

Planning Application Representation

COMMENTS ON APPLICANT'S AUGUST 2021 CLIMATE CHANGE CONSULTATION RESPONSE

Proposed Development:

**Construction of an energy recovery facility
known as the Portland Waste Incinerator**

Proposed Location:

Portland Port, Castletown, Portland DT5 1PP

Applicant:

Powerfuel Portland Limited

Dorset Council Reference:

WP/20/00692/DCC

SEPTEMBER 2021



INTRODUCTION

1. This submission provides UKWIN's responses to relevant portions of the Applicant's August 2021 consultation response summary document and the Fichtner technical response submitted as Appendix A to that document.
2. The section headings used are those from Fichtner's response, which generally correspond to the headings and order in UKWIN's February 2021 objection, followed by a section that commenting on the applicant responses in light of the recently-published Good Practice Guidance for Assessing the Greenhouse Gas Impacts of Waste Incineration (attached).
3. As set out below, the arguments and evidence set out within the GHG Guidance document support the arguments and conclusions set out within UKWIN's February 2021 objection and challenge the claims made by the applicant and their consultants within their planning application and response summary.

COMMITTEE ON CLIMATE CHANGE

"The Applicant continues to consider that the CCC's position in May 2019 was that it was critical to divert waste from landfill, which the Facility would support." (Page 1)

4. The historic position previously adopted by the CCC is not particularly relevant except insofar as it highlights the direction of travel in the CCC's position.
5. It is important that the Council, as the Waste Planning Authority, takes into account how the CCC's position has shifted away from incineration over time, now heavily emphasising the need to move away from both landfill *and* incineration.
6. This is further confirmed in the CCC's June 2021 Report to Parliament¹ referred to by the Applicant, where the CCC warned that:
 - a) *"Decisions on...planning and expansion of waste incineration are not only potentially incompatible with the overall need to reduce emissions but also send mixed messages and could undermine public buy-in to the Net Zero transition." (page 26);*
 - b) *"In 2019, the latest year for which emissions data is available, emissions from EfW increased by over 10% on 2018, putting it on course to overtake emissions from coal power in 2020. If EfW usage continues to rise unchecked, then its emissions will exceed the CCC pathway while potentially undermining recycling and re-use efforts" (page 129); and*
 - c) *"There must be sufficient recycling/composting/AD treatment capacity made available before the ban [on biodegradable waste to landfill proposed by the CCC] comes into force, so that significant increases in energy-from-waste are avoided" (page 206).*

¹ <https://www.theccc.org.uk/publication/2021-progress-report-to-parliament/>

"[According to the CCC] Falling EfW utilisation rates may only be possible in some cases via renegotiation of waste management contracts, in order to prioritise prevention and recycling efforts instead." (Page 1)

7. The greater the confidence that spare capacity at existing incinerators can be used, the easier it is for councils to renegotiate long-term waste management contracts, e.g. in order to reduce reliance on using waste incineration and to support the top tiers of the waste hierarchy.
8. As such, this statement from the CCC cited by the Applicant supports the conclusion that consenting new incineration capacity can harm recycling because the risk of excess local, regional and/or national incineration capacity can make it more difficult for local authorities to renegotiate long-term waste management contracts that include Minimum Tonnage Guarantees, Put-or-Pay Mechanisms and banding systems that have transferred 'feedstock risk' for existing incinerators to the public sector.

"[According to the CCC] Government policy could also focus on EfW emissions, either through carbon taxation or inclusion in a UK ETS, and/or providing incentives for CCUS to be installed." (Page 2)

9. If implemented, carbon taxation could be expected to significantly reduce the amount of material being sent to waste incineration overall. This scenario has not been assessed within the Applicant's need assessment, and raises the risk of the proposed facility becoming a 'stranded asset' that creates significant adverse visual amenity impact without providing any waste management function.
10. The statement quoted by the Applicant refers to 'CCUS' rather than CCS. It is possible that even if carbon utilisation schemes were supported this would only have a minor and temporary impact on the overall climate change impact of the facility (e.g. if only a portion of CO₂ were extracted for utilisation in a greenhouse where the carbon would be subsequently re-emitted over a short timescale).

"...as explained in the Planning Statement, the Portland ERF is well placed to install CCS and export the captured CO₂ by ship. Hence, the proposed Portland ERF will be CCS-ready, consistent with the CCC's recommendations" (Page 3)

11. The Applicant is not proposing carbon capture as part of this development proposal, and has not even shown that they have the funds to invest in the large capital costs of implementing this technology at their proposed facility.
12. As noted by the Applicant, the CCC's recommendations for carbon capture are only recommendations - as such, it is possible that CCS will not become a legal requirement for historically consented schemes and that the plant could operate for its entire life without using any carbon capture and storage system. This would give rise to significant adverse climate change impacts, contrary to CCC recommendations.

SEQUESTRATION OF BIOGENIC CARBON

"In paragraphs 33-76, UKWIN argues that landfill should be given a credit for sequestering biogenic carbon and then carries out some calculations on the basis of this assertion. The Applicant does not accept this position and therefore does not accept the calculations." (Page 3)

13. The Applicant has failed to justify their refusal to give any credit for sequestering biogenic carbon and have not provided sensitivity analysis for the impact of taking this into account.
14. Subsequent to UKWIN's previous submission on this matter we have carried out additional work on the issue of biogenic carbon sequestration which supports the position that we adopted. This further work is included within UKWIN's Good Practice Guidance for Assessing the Greenhouse Gas Impacts of Waste Incineration (that accompanies this latest submission), primarily the evidence base for Recommendation #5 which is that:

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

15. This includes evidence from a number of waste management professionals, academics, and government agencies, as well as explaining the underlying science and rationale for taking the impacts of biogenic carbon sequestration into account, and specifically rebuts the notion that the position taken by the IPCC supports the position adopted by the Applicant.
16. The sub-sections from the relevant section of UKWIN's Good Practice Guidance report (pgs. 19-42) are:
 - a) General principle
 - b) Two methods to account for the biogenic carbon sink
 - c) GHG impacts of biogenic carbon sink on incineration of different materials
 - d) The approach developed by the Technical University of Denmark
 - e) Approach of the Reference Model on Waste
 - f) Other examples of accounting for the biogenic carbon sink
 - g) Applying Method 1 to existing incinerator GHG assessments
 - h) Examples of Method 1 being used by ERM for incinerator proposals
 - i) Example of Method 1 being used by Uniper for an incinerator proposal
 - j) Examples of statements supportive of taking the biogenic CO₂ or the landfill carbon sink into account for comparative analysis or other purposes
 - k) IPCC and US treatment of landfill carbon sinks in GHG inventories
 - l) Landfill Carbon Storage in US EPA's Waste Reduction Model

"If the sequestration rates are lower, then more landfill gas is being generated than expected and so the capture rates would be lower, making the impact of landfill considerably worse." (Page 4)

17. This logic relates only to circumstances where the reduction in sequestration relates to changes in the assumed baseline sequestration rates of untreated materials. As set out in UKWIN's previous submission, our expectation regarding lower levels of sequestration relates to changes in feedstock composition and the potential for processing to reduce the level of sequestration of a material to be lower than what it would be if untreated.

18. If waste is biostabilised prior to landfill, e.g. via aerobic composting (as discussed in UKWIN's Good Practice Guidance) then this significantly reduces both methane emissions and the uncertainty regarding the level of those emissions.

"...the approach used in the Defra 2014 Report and in the Carbon Assessment..." (Page 4)

19. The Defra 2014 Report includes sensitivity analysis taking into account the impact of biogenic carbon sequestration, and this is carried out following the approach suggested by UKWIN.

"In paragraphs 66 to 67, UKWIN asserts that the sequestration rate is likely to be higher in the future because food and garden waste will be removed. Therefore, we have evaluated the sequestration rate which would be expected using the Decomposable Organic Carbon Content (DDOC) figures from Melmod, as reported in 'Review of Landfill Methane Emissions Modelling (WR1908)'.

- ***For the nominal case, the sequestration rate of biogenic carbon would be 47.6%.***
- ***For the maximum case, with a lower CV, the sequestration rate of biogenic carbon would be 47%.***
- ***For an adjusted nominal case, in which we have removed 80% of the food and 70% of the garden waste for illustrative purposes, the sequestration rate of biogenic carbon would be 49%.***

This confirms that the assumed sequestration rate of 50% is conservative, and remains conservative even if most of the food/garden waste is removed.

In paragraphs 68 to 76, UKWIN asserts that material from the Canford MBT plant would have a lower degradability. We have no data on the output from Canford MBT. However, if we assume that there is a reduction in degradability of 30% (which was the performance of the AmeyCespa Cambridgeshire MBT? facility) and that this applies to 60,000 tonnes of waste in the nominal case, we can calculate that the adjusted sequestration rate would be 52.8%. This figure changes the net benefit of the nominal case from 21,912 tCO₂e/yr to 17,953 tCO₂e/yr."

20. The Applicant's claim that biogenic sequestration could actually be 52.8% for the nominal case (and presumably higher if MBT is combined with increased food waste removal) would imply that their 50% assumption could be slightly low, and therefore not particularly 'conservative'.
21. This is a far cry from demonstrating, as previously claimed as one of the primary rationales for ignoring biogenic carbon sequestration in section 3.2.1 of the carbon assessment, that the 50% assumption was so conservative as to justify ignoring all of the significant benefits of biogenic carbon sequestration.
22. As such, the Applicant's additional evaluation seems to support UKWIN's position that the Applicant has failed to justify their position of ignoring the impact of biogenic carbon sequestration on the overall greenhouse gas impact of their proposal.

LANDFILL AS THE COUNTER-FACTUAL

"Biowaste being stabilised and sent to landfill. This is not being done in the UK. It was done in Lancashire for a short while, but this proved to be uneconomic." (Page 5)

23. The cost of biowaste stabilisation is minimal compared to the environmental benefits that it produces.
24. It was recognised by Defra in 2011 that:²
 - a) *"Subject to proving its environmental performance, MBT-landfill does not have its environmental benefits reflected in the price of disposal"* and that
 - b) *"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."*
25. As such, it is foreseeable that, within the lifetime of the proposed incinerator, stabilising waste to landfill will either be required or financially incentivised (e.g. through a differentiation in the rate of landfill tax) to rectify this known market failure.
26. Furthermore, it is foreseeable that as schemes such as Extended Producer Responsibility increasingly shift costs for waste management away from councils and towards manufacturers that this will help support councils to invest in biostabilisation in the interest of achieving a better environmental outcome irrespective of other Government interventions.
27. What seems unreasonable is the assumption that, in response to a refusal of planning permission, all of the waste that would otherwise be used as incinerator feedstock would simply be sent untreated to landfill for decades to come.

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

28. Furthermore, information regarding the benefits of biostabilising waste prior to landfill are set out within UKWIN's Good Practice Guidance for Assessing the Greenhouse Gas Impacts of Waste Incineration, associated with the Recommendation #9 that:

"When considering how waste would be treated if it were not sent to an incinerator, account should be taken of the prospect that it might otherwise have been reduced, reused, recycled or composted. Account should also be made of how landfilled waste could be bio-stabilised to reduce methane emissions."

29. The tables and sub-sections from the relevant section of UKWIN's Good Practice Guidance report (pgs. 65-79) are:

- a) Examples of the view being expressed that incinerator feedstock would not necessarily otherwise be sent untreated to landfill
- b) Avoiding residual waste in the first place
- c) Minimising the impact of residual waste management

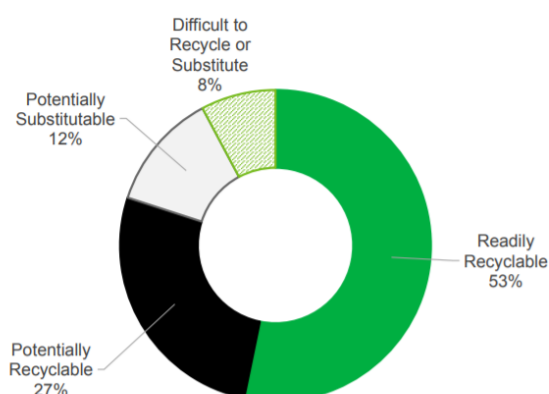
"Increased recycling. The Portland ERF will treat residual waste, so does not compete with recycling." (Page 5)

30. As noted in UKWIN's Good Practice Guide, Defra stated in August 2020 that:³

"The large amount of avoidable residual waste and avoidable residual plastic waste generated by household sources each year suggests there remains substantial opportunity for increased recycling...a substantial quantity of material appears to be going into the residual waste stream, where it could have at least been recycled or dealt with higher up the waste hierarchy. This is something we will continue to monitor into the future in line with our commitment to reduce avoidable waste."

31. According to the Defra report, only 8% of material within the residual waste stream in England in 2017 was identified as difficult to recycle or substitute:

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



32. The Applicant has not provided any assessment of how much of the material they intend to use as feedstock could otherwise have been recycled, composted, or substituted in line with the definitions set out within Defra's aforementioned 2020 Resources and Waste Strategy Monitoring Progress which found that the vast majority of residual waste is recyclable, i.e.:
- a) Readily recyclable with current technologies – items which shouldn't be in the residual waste stream whatsoever because they are recyclable or compostable at the kerbside or household waste recycling centres (HWRCs);
 - b) Potentially recyclable with technologies in development – recycling of this material either: a) happens already but not at scale due to collection or technical challenges; or b) could be possible with technological / methodological changes that are already on the market and can be readily envisaged;
 - c) Potentially substitutable to a material which could be recycled – it is hard to envisage a recycling route for these materials, but they could be substituted for something else which could be recycled;
 - d) Difficult to recycle or substitute – the material is difficult to avoid becoming residual and no feasible alternative can be envisaged without entailing substantial cost.
33. If the Applicant was to assess feedstock recyclability based on Defra's metric then it would presumably confirm that a significant quantity of their anticipated feedstock is material that could have been recycled or substituted.
34. Furthermore, as noted above, the Committee on Climate Change (CCC) has raised concerns that increases in the use of waste incineration could *"harm recycling and re-use efforts"*.
35. This concern was also noted by the Business Secretary, who justified his refusal of an incinerator in February 2021 because *"it would put at risk the achievement of revised recycling and composting targets in the Kent Minerals and Waste Local Plan"*.⁴
36. In his decision letter, the Secretary of State adopted the view of the Examining Authority that: *"...the projects would divert a significant proportion of waste from recycling rather than landfill"* despite the Kemsley applicant's familiar claim that they would only be burning non-recyclable material.

⁴ <https://infrastructure.planninginspectorate.gov.uk/projects/south-east/wheelabrator-kemsley-generating-station-k3-and-wheelabrator-kemsley-north-wkn-waste-to-energy-facility/>

CCGT AS THE COUNTER-FACTUAL

"The Applicant considers that the reasons for this choice are set out in section 3.1.3.1 of the Carbon Assessment and that almost all therein. The Applicant continues to consider that CCGT is the correct counterfactual. For completeness, however, the Applicant has presented the results using the long term marginal emissions factor for 2024, the likely opening year, in the revised Carbon Assessment submitted with the ES Addendum. " (Page 6)

37. UKWIN's previous submission rebuts the points made within the Applicant's Carbon Assessment.

38. In UKWIN's Good Practice Guidance we set out the case that rather than looking at the BEIS long-run marginal for the first year of operation it would be more representative to use the average marginal for the operational lifetime of the facility. This is set out within Recommendation #8:

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

39. The tables and sub-sections from the relevant section of UKWIN's Good Practice Guidance report (pgs. 53-64) include:

- a) BEIS guidance on electricity emissions
- b) Extract from BEIS Data Table 1: 'Electricity Emissions Factors to 2100'
- c) DEFRA guidance on the use of long run marginal emissions factors
- d) Eunomia's use of long run marginal emissions factors
- e) Examples of grid displacement factors with a carbon intensity lower than CCGT being considered in UK incinerator planning applications
- f) University of Exeter's critique of using CCGT as the counterfactual
- g) Ark Environmental's argument that nuclear is more realistic counterfactual than CCGT
- h) Air Quality Consultants LTD recommends consideration of long run marginal on a 'year year' basis to determine cumulative impacts
- i) Atkins recommends consideration of long term grid decarbonisation

"However, the Applicant notes one further point. UKWIN asks for proof that EfW plants are obtaining capacity market contracts. The capacity market auction results are available from <https://www.emrdeliverybody.com>. As an example, EfW plants secured 74 MW of capacity (4.5%) in the T1 Delivery Year 2021/22 auction and 629 MW of capacity (5%) in the T4 Delivery Year 2024/5 auction, both conducted in March 2021." (Page 6)

40. The current capacity market auction contracts indicate that if incineration is to be compared to any existing technology in terms of electricity delivery then this would not be CCGT, but instead nuclear. This is further elaborated upon in UKWIN's Good Practice Guidance Guide.

CARBON OFFSETTING

"In paragraphs 109-118, UKWIN casts doubt on the commitment to carbon neutrality. It is difficult to see why. In paragraph 5.53 of the ES, the Applicant commits to agreeing a carbon assessment methodology with the local planning authority and then, if necessary, using verified carbon offsets to ensure that the process emissions are net zero over the lifetime of the plant. This commitment is expanded in paragraphs 6.302 to 6.313 of the planning statement." (Page 6)

41. It is unclear why the Applicant is simultaneously arguing that "great positive weight" should be given to carbon-offsetting (as set out in paragraph 6.313 of the planning statement and emphasized on page 7 of Appendix A of the Consultation Response) and that the economic viability of achieving carbon neutrality is "not a material planning consideration" (on page 35 of the main Consultation Response).
42. UKWIN has long experience of developers claiming a plant is 'CHP-Ready' only to later say that for economic reasons they will not actually deliver CHP.
43. Without greater detail to show that carbon capture and/or carbon offsetting would be both technically and economically practicable we have legitimate concerns that any relevant planning conditions or obligations would not be enforceable, on the grounds that the Applicant/Operator could later claim that they amount to an unreasonable burden.
44. Given the deficiencies highlighted by UKWIN, and not adequately addressed by the Applicant, it is clear that the Carbon Capture Pre-feasibility Assessment is inadequate to demonstrate that the imposition of any related planning conditions would be enforceable.
45. Significant uncertainties regarding the Applicant's claims of climate benefits and carbon neutrality mean that little or no weight should be given to these claims.

OTHER POINTS RAISED BY UKWIN'S GHG GUIDANCE

46. In addition to UKWIN's Good Practice Guidance for Assessing the Greenhouse Gas Impacts of Waste Incineration supporting the points previously made by UKWIN, the Guide also highlights a number of additional points which are relevant for the consideration of this application, including:

- a) **"RECOMMENDATION #1: Methodology and modelling assumptions, including underlying data and how it was derived, should be transparent and verifiable. Scrutiny of environmental claims made to support waste incineration should be facilitated rather than frustrated."**

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

The Applicant does not always provide the underlying data necessary to ascertain how the figures were derived, e.g. they do not provide detailed composition breakdowns nor do they show how the material types are used to determine the impacts of the facility (including sensitivity analysis for different levels of food waste collection).

- b) **"RECOMMENDATION #7: Power export underperformance, e.g. due to turbine or generator failure or during commissioning, is a realistic prospect for modern waste incinerators that needs to be taken into account when modelling anticipated power output and associated climate impacts."**

The Applicant stated on page 4 of their Carbon Balance Assessment that the *"ERF will generate 18.1 MWe at the nominal design capacity with approximately 15.2 MWe available for export"*.

As noted on Page 11 of the Carbon Assessment, the Applicant assesses the plant on the basis of this 15.2 MWe 'approximate' figure.

The Applicant has not provided any sensitivity analysis to take account of how, on average, incineration plants performed 15% worse than their plated capacity in 2020, with net export being around 28% lower than the plated generation capacity.

This would mean that a plant with 18.1 MWe plated generation capacity could be expected to generate only around 15.39 MWe on average (gross), with a net export of only around 13 MWe, significantly lower than the 15.2 MWe figure relied upon by the Applicant.

- c) **"RECOMMENDATION #10: Energy from mixed waste incineration should not be described as 'low carbon'."**

The Applicant claims on page 87 of their Consultation Response that: *"the proposed ERF is deemed a low carbon source of energy"*. We disagree with that characterisation for the reasons set out above, and in UKWIN's previous objection, and in the section of our Good Practice Guidance which supports Recommendation #10 (pgs. 80-85 of the document).

CONCLUSION

47. For the reasons set out above, we maintain our objection to the proposed incineration facility on climate grounds.