

Friends of the Earth Cymru

Submission to the National Assembly for Wales Petitions Committee for Petition P-04-341 Waste and Incineration

1. What, in your view, is the best method of disposing of non-recyclable waste?

In years to come, and in line with Welsh Government policy, Wales will become a zero waste country. By its very nature then, 'non-recyclable' or 'residual' waste as a significant component of waste management is a transitory problem. We can track the reduction of residual waste through waste statistics¹: In April to June 2007, the residual waste produced per person in Wales was 93kg. During the same period in 2011, that had reduced to 62kg – a reduction of precisely one third in just four years.

The challenge is how to manage this currently significant component of waste² so that we maximise the utility of that which can be recycled and minimise that which has no practicable fate other than final disposal in landfill.

There are a number of important principles at play that can help guide decisions the people of Wales might support:

- The proximity principle: that waste should be dealt with as close as possible to the site of its generation
- Maximum utility: waste should be dealt with in a way that increases its utility in a way commensurate with higher stages of the waste hierarchy
- Flexibility: in a field where the amount and composition of waste is changing so rapidly, flexible, modular waste management solutions are more able to adapt to changing circumstances than large-scale, high-capital infrastructure

Bearing in mind these principles, Friends of the Earth Cymru considers mechanical biological treatment (MBT) of residual waste to be the best currently available and proven technology for disposing of residual domestic waste.

The example of Bristol City Council's MBT plant (operated by New Earth Solutions) is instructive. This waste treatment plant takes in black bag waste and produces the outputs described in the Table³. For comparison, the outputs from an incinerator are also shown.

¹ Statistics for Wales, 27 September 2011, [Local authority municipal waste management, April-June 2011](#)

² 51% of waste is currently disposed of to landfill: Statistics for Wales, 3 November 2011, [Local authority municipal waste management report for Wales, 2010-11](#)

³ LetsRecycle.com, 12 September 2011, [Olympian opens New Earth's Avonmouth MBT plant](#)

	Avonmouth MBT plant	Incinerator
Metals for recycling	3.5%	3.5%
Rigid plastics for recycling	5-8%	-
Biomass type refuse derived fuel	30%	-
Compost-like output	12-18%	-
Process losses	20-25%	-
Landfill	15-20%	-
Residue incinerated	10%	96.5%

Incinerators also leave residual bottom ash which equates to approximately 20% of the total mass of waste incinerated⁴ and which, following further processing, may be used as an aggregate or otherwise disposed of to landfill (just over 2% of the total mass). About 7% of the total amount of waste incinerated is left as fly ash⁵, which often contains toxic elements and is frequently disposed of in a hazardous waste facility.

Further information on Avonmouth MBT plant is available from:

- Gary Hopkins, Executive Member of Bristol City Council with responsibility for waste and recycling: "While with this contract, there is always the possibility of something going wrong, energy-from-waste was a certain loser. It would have needed far more waste than was available, would have been a contract for 25 years... and the New Earth contract [for 9 years] is very significantly cheaper".
Email: Gary.Hopkins@bristol.gov.uk
Home phone number: 0117 985 1491
- New Earth Chief Executive Chris Cox: "We are fast becoming a national player and our aim is to achieve landfill diversion and second chance recycling... We have an emerging renewable energy business which will close the loop with our waste business. We are embracing new technology, developing our own technology next door which will be a combination of pyrolysis and gasification generating 7.5 MW"
Email: chris.cox@newearthgroup.co.uk
Tel: 01202 812300

2. What are the advantages and disadvantages (in terms of the environment, health, local economy etc) of incineration?

Climate change

Incineration sends most of the carbon from waste into the air in the form of Carbon Dioxide (CO₂)⁶. A study by consultancy Eunomia shows that among waste processing options incineration ranks worst in climate change impacts⁷. Given the relatively high CO₂ emissions associated with incineration⁸, it is clearly

⁴ RenoSam and Rambøll, 2006, [Waste to energy in Denmark](#)

⁵ ibid

⁶ Friends of the Earth, May 2006, [Dirty truths: Incineration and climate change](#)

⁷ Eunomia, January 2008, [Greenhouse gas balances of waste management scenarios](#)

⁸ ibid

incompatible with the Wales and UK governments' commitments to steadily reducing the carbon emissions associated with electricity generation. With large incinerators this is compounded by the emissions from transporting the waste to the facility, which can mean hundreds of lorries a day on the road.

Toxic emissions and air pollution

Even modern incinerators emit toxic chemicals and produce toxic ash. There are large concentrations of dioxins in the residues that often emerge during start-up and shut-down periods. Of particular concern to health are the ultra-fine particles that can escape pollution control equipment and can be carried several kilometres by the wind. These can be inhaled by humans, causing chest complaints as well as eaten by grazing animals and passed through the food chain.

Toxic fly-ash from incinerator stacks would have to be transferred to a hazardous waste site, none of which exist in Wales, and tonnes of bottom ash would have to go into landfill.

Disincentive to recycling and waste reduction

The most energy efficient way of managing waste, as laid out in the waste hierarchy and European Waste Framework Directive, is “reduce, reuse, recycle”. The Welsh Waste Strategy ‘Towards Zero Waste’ sets targets to reduce waste 65% by 2050 and recycle a minimum of 70% by 2025, the latter being a statutory requirement in the *Waste (Wales) Measure 2010*. The amount of waste we produce in Wales is already going down and local authorities are meeting targets in the Landfill Directive.

Major incinerators would act as a disincentive to any further improvement in waste reduction and recycling due to commitments to supply the incinerator with waste. The maximum 30% energy from waste limit in ‘Towards Zero Waste’ is already being used to justify large facilities such as those proposed by Viridor at Cardiff. However, once these are built it would be extremely difficult to secure lower thresholds in future or meet the waste reduction and recycling targets beyond 2025 necessary for the One Planet Wales goal.

Inefficient energy production

Incinerators are described as ‘energy from waste’ plants and even as producing ‘renewable’ energy. But in practice they’re only about 25% efficient if the heat isn’t utilised. Incineration also uses 10 times more energy to destroy material than to recycle them. There are technologies such as Anaerobic Digestion which generate energy from waste much more efficiently.

As recycling rates increase, the composition of the waste available for incineration changes and the fraction of waste which is non-biogenic in origin is likely to rise, further undermining the claim of incineration as a source of renewable electricity⁹.

Economics and inflexibility

⁹ Friends of the Earth Cymru, July 2009, [Response to ‘Towards zero waste – One Wales: One planet’](#)

For large incinerators to pay their way long contracts are needed where local authorities and other bodies are tied in to provide them with waste to burn for 25-30 years. This goes against efforts to recycle and reduce waste and would lead to heavy financial penalties if contractors don't provide the incinerator enough waste to burn¹⁰. For example, Stoke-on-Trent City Council was sent a demand for £400,000 from Hanford Waste Services in respect of the city council failing to achieve minimum tonnage levels in 2009/10 for the Sideway incinerator¹¹.

Job creation and socio-economic effects

Research by Friends of the Earth shows that recycling creates 10 times more jobs than incineration, and can be a hub for other local green jobs¹². Incineration, perceived as a 'dirty industry' can be off-putting for job creation in green industries such as tourism and have a negative effect on the socio-economic health of an area.

3. Do you think it's a good idea for local authorities to collaborate on waste policy, which could lead to resource savings, or it more important for them to find the most appropriate solution for their locality? What are the reasons for your answer?

We have no predisposition one way or another to the scale of collaboration that waste management authorities should be permitted to enjoy. The real test to be met is: do waste management solutions fit with the principles described above, and do they contribute to Wales' continuous pursual of One Wales: One Planet? The scale of waste management solutions is then less important.

¹⁰ Friends of the Earth, August 2009, [Long waste contracts](#)

¹¹ ThisIsStaffordshire.co.uk, 14 October 2010, [Council faces £400,000 claim over incinerated waste shortfall](#)

¹² Friends of the Earth, September 2010, [More jobs, less waste](#)