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Comments on waste infrastructure to inform the forthcoming National Infrastructure Strategy

Background

In July 2018 the National Infrastructure Commission (NIC) published its National Infrastructure Assessment (NIA).[1]

In its October 2018 *'Interim Response to the National Infrastructure Assessment'* the Government stated that: *"The government will respond formally to the NIA…by publishing a first of its kind, comprehensive National Infrastructure Strategy. This strategy will set out the government's priorities for economic infrastructure and respond in depth to the NIC's recommendations"*.[2]

In the Government's June 2020 press release *'PM: A New Deal for Britain'* it was stated that waste would be considered as part of the National Infrastructure Strategy due to be published in the Autumn of 2020.[3]

UKWIN makes this submission to inform the Government's thinking about waste infrastructure, especially as it relates to waste incineration, to inform the forthcoming National Infrastructure Strategy and the Government's forward thinking on waste and resource management more generally.

Summary and recommendations

This submission endorses a number of recommendations and statements from the NIA, highlights other relevant documents and statements (providing commentary where relevant), and offers a critique of some of the incineration industry talking points that do not stand up to scrutiny.

This submission calls upon the Government:

- To introduce an immediate moratorium on new waste incineration capacity;
- To support councils to renegotiate or terminate long-term waste management contracts that are not in line with the Resources and Waste Strategy; and
- Not to invest in or support expensive distractions such as incineration, gasification, and 'plastic recycling' systems (which have a high environmental cost and often end up being plastic-to-fuel).

[1] https://www.nic.org.uk/wp-content/uploads/CCS001_CCS0618917350-001_NIC-NIA_Accessible.pdf
[2] https://www.gov.uk/government/publications/governments-interim-response-to-the-national-infrastructure-assessment
[3] https://www.gov.uk/government/news/pm-a-new-deal-for-britain

Moratorium on new waste incineration capacity and support for councils to renegotiate or terminate their long-term waste contracts

The Government should avoid exacerbating incineration overcapacity. As such, the Government should immediately introduce a moratorium on new waste incineration capacity. Such a pause on new capacity would help provide confidence to those wishing to invest in alternatives to incineration, such as recycling and anaerobic digestion infrastructure, and would shift the focus from ever-increasing incineration to making better use of the 18.5 million tonnes of incineration capacity which is already operational or under construction.[4]

Incineration overcapacity harms the markets for recycling whilst reducing the marginal benefits of waste minimisation and re-use schemes, thus causing significant environmental harm. Locking our valuable materials into incineration creates serious long-term risks to resource security and is a huge waste of money, including public money, that comes with unacceptable opportunity costs.

Incineration overcapacity can drive down gate fees, increase competition for feedstock, and make it harder for councils that have already paid for the availability of residual waste treatment capacity - which they would not need if they were to meet the Government's recycling and waste reduction targets - to sell spare capacity at incinerators in which they have a financial investment. Furthermore, investment in incineration means that there is less money to invest in recycling infrastructure. All of this can serve to undermine the achievement of the Government's ambitions to boost recycling, minimise residual waste, move us towards a more circular economy, and deliver on our climate change commitments such as Net Zero 2050 and the Paris Climate Agreement.

According to the Government, an estimated 6.3 million tonnes of fossil CO_2e was emitted from incineration in 2018.[5] According to the Government's *'Green Book supplementary guidance: Valuation of energy use and greenhouse gas emissions for appraisal'* ('Table 3: Carbon prices and sensitivities 2010-2100 for appraisal, 2018 £/tCO2e')[6] the cost of non-traded carbon in 2018 was between £34 and £101 with a central figure of £67. Because this CO_2 released by incinerators was not taxed this means that the 6.3 million tonnes of fossil CO_2 released was accompanied by an unpaid cost to society of around £422m (i.e. between £214m - £643m).

The Government's assumption regarding the cost of non-traded carbon is that the cost will rise over time as the cost of abatement measures increase. This means that the cost per tonne of fossil CO_2 released by incineration will rise from around £67/tonne in 2018 to £75 in 2025, £81 in 2030, and £231 by 2050 (in 2018 prices).

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[4] As of December 2019 there were 64 incinerators in the UK, 48 fully operational (14.60 million tonnes per annum of capacity), 5 in late stage commissioning (0.80 mtpa), and 12 under construction (3.10 mtpa). In England there is 17.2 million tonnes of incineration capacity, 14.6Mt of which has been built and 2.60Mt of which is currently under construction. See: https://www.tolvik.com/wp-content/uploads/2020/05/Tolvik-UK-EfW-Statistics-2019-Report-June-2020.pdf

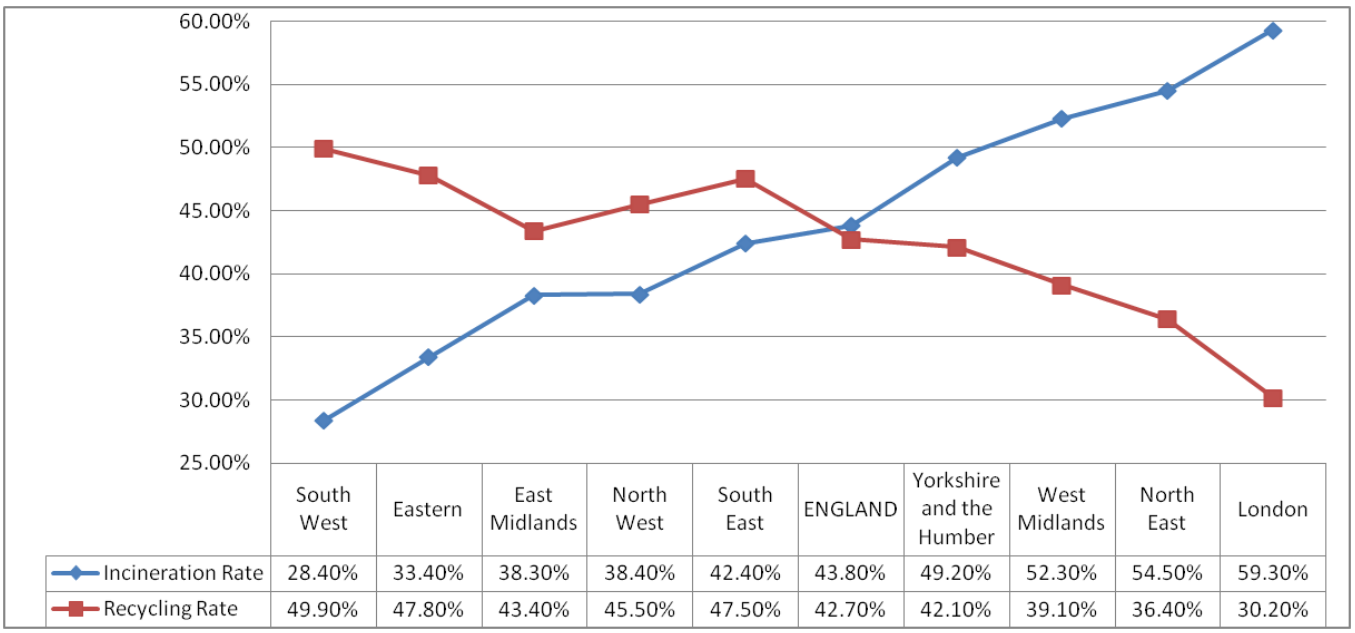
[5] Incinerators: Greenhouse Gas Emissions: Written question - HL927 Answered on: 05 February 2020. Available from: https://www.parliament.uk/business/publications/written-questions-answers-statements/written-question/Lords/2020-01-29/HL927/

[6] Carbon Balances and Energy Impacts of the Management of UK Wastes Defra R&D Project WRT 237, Final Report, December 2006 . Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/793632/data-tables-1-19.xlsx

Across England the average rate of incineration for Local Authority Collected Waste (LACW) in 2018/19 was 43.8% and the average rate of recycling was 42.7%. This means that to achieve a 65% LACW recycling rate for England the rate of incineration would have to fall to at most 35%, which is equivalent to a reduction of at least 8.8 percentage points.

Moving from national data for England to regional and local data, the correlation between higher rates of incineration and lower rates of recycling becomes clear. The regional rates of recycling and incineration reflect differences in incineration and recycling capacity and investment across England. As shown in Figure 1, across all English regions, and taking account of the national average, there is a clear inverse correlation between the levels of incineration and the level of recycling:

Figure 1. English Regional Local Authority Collected Waste (LACW) incineration and recycling rates in 2018/19[7]

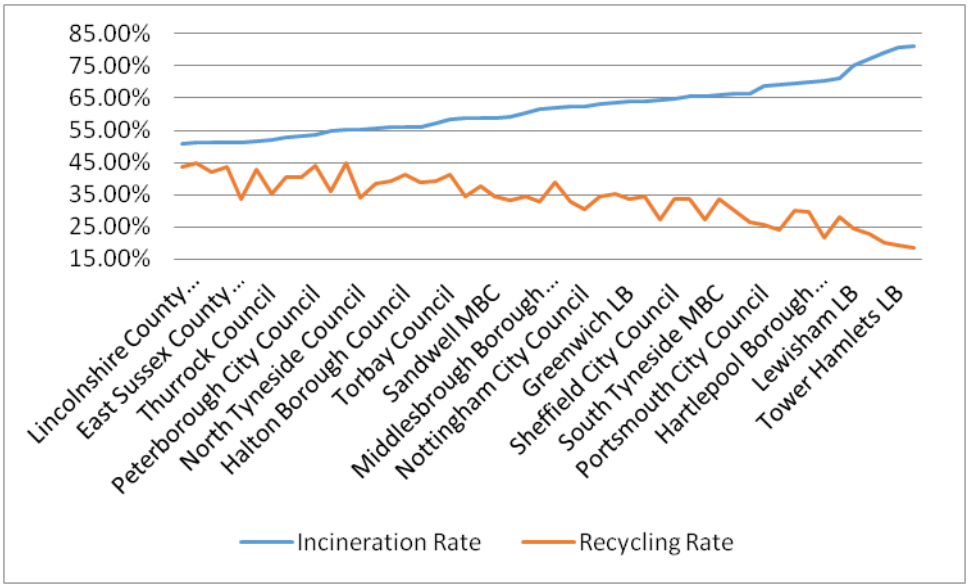


	South West	Eastern	East Midlands	North West	South East	ENGLAND	Yorkshire and the Humber	West Midlands	North East	London
Incineration Rate	28.40%	33.40%	38.30%	38.40%	42.40%	43.80%	49.20%	52.30%	54.50%	59.30%
Recycling Rate	49.90%	47.80%	43.40%	45.50%	47.50%	42.70%	42.10%	39.10%	36.40%	30.20%

[7] Sources: Table 2a of Local authority collected waste generation from April 2000 to March 2019 (England and regions) and local authority data April 2018 to March 2019 (Defra, December 2019).

Furthermore, the 50 local authorities that burn the majority (i.e. more than 50%) of their LACW also exhibit a clear inverse correlation between the rate of incineration and the rate of recycling:

Figure 2. Recycling and incineration rates for LACW of English Local Authorities burning more than 50% of their waste[8]



Many local authorities have publicly identified long-term waste contracts that encourage waste incineration as one of the barriers to achieving higher recycling rates.[9] For example, in July 2019 the leader of Stroud District Council said: *"The incinerator is a disaster. It is expensive to run, the contract undermines attempts to reduce the amount of waste we produce and recycle, and will undermine our commitment to become carbon neutral by 2030 and tackle climate change".*[10]

The Government needs to support councils that are bound by contracts that were negotiated prior to the December 2018 Resources and Waste Strategy. Many of these contracts are no longer fit for purpose and may be compromising the ability of councils to deliver the ambitions set out in the Strategy, e.g. in terms of increased rates of recycling and the provision of enhanced recycling services.

A moratorium on new incineration capacity would provide greater certainty about the ability of existing incinerators to sell spare capacity, which in turn would support local authorities to renegotiate existing contracts or use existing systems for sharing the profits generated by the sale of spare capacity. This would increase the economic incentives for these councils to reduce, re-use and recycle.

[8] Sources: Table 2a of Local authority collected waste generation from April 2000 to March 2019 (England and regions) and local authority data April 2018 to March 2019 (Defra, December 2019).

[9] https://ukwin.org.uk/files/pdf/UKWIN-Examples-of-incineration-harming-recycling-July-2019.pdf and https://www.gov.uk/government/publications/local-authority-letters-on-recycling-rates

[10] Stroud District Council leaders oppose waste from our district being burnt at the new Javelin Park incinerator (Stroud District Council, 2 July 2019). Available from: https://www.stroud.gov.uk/news-archive/stroud-district-council-leaders-oppose-waste-from-our-district-being-burnt-at-the-new-javelin-park-incinerator

Chemical Recycling

UKWIN is concerned that the Government may be considering providing financial and/or policy support for 'chemical recycling'. In UKWIN's understanding, much if not all of what is described as 'chemical recycling' is not recycling. In this regard we note the recent report, entitled '*All Talk and No Recycling*', that found that of the 37 plastic 'chemical recycling' facilities planned for the United States since 2000 only 3 are currently operational and none are successfully recovering plastic to produce new plastics.[11]

The report sets out how the term 'chemical recycling' is often used by the petrochemical industry to describe processes such as plastic-to-plastic and plastic-to-fuel technologies that are not, in fact, forms of recycling. The report concludes that the commercialisation of plastic-to-fuel technologies and the identification of potential adverse impacts on the environment, climate, human health - and on the existing mechanical recycling market – remain *"riddled with uncertainties…What does seem clear is that in 2019 alone, the global production and incineration of plastic accounted for more than 850 million metric tons of greenhouse gases, approximately equal to the emissions from 189 five-hundred-megawatt coal power plants".*

The report also explains how plastic-to-fuel technologies, such as pyrolysis and gasification, are energy-intensive processes that place a heavy toxic burden on communities and workers throughout the chemical recovery chain (from the plastic waste processing sites to the final product), and how the supply chain that results in more waste to plastic-to-fuel facilities undermines the less carbon-intensive traditional mechanical recycling markets.

Key findings of a recent review of scientific and technological evidence, entitled *'Chemical Recycling: Status, Sustainability, and Environmental Impacts*', include strong criticism of 'chemical recycling' due to the associated release of toxic chemicals into the environment, the large carbon footprint, the failure to demonstrate the technologies at scale, and the ways that chemical recycling acts as a barrier to the circular economy.[12]

The Rollinson and Oladejo report includes the following four findings:

- Chemical recycling (both thermolysis and solvent-based) is not at present, and is unlikely to be in the next ten years, an effective form of plastic waste management. With the need to dramatically reduce global fossil fuel consumption, chemical recycling appears, in fact, to represent a dangerous distraction for a society that must transition to a sustainable future;
- Multiple pathways to adverse environmental impact exist and these are grossly under-assessed. Managing these impacts will impose high costs and operational constraints on technology operators. For this reason, chemical recycling should be treated with extreme caution by investors, decision makers, and regulators;

[11] Patel, D., Moon, D., Tangri, N., Wilson, M. (2020). All Talk and No Recycling: An Investigation of the U.S. "Chemical Recycling" Industry. Global Alliance for Incinerator Alternatives. See: https://www.no-burn.org/chemical-recycling-us/ and: https://zerowasteeurope.eu/2020/08/chemical-recycling-in-the-us-a-trojan-horse-for-plastic-to-fuel/

[12] Rollinson, A., Oladejo, J. (2020). Chemical Recycling: Status, Sustainability, and Environmental Impacts. Global Alliance for Incinerator Alternatives. Available from: https://www.breakfreefromplastic.org/bffp_reports/chemical-recycling-status-sustainability-and-environmental-impacts/

- Chemical recycling is energy intensive and has multiple intrinsic and ancillary energy demands which render it unsuitable for consideration as a sustainable technology. No chemical recycling technology can currently offer a net-positive energy balance, and there is no evidence to predict that this can improve in the foreseeable future; and
- Grossly inadequate reporting exists on the status of chemical recycling which, along with a lack of independent evidence on the technology, appears to have led to it being portrayed above and well beyond its capabilities. Much greater transparency on operational performance, energy balances, and environmental impact assessment must be provided as standard.

Comments on statement from Adrian Judge of Tolvik Consulting

Despite what is sometimes believed it now appears that it is not safe to assume that market forces will prevent the exacerbation of incineration capacity. According to an opinion piece by Adrian Judge (Director of waste consultancy Tolvik) published on the 19th August 2020 on the *letsrecycle.com* website[13]:

> *"…it increasingly appears that there is one critical skill necessary for a successful project which is being overlooked: 'understanding'… Above all, understanding is the thoughtful application of common sense…*
>
> *"Tolvik is regularly asked to assess the future balance between Residual Waste supply and EfW capacity. To date we have assumed that the checks and balances of rational investors, particularly where external project finance is required, will ensure that, unlike northern Europe, the risk of EfW over-capacity in the UK is very low. However, increasingly, project developers seem willing to ignore the need for 'understanding' if it is going to give them the wrong answer.*
>
> *"We see this with our market due diligence reports. As the market tightens, if our analysis is not favourable then we are increasingly being asked to change our assumptions. Most often this is a variant of 'can't you just increase the size of the modelled Catchment Area?' Having engaged experienced independent consultants, this appears to be a deliberate decision to redefine 'understanding'…But ignoring this need for 'understanding', when repeated across multiple projects, is starting to lead us to question whether the risk of EfW over-capacity is as low as we had previously assumed."*

Given that incineration results in a range of unpaid environmental externalities and market failures (such as the cost to society of incineration, e.g. with respect to fossil CO_2 emissions, not being reflected in the cost of treatment), and given that sending material as feedstock for incineration can come at the expense of reduction, re-use and recycling, it should not be left to the vagaries of market forces to 'manage' incineration overcapacity. Instead of leaning too heavily on market forces, the Government should introduce a moratorium on new incineration capacity, thereby sending a clear signal to councils and operators about the need to make better use of existing residual waste treatment capacity and the importance of focussing investment higher up the Waste Hierarchy.

[13] See: https://www.letsrecycle.com/news/latest-news/understanding-risk-efw-overcapacity/

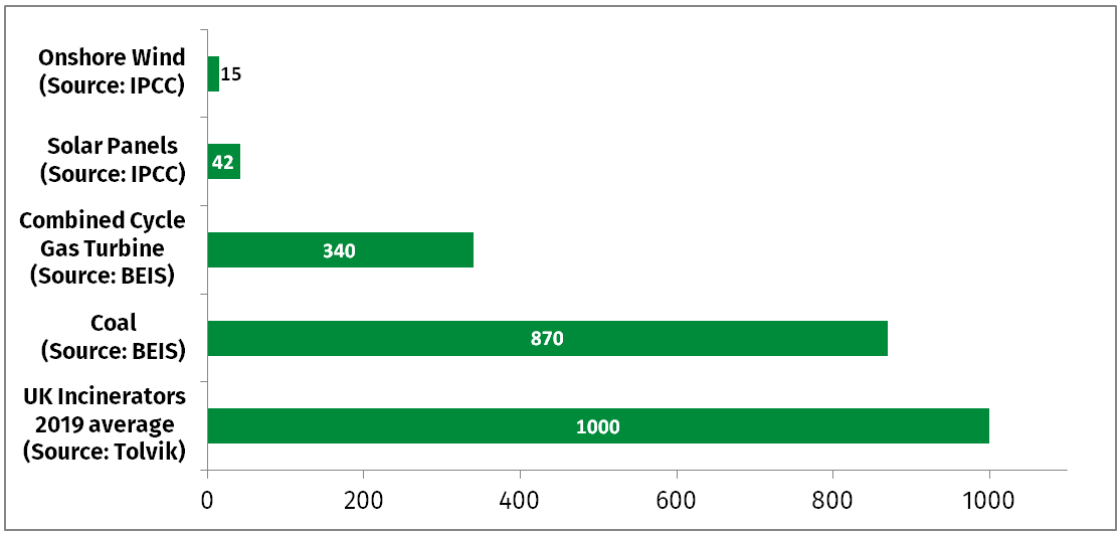
Comment on quote from Zero Waste Scotland regarding carbon intensity

In September 2018 Michael Lenaghan, Environmental Policy advisor at Zero Waste Scotland, said:

> *"The grid is decarbonising…and burning waste is adding emissions and not helping to decarbonise. Energy from Waste [incineration] is problematic from a climate change perspective".*[14]

This statement is in line with what UKWIN knows of incinerator emissions and emissions from other sources. See Figures 3 & 4 (below).

Figure 3. Carbon Intensity of Different Waste Treatment Options (expressed as grams of CO_2 per kWh)



The sources for these figures are as follows:

- **Solar Panel PV (Rooftop) & Onshore Wind** - IPCC's Climate Change 2014: Synthesis Report. Technical Annex III of Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPPC). Unlike other sources, this includes full life cycle assessment emissions.[15]
- **Combined Cycle Gas Turbine** - Page 12 of Defra's 2018 UK Greenhouse Gas Emissions.[16]
- **UK Incinerators 2019 Average** - based on Tolvik's May 2020 report which provides information about UK incineration facilities in 2019, and in particular Page 12 which includes the estimate that in 2019 UK incinerators emitted 0.531 tonnes of CO_2 per tonne of waste incinerated and exported 0.531 MWh of electricity for each tonne incinerated. From this data one can derive the carbon intensity for electricity exported to the grid.[17]

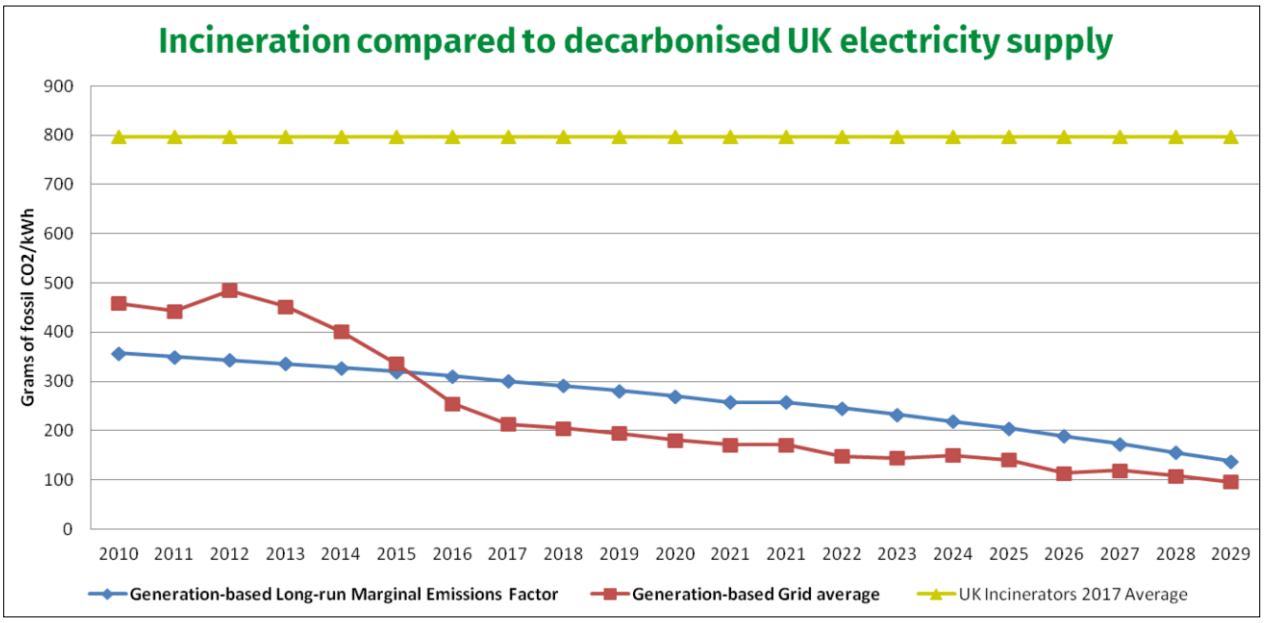
[14] Energy from Waste contributes to climate change, panel hears (Recycling & Waste World, 13 September 2018), Available from: https://www.recyclingwasteworld.co.uk/news/energy-from-waste-contributes-to-climate-change/184027/

[15] https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_annexiii.pdf

[16] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/790626/2018-provisional-emissions-statistics-report.pdf

[17] https://www.tolvik.com/wp-content/uploads/2020/05/Tolvik-UK-EfW-Statistics-2019-Report-June-2020.pdf

Figure 4. Decarbonisation of the Electricity Supply



Quotes from the UNEP Report on Waste to Energy (June 2019)

According to the United Nations Environment Programme (UNEP) report from June 2019 entitled: 'Waste to Energy: Considerations for Informed Decision-Making':

> *"The European Union…which has relied on waste incineration for the past few decades, is now moving away from thermal WtE [Waste to Energy] and other forms of incineration and is focusing on more ecologically acceptable solutions such as waste prevention, reuse and recycling as it shifts towards a circular economy".*[18]

The UNEP Report goes on to highlight the issues of lock-in, overcapacity and the incineration of recyclable material, stating that:

> *"As with all large investment projects, thermal WtE can potentially create lock-in effects that may lead to plant overcapacity and hamper efforts to reduce, reuse and recycle. Incinerating materials, regardless of the amount of energy that may be recovered, constitutes a leakage from a circular economy. The lock-in effect generally refers to a dedicated investment in a thermal WtE project, and the requirement of a fixed amount of waste for incineration over the plant's life. The lock-in effect could lead to undermining waste prevention, reuse and recycling policies and programmes due to lack of funds to develop those systems, or 'put or pay' contracts that mandate municipalities provide a fixed amount of waste to the incinerator or pay a fine. These conditions pose a risk to the waste management hierarchy, and can hamper waste reduction, and in turn dampen the potential boost that local economies often get through reduction, reuse, recycling and composting. In developed countries with effective prevention and recycling systems, reduced amounts of MSW for incineration can lead to thermal WtE plant overcapacity…several studies have shown that thermal WtE plants burn mostly recyclable or compostable waste".*

[18] Waste to Energy: Considerations for Informed Decision-making (UN Environment Programme, June 2019), available from: https://www.unenvironment.org/ietc/resources/publication/waste-energy-considerations-informed-decision-making

Comments on the National Infrastructure Assessment (July 2018)

Page 34 of the NIA states:

> *"Reducing the waste sent to energy from waste plants (incinerators) by recycling more plastic and converting more food waste into biogas can also help reduce overall emissions."*

Incinerating a tonne of mixed waste typically releases a tonne of CO_2, around half of which is fossil CO_2. Incinerating a tonne of plastic film typically releases more than 1.75 tonnes of fossil CO_2, and incinerating a tonne of dense plastic typically releases more than 2 tonnes of fossil CO_2.[19] Incinerating food waste releases biogenic CO_2, and destroy nutrients which could have been turned into compost.

Pages 34-35 of the NIA state:

> *"…The successful delivery of a low cost, low carbon energy and waste system requires… encouraging more recycling, and less waste incineration"*

We agree. Investment in infrastructure should be focussed on recycling, and not on incineration.

In addition to costing hundreds of millions of pounds to build, incinerating a tonne of waste also has an unpaid cost to society from the direct fossil CO_2 emitted. As Defra put it, incinerators are incinerators are *"creating GHG emissions without paying the relevant price".*[20]

Based on the Government's green book central estimates for the price of carbon abatement, UKWIN estimated the unpaid cost to be around £31 per tonne of waste incinerated in 2020, rising to £60/tonne in 2037 and £100/tonne by 2039.[21]

In addition to direct carbon emissions, there is also the additional environmental and economic cost of producing new products to replace those incinerated.

Page 48 of the NIA states:

> *"The government should establish: …*
> *- Restrictions on the use of hard-to-recycle plastic packaging (PVC and polystyrene) by 2025.*
> *- Incentives to reduce packaging and for product design that is more easily recyclable by 2022…"*

When a material cannot be recycled, that means it inevitably end up as a leakage from the circular economy. To prevent avoidable waste, the Government needs to bring in measures that will minimise the production of packaging which cannot readily be recycled. In light of the Government's legal commitment to achieve Net Zero by 2050 and to comply with the Paris Climate Agreement, restricting the use of hard-to-recycle plastics for packaging should be seen as a priority.

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[19] Carbon Balances and Energy Impacts of the Management of UK Wastes Defra R&D Project WRT 237, Final Report, December 2006. Available from: http://randd.defra.gov.uk/Document.aspx?Document=WR0602_4750_FRP.pdf

[20] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69500/pb13548-economic-principles-wr110613.pdf

[21] https://ukwin.org.uk/files/pdf/UKWIN-Incineration-Tax-letter-to-Treasury-August%202018.pdf

Comments on statements from Professor Sir Ian Boyd (January 2018)

Professor Sir Ian Boyd appeared before the Environment, Food and Rural Affairs Committee (EFRACOM) on the 31st of January 2018 to discuss his work as Defra Chief Scientific Adviser. Boyd was one of the principal author's of the 'From Waste to Resource Productivity' report which helped underpin the Government's Resource and Waste Strategy.

Hansard extracts from Prof. Sir Ian Boyd's evidence to EFRACOM:

> **"Professor Boyd:** … I want to make a more general point about incinerators. If there is one way of quickly extinguishing the value in a material, it is to stick it in an incinerator and burn it. It may give you energy out at the end of the day, but some of those materials, even if they are plastics, with a little ingenuity, can be given more positive value. One thing that worries me is that we are taking these materials, we are putting them in incinerators, we are losing them for ever and we are creating carbon dioxide out of them, which is not a great thing. We could be long-term storing them until we have the innovative technologies to reuse them and turn them into something that is more positively valued."
>
> **"…Sandy Martin:** Over a period of three years, we raised the recycling rate in Suffolk from 14% to 45%. There does not appear to be any financial incentive to divert away from incineration. What is your take on that?"
>
> **"Professor Boyd:** I would agree with that. It is a personal view, but I think that incineration is not a good direction to go in. If you are investing many tens of millions, probably hundreds of millions, in urban waste incineration plants, and those plants are going to have a 30-year to 40-year lifespan, you have to have the waste streams to keep them supplied. That it is a market pull on waste. It encourages the production of waste. It encourages the production of residual waste. It encourages people to think that we can throw what could be valuable materials, if we were to think about them innovatively, into a furnace and burn them…I am saying that we need to think about it a lot harder than, perhaps, we have done in the past. Sweden, for example, has invested a lot in waste incineration plants. I worry that it is just encouraging the production of residual waste, which could be used in other ways."[22]

Ian Boyd's concerns about incineration harming recycling is backed up by a significant body of evidence. [23]

[22] http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environment-food-and-rural-affairs-committee/work-of-the-chief-scientific-adviser-defra/oral/78127.html

[23] See for example https://ukwin.org.uk/files/pdf/UKWIN-Examples-of-incineration-harming-recycling-July-2019.pdf and http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/housing-communities-and-local-government-committee/implications-of-the-waste-strategy-for-local-authorities/written/102151.pdf and http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/housing-communities-and-local-government-committee/implications-of-the-waste-strategy-for-local-authorities/written/102824.pdf and https://ukwin.org.uk/quotes/Recycling/ and https://ukwin.org.uk/oppose-incineration/#recycling

Relevant quotes from Ministers (2018-2020)

In the House of Commons on 28th March 2019 John Grogan MP questioned Michael Gove, asking: *"Most studies now indicate that we have an excess of incineration capacity to deal with residual waste. Is there not a danger that, if we build more incinerators, waste that would otherwise be recycled will be diverted to those incinerators?"* and the then Environment Secretary acknowledged this by responding: *"That is a fair point".*

On 12th September 2018 the UK Government's Resource Minister Thérèse Coffey gave oral evidence to the Environmental Audit Committee where she stated:

> *"…the [European] Commission itself is very concerned about the explosion, if you like, of incineration around the European Union. It does not want to massively encourage it in the future. Some countries incinerate almost all of their waste, or they are reaching that very high level. I am not convinced that in respecting the waste hierarchy, we want to massively increase the amount of incineration that we are doing..."*
>
> *" I think, actually, there is sufficient capacity out there for incineration. Often what happens with policies is that they come out with unintended consequences. The general view I get from the [European] Commission in the report they did is that we now have too much incineration across the European Union, and we need to do more to refocus on recycling…"*

On 28th January 2020 Rebecca Pow, the Parliamentary Under-Secretary of State for Environment, Food and Rural Affairs, told a Westminster Hall debate:

> *"…we seek to minimise the amount of waste that goes to incineration or landfill"*[24]

On 12th February 2020 Rebecca Pow, the Parliamentary Under-Secretary of State for Environment, Food and Rural Affairs, told a Westminster Hall debate:

> *"…the measures in the resources and waste strategy and the Environment Bill will enable a paradigm shift, in relation to reducing, reusing and recycling our waste, that should limit the amount that ever has to go to incineration and landfill. I hope that, from what I have said, hon. Members understand what is happening, the direction that the Government are absolutely committed to, and the move to a circular economy."*

Comments on Defra's Resources and Waste Strategy Monitoring Progress, 1st Edition (August 2020)

According to Defra's report:

> *"The large amount of avoidable residual waste and avoidable residual plastic waste generated by household sources each year suggests there remains substantial opportunity for increased recycling."*
>
> *"The message from this assessment is that a substantial quantity of material appears to be going into the residual waste stream, where it could have at least been recycled or dealt with higher up the waste hierarchy."*

[24] Hansard - Westminster Hall debate on Industrial and Commercial Waste Incineration (UK Parliament, 28 January 2020). Available from: https://hansard.parliament.uk/Commons/2020-01-28/debates/9209AD6A-6C6B-47CB-A460-5147EC43131F/IndustrialAndCommercialWasteIncineration

> *"Of total residual waste from household sources in England in 2017, an estimated 53% could be categorised as readily recyclable, 27% as potentially recyclable, 12% as potentially substitutable and 8% as difficult to either recycle or substitute."*
>
> *"Of approximately 13.1 million tonnes of residual waste generated by household sources in England in 2017, around 7 million tonnes could be categorised as readily recyclable, 3.5 million tonnes as potentially recyclable, 1.6 million tonnes as potentially substitutable, and 1.0 million tonnes as difficult to recycle or substitute. All figures are estimates."*

This highlights: (a) the need for measures to ensure that as much of this recyclable material as possible is recycled and that substitutable materials are substituted, and (b) that even if a small proportion of the recyclable material is diverted higher up the Waste Hierarchy this would free up a significant quantity of capacity at existing incinerators.

Comments on Defra's Resources and Waste Strategy Monitoring Progress, 1st Edition (August 2020)

According to the Committee on Climate Change (CCC) report 'Reducing UK emissions: Progress Report to Parliament, June 2020':

> *"Achieving significant emission reductions in the waste sector requires a step-change towards a circular economy, moving away from landfill and incineration (and the associated methane and fossil CO_2 emissions), and towards a reduction in waste arisings and collection of separated valuable resources for re-use and recycling. This applies at local, regional and national levels…Fossil emissions from energy from waste plants are growing rapidly (currently at 6.8 $MtCO_2e/yr$), and will continue to do so in the near term..."*[25]

The CCC report also calls on the UK Government to: *"Set a target for a 70% recycling rate by 2030 in England within the Environment Bill, and announce new policies to meet this target"* and *"Examine the impact of waste targets on the utilisation of (and need for further) energy from waste plants, and issue a set of guidance notes to help align local authority waste contracts and planning policy to these targets"*.

It is also worth noting that the CCC, under the heading *'Recommended measures to support a resilient recovery - local infrastructure, skills and training'* states: *"Increased reuse & recycling needed to prevent lock-in of fossil emissions from waste incineration"*.

We believe that this guidance from the CCC should be followed, and that the Government's National Infrastructure Strategy should set out the pathway to 70% recycling by 2030 and be accompanied by guidance and support for local authorities to align their waste contracts and planning policies to match these targets.

[25] https://www.theccc.org.uk/wp-content/uploads/2020/06/Reducing-UK-emissions-Progress-Report-to-Parliament-Committee-on-Cli.._-002-1.pdf

Comments on the Policy Connect report 'No Time to Waste: Resources, recovery & the road to net-zero' (July 2020)

The Policy Connect report unfortunately fails to grapple with the many sustainability issues arising from waste incineration and the fact that the majority of incinerator feedstock is recyclable or compostable. The report's recommendations generally fail to consider the value for money of their propositions compared to increased investment in reduction, re-use and recycling.

The Resource Recovery from Waste Programme at the University of Leeds is listed as one of the contributors to the report. After the report's publication the University of Leeds' Resource Recovery from Waste Programme criticised the report, stating: *"Last week @Policy_Connect released an inquiry report in support of energy-from-waste investment and under the smog of the UK government's #BuildBackBetter plans. We find this report misleading and wrong."*[26] and that *"We contributed to this inquiry with our coproduced evidence, perspective and recommendations, but were concerned about the framing of the questions."*[27]

Extracts from the Resource Recovery from Waste Programme's submission include:

> *"While the use of EfW has been useful to divert waste from landfill, it is not part of a long-term circular economy as it destroys resources, making them unavailable for future use. The scale of this destruction is startling; for instance, in the municipal waste stream, 3 times as much plastic and textiles and 5 times as much food waste are incinerated than are collected for recycling each year " (Page 1)*
>
> *"…the job potential for a high-value and sustainable circular economy is far higher than that of a low-value end-of-pipe solution offered with EfW; activities such as reuse and remanufacturing are already employing more than 4 times as many people than disposal, EfW and recycling combined, and have potential to grow by over half a million jobs" (Page 2)*
>
> *"EfW was responsible for emitting ca 5 million tonnes of CO_2 in 2017. This in contrast to a high-value circular economy – a circular economy by design with greater emphasis on dematerialisation and durability – which is estimated to save 200MtCO_2 by 2032 and considered to be a necessary contributor to achieving the 4^{th} and 5^{th} carbon budget. It is also the only strategy to curb the degradation of natural capital caused by the astronomical exploitation of resources that recently surpassed 100 billion tonnes per year" (Page 2)*
>
> *"In the immediate term, the resource sector should prepare a transition plan…This plan must include commitments – set out in time – to phasing out the current overreliance on EfW. The plan should also include commitments to investment into physical infrastructure for recycling, remanufacturing, repair and reuse, and supporting infrastructure such as data systems, centres of excellence, governance structures, and education plans for both decision-makers and communities. The required scale for investment into physical infrastructure has been estimated at £5-£25Bn, and that excludes the supporting infrastructure. This is a burden too great to carry by the resource sector alone, especially considering the risks associated with investments other than EfW and that a part of the measures is outside of the control of the resources sector to realise, and hence a joined effort with Government is advisable." (Page 3)*

[26] https://twitter.com/RRfW6/status/1285258094285664261
[27] https://twitter.com/RRfW6/status/1285259604839092230

> *"In the medium to longer term waste arisings could be prevented by at least 50%. This will require a sustained effort to change behaviour of citizens and companies in the UK, embedding more reduced and responsible consumption, reuse and repair, and recycling in normal daily practice. It will also require investment into a diverse set of physical and supporting infrastructure) to retain the values of products and materials within the economy for longer. Leapfrogging towards the practices and infrastructure for a sustainable circular economy can significantly reduce the total amount of investment required while maximising economic, social and environmental benefits for the UK in a global context. The EU aims for a 50% reduction in waste by 2030 and the UK is committed to outperforming our European neighbours and showing global leadership." (Page 4)*
>
> *"Government is in control to remove persistent barriers and should take the following supporting measures:…Assess existing circular economy infrastructure and analyse capacity requirements, extending NIC's assessment with insight into infrastructure for reuse, repair & remanufacturing… Negotiate a Resource Sector Deal that commits to phasing out EfW and invest in infrastructure for a sustainable circular economy instead to maximise economic, social and environmental benefits..." (Page 4)*

We also commend the response to the Policy Connect report authored by Libby Peake of Green Alliance[28]. To quote from the response, Libby Peake states that:

> *"Last week, Policy Connect released a report, supported by the cross party Sustainable Resource Forum, looking at waste management and the shift to net zero. It contains several assumptions worth challenging (not least the opening statement that half of England's waste isn't recyclable, which is internally contradicted by the statement that the country can recycle 60 per cent of its waste by 2030). But I'll concentrate here on its main recommendation: that England 'should move towards a Scandinavian style approach to residual waste'.*
>
> *"Policy Connect's recommendation is surprising as even Scandinavian governments think their approach to residual waste is now wrong. Over previous decades, they invested heavily in energy from waste (EfW) plants that generate electricity and heat from residual waste. But now, they are going through the painful process of changing their approach as it will prevent them from meeting both recycling and net zero targets. The history of waste treatment in Scandinavian countries clearly shows the unfortunate consequences, indeed the avoidable folly, of starting at the wrong end of the material cycle and over investing in EfW. It should be a warning to England not to make the same mistake…*
>
> *"What is needed, clearly, and what Policy Connect's report does well to recommend, is 'a waste and resources roadmap, outlining the targeted and managed transition to a circular economy and net-zero ambitions.' But if that roadmap took as its baseline the need to reduce waste, rather than treat it, it would not be recommending that the UK follow the Scandinavians in over investing in long lasting incinerators that would very probably still be with us until the 2050 net zero deadline.*

[28] https://greenallianceblog.org.uk/2020/07/20/scandinavians-call-their-waste-incineration-crazy-so-why-copy-them/

> *"Instead, it would take where we want to get to (zero waste to landfill or incineration) as a starting point and figure out the best way there. That should involve examining the current infrastructure in the UK and acknowledging that, in fact, the bulk of investment is already heavily skewed towards EfW: nearly all waste and resource investments from the Green Investment Bank, when it was state owned, went to EfW, and all of them since it went private as the Green Investment Group (GIG) have gone to large scale incineration. These have mainly been in partnership with Covanta, one of the world's largest incineration companies. By comparison, the infrastructure for a truly transformative circular economy: for reduction, reuse and remanufacturing, has received relatively little policy attention, and is not even centrally tracked by the government.*
>
> *"…most importantly, a new roadmap for waste in the UK should learn from Scandinavian over investment in waste treatment infrastructure and prioritise the need to drastically reduce waste in the first place, which is where the real carbon and material savings lie, as well as the jobs and wider economic benefits. If we want to reach a net zero future with a truly transformative circular economy, that's where we have to start."*

As such, whilst we do not believe that the Policy Connect report is a useful report to inform the Government's National Infrastructure Strategy, the submissions to and critiques of the report should be taken into account and result in a boost for investment in the circular economy and the top tiers of the Waste Hierarchy alongside measures to stop the proliferation of, and overreliance upon, waste incineration.