



To: Aberdeenshire Council, by email to planning@aberdeenshire.gov.uk

6th May 2021

UKWIN Comments on incorrect statements in the Committee Report regarding the Climate Change impacts of the Thainstone incinerator (ref APP/2020/1324)

Dear Planning Team,

I write on behalf of the United Kingdom Without Incineration Network (UKWIN), an organisation supporting a collection of environmental campaigners and campaign groups who have been calling for a move to more sustainable resource management since 2007.

We are writing to comment on Section 6.5 of the Committee Report, entitled 'Green/Low Carbon Energy', and to highlight a number of significant errors and omissions. We ask that the Committee Report be updated and that the Garioch Area Committee and the public are informed of the relevant corrections.

Paragraph 6.5.1 of the Committee Report

"6.5.1... With regard to being low carbon in terms of energy generation, it is true that energy may be produced without direct use of fossil fuels, which can be argued affords the scheme lower carbon credentials."

The applicant is proposing to burn RDF which includes plastic as part of its feedstock. Plastic is a fossil fuel. As noted by Zero Waste Scotland in their October 2020 report 'The climate change impacts of burning municipal waste in Scotland':¹

*"A typical tonne of municipal residual waste will contain many different waste materials, some of which will contain carbon. This carbon can be divided into two categories: biogenic carbon, which is derived from biological sources such as plants; and **fossil carbon which is derived from fossil fuels**. Carbon in waste can be either completely biogenic (such as food waste) completely fossil-based (such as **plastic**) or a mix of biogenic and fossil (such as cotton and polyester mixed clothing)."*

A Defra report on the greenhouse gas (GHG) impacts of waste incineration expected that waste from RDF had a significantly higher proportion of plastics than typical municipal solid waste (MSW) with around 65% of the carbon being fossil-derived rather than biogenic.²

¹ The climate change impacts of burning municipal waste in Scotland (technical report). Zero Waste Scotland, October 2020. <https://www.zerowastescotland.org.uk/content/climate-change-impact-burning-municipal-waste-scotland>

² Energy recovery for residual waste – A carbon based modelling approach - WR1910. Defra, February 2014. <http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=19019>

The applicant's Table A3.2.2 'Waste energy content'³ sets out the assumed waste composition. This includes a significant quantity of plastics as well as other material which is a mix of fossil and biogenic carbon.

However, Table A3.2.2 also includes an unusually high quantity of organic waste given that this material should be separately collected for anaerobic digestion.

The aforementioned report from Zero Waste Scotland found that:

*"Decarbonisation of the grid has been so successful that **EfW technologies can no longer be considered low carbon solutions**. Decisions on future management must be based on the most current and accurate data possible to ensure climate change impacts are minimised".*

This finding from Zero Waste Scotland is in line with statements from the Committee on Climate Change (CCC), who stated in December 2020 as part of their Sixth Carbon Budget reports that: *"In a Net Zero world EfW facilities are likely to be significantly higher carbon than other forms of energy production"*⁴ and lists **unabated energy-from-waste plants (such as that proposed for Thainstone) as a 'high-carbon' activity**⁵, as the use of GHG abatement measures such as Carbon Capture and Storage do not form part of the current planning application.

Furthermore, the applicant has acknowledged in their Environmental Impact Assessment Report that: *"Diesel fuel will be stored on site for all construction vehicles"*⁶ and that they would be using *"Liquefied Natural Gas"* as an auxiliary fuel⁷.

This means that it is not fair or accurate to suggest that any of the energy that would be generated at the proposed Thainstone incinerator would be "produced without direct use of fossil fuels". It follows that it is also true that the scheme should therefore not be afforded 'lower carbon credentials', and that the climate harm that would arise were the facility to operate is an important material planning consideration that should weigh heavily in the planning balance against the Thainstone incinerator proposal.

Paragraph 6.5.2 of the Committee Report

"6.5.2 The revised submission confirms that the proposals would result in a total of 401,400 Tonnes of CO2 being emitted from the plant annually. The developer has split these emissions into 2 component CO2 parts. This figure is comprised of 77,400 Tonnes of CO2 from burning plastics (fossil fuel carbon) and then 324,000 Tonnes of CO2 from biogenic waste (ecosystem carbon), which is waste such as paper or cardboard which has a natural level of carbon included.

³ Appendix 3.2: Fuel Characteristics & Composite of their Environmental Impact assessment Report

⁴ Local Authorities and the Sixth Carbon Budget (Page 91). Committee on Climate Change, 9 December 2020. <https://www.theccc.org.uk/publication/sixth-carbon-budget/>

⁵ Policies for the Sixth Carbon Budget and Net Zero (Page 30). Committee on Climate Change, 9 December 2020. Available from: <https://www.theccc.org.uk/publication/sixth-carbon-budget/>

⁶ Chapter 4 of the Environmental Impact Assessment Report

⁷ Appendix 3.2: Fuel Characteristics & Composite from Environmental Impact Assessment Report

The applicant's statement regarding GHG impacts falls well short of 'confirming' the accuracy of their claimed level of emissions. As noted with respect to Paragraph 6.5.1, one can generally expect RDF to have significantly higher quantities of plastics than the applicant is estimating. The applicant has failed to justify their proposed figures, and the applicant appears to have significantly underestimated the fossil CO₂ emissions of their proposed facility.

A number of claims are made within Section 5.4 of the applicant's December 2020 Additional Environmental Information about 'The Role of Emissions in Technology Selection' (Revision I02) that raise more questions than answers.

For example, the applicant does not justify their assumption that *"The mix of current ecosystem biogenic material and residual plastic in the waste stream will be around 90%:10% by weight"*. Indeed, the applicant's suggested figure appears to be at odds with other claims that they make about feedstock composition. As noted above, one could generally expect 65% of the carbon from RDF to be fossil carbon. This shows how the applicant's assumptions should not be relied upon by the Committee given the lack of supporting evidence.

As can be seen below, the applicant assumes in Table A3.2.2⁸ that their facility would use:

- 8.07% plastic film and 5.19% dense plastic in the input (the carbon of both types of plastic is 100% fossil carbon) and
- 23.48% misc. combustibles as well as 2.76% textiles (the carbon content of both of these categories is usually estimated to be around 50% fossil carbon)

As these percentages are higher when one removes the glass and metals (and presumably WEEE which is unsuitable for incineration), it seems impossible for the RDF to be only 10% plastic. If one combines all of the 13.26% plastic with half of the 26.24% classifies as textiles or misc. combustibles then at least 39.5% of the feedstock would be fossil material. Given that plastic has a higher carbon content than other feedstocks, and that glass, etc. will be removed as part of pre-treatment, this could mean that based on the applicant's own figures a majority of the carbon that would be incinerated would be fossil carbon (and therefore most of the CO₂ would be fossil CO₂).

Table A3.2.2 Waste energy content

Waste stream	% content	Net calorific value (MJ/kg)
Paper/card	9.79	10.90
Plastic film	8.07	22.37
Dense plastic	5.19	24.38
Textiles	2.76	14.44
Misc. combustibles	23.48	14.66
Misc. non-combustible	3.28	2.18
Glass	7.17	0.04
Ferrous metals	3.01	-
Non-ferrous metals	1.08	-
Organic (kitchen/garden)	31.94	3.77
Fines (<10 mm)	3.53	4.58
Other (HHW, WEEE)	0.72	-

⁸ Appendix 3.2: Fuel Characteristics & Composite from Environmental Impact Assessment Report

The applicant's claims regarding GHG emissions from landfill appear to be for untreated waste sent to landfill, and so is not relevant to the proposed feedstock which is RDF. RDF will result in a different level of decomposition within landfill when compared with untreated mixed waste. Furthermore, the applicant's carbon assessment does not take into account UK requirements with respect to landfill gas capture.

The applicant claims that they would be displacing gas fired power stations, but as noted by Zero Waste Scotland in the aforementioned report, it is likely that an incinerator built in the near future would actually be displacing a lower carbon energy mix and not CCGT.

The applicant states: *"The CO₂ produced by burning 180,000 Te of biogenic waste is around 324,000 Te CO₂ but is ignored in the carbon balance equation here since it is current ecosystem carbon"*.

If the applicant is comparing the proposal to landfill then much of this biogenic carbon would in fact be sequestered in landfill, which would be a negative CO₂ emission that has not been accounted for in the applicant's comparative analysis. Indeed, given that the material processed would be RDF it can be expected that a very high proportion of any landfilled biogenic material would be sequestered rather than be converted into methane, but this fact was not taken into account in the applicant's carbon calculations. Failing to take this into account significantly underestimates the adverse climate impacts of the proposed incinerator.⁹

If even a small fraction of the 324,000 tonnes of biogenic CO₂ which the applicant states would be released by the facility were to be sequestered in landfill then this would confirm that the incinerator would result in the release of far more CO₂ than sending the same waste to landfill.

As noted by the environmental consultancy Eunomia, failing to take account of the different levels of biogenic CO₂ release is not methodologically valid:¹⁰

*"In a comparative analysis of different waste treatment technologies, **the assumption that emissions of CO₂ related to biogenic carbon should be ignored cannot be valid where the technologies deal with biogenic carbon in different ways**. The atmosphere does not distinguish between those CO₂ molecules which are from biogenic sources and those which are not. Consequently, if one type of technology 'sequesters' some carbon over time, then this function needs to be acknowledged (it effectively negates the basis for distinguishing between biogenic and fossil sources of carbon on the basis that the one is 'shortcycle' and the other is 'long-cycle' – after all, how long is 'short' and long is 'long', and when could one period said to become the other?)"*

⁹ Evaluation of the climate change impacts of waste incineration in the United Kingdom. UKWIN, October 2018. <https://ukwin.org.uk/files/pdf/UKWIN-2018-Incineration-Climate-Change-Report.pdf>

¹⁰ Quoted document available from https://www.foe.ie/assets/files/pdf/report_on_incineration_and_climate.pdf with further quotes from Eunomia and others to support their conclusions set out in <https://ukwin.org.uk/files/pdf/UKWIN-2018-Incineration-Climate-Change-Report.pdf>

Similar views have also been expressed in the academic literature. As noted in a paper published in the Journal of Industrial Ecology:¹¹

"...not considering biogenic CO₂ can lead to biased conclusions. If a fraction of the biogenic carbon is assumed to be sequestered permanently, as was the case for the carbon sequestered...then the amount of biogenic carbon entering the product system is not equal to the amount leaving the system, which means that biogenic CO₂ emissions cannot be considered neutral."

Given the inconsistencies, inadequacies and inaccuracies in the applicant's climate change assessment, the Committee should consider that the applicant has failed to provide adequate information on the climate change impacts of the proposal and has not ruled out significant adverse effects. This should weigh heavily against the proposal in the planning balance, and should be considered a valid ground to refuse planning permission.

Paragraph 6.5.3 of the Committee Report

"6.5.3 The submission offers a carbon balance calculation which included with the above emission figures highlights that by taking waste streams in here, a total of 39,000 Tonnes of CO₂ would be displaced from landfill and that 43,200 Tonnes of CO₂ would be saved from generating electricity via a gas fired power station."

These figures are incorrect for the reasons set out above, and therefore the committee should give them no weight.

"6.5.3 The CO₂ from biogenic waste is not included within the calculation"

As noted above, this is an incorrect approach because it fails to account for the relative net benefit of biogenic carbon sequestration in landfill. Simply put, if the release of CO₂ is carbon neutral for incineration then the sequestration (removal/storage) of that CO₂ should be a carbon saving credited to landfill (and therefore a net disbenefit for incineration when conducting a comparison of the two waste treatment options).

Paragraph 6.5.4 of the Committee Report

"6.5.4 ...Without discounting the biogenic carbon, the carbon balance figure would sit at a net emission of 319,200 Tonnes of CO₂ annually."

UKWIN notes that over the course of 30 years of operation, this level of additional CO₂ would amount to nearly 10 million tonnes of CO₂.

Paragraph 6.5.5 of the Committee Report

"It is noted that whether taking the 401,400 Tonne or 77,400 Tonne CO₂ figure for the plant that these do represent a greater CO₂ output than would be expected from landfill (39,000 Tonnes as stated), albeit with a saving on methane emissions which is known to be more harmful to the environment."

¹¹ 'Biogenic Carbon and Temporary Storage Addressed with Dynamic Life Cycle Assessment' by Levasseur, Annie & Lesage, Pascal & Margni, Manuele & Samson, Réjean (2012). A version of this paper is available from: https://publications.polymtl.ca/706/1/2011_AnnieLevasseur.pdf

As set out above, not only does the applicant significantly underestimate the release of fossil CO₂ from the proposed incinerator but they also significantly overestimate the amount of methane which would be released into the atmosphere were the same waste to be landfilled. A number of factors would be relevant to the release of methane from landfill, including the degree of landfill gas capture and the decomposability of the feedstock. As noted above, the applicant appears to have underestimated the former and overestimated the latter.

In line with the aforementioned report from Zero Waste Scotland, it cannot be assumed that sending waste to incineration is better than sending waste to landfill. If one takes into account the difference in the release of biogenic CO₂ between the two processes and the decarbonisation of the electricity supply, then it can be anticipated that RDF would result in far more CO₂e emissions than if the waste were sent to a modern landfill.

"6.5.7 From a planning perspective, specifically with regard to ALDP Policy PR3..."

ALDP Policy PR3 states that: *"Waste management facilities must conform to the Zero Waste Plan"*. PR3 does not state that planning decisions cannot take into account the anticipated adverse climate change impacts of a proposal (which, for this facility, are expected to be worse than sending the same waste to landfill) and combine this consideration with a consideration of any other harms of the development to come to a conclusion as to whether the proposal represents an appropriate use of the land given the impact of that use.

Incineration can lock material into the bottom tiers of the Waste Hierarchy, and the need to support the top tiers should be given significant weight in accordance with the Zero Waste Plan. According to the CCC:

*"Achieving significant emission reductions in the waste sector requires a step-change towards a circular economy, moving away from landfill and **incineration** (and the associated methane and fossil CO₂ emissions), and towards a reduction in waste arisings and collection of separated valuable resources for re-use and recycling. This applies at local, regional and national levels..."¹²*

ALDP Policy PR3 also clearly states: *"Waste developments proposals must be supported by sufficient information to make a full assessment of the likely effects of the development..."*.

As the Thainstone incinerator applicant has failed to provide such information, and failed to adequately justify their claims and assumptions, the Committee cannot be confident that all of the likely effects of the development have been fully assessed. As such, the requirements of ALDP Policy PR3 have not been met and this application should be refused.

Thank you for your consideration of the points raised.

Yours sincerely,

Shlomo Downen,

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¹² Reducing UK emissions: 2020 Progress Report to Parliament (Page 183). Committee on Climate Change, 25 June 2020. <https://www.theccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/>