Examples of over-estimating incineration capacity in Scotland

Friends of the Earth Scotland Briefing Paper
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Due to national concern about falling recycling rates and dramatic increases in incineration capacity in Scotland, the Scottish Government is conducting a review into the role of incineration in waste management.[1] The review aims to understand if existing and planned incineration capacity exceeds the supply of waste from household, businesses and other sources in Scotland. This briefing paper shows the review's own analysis indicates Scotland will have incineration overcapacity by 2026 at the latest and details local examples where councils have signed contracts obliging them to supply waste to incinerators at levels which appear to exceed local supply.

Overcapacity of incineration requirements are making climate change and waste targets harder to reach. They also create a conflict of interests for local authorities, which often provide the initial investment of such plants, between trying to fulfil excessive incineration contracts and meeting waste reduction and recycling targets for their constituents.

Estimates of national overcapacity

The Scottish Government's independent review on incineration was launched in December 2021. Stakeholders, including members of the public, have been given two months to supply evidence to the reviewers, led by Dr Colin Church and which includes Scottish Government civil servants and SEPA staff. A Call for Evidence document, written by the review team, set out the scope of the review, questions for responders to answer and presented evidence of the current situation.

Preliminary results from a model created by Ricardo for the ClimateXChange was also included. The model was based around three scenarios for how Scottish waste arisings and management capacity could change over time until 2025. This showed that, if recycling targets were reached it was likely there would be an over-capacity of waste treatment facilities (the majority of which are incinerators) in Scotland by 2025. However, if recycling targets are not reached and residual waste arisings do not fall, there will be a capacity gap of 0.86Mt by 2025.

After consultation with stakeholders, on 31st January 2022, a revised estimate of management capacity was created and sent to stakeholders via email, although the correction was not published more widely. The existing capacity was increased and consideration of plants expected to become operational after 2025 was included. The correction, presented in a graph and revised calculations on capacity (conducted by Friends of the Earth Scotland) is shown in Annex 1 below.

This correction shows that, even if no progress is made towards recycling targets, Scotland will have a much smaller capacity gap of 0.142 Mt in 2025 and, by 2026,

[1] Scottish Government (2021) Incineration Review Call for Evidence

there will be over-capacity of treatment options. By 2030, it is likely, even with high waste arisings, there will be a large (0.748 Mt) over-capacity of treatment options.

If Scotland reaches its recycling targets, there will be management overcapacity by 2023. Even when the business as usual scenario and no plans which are currently live but which don't have permits (blue plants in the graph in Annex 1) become operational, there is still overcapacity by 2026.

Therefore, the data presented by the review indicates that there will be national overcapacity of waste management facilities in Scotland by 2026, under any scenario considered. It should be noted that the business as usual, (which is also the worst case) scenario is extremely unlikely to occur, given this ignores existing government interventions.

The NESS Energy plant in Aberdeen

Run by ACCIONA in partnership with Indaver, the NESS Energy project is expected to start operating later in 2022.[2] The plant will serve three local authorities: Aberdeen City Council, Aberdeenshire and Moray Councils. Aberdeen City Council, the lead Authority, granted planning permission on 10th October 2016.[3] The construction costs of the plant of £365M are being financed by the three partner councils.[4]

The Environmental Statement for the project, written in 2016 and available on the Aberdeen city website states:

"Anticipated waste arisings from each council which would feed into the Energy from Waste (EfW) plant are:

- Aberdeen City Council 60,000 tonnes;
- Aberdeenshire Council 70,000 tonnes; and
- Moray Council 20,000 tonnes.

The Proposed Development has therefore been sized to accept 150,000 tonnes p.a. of residual municipal waste."[5]

The plans also show the plant is expected to be operational for 20 years. There are no pre-treatment or significant storage onsite. The Environmental Statement also estimates that moving this amount of waste will require 111 HGV two-way movements between 7am and 7pm 5.5 days a week (paragraph 2.6.4).

However, SEPA household waste data indicates that already, before the plant has even opened, there will not be enough waste to feed the plant as expected (Table 1 below).

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[2] https://www.indaver.com/ie-en/installations-and-processes/project-development-click-here-to-see-map/ness/

[3] Aberdeen City Council (2016) Decision Notice for Planning Permission for EfW facility at Greenbank Crescent

[4] Public Contracts Scotland (2020) In section II.2.4) "The construction costs are being financed by the Partner Councils." https://www.publiccontractsscotland.gov.uk/search/show/search_view.aspx?ID=NOV399697

[5] AMEC Foster Wheeler Environment & Infrastructure UK Limited (2016) East Tullos Energy from waste Environmental statement, volume 1 The document states that "should the Councils efforts to recycle result in less residual municipal waste, the remainder can be sourced from local commercial/trade waste with a similar composition to household waste." However, no figures are given on the scale of commercial waste available.

Table 1. Household waste generated in 2020 from the three local authorities contractually obliged to supply residual waste to NESS Energy, tonnes

Local authority	Waste generated	Waste recycled	Residual waste	Contracted waste supply to NESS facility in 2022	Difference
Aberdeen City	95,919	43,778	52,140	60,000	-7,860
Aberdeenshire	114,951	46,942	68,009	70,000	-1,991
Moray	41,520	22,792	18,729	20,000	-1,271
Total	**252,390**	**113,513**	**138,878**	**150,000**	**-11,222**

The Environmental Statement suggests that a deficit in household waste to supply the plant could be met with commercial waste instead:

"Should the Councils efforts to recycle result in less residual municipal waste, the remainder can be sourced from local commercial/trade waste with a similar composition to household waste." Paragraph 2.2.3

However, the contract is clearly based on household waste estimates. This may be because the suitability of commercial waste for incineration is less certain. Business waste is not published by SEPA[6] at the same level of detail as household waste. The latest figures available are for 2018, not 2020 and do not include estimates of how much waste was sent to recycling. These figures indicate that 753,542 tonnes of business waste was generated by the three local authorities in 2018. It is unclear how much of this is recyclable or recycled and how much of the remaining was is suitable for burning. For example, 55% (414,750 tonnes) of this waste is food and garden waste, which should be managed using a biological treatment method, such as anaerobic digestion, rather than incineration if a low carbon solution is sought[7].

The excessive incineration contracts mean that there is little incentive or scope for local authorities to improve their waste prevention and recycling activities, as these would reduce the supply of waste for incineration below the contract amount even further. Councils would end up paying for waste treatment twice – once to incinerate it and again to prevent or recycle the waste. Incineration gate fees are set just below landfill tax rates – median gate fees of in the UK in 2019 were £95/t for incineration and £116/t for landfill, (including £91.35/t landfill tax)[8]. Whilst some of these costs may be offset by electricity sales, it will not cover the capital costs and gate fees councils must now pay.

In conclusion, Aberdeen City, Aberdeenshire and Moray Council have opted for an expensive and high-carbon waste management solution which they are locked into for 20 years. This will limit their ability to improve waste prevention and recycling activities for their citizens. A similar picture is occurring nationally. By 2026 at the latest Scotland will have overcapacity of incineration.

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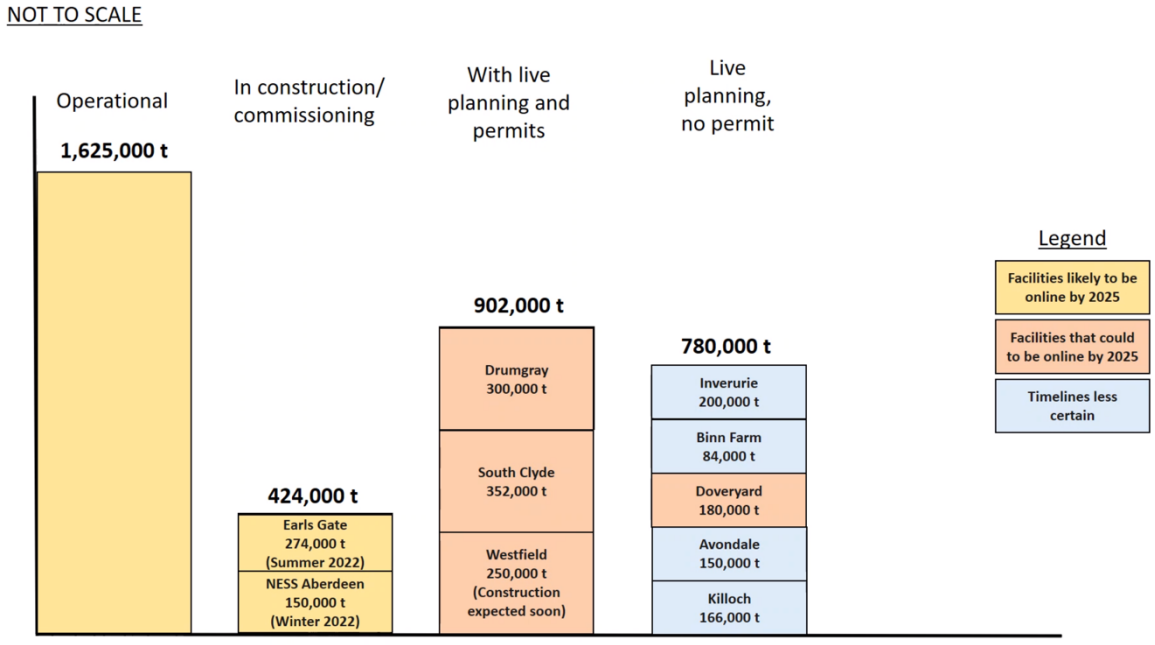
[6] https://www.sepa.org.uk/environment/waste/waste-data/waste-data-reporting/business-waste-data/

[7] As set out in the Food waste hierarchy published in the Scottish Government (2019) Food waste reduction action plan https://www.gov.scot/publications/food-waste-reduction-action-plan/documents/

[8] WRAP (2021) Gate Fees Report

Annex 1

Table 1A. Revised estimate of waste management capacity in Scotland, sent by the Incineration review team to stakeholders on 31st January 2022



The data in this graph can be combined with the CXC waste arising data and assumptions to create an estimate of the capacity gap in Scotland. This is shown in table 1 below and the assumptions are listed below. These assumptions were mainly taken from the CXC study.

Table 1. Estimated waste management capacity and waste arisings for Scotland 2018-2030, millions of tonnes

Year	2018	2019	2020	2021	2022	2023	2024	2025
Total operational capacity	1.54	1.54	1.54	1.54	1.76	1.95	1.95	2.49
Total waste arisings	2.52	2.58	2.45	2.47	2.56	2.58	2.60	2.63
Difference	0.98	1.04	0.91	0.93	0.80	0.63	0.65	0.142

Year	2026	2027	2028	2029	2030
Total operational capacity	2.97	2.97	2.89	3.19	3.46
Total waste arisings	2.65	2.66	2.68	2.69	2.71
Difference	-0.329	-0.31	-0.21	-0.49	-0.748

Assumptions

- All new plants operate at 50% capacity in first year of operation (as per CXC model assumptions).

- All fully operational plants were taken at 95% capacity (as per CXC model assumption).
- Red plants (in the graph supplied by the reviewers) start operating in 2025
- White plant stops in 2028.
- Blue plants start operating in 2029.
- Waste arisings 2018-2025 taken form CXC study.
- Waste arisings 2026-2030 continue to increase in annual increments of 0.0157 Mt per year (based on annual change 2018-2025 as modelled by CXC).