

## Incineration

Friends of the Earth Scotland briefing  
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### Summary

Under the Waste (Scotland) Regulations 2012, a ban on sending biodegradable municipal waste (BMW) to landfill is due to be introduced in 2025, after the Scottish Government announced in September 2019 that the ban would be delayed by for years.

This delay has given local authorities across Scotland extra time to plan how they will divert their waste away from landfill. There are growing concerns that councils will look at incineration as the solution to the waste problem, instead of focusing on prevention and reuse which are at the top of the waste hierarchy above recovery and disposal.

In 2017, the latest year for which data is available, global resource consumption passed one billion tonnes for the first time. As consumption increases, there is more pressure than ever on the earth's decreasing resources. Therefore it is vital that we urgently transform the way we manage and consume resources in Scotland and move towards a circular economy.

There are serious environmental concerns around the continued burning of waste in incinerators which emit carbon into the atmosphere and create toxic ash. There is no place for incineration in the conversation about how we tackle the climate crisis, and that's why Friends of the Earth Scotland believes there should be a **moratorium on building new incinerators in Scotland**. We are calling for a moratorium for three main reasons: **incineration wastes valuable resources, incineration pollutes and incineration is bad for climate change.**

### What are incinerators?

Incinerators are industrial installations that burn the waste and rubbish that we throw out in our bins everyday with the aim of reducing the volume of waste going to landfill sites. When the waste is burned it turns into gases which are released into the atmosphere and toxic ash that needs to be disposed of in a landfill.

Most new incinerators market themselves as 'energy-from-waste' or 'waste-to-energy' plants meaning that they can make electricity or produce heat. This is not a form of renewable energy as municipal waste is non-renewable, and focusing on these types of plants diverts opportunities away from real renewable energy solutions. Essentially these incinerators still burn waste, and the problem with using waste as a fuel means it creates a never-ending demand for waste as the feedstock.

Years ago, other waste treatment technologies such as pyrolysis and gasification were being touted as an alternative and more environmentally friendly option. These Advanced Thermal Treatment (ATT) technologies use high temperatures to break down material, with a controlled volume of oxygen added under gasification. While these types of plants generally give off less pollutants than standard incineration plants, it still removes any incentive to tackle the real issue of waste reduction.

In 2019, the total quantity of waste incinerated in Scotland was 1.23 million tonnes across 24 permitted facilities. This was an increase of 0.52 million tonnes (72%) from 2018 and this total includes all waste categories such as household, wood, animal manure and rubber.

During this time, 330,368 tonnes of household or similar waste was incinerated, an increase of 131% from 142,946 tonnes in 2018. According to SEPA's report on waste incinerated in 2019 these figures are "the start of an increasing trend" as councils and waste management companies try to divert waste from landfill ahead of the delayed ban in 2025. The total capacity of the five operation waste incinerators in Scotland currently stands at 788,000 tonnes per annum.

The trend of burning waste is evident by the number of new incinerators due to open across Scotland in the next few years. The Scottish Government recently stated that the capacity of municipal waste incineration facilities in the commission or construction stage is 0.5 million tonnes<sup>2</sup>, however there are two further incinerators - Baldovie in Angus and the NESS Energy Project in Aberdeen, both of which are due to begin construction in the next six months with a capacity totaling 476,000 tonnes between them.

The Scottish Government's first Green Investment Portfolio<sup>3</sup> which was released in October this year also detailed Inverurie Energy Plant which has capacity to burn 200,000 tonnes of waste a year. Scotland will have capacity to burn an extra 1,056,000 tonnes of a waste per annum over the next few years from the incinerators that are due to open or begin construction, a 34% increase on our current incineration capacity. This number doesn't include other incinerations in Scotland which are still awaiting approval.

### **Environmental problems with incineration**

As we move from our linear 'take-make-waste' economy to a circular economy, we need to focus on reducing our overall consumption of materials rather than just burning it. If we continue to build incinerators in Scotland then we are continuing to support the extraction of materials from the earth's decreasing resources, which are turned into new products before sending them up in smoke. It's also accepting that we do not need to actually reduce our waste because we can incinerate anything we use instead.

Incinerators are the most expensive method to generate energy and to handle waste<sup>2</sup> and most incineration proposals require long-term contracts to supply waste. In some cases, a local authority might not produce enough waste to feed an incinerator and it has to rely on waste from surrounding areas in order for it to operate. This puts the incentive on the local authority to make sure enough waste is produced and not to ensure waste is reduced or recycled.

On paper, the idea of incinerating waste rather than sending it to landfill might seem like the better option because it reduces the volume of waste in Scotland's landfills. However we are in the midst of a climate emergency and need to move away from a process which supports a linear economy model and produces two harmful substances - gas and toxic ash.

### **Gas**

When waste is burned in an incinerator, the carbon is converted into CO<sub>2</sub> and released into the atmosphere. For every one ton of municipal waste incinerated, around 0.7 to 1.7 tonnes of CO<sub>2</sub> is released.<sup>3</sup> In 2018, nearly a million tonnes of CO<sub>2</sub> was released by all types of incinerators in Scotland, with two fully operational waste incinerators in Dundee and Shetland producing over 110,000 tonnes of CO<sub>2</sub> between them<sup>4</sup>. These figures do not include new incinerators such as the ones at Millerhill in Edinburgh and Polmadie in Glasgow, both of which have opened since the data was available and have a combined capacity of 355,000 tonnes of waste a year.

The chemicals given off by incineration have to be very carefully controlled and even then toxin particulates, heavy metals and dioxins are released. Failure to properly control emissions, can be dangerous to human health, especially for vulnerable groups like infants, pregnant mothers and people with underlying health conditions. In addition, a recent report by Greenpeace found that across the UK, waste incinerators are three times more

likely to be built in the most deprived areas of the country than in the least<sup>5</sup>.

## Ash

Incineration simply transforms our waste into other types of waste - bottom ash (IBA) and air pollution residues (APC). The ash produced by incineration still needs to be disposed of and can amount up to as much as 30% of the total waste burned.<sup>6</sup>

In some incineration plants, like the Millerhill plant in Edinburgh, bottom ash can be used as an aggregate for the construction industry. However, there is still toxic waste being produced and at Millerhill it's estimated that 0.5 tonnes of APC residues (fine particles of ash and residue) is generated per hour which equals 2.8% of the total volume of waste managed at the site<sup>7</sup>. On a site that manages 155,000 tonnes of waste per year, that means 4,340 tonnes of highly toxic waste is produced per annum which needs to be taken off site and disposed of in a permitted facility.

## Moratorium on new incinerators in Scotland

Scotland's current household waste recycling rate in 2018 was 44.7%, a decrease of 0.9% from the previous year, so it is clear the focus should be on increasing recycling where materials can be recovered and reused instead. Friends of the Earth Scotland does not believe that any incinerators, including energy-from-waste plants, should be used as an alternative to recycling and reducing waste.

Any new incinerator that is built in Scotland now will lock us into years of wasting resources by burning them, and further environmental damage. Incinerators also create a barrier to moving to a circular economy as there is a demand for waste that could be reused, recycled or remanufactured, all of which is critical if we are to limit our reliance on

the planet's resources and tackle the climate crisis.

The EU Commission's report to the European Union on the role of "waste-to-energy" in the circular economy advises "Member States to gradually phase-out public support for the recovery of energy from mixed waste" and calls for Member states with a high incineration capacity introduce "a moratorium on new facilities and decommissioning older and less efficient ones."<sup>8</sup>

As we work towards the target of net-zero emissions by 2045 and local authorities across Scotland move to divert waste from landfill before the ban on biodegradable waste comes into force in 2025, we must ensure that we don't rush to build more environmentally polluting incinerators. Friends of the Earth Scotland is urging the Scottish Government and MSPs to support a moratorium on new incinerators in Scotland.

## References

1. <https://www.sepa.org.uk/media/527075/2019-waste-incinerated-commentary.pdf>
2. <https://www.heraldscotland.com/news/18732084.waste-incineration-soars-400-snp/>
3. <https://www.gov.scot/publications/scotlands-green-investment-portfolio-call-projects/>
4. <https://www.no-burn.org/wp-content/uploads/GAIA-Facts-about-WTE-incinerators-Jan2018-1.pdf>
5. [https://zerowasteurope.eu/wp-content/uploads/edd/2019/09/ZWE\\_Policy-briefing\\_The-impact-of-Waste-to-Energy-incineration-on-Climate.pdf](https://zerowasteurope.eu/wp-content/uploads/edd/2019/09/ZWE_Policy-briefing_The-impact-of-Waste-to-Energy-incineration-on-Climate.pdf)
6. [https://www2.sepa.org.uk/SPRIPA/Search/ByPollutant/Results.aspx?Media=air&Pollutant=2&IndustrySector=5\(b\)&Year=2018](https://www2.sepa.org.uk/SPRIPA/Search/ByPollutant/Results.aspx?Media=air&Pollutant=2&IndustrySector=5(b)&Year=2018)
7. <https://unearthed.greenpeace.org/2020/07/31/waste-incinerators-deprivation-map-recycling/>

8. <https://www.no-burn.org/wp-content/uploads/GAIA-Facts-about-WTE-incinerators-Jan2018-1.pdf>
9. <https://www.fccenvironment.co.uk/wp-content/uploads/2019/01/Vol1-MainReportFinal.pdf>
10. <https://ec.europa.eu/environment/waste/waste-to-energy.pdf>

For more information contact:

Sarah Moyes

Plastic and Circular Economy Campaigner

[smoyes@foe.scot](mailto:smoyes@foe.scot)