A SUSTAINABLE TRANSITION INTO THE EMISSIONS TRADING SCHEME

ESA STRATEGY DOCUMENT

CONTENTS

1. EXECUTIVE SUMMARY

The application of the UK Emission Trading Scheme to Energy from Waste **represents the most significant regulatory intervention to the UK waste industry in a generation**. It will fundamentally change the economics of the sector, and impact all stakeholders across the value chain, including local government, waste producers and the general public.

The ESA supports the Government's proposal to extend carbon pricing to Energy from Waste (EfW). Carbon pricing can provide a powerful incentive for net zero investment and support delivery against ambitious recycling targets. However, it is essential this intervention is applied with the utmost care to avoid any perverse outcomes. Most notably to prevent waste moving down the waste hierarchy to landfill, or for treatment offshore. The reforms also need to complement the implementation of key packaging and recycling policies to drive up recycling rates.

The ESA has been working closely with our membership to develop an approach for the application of the Emissions Trading Scheme (ETS) to EfW facilities that is pragmatic, feasible and equitable, and mitigates the risk of unintended consequences. An overview of our proposed approach is summarised in the graphic below and explored in further detail throughout this document.

Clear direction and standardised protocols are needed to ensure the introduction of ETS leads to effective emissions reductions through sending investment signals to those best able to respond to them.

A managed transition for ETS will deliver the most effective results. Developing a phased approach to implementation, based upon key pre-conditions, will ensure compliance, reduce unintended consequences, and increase investment in green circular technologies.

Phase 0: Getting ready	Phase 1: Early implementation	Phase 2: Full implementation	Phase 3: Advanced implementation

REQUIRED CONDITIONS

• Publish a technical guidance note to clearly specify how cost pass-through to waste producers will work. • **Monitoring, Reporting and Verification protocols to be developed and agreed with industry.** • **Firm delivery programme for key Resources and Waste Strategy policies.** • Agreement on free allowances schemes for leakage and heat offtake.	• Commencement of implementation of key Resources and Waste Strategy policies. • Municipal waste to Landfill ban regulations in place. • Adequate fiscal and volume controls on Refuse Derived Fuel (RDF) Exports. • Regulations in place to ensure Landfill Tax is aligned to actual RPI and the cost of carbon. • Establish principles for setting a time limited known carbon price.	• **Landfill Tax alignment & Municipal waste to Landfill ban implemented.** • **RDF exports prevention regulation implemented.** • Waste producers' budgets recognise cost pass-through. • Carbon-14 equipment available for the majority of the UK EfW fleet & supporting laboratory capacity. • Implementation of Greenhouse Gas Removals & Negative Emissions markets.	• Safe, practical and cost effective feedstock sampling protocols under suitable robust regulations. • Variable market carbon prices are acceptable to local authorities. • Potential inclusion of hazardous waste incineration facilities.

2. INTRODUCTION

2.1.1. What is the UK ETS?

The UK Emissions Trading Scheme (ETS) is a *"cap and trade"* scheme which seeks to reduce fossil greenhouse gases (GHG) in energy intensive sectors. A cap is set on the maximum permitted level of GHG emissions across specified sectors, which is then progressively reduced over time. The ETS issues allowances up to the cap for each unit of CO_2. As the cap falls so the cost of allowances should rise – so stimulating investment in reducing GHG emissions.

The UK ETS came into effect in January 2021 following the exit of the UK from the European Union. The Government's legally binding net zero target will require more ambitious changes to be implemented to the UK ETS to bring the cap in line with net zero trajectories.

2.1.2. Energy from Waste and the ETS

Initially, all municipal waste and hazardous and incineration facilities were exempt from both the UK and the EU ETS because of the essential sanitary function they provide. Since this decision, the UK Government is reviewing whether to amend their position on these exclusions. The EU has proposed to review this decision for municipal EfW facilities only.

In March 2022, the UK ETS Authority issued a "Call for Evidence" which proposed extending the UK ETS to EfWs from "mid to late 2020s". This commitment was confirmed in the July 2023 Government response which outlined their intention to include **all waste incineration and EfW technologies within the ETS from and no later than 2028.** This would extend to hazardous and clinical waste incinerators, as well as advanced waste technologies including Advanced Thermal Treatment, Advanced Chemical Treatment, and other waste-to-fuel technologies.

2.1.3. Developments beyond the UK

The EU commission signposted their intention to include municipal EfWs within the wider EU ETS reforms during period from 2028 to 2031, dependent on the results of an impact assessment on leakage risks in 2026. Hazardous waste incinerators will remain exempt from inclusion.

Meanwhile the Netherlands and Germany have already legislated to implement national carbon emissions schemes. These schemes will impact municipal EfW facilities only in these countries on the basis of fixed trajectory of increasing carbon prices and fixed emissions factors set by Regulators. The Netherlands CO_2 levy also includes for declining allowances such that economic values will impact EfWs from 2027 and 2028.

Key principles of the ESA's approach:

The ESA has been working closely with our membership to identify the key priority areas for the application of the ETS to EfW facilities to ensure a pragmatic, feasible and equitable approach. These are summarised in five following categories which are explored within this document.

1. **Deliverable timetable:** Ensuring a timeline that is feasible and aligns with essential related policies to reduce waste and carbon leakage. This will facilitate investment in decarbonation infrastructure and, as far as possible, aligns with EU carbon leakage mitigation and emissions trading schemes.
2. **Avoid unintended consequences:** It is essential that inclusion in the ETS does not see waste moved down the waste hierarchy to landfill, offshore, or waste crime.
3. **Clear & practical implementation:** A practical mechanism needs to be in place to ensure we can fairly pass-through the ETS costs to waste producers. The measurement of plant carbon emissions and feedstock contribution to the plant emissions are different. A mechanism to ensure reconciliation and alignment between plant measured emissions and feedstock estimated emissions is critical to ensure standardised and fair allocation of costs to waste producers. This must be supported by clear regulations for all relevant participants in the supply chain.
4. **Sustainable economic impacts:** Ensuring the waste producer pays will protect the waste hierarchy. A transitionary approach will avoid undue complexity and ensure all supply chains understand how to implement their obligations.
5. **Incentivising investment:** If a transitionary approach is taken, the application of the ETS will maintain the waste hierarchy and deliver net zero investment, which will include state-of-the art recycling and carbon capture infrastructure. This approach needs to be designed to facilitate the implementation of regulations for cost pass-through, a landfill ban, the control of RDF exports, and the enforcement of waste crime.

3. DELIVERABLE TIMETABLE

Essential requirements:

- A three-phase approach is required that is led by conditions, not dates.
- The Resources & Waste Strategy must be implemented.
- A municipal waste to landfill ban, landfill tax alignment with carbon prices, and an RDF export restriction must be in place.

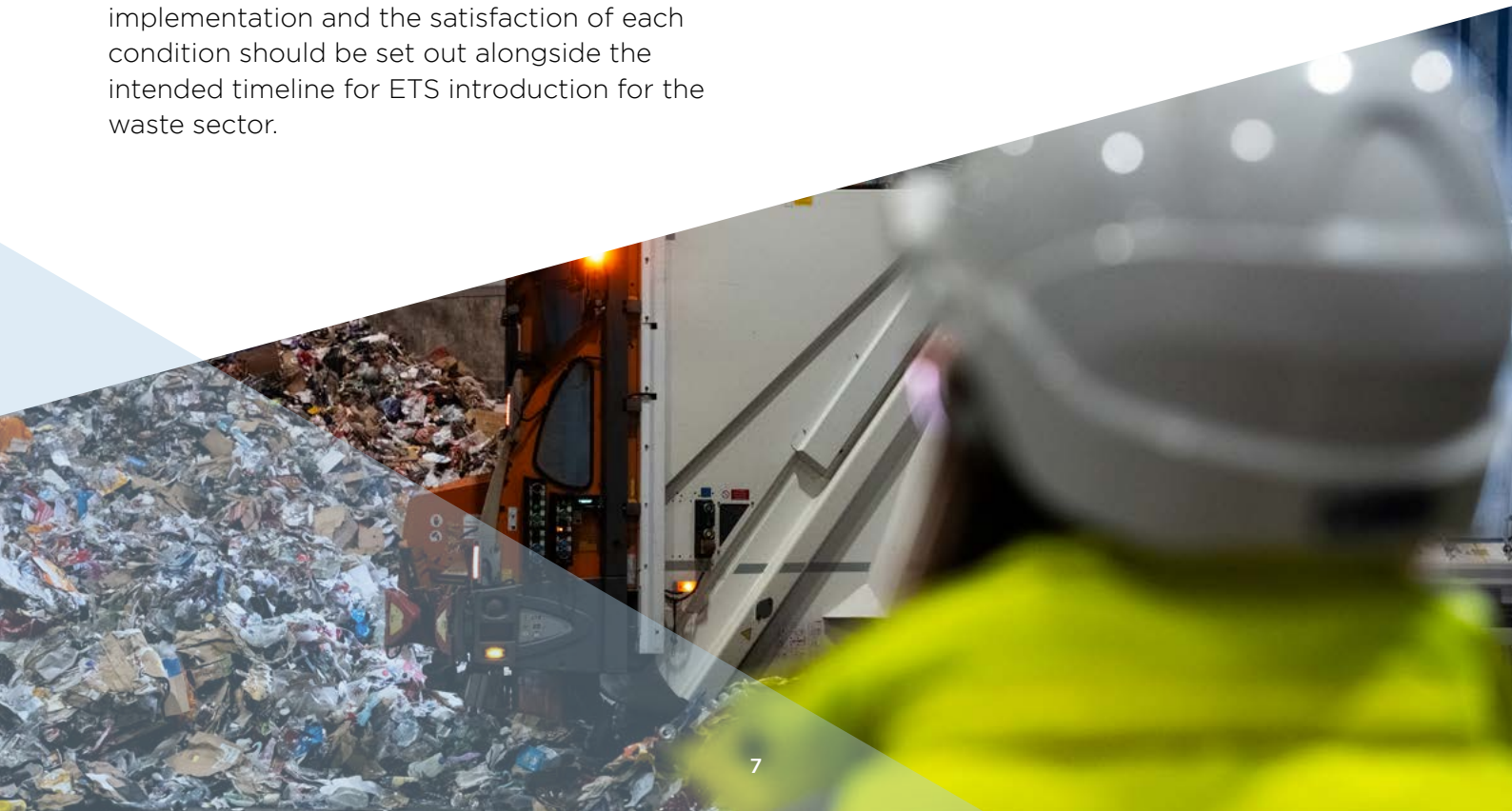
The ESA recognises the requirements for the UK to rapidly decarbonise, and the waste sector plays a critical part in achieving this. By decarbonising the residual waste streams and increasing recycling rates, we will play our part in meeting net zero.

The ETS will interact with existing waste legislation and emerging waste policy to drive up recycling and reduce emissions.

ETS policy will only deliver if the three pre-conditions above are achieved ahead of its expansion. A clear timetable for implementation and the satisfaction of each condition should be set out alongside the intended timeline for ETS introduction for the waste sector.

The ESA's recommendation: **A phased approach, based on required conditions**.

Over 75% of stakeholder feedback from the Call for Evidence indicated that a phasing of waste sector obligations would be the most appropriate way to limit exposure and better understand the process. Given this, the ESA believes the following approach will ensure a managed transition for all stakeholders in the waste management chain.



Phase 0: Getting ready	Phase 1: Early implementation	Phase 2: Full implementation	Phase 3: Advanced implementation
REQUIRED CONDITIONS			
• Publish a technical guidance note to clearly specify how cost pass-through to waste producers will work. • Monitoring, Reporting and Verification protocols to be developed and agreed with industry. • Firm delivery programme for key Resources and Waste Strategy policies. • Agreement on free allowances schemes for leakage and heat offtake.	• Commencement of implementation of key Resources and Waste Strategy policies. • Municipal waste to Landfill ban regulations in place. • Adequate fiscal and volume controls on Refuse Derived Fuel (RDF) Exports. • Regulations in place to ensure Landfill Tax is aligned to actual RPI and the cost of carbon. • Establish principles for setting a time limited known carbon price.	• Landfill Tax alignment & Municipal waste to Landfill ban implemented. • RDF exports prevention regulation implemented. • Waste producers' budgets recognise cost pass-through. • Carbon-14 equipment available for the majority of the UK EfW fleet & supporting laboratory capacity. • Implementation of Greenhouse Gas Removals & Negative Emissions markets.	• Safe, practical and cost effective feedstock sampling protocols under suitable robust regulations. • Variable market carbon prices are acceptable to local authorities. • Potential inclusion of hazardous waste incineration facilities.
INDICATIVE TIMESCALES			
Present - 2026	2026 - 2028+	2028+	2032+

INDUSTRY

- Deliver £10 billion in circular economy infrastructure over the next decade.
- Invest in Carbon Capture Storage and Utilisation, recycling infrastructure and heat networks.
- Collect Data for biogenic CO_2 monitoring process, using techniques such as Carbon-14, waste sampling, mass balance, and Continuous Emissions Monitoring.
- Assisting the UK Government and the Devolved Administrations in scheme design to ensure safety, practicality, fairness & transparency.

It is essential that these **Priority Conditions** are in place before full implementation of the ETS is applied to the sector so that the ETS will deliver the necessary decarbonisation and net zero targets.

3.1.1. Deliver the key Resource & Waste Strategy policies to increase recycling

Getting plastic-based waste out of the residual waste stream is essential to decarbonising EfW.

Ensuring there are robust policies in place to reduce the amount of non-recyclable plastic generated in the first place, and where feasible, recycle everything else. This will reduce the amount of fossil-based CO_2 emissions generated by EfW as it manages this waste, thereby reducing the financial burden on waste producers. Delivering Policies to drive plastic wastes away from EfW will support investment into key infrastructure needed to deliver the circular economy commitments from the UK Government and Devolved Administrations to eliminate avoidable plastic waste and increase recycling rates.

Estimates have found that the delivery of these policies, coupled with measures to increase resource efficiency, could increase GDP by 0.9% by 2035 and create over 200,000 gross jobs in the UK by 2030. This is supported by the sector's commitment to invest more than £10 billion over the next ten years to deliver on the Government's recycling ambitions.

These policies include:

- Urgently delivering consistent kerbside collections for homes and businesses alongside clear binary recycling labelling.
- Introducing stronger measures to support the demand for recycled materials, including a long-term escalator on the plastic packaging tax and a fifty percent recycled content mandate.

3.1.2. Implement policies to protect against landfill leakage

The implementation of ETS to EfW must ensure the principles of the waste hierarchy are maintained and does not generate a perverse incentive to divert waste down the hierarchy towards landfill.

The waste sector is proud of the 75% reduction in landfill methane emissions achieved since 1990, the result of reducing the amount of biodegradable waste that goes to landfill. It is essential that any new policy intervention does not undermine the waste hierarchy and continues to support the sector's transition away from landfill.

To manage this risk, **a comprehensive municipal waste to landfill ban** should be in place, alongside an **alignment of landfill tax to RPI in current policy and expected carbon prices** before the application of ETS to the industry. The effect of these changes to landfill tax need to ensure that landfill always remains a more costly disposal route than EfW reflecting its greater environmental impact. With these policies in place, risk of leakage to landfill should be mitigated by ensuring it remains the least economically and environmentally attractive end solution for residual waste.

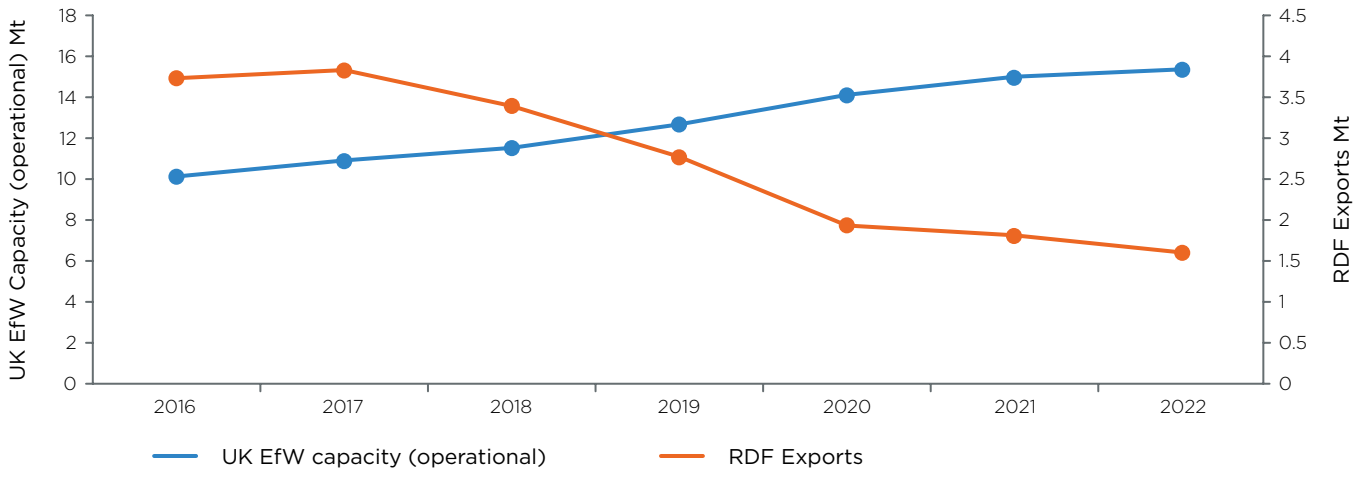
3.1.3. Ensure suitable fiscal and volume controls on RDF Exports

The introduction of carbon pricing to EfW should not encourage the export of residual waste outside the UK.

What is RDF?

Refuse Derived Fuel (RDF) is a generic term used to describe residual waste that has undergone some processing that allows it to be used as a fuel in an energy from waste facility.

Figure 1: RDF Exports and UK EfW capacity



Source: Tolvik Consulting (2023).

The ESA believes the most appropriate mechanism for managing this leakage risk is a **prevention of RDF export** when sufficient UK capacity becomes operational. The existing transfrontier shipment of waste regulations provide a potential mechanism to address this.

As the UK builds out the planned 4-6Mt of EfW capacity in the next 5 years, there will be adequate capacity to manage the 1.6Mt of RDF that is currently exported to the EU in our own borders.

Suitable fiscal measures on RDF Exports are required to ensure equivalent carbon costs are paid by exporters.

The ESA supports UK ETS scope alignment with the EU ETS to avoid market distortion and potential leakage. Consequently, any misalignment on the inclusion of hazardous waste could result in increased waste exports.

If a regulatory driver is not viable to manage this risk, the provision of **free allowances** should be investigated for the industry following existing ETS legislation as free allowances are enshrined in legislation to mitigate carbon leakage.

3.1.4. Effective regulation and enforcement of waste crime

The extent of waste crime has considerably worsened in recent years. Around a fifth of all waste is **illegally managed** in the UK[1] with an estimated impact of almost **£1 billion each year** in England alone[2]. This conservative estimate is based on costs to the public sector through (e.g., loss of taxes), cost to the private sector (e.g., loss of revenue), and wider impacts to the environment.

A HMRC survey found that landfill tax has the largest tax gap of any tax collected in 2022 at **18.4%**[3]. An equivalent increase in landfill tax and an introduction of carbon pricing to EfW could further incentivise the proliferation of this illegal industry **if not sufficiently enforced**.

Effective policy regulation and enforcement is **fundamental** to avoid leakage in the waste management sector and to maximise compliance. From producer responsibility schemes to landfill tax, **all waste management policies, regulations, and enforcement must be sufficiently rigorous and work in tandem to reduce waste crime**.

1 **https://www.gov.uk/government/publications/national-waste-crime-survey-2023/national-waste-crime-survey-2023-summary**
2 **https://www.esauk.org/application/files/3716/2694/1872/ESA_Cost_of_Waste_Crime.pdf**
3 **https://www.gov.uk/government/statistics/measuring-tax-gaps/1-tax-gaps-summary**

4. SUSTAINABLE ECONOMIC IMPACTS

Essential requirements:

- Legislation to provide for cost pass-through to waste producers.
- UK Government and Devolved Administrations to conduct impact assessment on Local Authority funding.
- A level playing field across residual waste facilities.
- A phased approach to Monitoring, Reporting, & Verification, and carbon pricing that allows clear and quantifiable economic impacts of the ETS for transition years.
- Clarity and consistency on arrangements for free allowances.

The primary purpose of the ETS is to create economic incentives for polluters to reduce their carbon emissions. Whilst this works for other industries, this is not the case for the waste management sector because EfW facilities cannot alter the composition of the waste they receive. Therefore, it is essential that any application ensures the waste producer pays to ensure the ETS successfully drives decarbonisation behaviour.

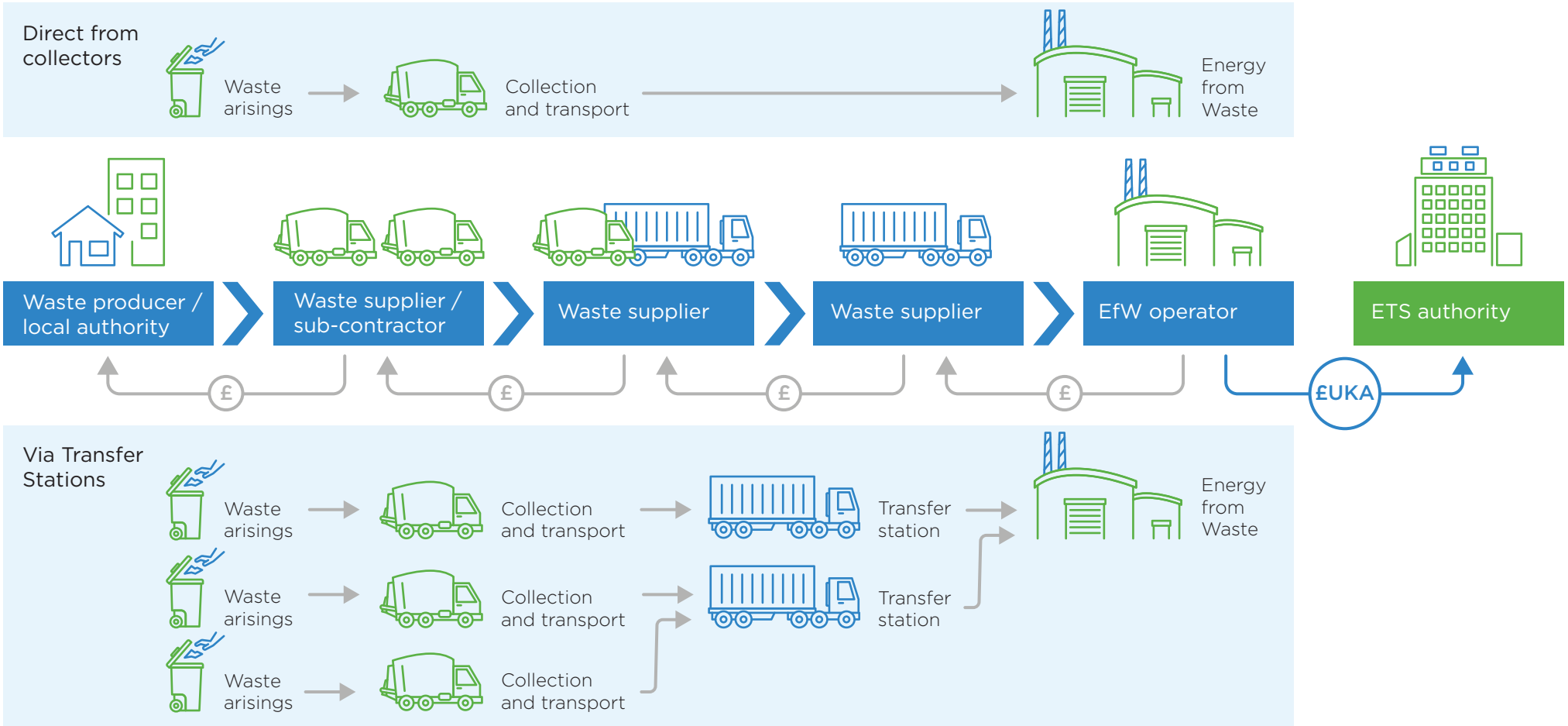
4.1. Cost pass-through

The need for cost pass-through was recognised within the recent ETS call for evidence, where 97% of stakeholders noted that *"cost pass-through will occur between operators of incinerators and EfW facilities and their customers*[4]*"*.

The requirements of cost pass-through extends beyond just the commercial interface between EfW Operators and their immediate waste suppliers. There are usually long supply chains for non-recyclable waste, including Local Authority Collected Waste and commercial and industrial waste, passing through a variety of waste transfer stations and sorting plants (where recyclable fractions are extracted). This is visualised in Figure 2. Therefore, the substantial economic impact of the ETS will also be required to pass through these facilities.

4 DESNZ (2023). Developing the UK Emissions Trading Scheme: main government response. Page 128.

Figure 2: Visualisation of the residual waste management chain from the waste producer to the end management at EfW facilities



The challenge for the sector is being able to accurately determine the fossil content of each waste producers' waste, whilst ensuring there is enough stability in the process to forward plan waste management budgets.

The ESA believes a transitionary approach will provide the conditions needed to avoid undue complexity and ensure all participants in the supply chains understand their carbon obligations and are bound in legislation to comply and pay their share.

CASE STUDY 1: Potential costs of ETS to Local Authorities

The potential cost to Local Authorities is likely to exceed £700m per annum. This is broadly equivalent to £25 per household, rising to £35 per household when considering the whole ETS system cost including Commercial & Industrial Waste sent to EfW. Clarity is required on how the New Burdens principle might apply to the application of ETS costs to Local Authority funding arrangements.

POTENTIAL ETS COST TO LOCAL AUTHORITIES	
UK Municipal EfW Operating Capacity from 2027[5]	20.7Mt
Indicative CO_2 Emissions	20.7Mt
Typical Fossil Content	48%
Carbon Price (ICC Fixed Trajectory. 2028)[6]	£98/t CO_2
Indicative ETS Liability for all municipal EfWs, pa	**£974m**
% Attributable to Local Authority Collected Waste, pa	75%, £730m
% Attributable to Commercial & Industrial Waste, pa	25%, £243m

CASE STUDY 2: Indicative example of typical 400kt EfW

The ETS cost liabilities on a EFW plant are very significant and are likely to exceed 60% of the current operating costs of a facility. The level of cost increase can only be sustained by clear and transparent pass-through to waste producers. If this is not achieved, it would lead to an operational cost in excess of total revenues.

This substantial cost will not be sustainable for the operators of these assets leading to significant cost inflation along the whole supply chain. Key participants in the supply chain will need to carefully plan and prepare for increased working capital requirements and appropriate carbon price management skills and mechanisms.

EXAMPLE OF ETS COST IMPACT TO A TYPICAL 400kt EFW	
CO_2 Emissions	400kt of CO_2
Typical Fossil Content	48%
Carbon Price (ICC Fixed Trajectory. 2028)	£98/t CO_2
Indicative ETS Liability	**£19m**
Typical Annual Operating Cost	£30m
Percentage of Operating Cost	~63%

5 Tolvik Consulting (2023). UK Energy from Waste Statistics 2022.
6 BEIS (2022). Carbon Capture, Usage and Storage: Industrial Carbon Capture business models summary.

4.2. Monitoring, reporting and verification

Essential requirements:

- MRV protocols need to be developed and phased over time.
- UK laboratory capacity needs to be developed for Carbon-14 analysis.
- Robust waste type or source characterisations for Local Authorities and Commercial & Industrial waste needs developing.
- Any use of feedstock sampling requires very careful consideration as waste is by its nature unsafe, unhygienic, and heterogeneous. Default values should be required where sampling is unsafe or impractical.
- Correction factors are essential to align stack emissions to feedstock content.

The foundation of an effective ETS process for EfW will rely upon accurately determining fossil carbon liability. This will require an accurate, equitable, and feasible method applied to the entire waste supply chain.

Having considered a range of different options, **the ESA believes that a phased approach will be needed to apply the ETS to EfW facilities**.

Two distinct methodologies will be needed to develop this. Firstly, a methodology to determine total emissions of CO_2 from the facility, and then a method to apportion this total liability back to the waste producer. Both aspects are essential to drive decarbonisation investment in decarbonisation technologies by influencing the waste stream composition.

The following options provide for evolution of the scheme, from early stages of concept, allowing experience, capability, and budgets to potentially accommodate a system based on direct waste sampling under advanced implementation.

MRV OPTIONS		A	B	C	D	E
Implementation period		**Getting ready / early implementation**		**Early implementation / full implementation**		**Advanced implementation**
EfW to ETS Authority	**Biogenic: fossil assessment for ETS**	National Emissions Factor	Site by Site	National Emissions Factor	Site by site	Site by site
	Method of emission measurement	Carbon-14 from those with equipment, National Emissions factor for EfW without Carbon-14				Carbon-14 for all sites
Waste producers / local authorities to EW operators	**Biogenic: fossil impact for waste producer**	Tonnage multiplier	Tonnage multiplier	Waste type / source characterisation* (LA by category + 1 C&I)		Customer specific sampling
	Need for a correction factor?	No	No	**Yes**	**Yes**	**Yes**
	Carbon pricing	Nil	Nil	Fixed values (per Industrial ICC, NL, DE examples)		Market prices
	Provides customer specific quantification	No	No	In part	In part	Yes
	Ability to drive decarbonisation? (1 = low, 5 = high)	1	2	3	4	5

*DESNZ/ESA/Defra need to develop a unified approach on compiling historic and current composition data for characterising across a range of local authority types and also for C&I waste.

4.2.1. **Determining stack emissions:** EfW to the ETS Authority

The preferred approach for determining stack emissions across the EfW fleet is Radiocarbon (Carbon-14) analysis. There will be some circumstances where such equipment cannot be installed, and therefore a National Emissions Factor will be required in the interim period based upon industry wide stack composition data.

Over time all feasible facilities should install Carbon-14 analysis equipment. This will enable site-by-site total carbon liability analysis.

This approach is predicated on the rapid development of a robust, UK-based, supply chain to analyse and verify the sampling. Despite the lack of UK based capability, and extremely limited global capacity, which hinders the sector's ability to invest with confidence, this is the most appropriate mechanism to accurately measure emissions and will be a growth area if ETS regulations are clear and implementable for the sector.

4.2.2. **Determining individual carbon liability:** establishing a method for pass-through

The challenge for an effective MRV approach is determining a methodology for understanding the carbon liability for individual waste producers. **An effective, accurate, and feasible method** to ensure carbon pass-through is essential to drive decarbonisation investment and influence the composition of the residual waste stream.

Residual waste is a highly heterogeneous material, which varies substantially between customers, between different consignments, and over time. Given this complexity, there are very significant technical and practical challenges in determining how to allocate the fossil carbon measured in stack emissions to individual customers.

Any methodology that is devised must first and foremost be safe and practical. Waste is, by its nature, an unhygienic and unsafe material and, as such, any close exposure of people to waste must be strictly limited and carefully controlled. It is for this reason that the extensive sampling of waste for the purpose of carbon composition monitoring is not carried out in some jurisdictions that have introduced carbon charging, most notably in Denmark. Therefore, it is considered not practical, or possible, to immediately apply an advanced sampling approach based on individual waste sampling.

In the early implementation stages, a more straightforward waste categorisation approach should be applied to the sector. This uses a simple multiplier of the tonnage delivery by each customer. This method is a **good compromise between the practicality, operability, and cost of the sampling system, compared with the benefits attributed to greater accuracy**. Several European countries who have implemented carbon charging in their waste sectors have used a similar approach, including Germany and the Netherlands.

The benefit of this approach is simplicity. It allows all stakeholders to understand the process before moving to a potentially more complex system. Additionally, the proposed waste categorisations can align with emerging reporting requirements for supporting policies, for example Extended Producer Responsibility, to reduce complexity for Local Authorities and reflect recycling efforts.

In the future phasing, it is possible that the MRV process could move to an advanced implementation system that uses a **customer-by-customer sampling process** to understand individual liability. This process would rely upon a system of direct waste sampling. Unlike the use of a waste characterisation approach, there are currently **no examples of jurisdictions which use only direct sampling of waste to allocate the full cost of fossil carbon**.

Therefore, a phasing to this approach for a safe, practical, and cost effective methodology to determine the fossil carbon content of the waste itself is needed. This should be underpinned by a new method demonstrating that it can meaningfully improve the accuracy of fossil carbon allocation, such that the associated additional costs and risks can be justified.

The Industry has previously developed similar protocols in collaboration with the Regulator. However, it requires sufficient time and trialing to ensure it is fit for purpose and underpinned by evidence. Therefore, it is possible that the system could ultimately remain at a waste type or source characterisation approach as this accuracy cannot be evidenced or achieved.

CASE STUDY 3:
GHG Emissions Factor Review

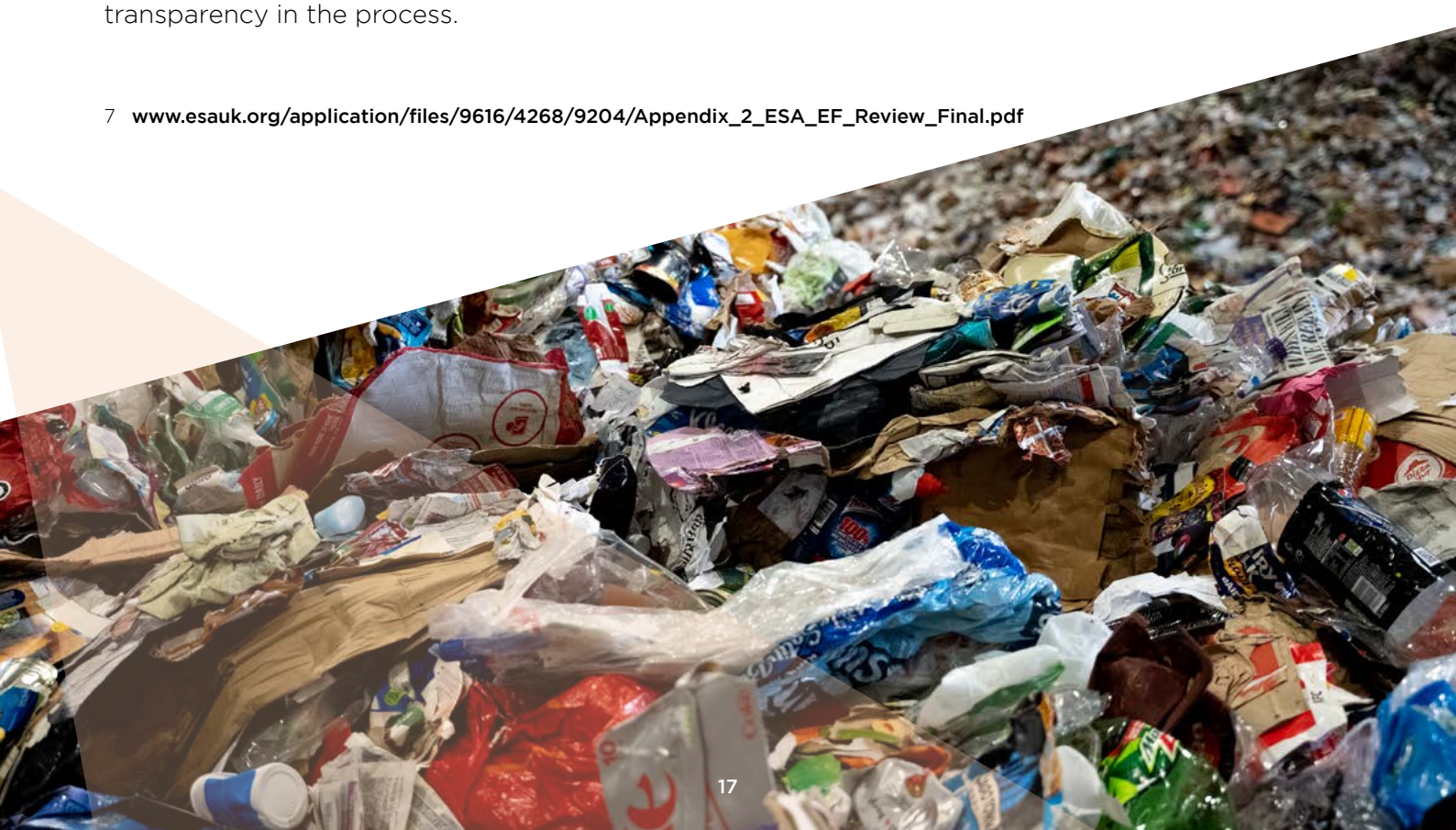
Given the complexity of the process of assessing emissions factors for thermal waste treatment, Ricardo waste asked to research the emissions factors used by the ESA members, to further help identify the most appropriate methodology[7].

A number of approaches were assessed to find a best fit empirical calculation which reflected the carbon benefits of, for example, diverting waste plastics from incineration feedstocks, once the composition change is modelled.

4.2.3. Reconciling the two approaches

This approach uses a "correction factor" to align the total fossil CO_2 determined at the stack and that attributed back to the waste producers. This is to ensure the EfWs do not over or under recover ETS costs when passing through to waste producers by maximising transparency in the process.

7 **www.esauk.org/application/files/9616/4268/9204/Appendix_2_ESA_EF_Review_Final.pdf**



4.2.4. Benefits of a phased approach:

The ESA believes this approach is the most appropriate mechanism for delivering a robust and accurate MRV process because:

1. Allowing a phased evolution to the scheme will ensure it works effectively in practice and to develop the necessary safe methods of working as well as build up the skills and experience as the scheme evolves.
2. It allows for customer specific decarbonisation benefits, therefore delivering on the primary purpose of the ETS and aligns with asks from Local Authorities.
3. The use of a plant specific correction factor will ensure that the ETS costs incurred from purchasing allowances matches the cost pass-through of waste feedstock that can only be quantified by weight and composition.
4. It aligns with other monitoring requirements, namely Extended Producer Responsibility for packaging and the Waste Industrial Carbon Capture Business Model.
5. This approach ensures correct Carbon-14 laboratory capacity can be provided and provides sufficient time for firm waste sampling protocols to be legislated for and to maximise compliance.

4.3. Carbon pricing

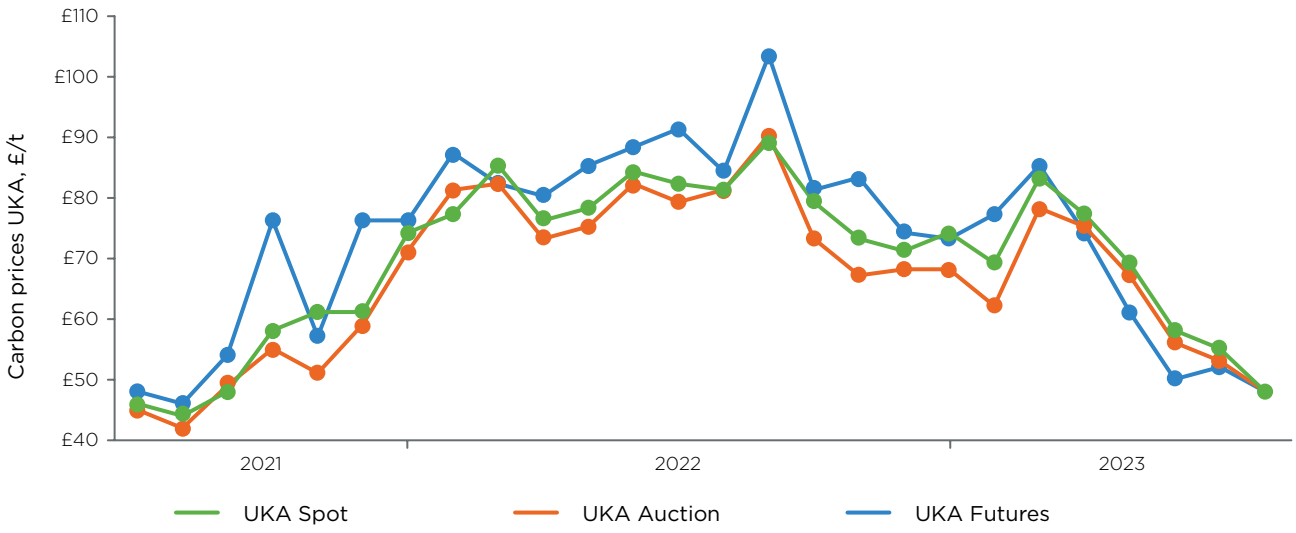
The sector needs a **stable price mechanism in the interim** to manage the cost impact on the supply chain, Local Authorities, and on net zero investment decisions.

Recent UK allowance prices in the UK show the substantial volatility in the current market (see Figure 3). When applied to a larger Waste Disposal Authority sending around 200,000 tonnes of Residual Waste to EfW, they could see their costs for ETS alone **vary by £5 million per year** based upon recent estimations. This is a **very material amount** when considering the many other spending priorities of Local Authorities.

In addition to this, Local Authorities need to be able to **forward plan their waste management budgets**. If carbon pricing is applied to the EfW industry, it is important that there is longer term clarity on the carbon price used within EfW contracts. This will ensure that carbon pass-through can be managed and the liability falls with the waste producer. **Using a known carbon price for an interim period can enable this**.

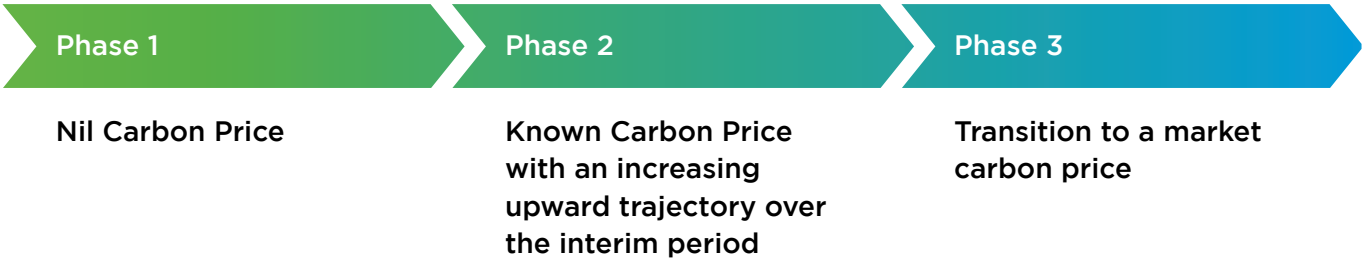
The ESA suggests that in the short-term, **a known carbon price is used that increases at a fixed upward trajectory**. This would enable forward planning and ensure the carbon pass-through can be navigated by all those in the stakeholder chain.

Figure 3: Recent UK allowance price – spot, auction and futures values



Source: Tolvik Consulting (2023).

Figure 4: The ESA's proposal for a phased carbon pricing mechanism



Similar approaches already exist in EU countries. Germany and the Netherlands have published the price of their CO_2 levies up until 2031 and 2030 respectively. This provides clarity on carbon prices for emitters, allowing them to forward plan.

A similar precedent is emerging in the UK with the Industrial Carbon Capture (ICC) Business Model. Which will establish a base carbon price of £83 in 2022 which **gradually increases** by £2.50 up to 2040. In addition to this, the Hospital and Small Emitters scheme within the UK ETS establishes a mechanism within the market for using a **known carbon price** based on the average of the **past 12 months**. The ESA suggests that using similar mechanisms for the interim period would address the challenges for forward planning.

4.4. Additional considerations

4.4.1. Incentives for Heat Networks

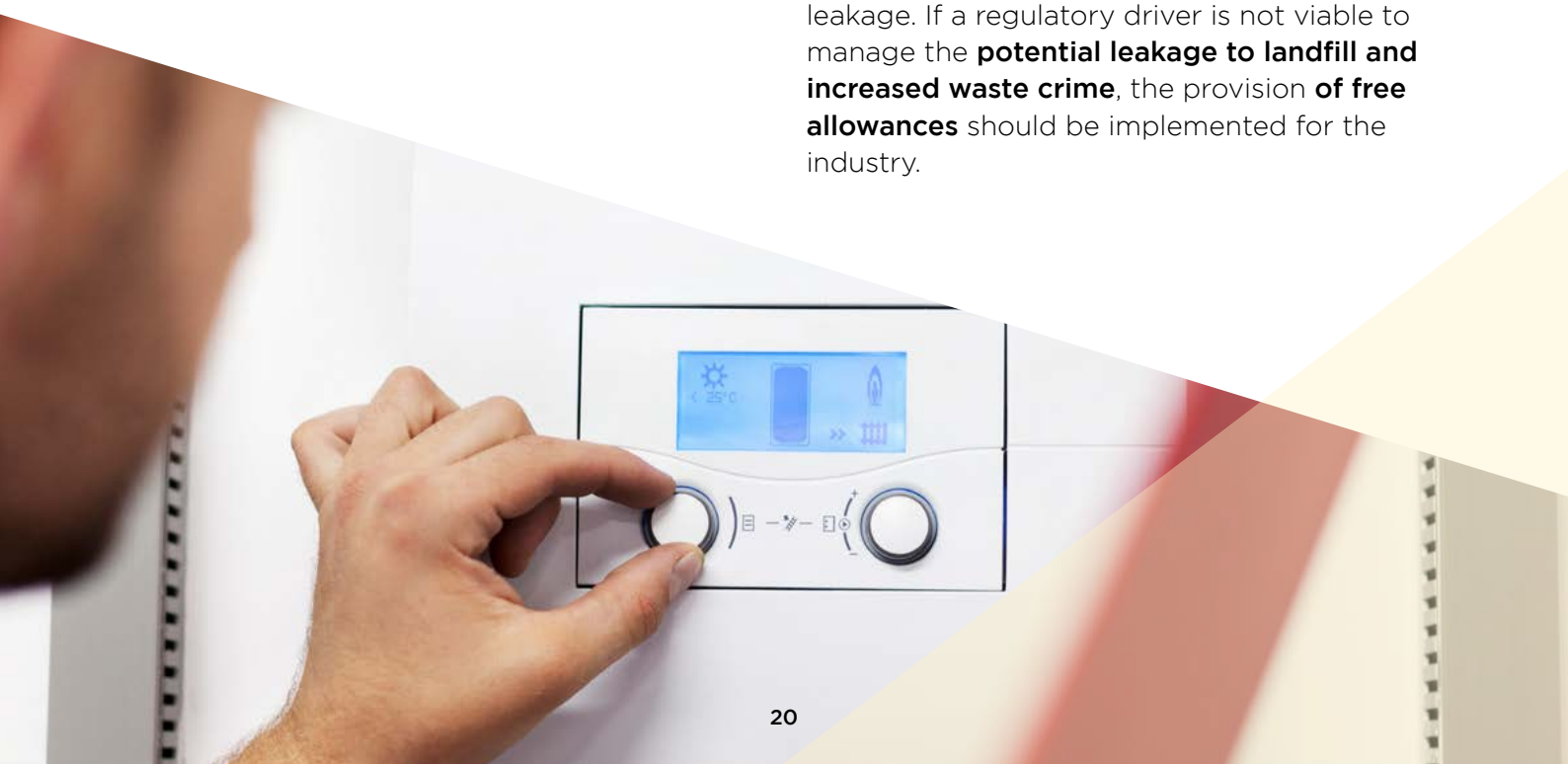
Heat Networks will play a key role in decarbonising the UK heating sector. Heating homes and offices represents a third of the UK's overall emissions. Encouraging the maximisation of heat networks powered by waste heat, displacing the use of gas heat, will further the UK's decarbonisation goals and should work alongside the ETS. In 2022, EfW facilities generated 1,770 GWhth of local heat – the equivalent of switching 147,000 homes away from gas.

Under existing ETS criteria, electricity generators who currently, and intend to, export measurable heat for the purpose of district heating are **eligible for free allowances**.

To avoid distortion across sectors, and to maximise the potential of heat networks, **heat exports from EfW facilities should receive the same allowances to ensure alignment across sectors**.

4.4.2. Managing carbon leakage

Free carbon allowances are used within the existing UK ETS to minimise risks of carbon leakage. If a regulatory driver is not viable to manage the **potential leakage to landfill and increased waste crime**, the provision **of free allowances** should be implemented for the industry.



5. CLEAR & PRACTICAL IMPLEMENTATION

5.1. Technical guidance note: navigating cost pass-through

Sixty six percent of the Call for Evidence stakeholders noted that cost pass-through will be feasible because of the Qualifying Change in Law (QCiL) clauses within Local Authority contracts.

It is a misconception to accept that all waste supply contracts will deal with cost pass-through under QCiL clauses. The contract drafting varies widely across the sector and may or may not apply to instances such as the UK ETS. This means cost pass-through is the first priority to be unilaterally regulated to avoid delay in ETS implementation.

Situations which lead to lengthy legal disputes across parties in the waste management industry need to be avoided to ensure swift delivery of ETS for the sector. Given the significance of the expectant costs associated with the ETS, it is essential that the exact policy design minimises this risk.

It is for these reasons that the ESA recommends that the principles of cost pass-through to waste producers needs to be **clearly legislated** for and included within relevant **guidance notes**.

It is essential the legislation for the expanded ETS scope sets out how cost pass-through will work. This will make the mechanism readily available to the whole waste supply chain, reducing the potential for disputes.

In 2023, HM Treasury developed a comprehensive Manual for determining how liability is computed for the Electricity Generator Levy[8]. This was supported by a Technical Guidance Note. Guidance has also been developed for the application of the ETS to the aviation sector[9]. The industry believes that a similar mechanism is necessary to determine cost pass-through in the context of the ETS.

To ensure this guidance is comprehensive and effective, it should include:

- A specific requirement for the cost of emissions to be recognised within the waste disposal industry.
- Guidance on how this will be communicated (e.g. as a separate line item on the invoice/ bill) through to waste producers, to provide an indisputable value of their ETS liability and an effective and consistent signal to reduce the carbon content of the waste they send to EfW for treatment.
- Guidance on how the economic impact of this policy to the waste producers will be transitioned.
- Reference to emerging legislation on the development of Carbon Capture from EfW to ensure alignment.

8 **https://www.gov.uk/hmrc-internal-manuals/electricity-generator-levy-manual**
9 **https://www.gov.uk/guidance/uk-emissions-trading-scheme-for-aviation-how-to-comply**

5.2. The UK ETS cap adjustment

The Government response to the call for evidence stated that the waste sector inclusion in the "UK ETS would be equivalent to around seven million UK allowances for waste in 2028, with decreasing amounts each year for the remainder of the phase."

By 2027, industry estimations expect UK Operational Capacity to be 20.7Mtpa[10], therefore around over 9Mtpa of fossil CO_2. The current Government estimation for first year allowances for the industry is likely to be substantially below the emissions of the EfW fleet that is likely to be operating by this date. The ESA therefore suggests this cap is brought in line with expected capacity.

5.3. Greenhouse Gas Permits

It is essential that GHG permits for EfW plants are designed and developed suitably for the sector in order to allow decarbonisation and net zero targets.

The existing permit drafting for current ETS participants is not appropriate for a waste treatment plant given the primary purpose of EfW is the sanitary management of waste, and not the production of electricity, heat and products. For example, any reference to multiple daily feedstock sampling would not be appropriate or feasible for EfW.

The ESA recommends that a joint working group is established between GHG permit regulators, the ETS Authority, and EfW operators to make sure permits are workable.

10 Tolvik Consulting (2023). UK Energy from Waste Statistics.

6. CREATING INVESTABLE CONDITIONS

The primary purpose of extending the ETS to EfW is to incentivise the sector to decarbonise. To effectively achieve this, it is essential this policy is designed in a manner that creates the correct conditions for the sector to invest in key decarbonisation measures.

6.1. Invest in key circular infrastructure

Encouraging a shift to a circular economy delivers the greatest carbon and resource efficiency savings across the sector. It is essential that the right conditions are in place to support critical investment in recycling and waste infrastructure.

In the Government response to the call for evidence, the ETS Authority reiterates that inclusion in the ETS will support wider targets to reduce waste and increase recycling. **This will only be feasible if local authorities are able to invest in key circular economy infrastructure prior to the implementation of the ETS**.

It is essential that the UK government and the devolved administrations provide our sector with confidence that key packaging and recycling reforms will be implemented without further unnecessary delay. This could unlock the sector's commitment to invest more than £10 billion over the next ten years in new recycling infrastructure.

Figure 5: Definition of 'investment conditions'

Source: Suez (2023).

6.2. Supporting a negative emissions market

Due to the nature of residual waste, the carbon emissions associated with the biogenic feedstock could be an important source of negative emissions when treated at an EfW with CCS.

These negative emissions will play a part in the waste and resource industry's route to net zero and will be an economic driver for EfW facilities to invest in the technology. Inclusion of EfW in ETS needs to be structured to facilitate a longer-term Greenhouse Gas Removals (GGR) Negative Emissions Market.

The ESA welcome the Government's decision to include engineered GGR technologies in the UK ETS. Introducing GGRs into this structured market will support the provision of negative emissions at a scale that will drive the carbon price and generate a broader incentive to invest in large-scale infrastructure such as carbon capture.

6.3. Community decarbonisation schemes

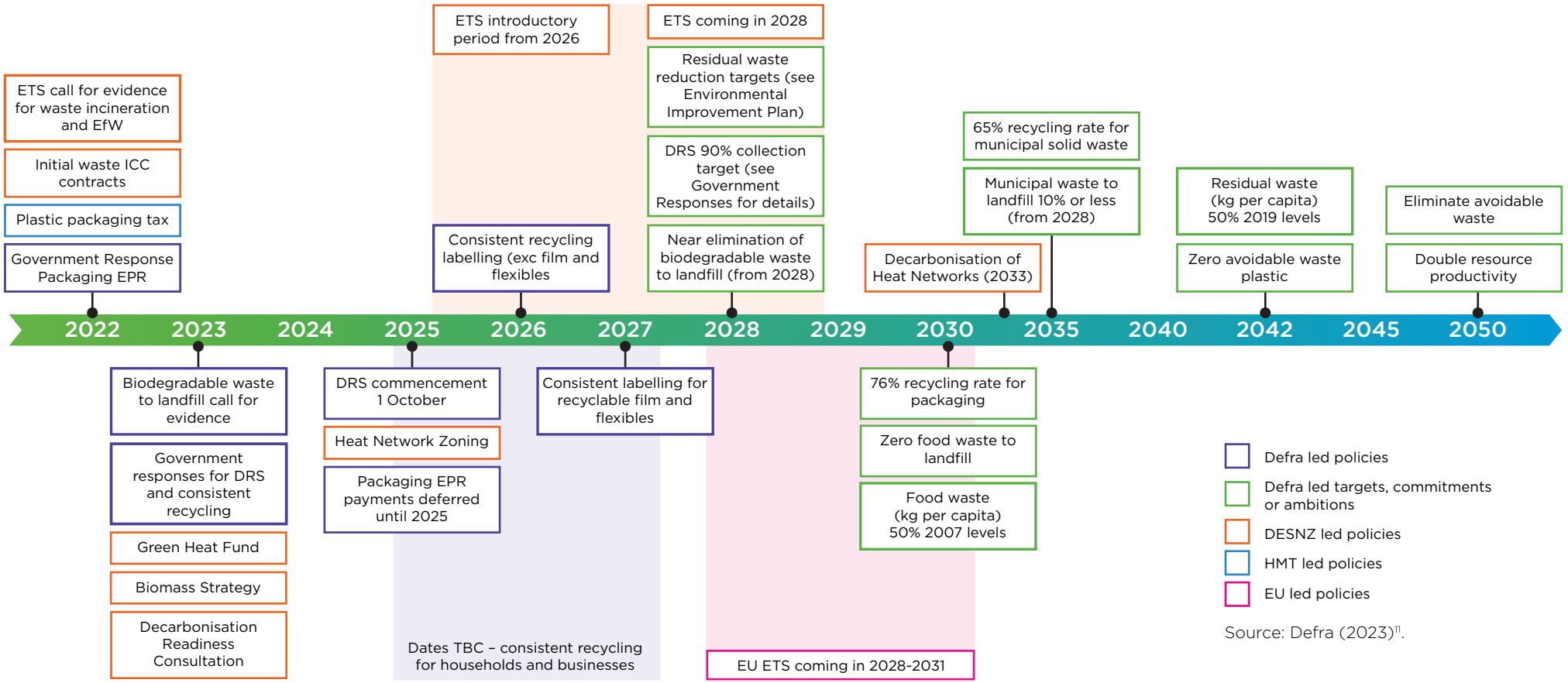
To support local investment in decarbonisation projects, the ESA recommends developing arrangements such that EfW operators can support community action with the allocation of some proportions of the funds for purchasing allowances.

For example, ESA recommends the development of a scheme whereby contributions to local community decarbonisation schemes – up to a specified level – are able to be offset from UKA allowances purchases.

7. ANNEX I

Proposed timeline of the Resources & Waste Strategy and Governmental measure to decarbonise EfW.

Figure 6: Indicative Waste Sector Roadmap to Net Zero – government policies, targets, commitments, and ambitions



Source: Defra (2023)[11].

11 DEFRA (2023). Call for Evidence to support the near elimination of biodegradable waste to landfill.

	EXAMPLE INDUSTRIAL EMITTER	EXAMPLE EFW
Name	*Confidential*	100ktpa Municipal EfW
Thermal rating	35MW from all on site processes	31MWth boiler rating
Description	Large (>20ha) Industrial site in north of England manufacturing household cleaning products	Municipal EfW handling 100ktpa of residual waste, <2ha site
Annual CO_2 emissions, t CO_2	19.5kt, as calculated for ETS	~30-50kt depending on measurement method
Currently within UK ETS	Yes	No
Ability to decarbonise by switching fuels	Yes – variety of methods depending upon each site emitter (hydrogen, HVO, solar, EV, improved heat efficiency, closed loop heating, etc.)	No, receives waste per Local Authority household collections
Annual running hours	Varies upon production requirements	~90%, ~8,000hrs annually, must run to provide sanitary waste disposal function
Ability to forward buy allowances	Yes, as relatively small proportion of annual operating costs	No, currently limited operational capability (trading function), and financial requirements (i.e. available collateral) in both public and private sectors; Lengthy approval processes from LAs involved
Free allowances allocated	Yes, for measurable heat and eligible products	To be decided

8. ACKNOWLEDGEMENTS

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The Environmental Services Association (ESA) is the trade body representing the UK's recycling and waste management industry. Our members are helping the UK move towards a more circular economy by collecting, sorting, and treating waste to recover materials and energy, while protecting the environment and human health. Combined, our members collect or process tens of millions of tonnes of waste material every year and have helped to increase England's recycling rate five-fold over the past twenty years.

To find out more about the ESA, please visit **www.esauk.org**