levels. As this occurs, other sources of generation will fill the gap, including (mostly) renewables, imported electricity and power storage. The carbon intensity of these sources is lower than that of gas...

Individual incineration facilities are relatively small generators of electricity (in comparison to conventional power stations), and as such, the addition of one new facility would not be expected to result in a structural change to the electricity system. This suggests that the short-run marginal is a more appropriate factor to use. However, there is no data anticipating how the short-run marginal will be affected by the changes in decarbonisation set out above. As such, the long-run marginal figures provide a useful indicator of the trajectory of grid decarbonisation that is expected to occur over the coming decades.

The long-run marginal electricity emissions intensity as forecast by BEIS for the years 2020 and 2035 was used: 0.270 kgCO₂e/kWh [i.e. 270g CO₂e/kWh] and 0.066 kgCO₂e/kWh [i.e. 66g CO₂e/kWh] respectively. This approach is analogous to that taken in Defra's 2014 report comparing landfill to incineration."

Claim of benefit from Paragraph 154 of the NPPF

52. On Page 5 of Appendix 5 the applicant claims:

"...the proposed development provides a low carbon solution to the Counties [sic] residual waste management requirements... In addition, the energy produced from the elements of waste materials which are biogenic (i.e. natural wastes which are made by or of life forms) can be classified as renewable energy. The proposed development therefore can be classed as meeting paragraph 154 of the NPPF."

53. The applicant has not stated how much biogenic material would be in the anticipated feedstock. As noted above, they have stated that they would not be burning *"food, perishable or organic waste"*. This could imply that a high proportion of the feedstock would be plastics which are neither renewable nor low carbon.

54. According to the NPPF glossary, *"low carbon technologies are those that can help reduce emissions (compared to conventional use of fossil fuels)"*. The applicant has not shown that the proposal meets the NPPF definition of low carbon.

55. As such, the applicant has not shown that the Consett incinerator proposal should benefit from Paragraph 154 of the NPPF.