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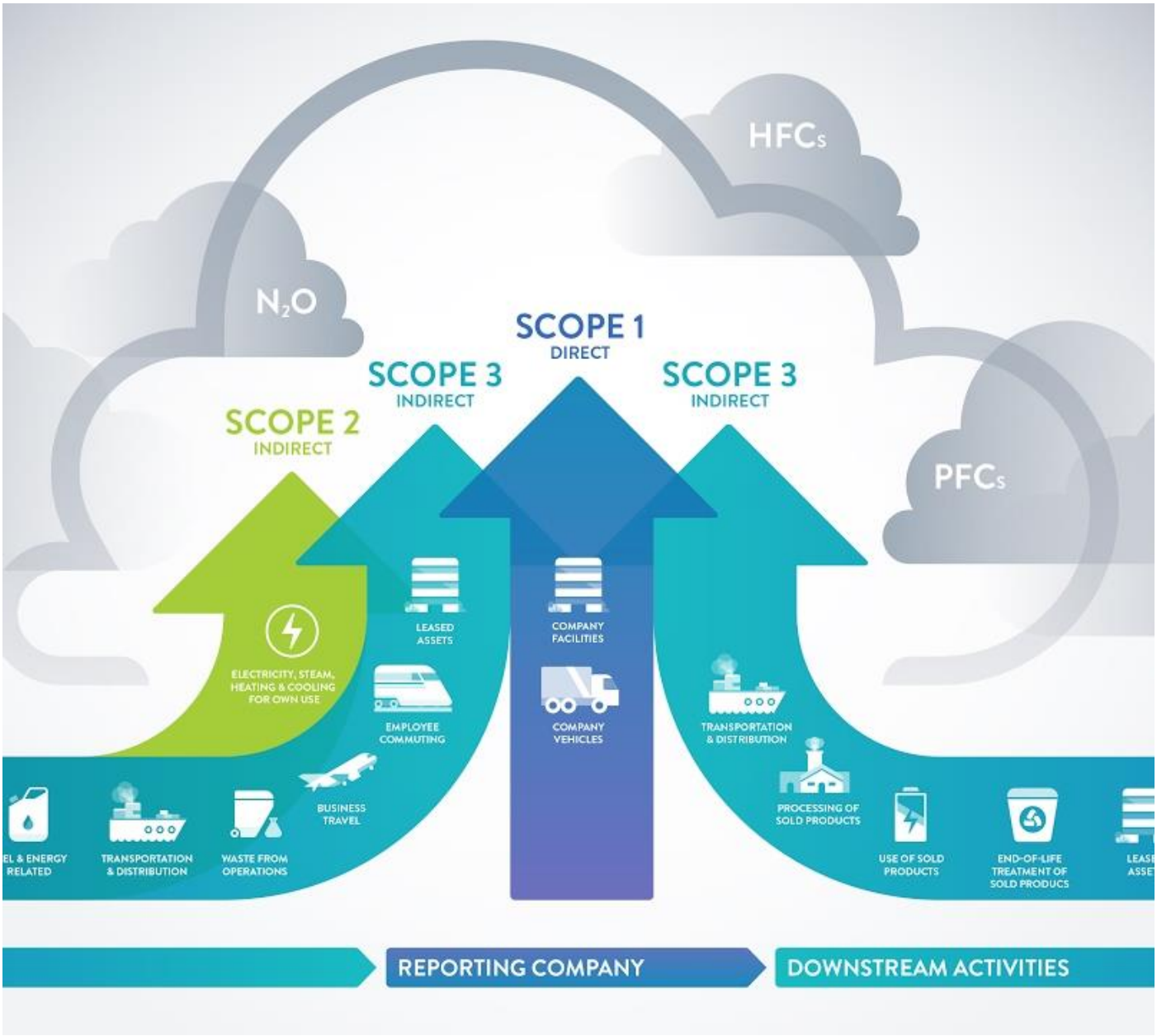
Green House Gas Emissions - Newton Aycliffe HTI

Monksleigh



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Date 17th April 2023

Disclaimer

Monksleigh Ltd has taken due care and consideration in the preparation of this report to ensure that all the facts and analysis presented are as accurate as possible and within the agreed scope of the project. However, no assurance can be provided in respect of the evidence presented and Monksleigh Ltd is not responsible for the decisions or actions taken on the basis of the information contained therein.

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Fornax requested that Monksleigh undertake a desk-top based Greenhouse Gas (GHG) Report in respect of their, yet to be built, High Temperature Incinerator (HTI) at Newton Aycliffe (NA). The main driver of this scope of work was to enable Fornax to bid for NHS contracts before the plant becomes operational in c. 24 months' time.

When operational, there would be no statutory requirement for Fornax to report the CO2e emissions of the NA HTI in the company's annual accounts (although there would, of course, be a requirement to report emissions specified within the Environmental Permit for the site). This may change if the criteria for reporting changes in the future under the Companies Act, or if additional plants are built that moves the company as a whole into the threshold for reporting.

In addition, when operational, the Newton Aycliffe plant would not be captured by the requirements of the Emissions Trading Scheme in the UK. The exemptions for incineration and hazardous waste incineration are, however, under review and this is likely to change. If this does come to pass, the estimate is that it would impact in around 2025/6.

The desk-top work, based on a range of documented assumptions, has generated an emissions figure of 83 kgCO2e per tonne of clinical waste incinerated at the most optimistic offset levels in the modelling and assuming all waste incinerated is clinical waste. This is significantly lower than a recently published scientific paper, which the NHS estates have referenced, of 1,074 kgCO2e for HTI of clinical waste primarily due to HTI incinerators in the UK not having the distributed energy and R1 status that the NA plant will have. Indeed the figure is lower than that for an MSW incinerator in the same scientific paper (249 kgCO2e) which is believed to be primarily due to the increased efficiency of distributing a large proportion of steam rather than generating a large proportion of electricity.

In reviewing the approach taken by the NHS Trusts to measuring and reporting emissions there appears to be an error in their approach which artificially under-reports MSW incinerators from the recently published scientific paper.

In addition, if the reporting approach remains unchanged and used in any bidding process for future waste disposal/treatment, then the NA HTI may not be able to present its positive performance against the default figures. Two suggestions are made for potentially approaching the issue in a bidding context, and Monksleigh have also contacted the estates team of the NHS in order to clarify the way they are using the default figures for reporting. It is recommended that Fornax engage with the bidding function of the NHS Trusts to assess what their future approach will be in the above context.

2. Introduction

2.1 Scope

Fornax requested that Monksleigh undertake a desk-top based Greenhouse Gas (GHG) Assessment in respect of their, yet to be built, High Temperature Incinerator at Newton Aycliffe. The main driver of this scope of work was to enable Fornax to bid for NHS contracts before the plant becomes operational in c. 24 months' time.

Monksleigh worked with AardvarkEM to frame and deliver the report for the site, as set out in Appendix 1 – GHG Summary for Newton Aycliffe based on a review of the current financial model assumptions.

Future verification of the figures may be possible against:

- An operating plant of the same technology in the EU
- The work to date on measuring the R1 status of the plant (i.e. the energy efficiency of the plant that determines it as a recovery process rather than a disposal process)

As part of the research, Monksleigh also reviewed the most recent NHS strategic reports (as further discussed in section 4 of this report) and measurement tools, published in January 2023 and launched in late February 2023, to enable any findings to be aligned with their measurements and assumptions.

2.2 GHG Reporting – Context

The requirements for GHG reporting, which took effect from April 2019, are set out in the HM Governments 'Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance'[1].

Alongside this reporting guidance a 'Greenhouse gas reporting: conversion factors 2022'[2] is published data which comprises tables of conversion factors to enable the completion of reporting using consistent factors for organisations. The biogenic factors associated with the burning of biomass fuels and biofuels are out of scope of these conversion factors[3].

The Companies Act 2006 (Strategic Report and Directors' Reports) Regulations 2013 amended the Large and Medium-sized Companies and Groups (Accounts and Reports)

[1] https://www.gov.uk/government/publications/environmental-reporting-guidelines-including-mandatory-greenhouse-gas-emissions-reporting-guidance
[2] https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022
[3] Examples are given to allow the total emissions to be calculated from the conversion factors however, under the tab 'Outside of scopes'.

Regulations 2008 to require quoted companies to report information on GHG emissions in their Directors' Reports. Quoted companies, as defined by the Companies Act 2006, are also required to report on environmental matters.

The statutory requirement for reporting[4] is if a company meets two of the following requirements:

- Turnover >£6m
- Balance Sheet >£18m
- Number of employees >250

Monksleigh's understanding is that this will not be met by Newton Aycliffe and so there will be no statutory requirement to report. This will change, however, if the legalisation develops to capture smaller companies in the future, or if additional HTI plants are developed by the company which triggers this requirement.

Whilst there is no statutory requirement to report, reporting can be undertaken on a voluntary basis or may be required by the shareholder, Gresham House, as part of their wider reporting requirements which Fornax may wish to clarify at the earliest opportunity.

As a result, the approach taken in Appendix 1 – GHG Summary for Newton Aycliffe follows the reporting guidelines, notwithstanding that the data used has, by necessity, had to rely on a number of assumptions. When the plant becomes operational it would be possible to undertake reporting based on actual numbers and review these against the original assumptions if required.

2.3 UK Emissions Trading (UK ETS) – Context

The UK government is currently seeking evidence on whether to include waste incineration and EFW as part of a consultation on developing the UK ETS. At present hazardous waste incineration is specifically excluded from the UK ETS.

The review of this change was agreed with Fornax to be outside the scope of this report but, due to the potential for the future impacts to the industry, it was agreed to briefly set out the issues below.

The approach would be to tax a facility based upon the amount of carbon emitted, likely to be based on just the fossil/anthropogenic carbon/non-biogenic carbon emitted, and it may have either default carbon figures to be used or measured carbon figures. There is no clarity

[4] The Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018 at 20B.(2) https://www.legislation.gov.uk/ukdsi/2018/9780111171356

as yet as to how this would link to GHG reporting, the frequency of reporting, or the way non-biogenic carbon might be monitored and measured on an ongoing basis, if chosen as an approach.

The main implications, from around 2025/6 onwards, would be:

- A carbon tax impact of upwards of £50 per tonne (based on 50% non-biogenic content with carbon credits at £100 per tonne)
- Potential differential arrangements for those with different fuel/waste types, and/or carbon capture (schemes 'in play' for delivery around 2026/7 onwards)
- Potential differential for those with different efficiencies (i.e. a 'disposal facility' may result in higher tax than a 'recovery facility', which could artificially penalise current HTI plants in the market as they are generally disposal facilities).

The implications for Newton Aycliffe, as an RI facility, is that it would have a benefit over the other HTI's presently in the market. The risk is that the hazardous nature of the material would not allow the pre-sorting and removal of plastics to reduce non-biogenic carbon emissions – leaving the plant open to waste composition variation which it cannot control - impacting carbon emissions.

3. GHG Reporting

3.1 Overview

In simple terms, GHG reporting is based upon all six of the greenhouse gases emitted and listed under the Climate Change Act 2008 which are then converted into a 'carbon equivalent' emission – expressed as CO2e. This means that a far wider assessment is undertaken than just CO2, which is captured by the published conversion factors.

As a simple example, the use of diesel in lorries allows for not just CO2, but carbon monoxide etc – leading to a figure of kilograms of CO2e for every kilometre or mile travelled in this case varied for whether the lorry is empty, full, or half full when travelling. If the lorry fleet uses Biodiesel HVO, though, the emissions are expressed in terms of the litres/volume used.

When capturing the data required to generate a GHG report, there are three primary 'scopes' that are used when considering the 'boundary' of the business being assessed:

- **Scope 1:** direct GHG that are from sources that are controlled or owned by an organisation (e.g. emissions associated with fuel combustion in boilers, furnaces, vehicles).
- **Scope 2:** indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling and a result of the organisations energy use
- **Scope 3:** indirect emissions (not included in scope 2) that occur in the value/supply chain of the reporting organisation, including both upstream and downstream emissions.

In broad terms the assessment of scope 1 and 2 emissions is generally far easier for an organisation to capture and calculate, whereas the scope 3 emissions are generally slightly more challenging particularly when supply chains are considered; however business travel and employee commuting should be included within any scope 3 calculation from the outset

The diagram below shows this schematically, and for an incinerator the primary emissions will be those gases that are emitted from the stack.

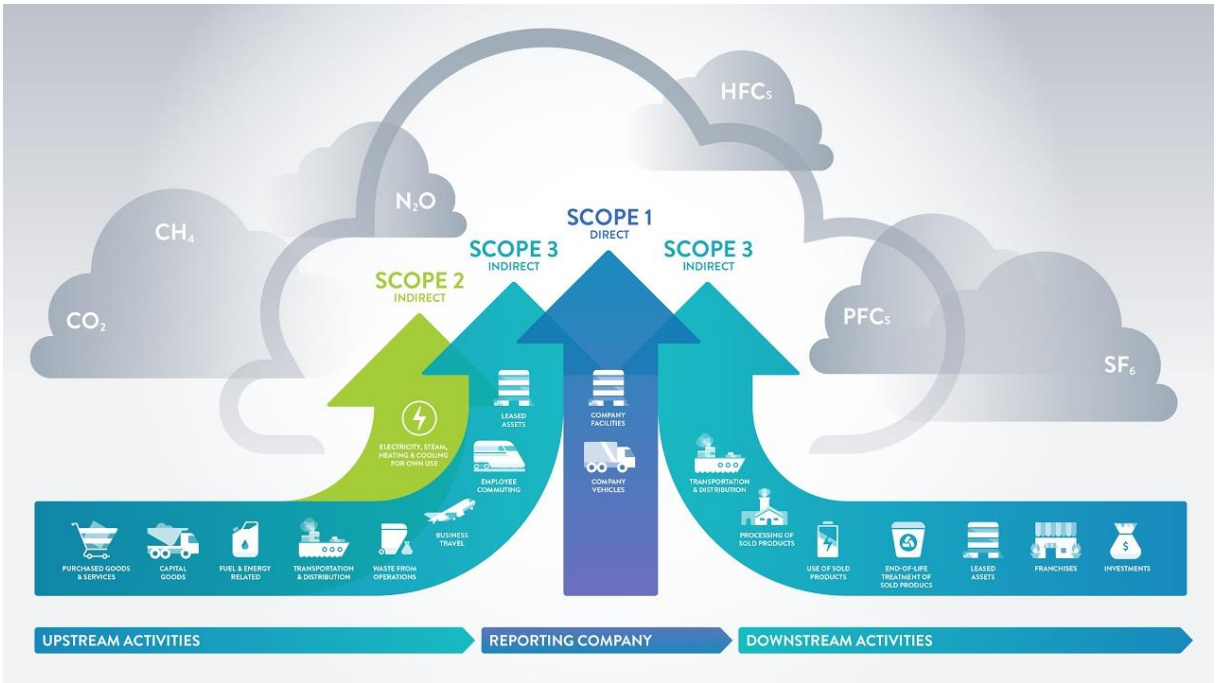

Figure 1: Schematic of Scope 1, 2 and 3 Emissions – World Economic Forum

3.2 The Fuel Issue

The emissions from burning different fuels to generate power/steam etc are captured in the published conversion factors – a wide range of fuels are captured as conversion factors for things such as various liquids, solids and gaseous fuels.

However, the published conversion factors do not have any factors for wastes (whether residual municipal waste or different clinical waste streams) and so the most significant emissions for the Newton Aycliffe plant are open to considerable interpretation, with no default conversion factor at the present time.

The recent NHS strategy and measurement approach refers to a particular research paper[5] ('the paper') to derive waste-related conversion factors. The schematic for the boundary assessed is replicated in Figure 2 below, and the relative emissions between treatment options is captured in the Figure 3 below.

[5] 'The carbon footprint of waste streams in a UK hospital' March 2021; Rizan; Bhutta; Reed; Lillywhite.

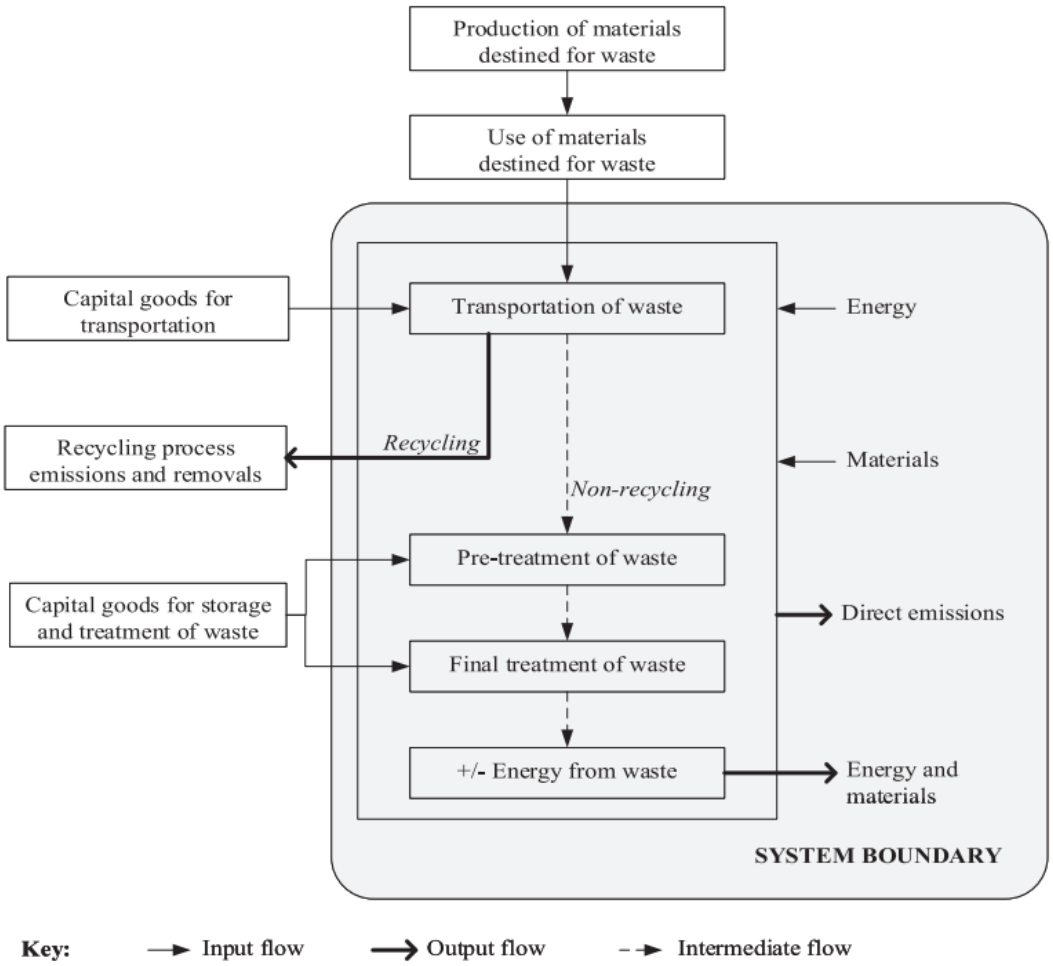

Fig. 1. System boundary
System boundary for carbon footprint of hospital waste. Processes included were transportation of waste from hospitals to waste handling sites, energy and water for pre-treatment of waste and final waste processing, and direct greenhouse gas emissions produced. Capital goods involved in the waste management and infrastructure were excluded.

Figure 2: System Boundary of The Carbon Footprint of Waste Streams in a UK Hospital[6]

[6] Source: The carbon footprint of waste streams in a UK hospital' March 2021; Rizan; Bhutta; Reed; Lillywhite. Figure 1

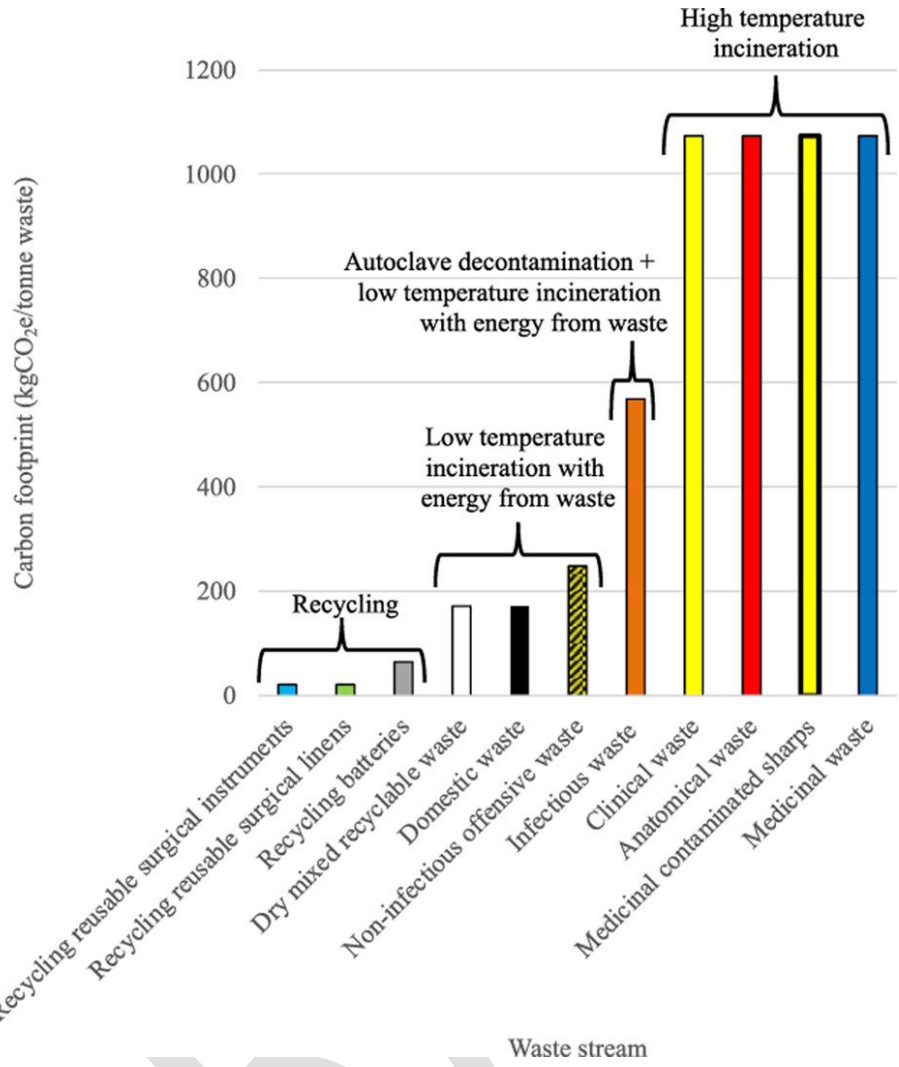

Figure 3: Graphical Abstract from The Carbon Footprint of Waste Streams in a UK Hospital[78]

Two issues arise for the initial review of this data:

- Whether the data is comparable in the way it has been shown (i.e. the waste streams processed will inherently have a different carbon content) so, if DMR was to be burnt (shown within the 'low temperature incineration with energy from waste' category above), it would not necessarily have a comparable CO2e to the other waste streams being burnt within the same category.
- The figures reported do not seem to correlate with the figures used in the NHS reporting tables.

[77] Colour coding in graphic links to the colour coding of the bags used for clinical waste.

[8] Source: The carbon footprint of waste streams in a UK hospital' March 2021; Rizan; Bhutta; Reed; Lillywhite. Figure 3.

For the purposes of the paper and the assessment by Aardvark this figure is 880kg CO2e per tonne of clinical waste incinerated via HTI.

3.3 The Boundary Issue

The overall boundaries of an organisation for a GHG assessment can produce some counter-intuitive results and make comparisons between organisations quite difficult. An example in the context of Newton Aycliffe could be for the lorries delivering waste into the facility.

Example 1: If the lorries were being managed by a different company, then their emissions would be within the boundary (scope 1) and assessment of that business and not Fornax's business (although could be captured in Fornax Scope 3 assessment). If Fornax ran the fleet of lorries as part of its organisation (or as a sub-contract) then these emissions would be captured within the boundary (Scope 1) of Fornax's business.

Example 2: Organisations that process clinical waste via an autoclave, and then transport the flock for incineration elsewhere, would only have to account for the autoclave process and the haulage emissions to get to the incinerator. The incineration of the flock, however, would be part of the boundary of the incinerator's emissions. If the autoclave burnt its own flock to generate power for its autoclave power demands, it would be reporting these emissions inside the boundary of the autoclave business.

What this has led to, for example in the case of local authority waste[9], is the use of models that look across the boundaries for the total emissions of a sequence of processing plants and the overall flow of wastes being managed, ignoring the individual organisations and their boundaries of reporting.

For the purposes of the work in Appendix 1 – GHG Summary for Newton Aycliffe, Aardvark have used the same boundary approach to match that in Figure 2 to give a direct comparator to the paper to allow the NHS to understand the relative position of Newton Aycliffe on the same boundary basis (and so this excludes the disposal of bottom ash and fly ash, but in the case of the aardvark calculations also excludes the benefit of any metals recycling, the figure being of a nominal nature).

The overall assessment of the same boundaries for HTI in the paper (1,074kg CO2e/tonne) for that assessed by Aardvark for the Newton Aycliffe site (1,008kg CO2e/tonne) makes the

[9] WRATE http://www.wrate.co.uk/ model in the UK and WARMER model in the USA https://www.epa.gov/warm

two comparable – but the distributed energy from the Newton Aycliffe site would give significant offset to the emitted CO2e[10].

3.4 The Transport/Haulage Issue

The previous text already highlights that there are three ways that transport/haulage can be measured/converted from the BEIS conversion factors:

- On a distance - based on fuel type, size of vehicle (and in the case of an HGV, 0%, 50% and 100% laden).
- On fuel used - based on the type of biofuel used, on a volume basis.
- On a default figure - based on waste moved for reuse, closed and open loop recycling and combustion.

On the latter point the default figure is, in fact, the same for re-use, open loop recycling, closed loop recycling, combustion and composting and is set at 21.280 kgCO2e per tonne[11]. This is because, in essence, the approach takes a fixed haulage distance set of assumptions and the emissions at the end destination are for the treatment/disposal organisation to measure.

The BEIS default conversion of 21.980 kgCO2e per tonne refers back to work done by WRAP[12] which in turn refers back to the BEIS conversion factors, and the distances assumed to be transported are summarised in the table below:

[10] For the purposes of the Aardvark assessment of the available steam is assumed as distributed, less 5% losses in the distribution process, using the offset of the gas and electricity offset including the generation figures in the BEIS numbers as well as the WTT (Well to Tank) benefits – giving a maximum potential offset.
[11] The default figure for the construction materials (i.e. aggregates, asphalt, bricks, soil etc is 0.985 kgCO2e per tonne).
[12] https://wrap.org.uk/sites/default/files/2021-06/Carbon%20WARM%20Report.pdf

Table 1: Extract from WRAP – Carbon and Waste Resource Metric (table3)

Table 3: Transport assumptions used in calculating disposal emissions

Material / destination	One way distance	Mode of transport	Source
Initial collection to transfer station or MRF	25km	Refuse collection vehicle, average load 12.9 tonnes	ERM (2008)
Onward transport to			
Landfill	10 km	Refuse collection vehicle, average load 12.9 tonnes	ERM (2008)
MSW incinerator	10 km		ERM (2008)
Composting	10 km		Assumed comparable to landfill
Recycling / reprocessing	100km	Bulk transport	Fisher (2006)

As a result, using this approach does not acknowledge the actual distance travelled or the emissions of the end point treatment, and therefore the boundary of the organisation could, for example, show the same emissions for closed loop recycling as combustion.

Again, for the purposes of the assessment by Aardvark, the same boundary assumptions have been used as Figure 2, despite the fact that the relative distances travelled to the HTI sites in the UK could be considerably different (a figure of 125kg CO2e).

3.5 The Landfill Issue

The way waste to landfill is reported in the GHG conversion factors creates a rather perverse outcome. If the organisation sends waste to landfill, the landfill of that waste type is captured in the boundary of the emissions reporting. In this context the landfill emissions are captured by a business sending waste to landfill and not the landfill business.

However, in the case of sending waste to any other process (recycling, incineration, etc) only the haulage/transport emissions are considered in the organisation's boundary. This means that any organisation reducing landfill will show a massive reduction in emissions but will not show any real difference whether they recycle or incinerate in the calculation of their emissions.

4. NHS Strategy and Reporting

4.1 Overview

The NHS published, in January 2023, a revised strategy, appendices, and reporting tool for NHS trusts[13] called B2159iv. This linked to an update in the main guidance publication, HTM 07-01, for the management and disposal of clinical wastes[14].

The most significant issues that arise is the stated intention and strategy of moving waste from HTI to alternative treatment (AT) and Offensive Waste (OW) - to primarily MSW incineration - through better separation of wastes in hospitals, in order to reduce costs and carbon emissions.

The overarching position is that arisings for these three categories were around 149,000 tonnes in 2019/20[15] and are projected to grow at 3% per annum to 200,000 tonnes by 2029/30. The overall split of HTI/AT/OW in 2019/20 was broadly 32/44/24 with an increased proportion of AT waste during the pandemic.

The strategic intent is to move towards a 20/20/60 split of waste, and Monksleigh's application of these changes are shown in the table below.

Table 2: Summary of Application of NHS Strategy to Tonnages for Disposal

	2019/20		2029/30	
	Tonnes	Split	Tonnes	Split
HTI	48,300	32	40,000	20
AT	65,000	44	40,000	20
OW	35,700	24	120,000	60
Total	**149,000**		**200,000**	

The capacity for this strategic delivery and the gate fees anticipated are not within the scope of this report, but the default gate fees mentioned in the report appendices are £617/tonne for HTI, £419/tonne for AT, and £298/tonne for OW (the reporting tool B2159iv shows a median set of costs for 2021 of £668/£399/£302 per tonne respectively).

[13] https://www.england.nhs.uk/long-read/nhs-clinical-waste-strategy/

[14] https://www.england.nhs.uk/publication/management-and-disposal-of-healthcare-waste-htm-07-01/

[15] The 2020/21 figures were not used, noting the inaccuracies in the data – it appears that the reporting error that Monksleigh highlighted to Fornax and the NHS was identified when this report was being written, but the revision to the data had not been made at the time of writing.

4.2 The CO2e Issue

The reporting tool B2159iv has the following default CO2e factors embedded within it for a trust to measure their emissions, taking the tonnage of each waste and multiplying in by the factor to get the total emissions.

Table 3: Summary of CO2e Default Settings in the NHS Tool B2159iv

	TonnesCO2e (kg CO2e per tonne of waste)
HTI	901.3
AT	359.3
OW (MSW Incineration)	21.3
Domestic Waste (Incineration)	21.3
Domestic Waste (Landfill)	446.2

The factors used are referenced:

- There is little, if any tonnage going to landfill, but the emissions factor is consistent with the BEIS conversion factor.
- The emissions factor for incineration (of domestic waste and OW) is also consistent with the BEIS conversion factor as 'transport emissions' only.
- The HTI and AT emissions factors reference 'the paper'.
- The emissions factor for landfill (of domestic waste) is also consistent with the BEIS conversion factor (although no clinical waste is shown to be landfilled in the NHS data and tables).

However, by using the factors the way they are set out, the following points arise:

- The HTI and AT do not match the figures in the paper's figures, and slightly under-report.
- The table uses the 'transport emissions' of MSW incineration from the BEIS conversion factors but the higher figures from the paper for HTI and AT. This is not correct as it makes incineration look artificially low in emissions and this will be further exacerbated by the strategic direction towards a higher proportion of 'low temperature' (MSW) incineration.
- By using the default BEIS conversion factors for transport/haulage it ignores any significant distance for treatment options that may actually occur.

Technically the NHS Trusts could report in one of three ways, as Monksleigh understand it, but not in the way they are presently reporting it:

- **Option 1**: Report all emissions (apart from landfill) at the default 21.3 kgCO2e per tonne.

  Positive – consistent with BEIS, emissions for NHS would be low.

  Negative – doesn't report the CO2e across the entire waste flow, under-reports HTI and AT incineration treatment routes.

- **Option 2**: Report all treatment options and the transport to them at the default 21.3 kgCO2e per tonne.

  Positive – makes them consistent (requires a MSW incineration figure to be set)

  Negative – potentially double counts the transport/haulage, would make the delivery of the strategic target on emissions extremely difficult.

- **Option 3**: As per option 2 but calculate the actual emissions associated with the haulage to the chosen treatment facility.

  Positive – as per option 2, and correctly recognises the level of haulage emissions.

  Negative – this is essentially a scope 3 measurement and would rely on contractors supplying their facility emissions data, which would be time consuming and difficult to collect.

Monksleigh have reached out to the NHS estates responsible for the B2159iv tool to highlight some of these issues.

4.3 The Bidding/Evaluation Issue

The issue with the B2159iv tool is that it has potential ramifications for the way bids are assessed by the NHS Trusts for the management of their waste. As presently drafted in the tool, if used for the biding evaluation process, the following issues would be of concern:

- Any measurement of emissions by Fornax of their HTI may not be used – they would use the default. This would not reflect the fact that Newton Aycliffe is a recovery facility (R1) with energy generated and used both on site and distributed.
- Transport/haulage emissions may only use the default when considering the total emissions – this would not show the benefit of using Newton Aycliffe in haulage terms rather than, say, Kent.

There are, however, three opportunities as Monksleigh presently see the position, to present Newton Aycliffe to the NHS Trusts in such a way that would give them an advantage if they maintained their current approach in the conversion tool:

- Present Newton Aycliffe as HTI, but with standards of energy efficiency such that it should be considered incineration (i.e. the default 21.3 kgCO2e per tonne).
- Present Newton Aycliffe as HTI, but with standards of energy efficiency such that it should be considered at a level of incineration in the paper (i.e. around 250 kgCO2e per tonne rather than the default 901.3 kgCO2e per tonne).
- Present Newton Aycliffe as HTI, but with standards of energy efficiency as per the Aardvark initial assessment at 83 kgCO2e, lower than MSW and autoclaving[16].

In any event, it is recommended to engage with the NHS bidding teams and their process to assess if they will be looking at carbon on a 'proposal specific' basis or on a 'default emissions' basis.

[16] But assuming that all available heat/steam is sold/distributed into the grid

5. Appendix 1 – GHG Summary for Newton Aycliffe

All figures per annum						**Emissions from stack**												
						Gases												
						Water Vapour		from feedstock, vented					170	KW	solar panels on roof to battery to power forklifts			
						Op. Hours												
				KW	KWhr	8,234		**Heat/Steam Export to Neighbours**										
				235	1,935,084	**Electricity Generated**			35000	MWhr	total if all sold							
				235	1,935,084	Electircity Demand (turbine)												
				100	52,560	Electricty Demand (imported)												
Fuel/Waste Input															Ash			
8,500	tpa							**Rejects to landfill**	worst						worst	best		
								Fly Ash	425	tonnes					5%	4%		
4420	52%	clin						Bottom Ash	1,275	tonnes					15%	11.25%		
3400	40%	haz													20%	15%		
340	4%	lab smalls				**Consumables**	per annum											
340	4%	mixed				Electricity	52,560	KWhr										
						Gas	36,000	KWhr	6 hours twice a year						Gas use			
						Water	7,823	cubic metres							18000	kw per start up		
						Lime	552	kg							6			
						Ammonia Water	91	kg							3000	KWhr		
															6			
															2			
				1	Bream excellent building										36000	KWhr		
				2	Turbine will use steam from burning waste to generate operational power demand for all fixed plant													
				3	Turbine may generate excess to that reqiured….assume matched at present to demand													
				4	Electricity required to run building and offices assumed imported when plant is down for maintenance													
				5	Electrical Forklifts x4 to be charge from the turbine or from the solar panels? Ie not in figures above													
				6	Operational staff on 4 per 4 shifts, 16 staff													
				7	Office staff/overheads 6													
				8	Wil be small discharge to sewer of toilets, but also some process water waset form bin washing													

Figure 4: Schematic Summarising Assumptions

Table 4: Summary of Calculations by Aardvark

Process component	Unit	Value	Emissions from input (t/CO2e)	Emissions from landfill waste (t/CO2e)	Avoided emissions t/CO2e)	Net emissions (t/CO2e)
Feedstock processing	kg CO2e/t waste	880	8,565.01	0	7,857.48	707.53
Feedstock transport	kg CO2e/t waste	125				
Electricity (UK)	kg CO2e/kWh	0.19338				
T&D Electricity (UK)	kg CO2e/kWh	0.01769				
WTT Electricity (UK)	kg CO2e/kWh	0.05048				
Natural Gas (UK)	kg CO2e/kWh	0.18				
WTT Natural Gas (UK)	kg CO2e/kWh	0.0311				
WTT Heat & Steam 5% loss	kg CO2e/kWh	0.00166				
Water	kg CO2e/m3	0.149				
Lime						
Ammonia Water						
Fly Ash						**Carbon footprint inclusive of avoided emissions (kg CO2e / tonne)**
Bottom Ash						**83.24**
	Amount consumed p/a	Amount produced p/a				
Feedstock processing	8,500					
Feedstock transport	8,500					
Electricity (UK)	52,560	1,935,084				
T&D Electricity (UK)	52,560	0				
WTT Electricity (UK)	52,560					
Natural Gas (UK)	36,000	35,000,000				
WTT Natural Gas (UK)	36,000					
WTT Heat & Steam 5% loss	1,750,000					
Water	7,823					
Lime	552					
Ammonia Water	91					
Fly Ash		425				
Bottom Ash		1,275				