Position statement

Zero Waste Scotland: The climate change impacts of burning municipal waste in Scotland

Background

The Scottish Environmental Services Association (SESA) remains concerned about a report, published by Zero Waste Scotland (ZWS) on October 2 2020, entitled *The climate change impacts of burning municipal waste in Scotland.*

The report compared the Greenhouse Gas (GHG) emissions of Energy-from-Waste (EfW) treatment with those from landfill, as well as the carbon intensity of EfW compared with the Scottish electricity grid.

The carbon benefits of EfW were not found to be entirely favourable, which lead ZWS to note that the best climate change option for managing residual waste was not to divert more waste from landfill into electricity-only EfW, but to maintain the existing (2018) EfW/landfill tonnage split and ensure that the waste going to landfill firstly went through a Mechanical Biological Treatment (MBT) pre-treatment process, while existing EfW was converted to Combined Heat and Power (CHP) mode. The report concluded that this scenario would reduce the annual GHG emission impact of Scotland's residual waste by 79%. The report was covered by UK trade media and drew comment from Members of the Scottish Parliament.

Since publication of the report, SESA has voiced concerns to ZWS about multiple issues inherent in the methodology employed and the subsequent conclusions the report reaches. However, as of November 13, the report continues to be promoted by ZWS in its original form and a correction is yet to be published.

SESA response to date

On 5th October 2020, SESA issued a media statement immediately following the publication of the report. This is set out below in full in Appendix 1.

SESA subsequently commissioned independent consultant engineers, Fichtner, to produce a short report addressing some of the concerns SESA has with the methodology employed in the production of the report. (This report should be read in conjunction with this document and is available from www.esauk.org). The Fichtner report was issued to ZWS on October 8.

A meeting was held between SESA and Zero Waste Scotland on October 20 to discuss the findings of the Fichtner report in more detail. This meeting was positive and SESA re-affirmed its willingness to work more closely with ZWS on the drafting and publication of any such reports in the future, and to discuss with ZWS the industry's plans for helping to meet net zero. Following this meeting, it was SESA's understanding that ZWS accepted some of the concerns SESA raised, particularly around the performance of landfill gas engines - which have a substantial bearing on ZWS's conclusions - and was considering a correction to the report by the end of November.

In the meantime, ZWS also met with wider industry stakeholders in a meeting on November 5, and we understand concerns raised by SESA were echoed by other parties.

Unfortunately, since these meetings, ZWS continues to promote and use the findings of the report in public fora, which unnecessarily undermines confidence in energy recovery operations. SESA has since written to ZWS again (12 Nov) expressing disappointment that the report continues to be used in an erroneous form and that no correction has yet been published.

The Environmental Services association has also submitted an opinion-editorial column about the report, which will feature in the November/December edition of CIWM's Circular Magazine for circulation on 26 November 2020.

SESA position on the report

SESA believes that flaws exist in the report's methodology and assumptions used, which results in the outcomes overstating the carbon benefits of landfill, while understating those of EfW. These issues are expressed in more detail in the Fichtner report, but are summarised below:

Carbon benefits of pre-treatment
The report assigns carbon benefits to the pre-treatment of waste but fails to assign any carbon benefits to EfW sites which arrange for pre-treatment off-site - or where high-performing collection systems meet the requirements of SEPA's thermal treatment guidelines, thus negating the need for further pre-treatment.

Energy displacement
The report notes that landfill gas generates about the same amount of electricity per tonne of waste as EfW but this is not the case in practice. The report incorrectly assumes that 100 per cent of potential energy in landfill gas is converted to electricity, when in fact energy efficiency of landfill gas engines is around 36 per cent. Therefore, the reported benefits of energy displacement from landfill are three times higher than they ought to be.

Combined, both these errors result in a reported 15 per cent EfW GHG saving over landfill but, if the two errors above are corrected, the EfW GHG saving would in fact be higher at 33 per cent.

Carbon intensity
ZWS compares the carbon intensity of energy produced by EfW with the wider grid, but this is clearly an unfair comparison without providing a "credit" for EfW for the GHG emissions from landfill that it avoids.

SESA recommendations
SESA and its members recommend that ZWS correct this report and ensure that the original version is retracted from publication. In particular, ZWS should recalculate the life cycle assessment in the manner discussed in the Fichtner report and should not present the simple carbon intensity of power from EfW plants, as this is misleading. The carbon intensity should be calculated by giving a credit for the displacement of landfill, or the report should focus on the life cycle assessment.

We also believe it is important that the correction is noted for the public record, so as to minimise the opportunity for the first version to continue to undermine confidence in vital energy recovery operations – which remain a key component of a circular economy and the best solution for treating residual waste.

Appendix 1 – SESA Press Release

Edinburgh, 5 October 2020: The Scottish Environmental Services Association (SESA) has today voiced concerns about a recent new report, published by Zero Waste Scotland (ZWS), entitled *The climate change impacts of burning municipal waste in Scotland*.

SESA believes the report draws a fundamentally unfair comparison between energy recovery infrastructure and other sources of low-carbon energy generation, and is concerned that the report advocates both maintaining Scotland's current landfill rates, and the use of Mechanical Biological Treatment (MBT) to treat residual waste over energy recovery – a seemingly retrograde step at odds with more than a decade of waste policy development.

Scottish Environmental Services Association (SESA) Policy Advisor, Stephen Freeland, said: *"The resources and waste management industry continues to make considerable investment in Scotland's recycling capacity while at the same time investing in alternative residual waste treatment options, essential for diverting waste from landfill in compliance with Scotland's 2025 landfill ban. Zero Waste Scotland's research usefully points to the fact that energy from waste (EfW) delivers carbon savings over disposal of waste in landfill.*

The research also confirms the potential for greater carbon savings and efficiencies through the deployment of Combined Heat and Power (CHP). All EfW plants in Scotland are designed to be CHP-ready and operators actively explore options to connect with heat customers. Public policy could assist in this regard by helping to secure delivery in off-site heat infrastructure (such as local heat pipe networks or connections to heat customer premises) and ensuring that EfW-CHP is better integrated into the built environment.

However, we are deeply surprised by the recommendation that the best option for Scotland's residual waste is to maintain current rates of landfill, and subject residual waste firstly to an MBT process. Experience elsewhere tends to point to the limitations of Mechanical Biological Treatment (MBT), while its outputs would likely be challenged to meet the stringent respiration thresholds of Scotland's 2025 landfill ban. The ZWS report is also strangely at odds with Scottish Government policy which is rightly aimed at diverting waste from landfill.

The alternative to EfW is not wind power but landfill, and therefore an unfair comparison in considering the low carbon merits of EfW. However, the industry is fully committed to net zero carbon and ESA is developing a carbon strategy to help demonstrate where emissions in the waste sector can be reduced, including EfW."

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