

UKWIN RESPONSE TO THE ESA PARLIAMENTARY BRIEFING ON THE ROLE OF ENERGY FROM WASTE – NOVEMBER 2017

Resource productivity and waste management

The ESA states: "...there remains a proportion of waste which is not re-usable or recyclable, known as 'residual waste'".

A distinction must be made between 'residual waste' which is material that has not been recycled or composted, and 'genuinely residual waste' which is waste that cannot be recycled or composted.

There is already around 17 million tonnes of incineration capacity existing and under construction in the UK to treat residual waste, and there is also other capacity such as waste wood biomass plants and cement kilns that can take some residual waste streams¹. This capacity is more than enough to deal with the quantities of material that we anticipate will be the available combustible fraction of genuinely residual waste.

The North West of England C&I [commercial and industrial] Waste Survey carried out for the Environment Agency stated that: "...the recorded data suggests that up to 97.5% of the C&I waste landfilled in the region could be recycled if the correct facilities and services were available".²

In 2012 Resource Futures Non-executive Chair Phillip Ward noted: "...black bag waste is not a single material. Resource Futures are the holders of comprehensive information about its composition and their study – published by Defra – shows that it is largely made up of regular recyclable materials and much of it is non-combustible".³

Tamar Energy noted that: "Of the 40% of residual household waste going to incineration, it is estimated 40% of this is food waste. This runs counter to the waste hierarchy".⁴

South Gloucestershire Council commissioned analysis into their residual waste, which found:

"A total of 52 percent of the contents of the average black bin could have been recycled in 2014-15 through the existing kerbside recycling service.

"A further 10.1 percent could have been recycled through the Sort It recycling centres.

"In 2014-15 the council spent over £3m disposing of this recyclable material in the residual waste stream. The majority of this was processed into material used for energy production".⁵

The aforementioned recyclability surveys are based on what could have been recycled at the time. As we move towards the circular economy the recyclability of products will increase and technologies to sort, recycle and reprocess a wider range of materials will improve.

A review commissioned by RWM in partnership with CIWM noted that: "...increasing recycling from residual waste is likely to remove high calorific value materials from that waste stream, such as paper, plastics, wood etc. This would reduce the calorific value of residual waste over time, potentially changing its suitability for energy recovery".⁶

¹ <http://tolvik.com/wp-content/uploads/UK-EfW-Statistics-2016-report-Tolvik-June-2017.pdf> and <http://ukwin.org.uk/table/>

² <http://webarchive.nationalarchives.gov.uk/20130125163914/http://www.defra.gov.uk/statistics/files/ci-project-report.pdf>

³ <http://www.isonomia.co.uk/?p=1209>

⁴ <http://www.tamar-energy.com/news-and-press/press-releases/sustaining-ad-industry-success-needs-a-level-playing-field-says-tamar-energy-chief-executive/>

⁵ <http://edocs.southglos.gov.uk/wastestrategyevidence/pages/waste-composition-kerbside/>

⁶ "Rubbish Economy" – A Review of Business Waste production in England: Past, Present & Future. Urban Mines, 2011

The ESA states: "...For this waste, EfW is a much better environmental option than its main alternative, landfill."

Whilst recycling and composting are clearly better than incineration, it is not true that incineration, especially of plastics and bio-stabilised organics, is better than landfill.

In June 2011 Defra's 'The Economics of Waste and Waste Policy' report concluded that compared to incineration, even incineration with CHP: "...MBT (mechanical biological treatment)-landfill provides the best emissions performance in terms of the treatment/disposal of residual waste. It essentially involves landfilling somewhat stabilised wastes with some material recovery".⁷

In January 2017 Resource Minister Thérèse Coffey stated that: "My hon. Friend the Member for Rugby referred to energy from waste. I caution against some of what he said. In environmental terms, it is generally better to bury plastic than to burn it". The Government Review of Waste Policy in England 2011 notes that: "...while energy from waste has the potential to deliver carbon and other environmental benefits over sending waste to landfill, energy recovery also produces some greenhouse gas emissions. It is important to consider the relative net carbon impact of these processes, and this will depend on the composition of feedstocks and technologies used".

The Government's Energy from Waste Guide explains how: "Fossil based residual wastes, e.g. plastics and synthetic rubbers that cannot be recycled, do not decompose in the same way as biogenic material in landfill. For these waste streams conventional energy from waste will almost always deliver a negative carbon balance compared to landfill".

The Science Advisory Council's Waste Sub-group noted that: "...Although landfilling tends to be regarded as inherently bad and to be avoided, there is evidence that in some instances...landfill may be the least environmentally, economically or technically unsuitable option. Landfill can also be a way of storing materials that have a potential future value, and other countries already recognise the value of landfill mining".⁸

Eunomia's Ann Ballinger stated: "[if one takes account of relevant environmental impacts] there will be no net climate change benefit over the lifetime of the plant for an incineration facility commencing operation next year [i.e. from 2015] if that facility generates only electricity".⁹

Furthermore, whilst both landfill and incineration are undesirable, one can stop sending waste to landfill at any time whereas the substantial cost of an incinerator means there will be a significant 'lock-in' effect as noted in UKWIN's briefing on how incineration harms recycling.

The National Policy Statement for Renewable Energy Infrastructure states: "CO2 emissions may be a significant adverse impact of biomass/waste combustion plant". Environment Agency and SEPA state "Between 0.7 and 1.7 tonnes of CO2 is generated per tonne of MSW [Municipal Solid Waste] combusted", so incinerators are high-carbon and emit millions of tonnes of CO2.¹⁰

The ESA refers to 'EfW'. Energy from Waste (EfW) includes anaerobic digestion (AD), which is widely recognised as better than incineration for treating food waste. As the Government Waste Review put it: "...anaerobic digestion offers the greatest environmental benefit, followed by composting". Unfortunately, waste incineration capacity and associated long-term feedstock contracts are harmful to AD. ADBA's CEO has referred to the spread of incinerators as a "really worrying" threat to the separate collection of food waste for AD¹¹ and Eunomia noted that: "...AD sits above incineration in the waste hierarchy, which presents a certain irony as many current local authority residual waste contracts disincentivise food waste collection and AD".¹²

⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69500/pb13548-economic-principles-wr110613.pdf

⁸ <http://webarchive.nationalarchives.gov.uk/20130702173345/http://www.defra.gov.uk/sac/files/sac-waste-subgroup-finalreport-june-2011.pdf>

⁹ <http://www.isonomia.co.uk/?p=2892>

¹⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296988/LIT_7757_9e97eb.pdf

¹¹ <http://www.mrw.co.uk/opinion/big-interview/big-interview-charlotte-morton-adba/8629581.article>

¹² <http://www.biogen.co.uk/upload/item/page30/file/Eunomia%20Anaerobic%20Digestion%20Report%20-%20June%202014%20FINAL.pdf>

EfW and recycling

The ESA stated: "ESA has commissioned research to estimate how much residual waste treatment capacity the UK will need in future under different scenarios."

It is not surprising that studies commissioned from those who have a financial stake in incineration will find that what is needed is more incineration. These studies are of general poor quality, and either the assumptions are not stated or are unrealistic, and the data they rely upon is typically out of date. Eunomia's reports are independent and are indeed conservative in their approach, so are more likely to underestimate incineration overcapacity than overstate it.

The ESA stated that: "unless the UK can achieve very high levels of recycling—more than 65%."

From the perspective of whether to build incinerators today that will still be with us in 2045, a 65% recycling rate is a low figure to use as the basis of avoiding incineration overcapacity.

As part of the European Commission's Targets Review Project stakeholders were asked to specify "the highest level of recycling that could reasonably be obtained for each of the listed waste streams by 2025". The relevant responses were summarised as follows:¹³

Household Waste	
Industry Trade Bodies	70%
Industry Representatives	70%
Not-for-Profit Organisations	80%
Academic Institutions	70%
Other Organisations	70%
Public Authorities	70%
European Citizens	75%

If a 70% recycling rate for household waste is considered by industry to be achievable by 2025 then a higher rate is clearly achievable within the lifespan of new incinerators which are designed to continue operating until at least 2045.

Some local authorities in England are exceeding 65% recycling in 2015, including South Oxfordshire (67%), East Riding of Yorkshire (66%) and Rochford District Council (66%).

UKWIN has also produced a guide on how local authorities can improve recycling rates which is available at <http://ukwin.org.uk/bin/>

Elsewhere in Europe recycling rates of between 70% and 80% are being achieved. Resource Magazine reported earlier this year that: "Treviso in Italy, which has over half a million residents, has achieved recycling rates in excess of 80 per cent; meanwhile, the Belgian region of Flanders, an early adopter of variable charging for waste collection, recycles in excess of 72 per cent".¹⁴

Lessons can also be learned from the case studies produced by Zero Waste Europe, which are available from <https://www.zerowasteurope.eu/zw-library/case-studies/>. These highlight the success that can be achieved with ambitious plans for pursuing the circular economy and going for Zero Waste solutions rather waste incineration.

¹³ http://ec.europa.eu/environment/consultations/pdf/Targets_Review_Project_Summary.pdf

¹⁴ <http://resource.co/article/what-would-it-take-recycle-80-cent-11899>

The ESA refers to: "Eunomia's assessment, which assumes the UK can reach 70% recycling..."

The household recycling rate for England and Northern Ireland in Eunomia's Scenario 1, which is the scenario which UKWIN refers to within our 'Incineration Overcapacity' briefing, is actually based on a 65% recycling rate for 2030 rather than a 70% rate.

Given the 9+ million tonnes of incineration overcapacity Eunomia's forecast identifies there would be overcapacity even with lower recycling rates. Indeed, Eunomia's Scenario 2 estimates 3.4 million tonnes of overcapacity given current committed capacity and a 50% recycling rate.

The ESA refers to "significant cost that would be involved [in recycling more]" and says that the: "ESA's initial estimates suggest that English councils would need an additional circa £1 billion to push household recycling up to 60%".

Whatever investment is required in the early stages, recycling can bring significant benefits, e.g. because recycling can generate income for local authorities whereas disposal does not.

Incineration is very expensive. It currently costs around £200m-£250m to build a new incinerator and they are costly to society to operate, not least because some of the costs to society are not reflected in the price paid for incineration.¹⁵

The ESA figures indicate that the money that would be spent on building four or five incinerators could instead be used to increase England's recycling rate by 15 percentage points if invested in recycling. Such investment would also create far more jobs and would be significantly better for the environment.

Incineration is rendered artificially cheaper due to subsidies and environmental externalities. When one takes into account the environmental impacts then the overall cost of increased recycling is significantly lower than the cost of increased incineration.

The ESA states: "in the UK EfW plants are financed entirely by the private sector."

The finance of the vast majority of incinerators is underpinned by long-term waste contracts with local authorities who agree to pay for the incinerator whether they end up needing it or not. This means that it is the local authorities who are taking on the risk that an incinerator will not be needed, not the private sector. This risk transfer is often in the form of 'put or pay' contracts or 'minimum tonnage guarantees'.

In many cases incinerator projects also rely upon PFI funding, direct and indirect Government subsidies, and Contracts for Different guarantees. Merchant gasification projects often rely upon inexperienced investors with little knowledge of the waste industry and the companies involved often go bankrupt.¹⁶

EFRAOM noted in 2014 that: "*When we asked the Minister how the Government ensures that only genuinely residual waste is sent to incinerators, he told us that the key pressure is gate fees - i.e. the charge that must be paid to dispose of waste in an incineration facility. However, we are concerned about the effectiveness of this singular mechanism following evidence we received about 'put or pay contracts' and negative impacts on recycling rates*".

In 2014 the Confederation of Paper Industries noted: "*In the absence of strategic planning, new regional EfW facilities generate substantial risk [to England's municipal recycling rates]...For those English Unitary and Waste Disposal Authorities entering into long-term residual treatment contracts, underpinned by guaranteed minimum tonnages (GMT), residual treatment overcapacity may well act as a disincentive to increasing recycling rates*".¹⁷

¹⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69500/pb13548-economic-principles-wr110613.pdf

¹⁶ <http://ukwin.org.uk/fail>

¹⁷ <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environment-food-and-rural-affairs-committee/waste-management/written/9485.html>

In 2014 Eunomia noted: "Incinerator contracts often include a guarantee from the waste disposal authority to supply a minimum tonnage of waste to the facility. Some contracts seek to 'weaken' the strength of this bind by placing a requirement on the contractor to make endeavours to cover any shortfall in the guaranteed minimum tonnage, but in practice, it might be expected that local authorities would still lose money under such arrangements as a result of the underpinning 'put-or-pay' nature of the contract".¹⁸

In relation to Nottingham City Council, the Audit Commission previously noted: "The challenge exercise for recycling and the Council's ability to maximise recycling is limited by the emphasis that has been placed on incineration and the need to maintain guaranteed minimum tonnages of waste to support the operation of the incinerator".

The ESA refers to: "the export of Refuse-Derived Fuel"

Whilst recycling is better than RDF export, it should be noted that waste currently exported to continental Europe is being exported due to incineration overcapacity in Europe at plants that operate Combined Heat and Power Schemes.

It is likely that if waste were not sent to these plants from the UK then it would have to be procured from elsewhere, potentially resulting in the waste travelling from further distances with increased transport impacts.

As Paragraph 57 of the EfW Guide acknowledges: "...the overcapacity of energy recovery infrastructure in some EU countries has created a competitive market for this material to be exported". We should be learning from the lessons of these countries about the dangers of incineration overcapacity rather than trying to exceed their level of overcapacity.

Further reading

UKWIN has produced a number of relevant documents, including:

- Four briefings supporting the Early Day Motion calling for a ban on new incinerators: <http://ukwin.org.uk/bin/>
- Evidence to the London Assembly Environment Committee: [http://ukwin.org.uk/files/pdf/July 2017 UKWIN London Assembly Waste Management Submission.pdf](http://ukwin.org.uk/files/pdf/July%202017%20UKWIN%20London%20Assembly%20Waste%20Management%20Submission.pdf)
- Evidence to EFRACOM: <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environment-food-and-rural-affairs-committee/waste-management/written/9294.pdf>
- A brief summary of why we oppose waste incineration: <http://ukwin.org.uk/oppose-incineration/>
- A table of existing, prevented and potential incinerators: <http://ukwin.org.uk/table>

¹⁸ <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environment-food-and-rural-affairs-committee/waste-management/written/9428.html>