# FOOD WASTE RECYCLING

## ANAEROBIC DIGESTION
THE NET ZERO LEVER FOR LOCAL AUTHORITIES


BIO CAPITAL

ashfords

ADBA

**Leanne Williams** | Lead Analyst: Environment and Agriculture

# FOREWORD

Anaerobic digestion (AD) is well-established within UK but, in the coming years, new regulations placed upon local authorities for the separate collection of food waste will significantly increase the amount available for treatment by AD. This will sit alongside increased local authority targets for recycling and national, binding targets, for reduction of greenhouse gas (GHG) emissions as we transition to a Net Zero economy.

This developing regulatory environment is largely matched by public opinion seeking a lower waste, less resource intensive economy, with a more proactive approach to positive action for nature. Local authorities will therefore find themselves having to meet both new regulations and public expectations in what is already a challenging financial position.

The AD sector is well placed to make a positive contribution to these challenges and the treatment of separately collected food waste by AD can deliver the following benefits to local authorities or business:

**Meeting carbon reduction targets**, *supporting the transition to Net Zero,* by:

- Diverting organic waste away from landfill.
- The production of bio-methane, used for injection into the gas grid for heating or as a low carbon vehicle fuel.
- The production of bio-$CO_2$. $CO_2$ is a vital product in the food and beverage supply chain and the AD process is able to produce $CO_2$ at a significantly lower carbon cost than standard production techniques.

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# FOREWORD CONTINUED

**Meeting recycling targets.** Black bag waste can contain significant organic wastes suitable for treatment by AD. *Separate collection of food waste will support recycling targets.*

**Cost savings.** *Gate fees for separate collected food waste can be markedly lower than gate fees for either black bag waste processing, composting or landfill.*

**Nature positive.** The AD process produces a rich biofertiliser that is returned to farmland. The use of biofertiliser is cheaper for farmers and has a much lower carbon cost of production than standard fertilsers.

These simple, but powerful, benefits of food waste recycling can be used innovatively to increase positive impacts. As shown in the case studies, local authority waste collection vehicles can use biomethane produced by food waste they have collected as their fuel. This circular solution reduces one of the key carbon emissions of a local authority.

This briefing report is a simple explanation of the process and benefits of food waste recycling through AD and how it can help local authorities meet their challenging targets. I hope you find it informative.

**Peter Sharpe**
**Chief Executive, BIO CAPITAL LIMITED**

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# EXECUTIVE SUMMARY

We are entering a new era of waste management with the introduction of mandatory separate food waste collections across England (population c.58 million). This is an opportunity for local authorities to cut costs, cut carbon emissions, improve recycling rates across all waste streams and improve air quality.

Many see this as a first step towards an integrated energy transition towards Net Zero. Sir David King's West Midlands Energy Commission concluded, "Many of the most urgent problems require the integration of energy systems, such as heat and electricity grids, or the integration of energy into wider systems such as waste or transport, which must necessarily happen locally."

AD is the government's preferred option for the treatment of separate food waste streams, recycling valuable resources. This Briefing seeks to inform local authorities of what AD can deliver for them and their constituents.

***ADBA would like to thank Bio Capital and Ashfords for their support in the production of this Briefing.***

## Contents

# A NEW ERA FOR WASTE MANAGEMENT

From 2023, the food waste hierarchy will be made legally binding, requiring all food waste that cannot be redistributed to be recycled (aligning legislation in England to that already being pursued by Scotland, Wales and Northern Ireland. Waste and resources management is a devolved responsibility.) Treatment through anaerobic digestion (AD) is the government's 'preferred option' for delivery of this goal as it generates valuable renewable resources; energy, fuel, fertiliser and $CO_2$. The following timeline reveals the policy pathway to upgrade England's waste sector.

2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035

Councils must provide **separate food waste collections to households** on a weekly basis.

Government is releasing **£290m of funding for local authorities** from 2023/24.

**Businesses and non-domestic premises** such as schools, universities, hospitals, and nursing homes are also included under the mandate from 2023/24.*

A **ban on organic waste** to landfill by 2028 is being explored.

*"Our goal is for **at least 65% of municipal waste by weight to be recycled by 2035**."*
**Resources and Waste Strategy**

*Small and micro-firms may be exempt or allowed to phase in separate collections over two years, subject to the outcome of the consistency consultation.

# THE CLIMATE IMPERATIVE

## Over 300 local authorities have declared climate emergencies and net zero targets, acknowledging they need to act on the causes and impacts of climate change

By recycling the valuable resources in food waste through anaerobic digestion (AD) councils can deliver:

- **Biomethane.** Green gas which can be injected into the national gas grid – suitable for domestic heat or transport fuel – or it can be used to generate renewable electricity.
- **Bio-$CO_2$**. A stream of gas suitable for industrial use (e.g. carbonating drinks) or storage, thus reversing GHG emissions.
- **Biofertiliser (known as digestate)**. An organic fertiliser which recovers nutrients found in all food waste, and returns them to land.

*Managing food waste via AD converts material from a "**waste**" into **valuable, low-carbon bioresources**, delivering a 6% cut in the UK's greenhouse gas emissions.*

# FOOD WASTE PRODUCTION

## Post-farm gate

Each year, the UK produces an estimated **9.5 million tonnes of food waste** – the following breaks down the sources of these wastes:

**Household: 6.6Mt (69%)**

**Manufacturing: 1.5Mt (16%)**

**HaFS: 1.1Mt (12%)**

**R&W: 0.3Mt (3%)**

+

**On-farm food waste: 0.9-3.5Mt**

Very little is known about the quantity of edible food waste arising on farms; estimates range between 0.9 – 3.5Mt per year. The variance indicates the need for better data collection across the food chain.

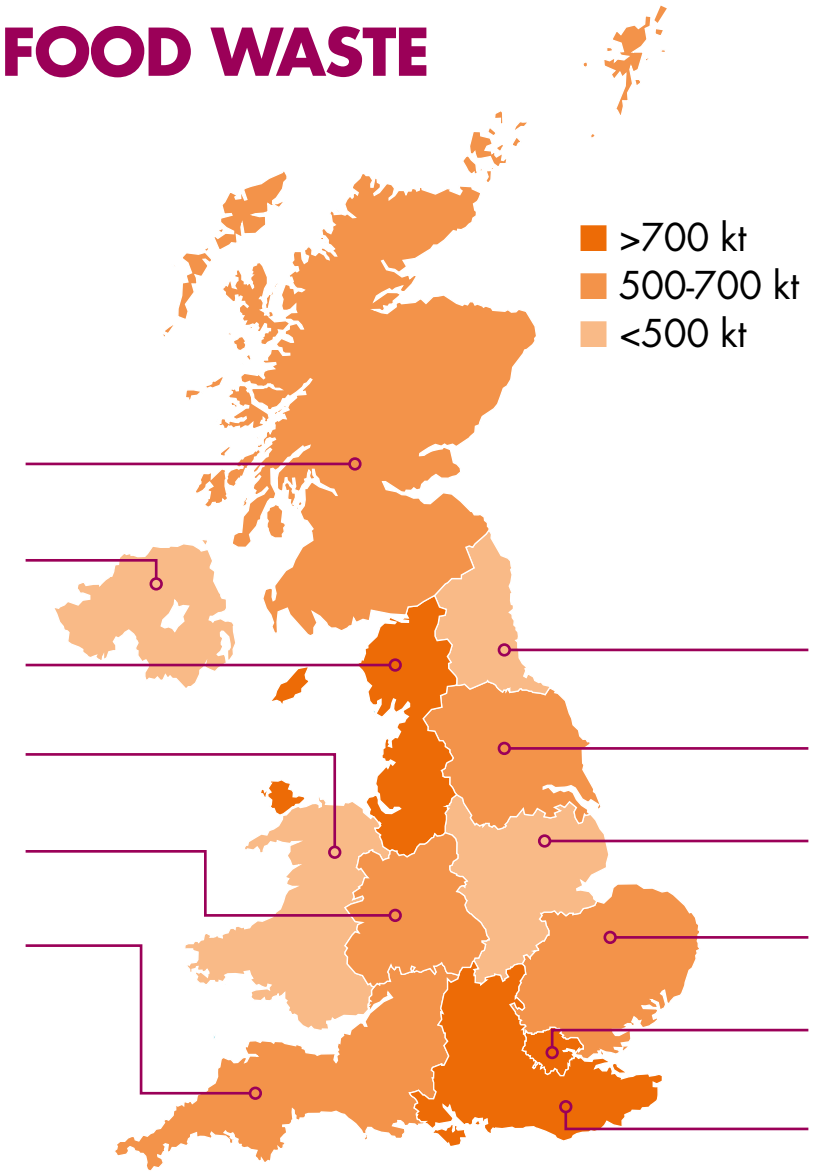
**HaFS** = Hospitality and Food Services;

**R&W** = Retail and Wholesale

Source: WRAP Food Surplus & Waste in the UK

**https://bit.ly/3fZyiRr**

# ESTIMATED HOUSEHOLD FOOD WASTE




**Scotland:** 593kt

**Northern Ireland:** 177kt

**North West:** 756kt

**Wales:** 327kt

**West Midlands:** 587kt

**South West:** 591kt

**North East:** 284kt

**Yorkshire and the Humber:** 575kt

**East Midlands:** 487kt

**East:** 625kt

**London:** 820kt

**South East:** 922kt

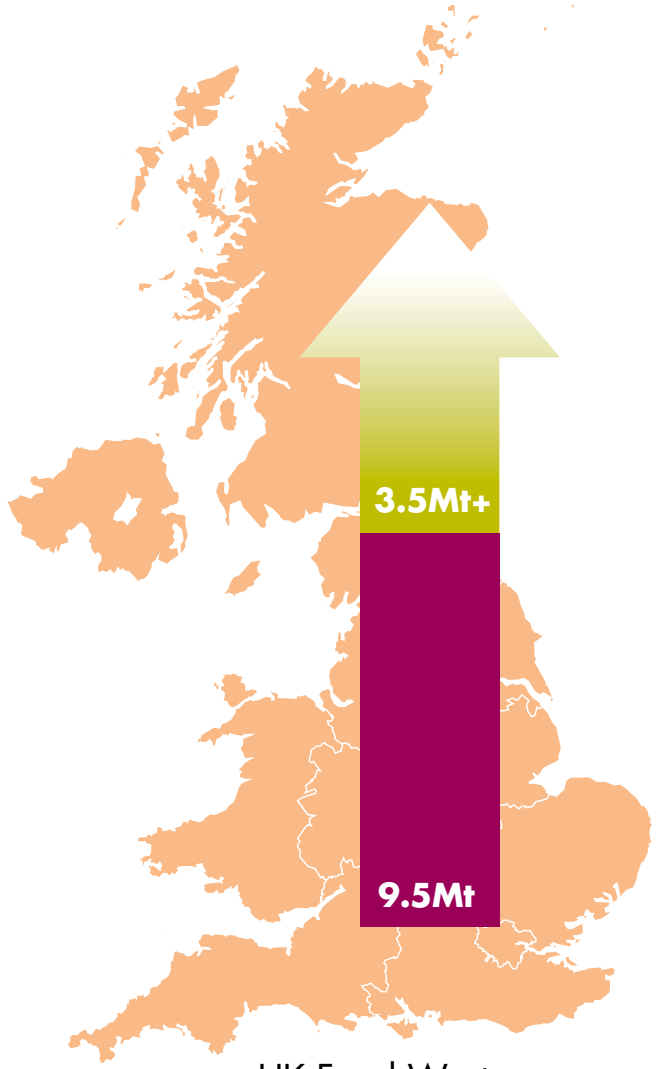
*"An area almost the size of Wales (c. 19,000km$^2$), would be needed to produce the food and drink currently wasted"*
**WRAP (2021)**

Estimates quantified using ONS data:
**https://bit.ly/35kFeq5**

# THE KNOWN UNKNOWNS

## A lack of data on food waste is a long-standing barrier to understanding the scale of the problem.

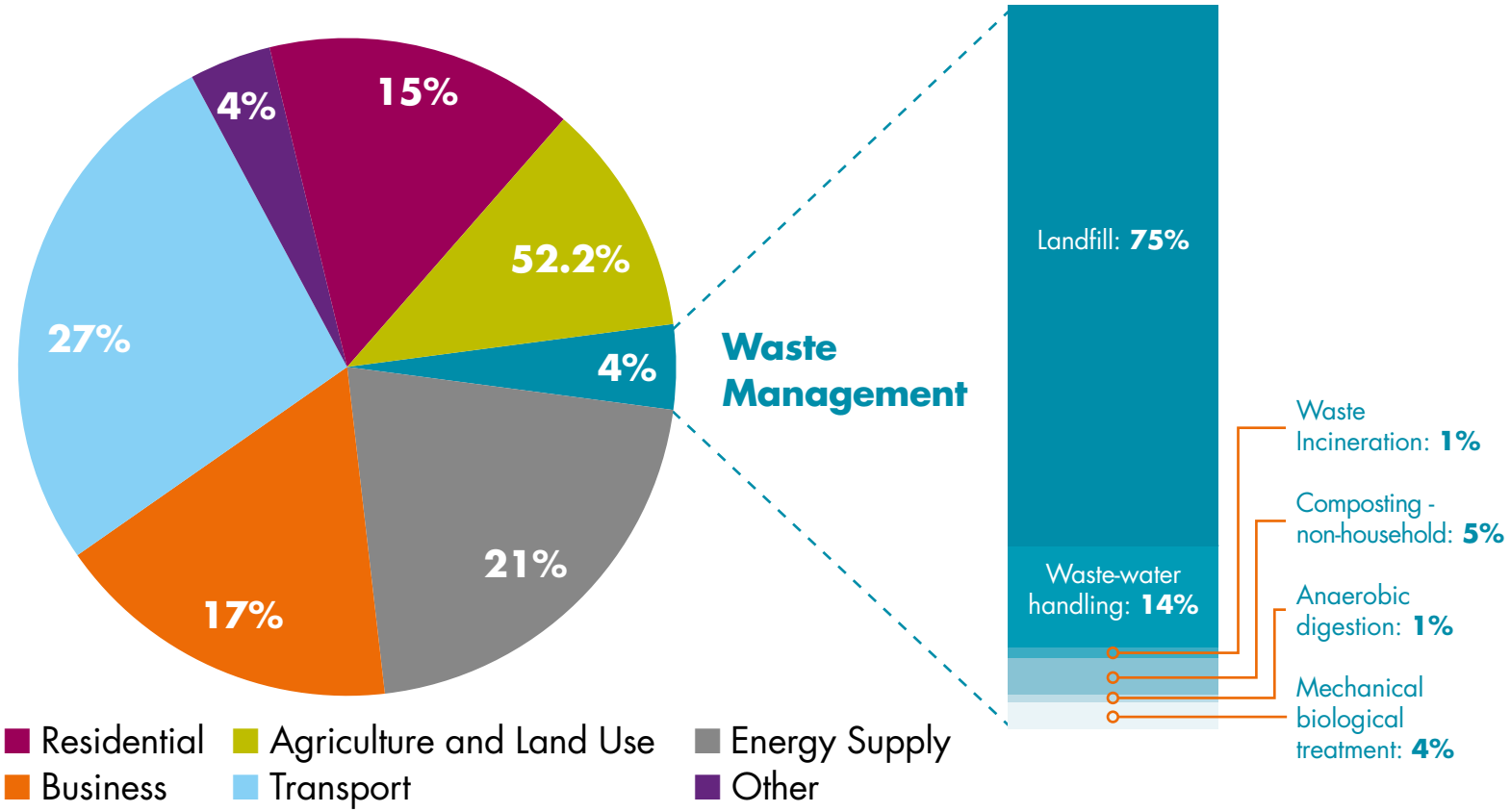
- Local authorities may be required to collect ***all*** food waste - not solely household but also business - in certain areas of towns and cities, significantly increasing the amount of food waste they are responsible for managing.
- Disposal rates across Retail & Wholesale, Hospitality & Food Services, Manufacturing, and Farm sectors are either estimated or unknown.
- Government is to explore mandatory food waste reporting for businesses – which should bring greater clarity to the data on food waste.



# EMISSIONS FROM WASTE: TOTAL GREENHOUSE GAS EMISSIONS

- The waste sector accounts for **4% of all greenhouse gases** emitted in the UK – 75% of which come from landfill.
- These landfill emissions are primarily caused by **rotting organic wastes**.
- **Each year, 1 Mt of food waste is sent to landfill** emitting nearly 620,000 Kt $CO_2e$.
- Though waste management accounts for 4% of UK GHG emissions, the sector is one of the biggest causes of methane emissions.

## UK GHG emissions 2019 (Mt $CO_2e$)



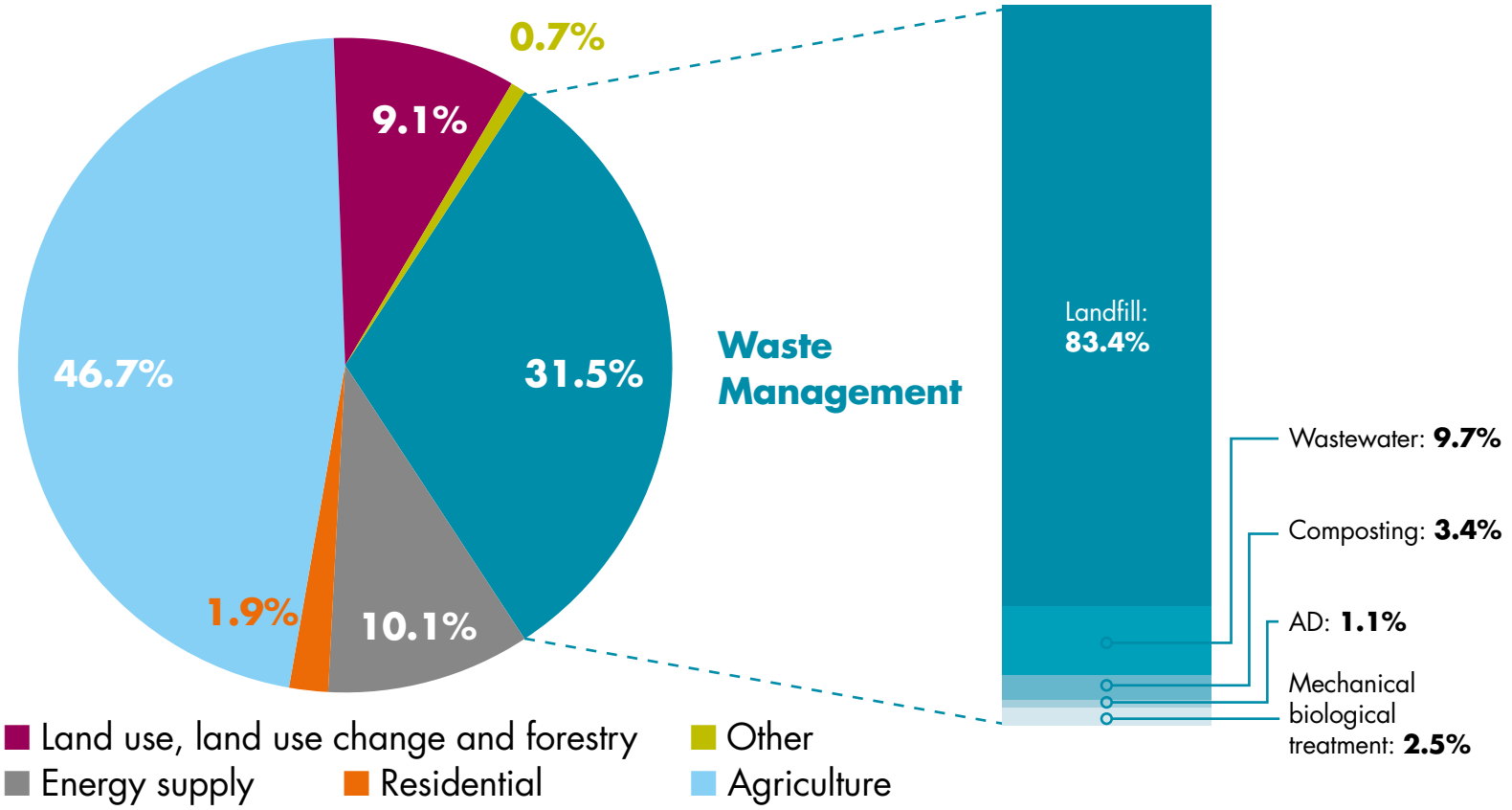

Data taken from UK's National Atmospheric Emissions Inventory: **https://bit.ly/3HaXwIG**

# EMISSIONS FROM WASTE: METHANE ($CH_4$)

## Methane accounts for the majority of GHG emissions from the waste sector.

- Over a 20-year period, methane ($CH_4$) is up to **86 times more potent** than carbon dioxide ($CO_2$) as a greenhouse gas (Global Methane Pledge **https://bit.ly/3si8KVz**)
- The waste management sector produces 17Mt – or **over 30%** – of methane emissions in the UK the equivalent of 442Mt of $CO_2e$
- The majority of these emissions arise from organic waste in landfill.

Data taken from UK's National Atmospheric Emissions Inventory: **https://bit.ly/3HaXwIG**



# EMISSIONS FROM WASTE: METHANE ($CH_4$)

When food waste is sent to landfill, it can take years to breakdown and its impact accumulates as more waste is piled on on top of it.

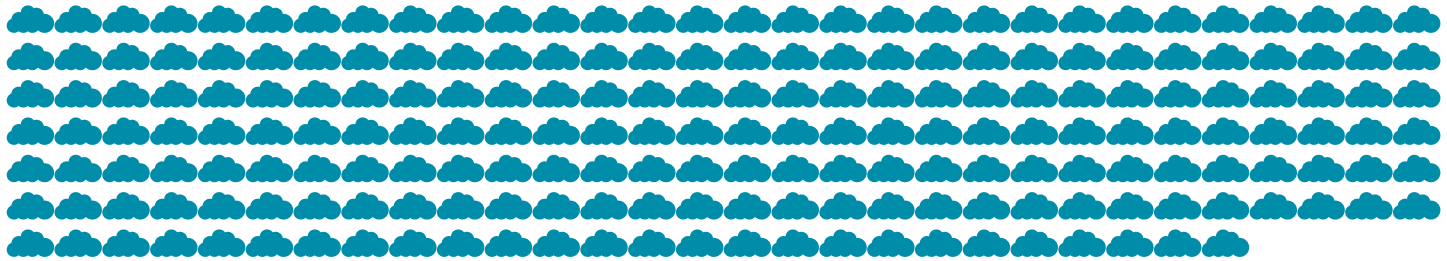
Organic wastes thrown away as far back as 75 years ago continue to emit methane, showcasing the impact that poor management of food waste continues to have on our climate both now and into the future.

**Food waste needs to be diverted immediately to reduce emissions not just next year, but for years to come.**

| Proportions of the 2017 landfill methane emitted from sites operated in different periods | |
|---|---|
| **Waste deposited in years** | **Methane generated in 2017** |
| 1945 - 1979 | 5% |
| 1980 - 1989 | 8% |
| 1990 - 1999 | 19% |
| 2000 - 2009 | 35% |
| 2010 - 2017 | 34% |

**Each year, 1 million tonnes of food waste is sent to landfill...**

**...releasing 24,000 tonnes of methane...**



**...these emissions are equivalent to releasing nearly 2.1million tonnes of carbon dioxide – equal to the annual emissions of 950,000 cars.**

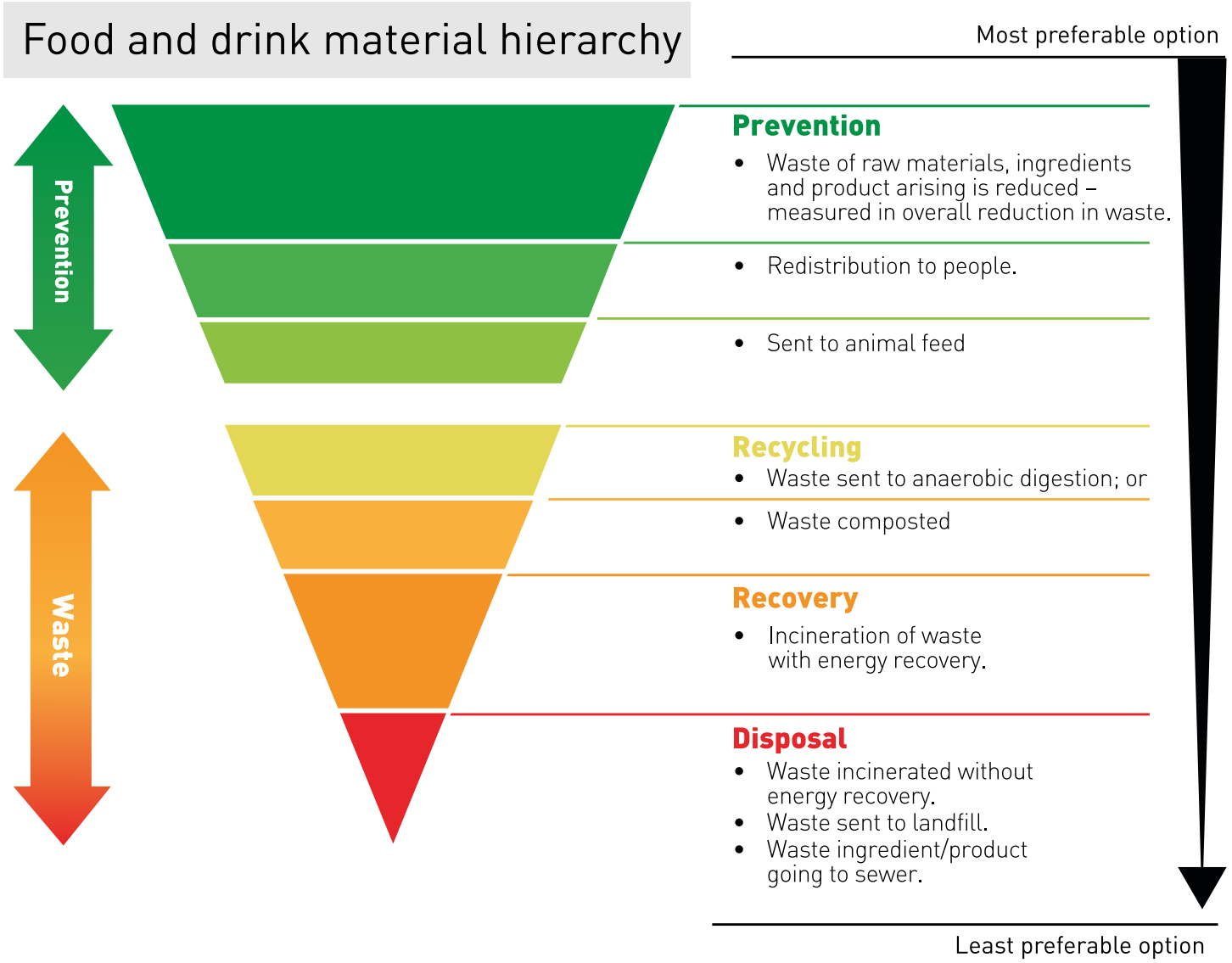
# WASTE MANAGEMENT

Food waste can be managed in a number of ways – the waste hierarchy orders these options from best to worst available.

Prevention is always most preferable, including the redistribution of food to people and animals, where possible.

The remaining food is classed as 'waste' which can be:

- Recycled via **anaerobic digestion (AD) ['most preferable']** or compost
- Recovery via incineration (also known as Energy from Waste, EfW)
- Disposal via landfill



# FOOD WASTE MANAGEMENT: OPTIONS AVAILABLE

## Unsustainable

Linear economy promoting the single use of resources

### Landfill

**Least favourable**

- Responsible for over 30% of methane emissions in the UK.
- Toxic leachate contaminates water systems.
- Landfill tax makes it an expensive option for food waste management.

### Incineration

- Expensive for organic waste.
- Managed by strict environmental regulation.
- Emits GHGs.
- Can lock cities into producing high volumes of waste to 'feed' the incinerator.

## Sustainable

Circular economy promoting the recycling of resources

### Compost

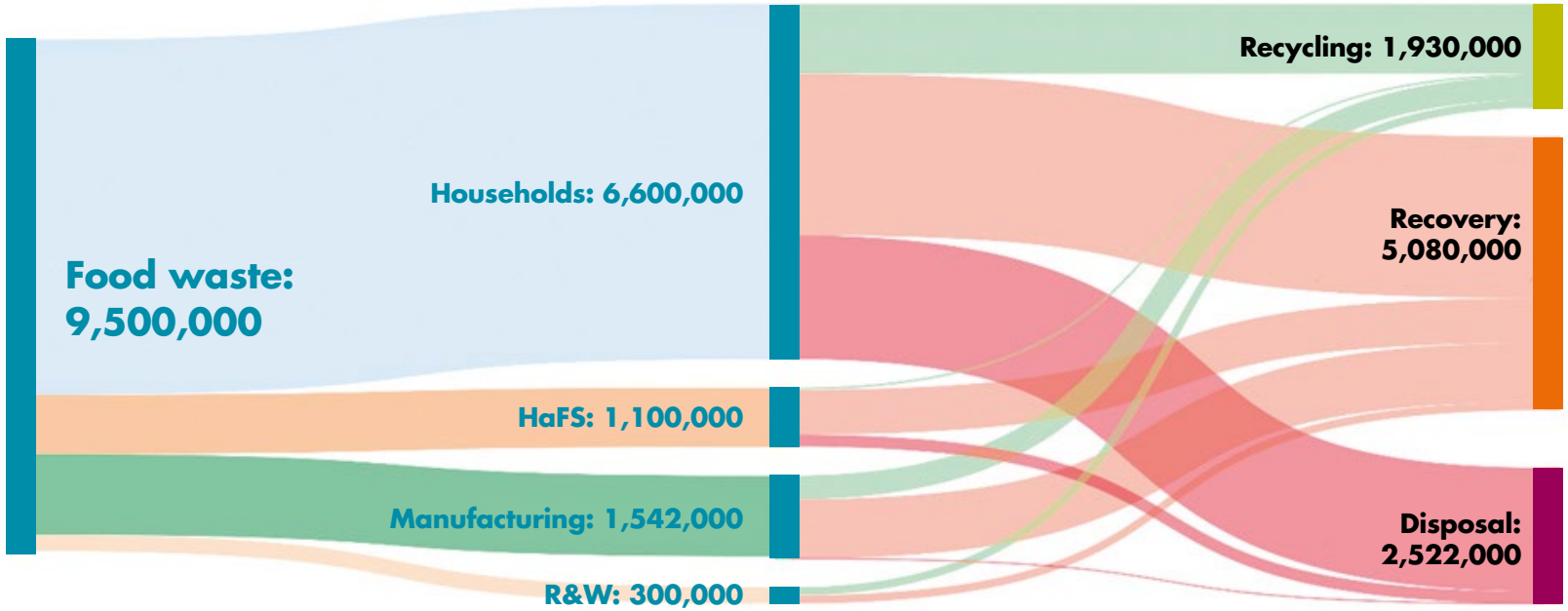
- Converts food waste into a valuable fertiliser.
- But emits $CO_2$ as waste decomposes.
- However, it does not generate any green energy...

### AD

**Most favourable**

- Captures methane emissions, to produce renewable energy.
- Recovers nutrients in the form of digestate, an organic biofertiliser.
- Concentrates biogenic $CO_2$, suitable for industrial use or permanent. storage, actively reversing emissions.
- Most economic.

# WHERE DOES OUR FOOD WASTE GO?




Just **20%** of food waste in the UK is recycled, which includes both AD (most favourable) and compost (less favourable)

The majority of food waste currently ends up going to recovery measures such as incineration (**>53%**)…

…with the remainder being disposed of in landfill (1Mt) or down the sewer (1.5Mt)

*"4Mt of food waste **must** be diverted to AD if the UK is to achieve its recycling target."*

Source: WRAP Food Surplus & Waste in the UK: **https://bit.ly/34mi6Hy**
N.B. Disposal refers to food waste sent to either landfill or sewer; recovery refers to incineration or land spreading; HsFS = hospitality or food services; R&W = retail and wholesale. There was no available data for retail and wholesale disposal.

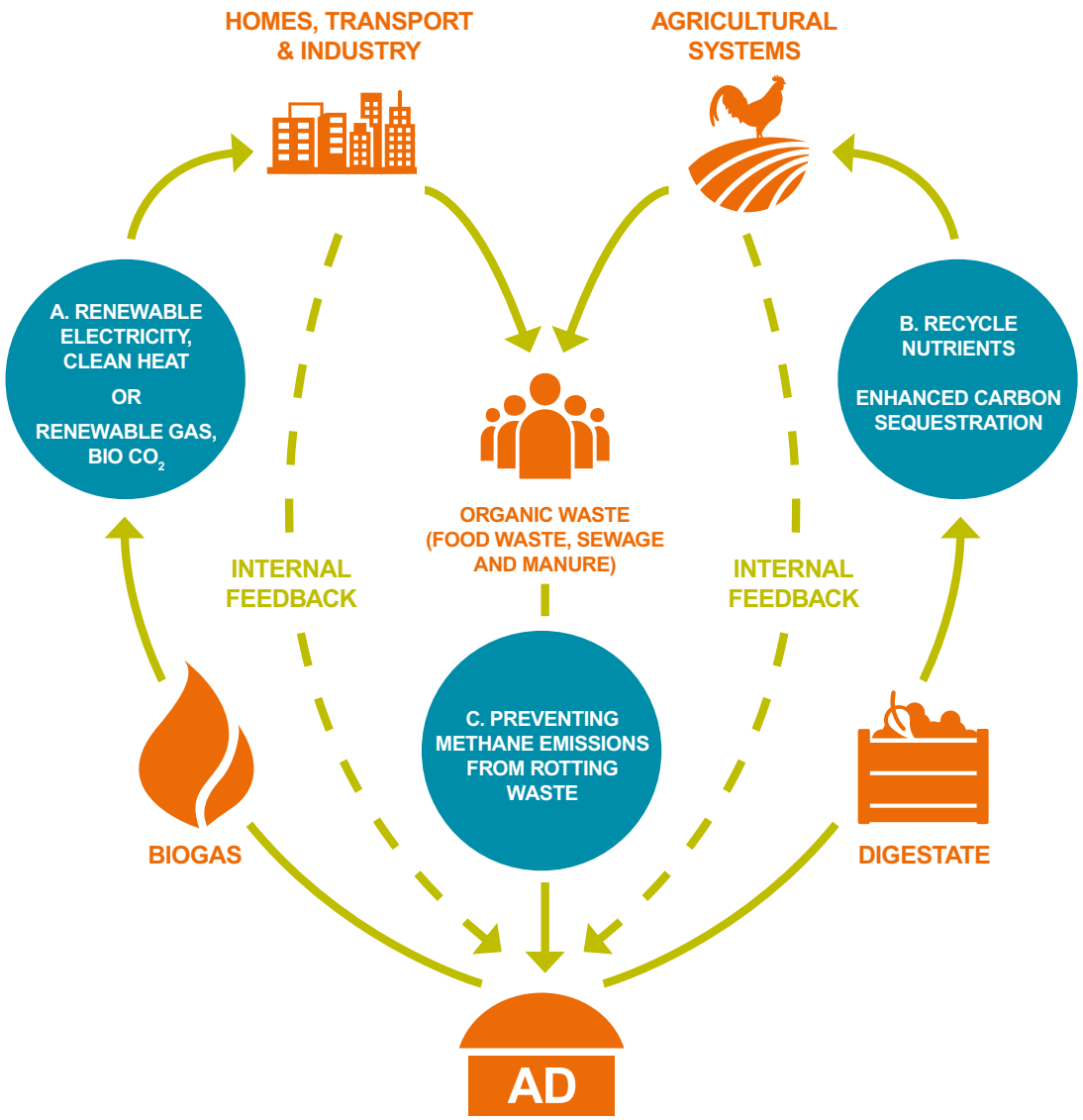
# WHAT IS AD?

Anaerobic digestion (AD) is a waste recycling technology that takes food waste and digests it under anaerobic conditions – i.e. deprived of oxygen.

Through this process, three key renewable resources are produced:

- Renewable energy (electricity or gas (biomethane) and clean heat
- Bio-$CO_2$
- Biofertiliser (digestate)

**By delivering a circular solution, AD can deliver a 6% cut in the UK's GHG emissions.**



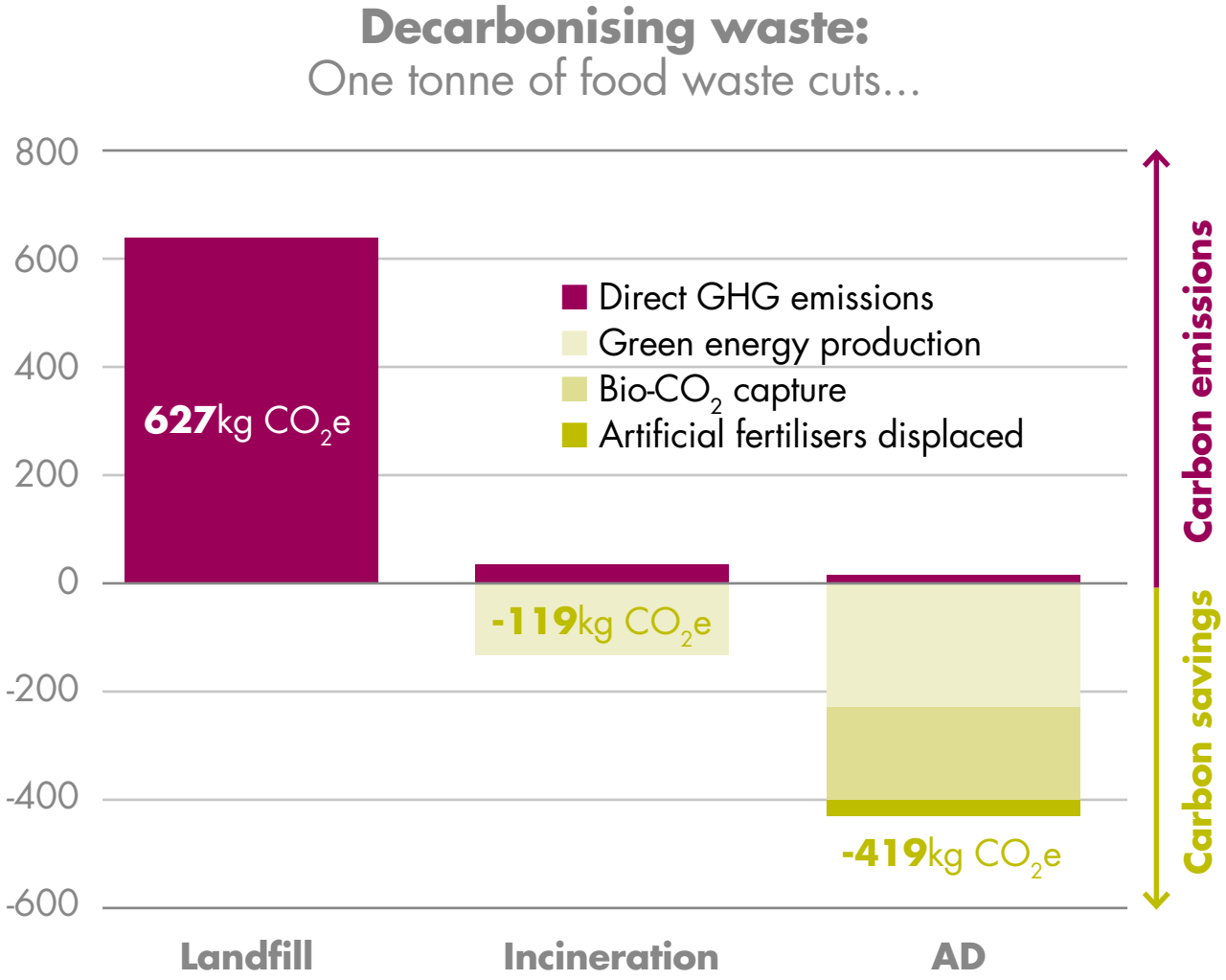
# ONE 7.5MW-CAPACITY FOOD-WASTE PLANT COULD DELIVER...

| | Organic waste management | Biofertiliser also known as digestate | Biomethane also known as Renewable Natural Gas (RNG) | Bio-$CO_2$ |
|---|---|---|---|---|
| **Uses:** | Prevent methane emissions from waste<br>Recycles valuable nutrients back into food production | NPK fertiliser<br>Soil conditioner and carbon sequestration | Heat and cooking<br>Transport | Food packaging and animal slaughter<br>Drinks carbonation |
| **Amount:** | **55,000 tonnes** of organic waste recycled | **45,000 tonnes** of digestate | **60 GWh** energy | **9,200 tonnes** bio-$CO_2$ |
| **Carbon savings:** | **33,920 tonnes $CO_2e$** From avoided methane emissions | **1,860 tonnes $CO_2e$** From displaced artificial fertiliser | **12,360 tonnes $CO_2e$** From displaced fossil natural gas | **9,200 tonnes $CO_2e$** Available for CCUS |

**Total carbon savings: 57,340 tonnes $CO_2e$ per year**

# THE CARBON SAVINGS

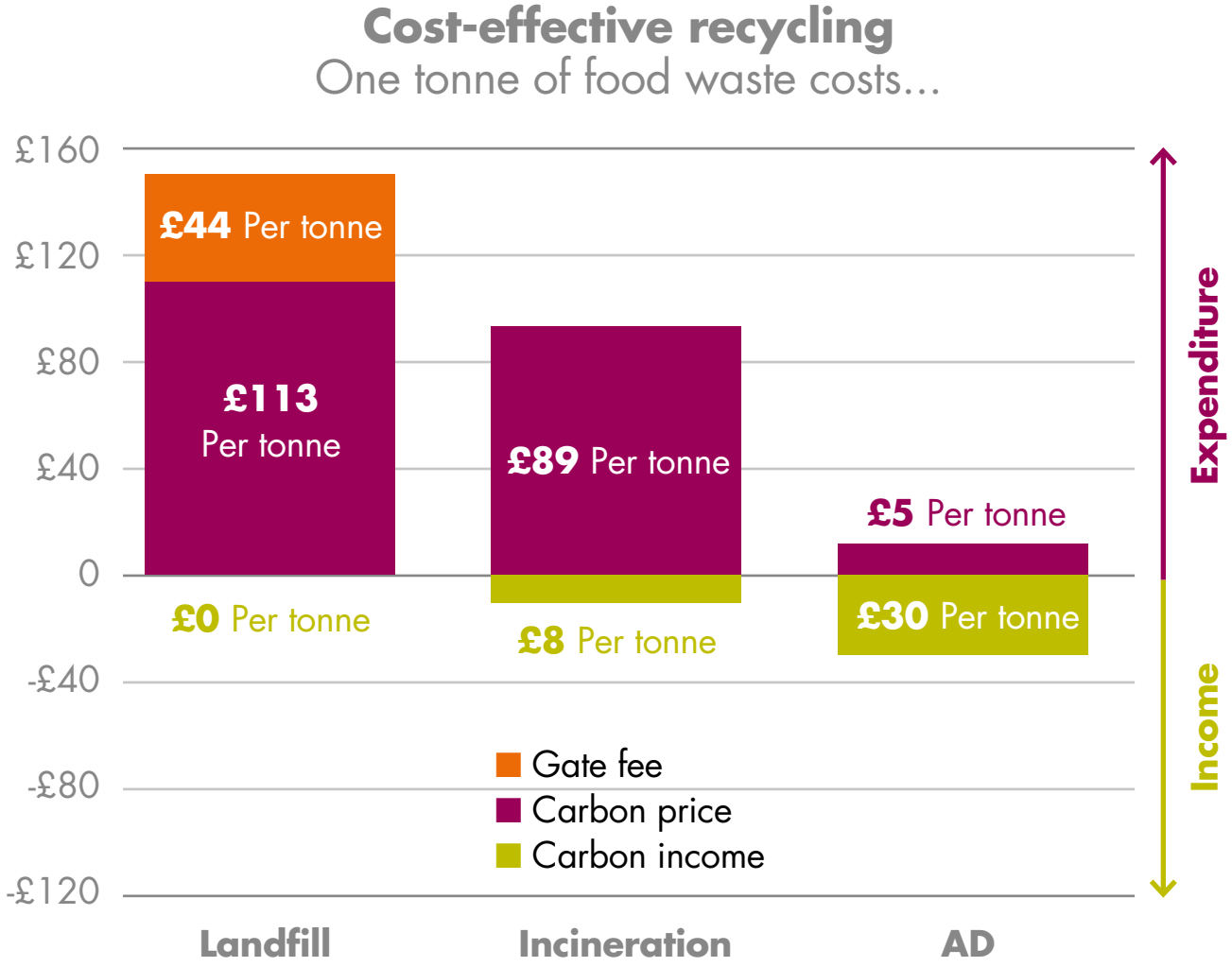
- The average local authority covers around 70,500 homes.
- The **average household produces around 243kg** of food waste each year.*
- On average, over **17,000 tonnes of food waste** are disposed of annually by each council.
- By processing food waste through AD, councils can abate up to **15,000 tonnes of $CO_2e$**.




*Source: **https://wrap.org.uk/resources/report/food-surplus-and-waste-uk-key-facts**

# THE COST SAVINGS

- The **costs are higher** for processing food waste through less environmentally friendly technologies. Average landfill and incineration gate fees are £113 per tonne and £89 per tonne respectively. AD is £5 per tonne.
- By processing through AD, the average local authority **could save between £1.4 and £1.8m** on a weight-by-weight basis annually.*




*Most recent estimates as based on data featured in WRAP's gate fee report
https://wrap.org.uk/resources/report/gate-fees-report-2020

# MANDATE TO COLLECT FOOD WASTE

Under the mandate to recycle food waste, local authorities will be directly responsible for addressing nearly 70% of food waste generated in the UK.

Defra is considering plans to 'zone' collections, to maximise the levels of food waste captured from small businesses while reducing waste miles from competing refuse collection trucks.

This could result in local authorities managing food waste services above and beyond households.

## Waste collection vehicles:

- **Average mileage:** 60 miles/day [Eunomia, 2020 **https://bit.ly/3L0IYxh**]
- **Typical fuel:** Diesel
- **Average emissions:** 30t $CO_2$e/annually
- **Typical fleet size:** 50


Biomethane can provide a low carbon alternative; for example, Liverpool City Council has deployed a fleet of 20 refuse trucks fuelled by green gas. For more information, see **ADBA's Transport report (2021). https://adbioresources.org/newsroom/transport-biomethane-fuelling-a-transport-revolution/**

# BEHAVIOUR CHANGE

**Reducing edible food waste is essential in the transition to a net zero circular economy and tackling climate change.**

- Separate food waste collections reveal to households how much waste they produce.
- Studies show that when confronted with this, households can reduce the amount of edible food waste produced in the first place.
- By reducing food waste by 50% and diverting inedible food waste to AD, the UK could reduce its total GHG emissions by 8.5%.*

*ADBA modelling is based on the reduction and redistribution targets set out in the Courtauld Agreement

**Source: **https://bit.ly/3IVjXli**

## Food waste production

On average, **69kg** of edible food is wasted per person per year in the UK (WRAP, 2021**)

**Food waste per person per year**
**69Kg**

**Direct emissions from waste sent to landfill**
Carbon emissions 43kg $CO_2e$

## Further ambition

## Reducing waste

Preliminary data suggests that by collecting food waste separately, **total waste is cut by around 8%**

**Food waste per person per year**
**-6Kg**

**Emissions savings throughout the food chain**
Carbon savings 43kg $CO_2e$

**Food waste per person per year**
**-34.5Kg**

**Halve food waste arising**
Carbon savings 268kg $CO_2e$

## Recycling waste

Separated food waste enables its treatment using the **optimal technology, AD**

**Food waste per person per year**
**63Kg**

**Emissions savings delivered from AD**
Carbon savings 60kg $CO_2e$

**Food waste per person per year**
**34.5Kg**

**Recycling remaining waste**
Carbon savings 30kg $CO_2e$

# RECYCLING TARGETS

**The increased focus on circular systems and waste reduction has led to the introduction of waste recycling targets across all of the devolved nations.**

With **over 33% of the residual waste being food waste***, introducing separate food waste collections is the easiest way a local authority can drastically increase their household recycling rates.

*Targets encompass all recyclable wastes streams

## Food waste legislation

No obligation to collect separate food waste, to be introduced in 2023.

Mandated separate food waste with rural exemptions.

Mandated statutory local authority recycling targets, including separate food waste collections, with financial penalties for non-compliance.

Mandated separate food waste collections and a ban on separately collected food waste going to landfill.

## Recycling targets
all types of waste

| | |
|---|---|
| 2020 household recycling target: 50%<br>2035 household recycling target: 65% | **44%**<br>2020 recycling rate |
| 2020 household recycling target: 60%<br>2035 household recycling target: 70% | **42%**<br>2020 recycling rate |
| 2020 household recycling target: 64%<br>2035 household recycling target: 70% | **65%**<br>2020 recycling rate |
| 2020 household recycling target: 50%<br>2035 household recycling target: 65% | **51%**<br>2020/21 recycling rate |

# KEY POLICY DRIVERS

**The Climate Change Act 2008**
Legally-binding 'carbon budgets' are introduced, restricting carbon emissions on a sector-by-sector basis over 5-year periods.

**The Resources and Waste Strategy for England 2018**
The RWS outlines plans for England to *"reduce greenhouse gas emissions from landfill by ensuring that every householder and appropriate businesses have a weekly separate food waste collection"*.

**Net Zero Strategy 2021**
The UK government issues its strategy for the decarbonisation of each sector, including waste, *"To explore options for the near elimination of biodegradable municipal waste to landfill from 2028"*.

**The Paris Agreement 2015**
The Paris Agreement is implemented across the world to *"strengthen the global response to the threat of climate change"*, imposing legally binding targets to limit global warming to less than 2°C.

**Consistency in Household and Business Recycling 2021**
Draft policy is released outlining how mandatory separate food waste collections from households and businesses will be rolled out across England from 2023.

**The Global Methane Pledge 2021**
The UK is among the first countries to join the US-EU led pledge to reduce methane emissions by 30% by 2030.

**The Environment Act 2021**
Sets out in law that *"food waste must be collected at least once a week"*.

**The Biomass Strategy (2022)**
The Biomass Strategy will outline how different types of biomass, including food waste, will deliver GHG reductions across the economy.

# CASE STUDIES



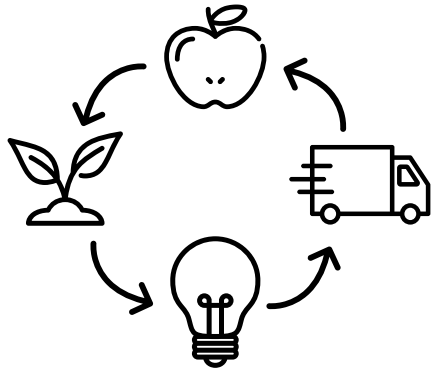
# GRANVILLE ECO PARK, NORTHERN IRELAND

ANAEROBIC DIGESTION CERTIFICATION SCHEME

GRANVILLE ECOPARK LIMITED

**Established:** 2014

## The Smart Loop system allows customers to maximise the value of their resources, to help decarbonise their business.



### Customer benefits include:

- Saving money and increasing revenue
- Making real change for our environment
- Satisfying customer expectation
- Getting ahead of government regulation and climate targets

### Customers can join the Smart Loop by:

- Recycling organic waste through AD
- Use digestate to grow produce or grass
- Use biomethane for energy generation or vehicle fuel
- In the future, use renewable $CO_2$ in products or processes

*"The Smart Loop mission is to be an active Circular Economy movement in our society by providing sustainable, ethical and world class services to our customers."*

## 2021 Statistics

- **84,000** tonnes of Food Waste diverted from landfill. Saving **51,800** tonnes $CO_2$
- Using Biomethane to fuel 2 HGV lorries provides a further saving of **250** tonnes of $CO_2$ annually.
- **36,500 MWh** of renewable electricity produced. The equivalent of powering **9,850** average households annually.
- **80,000** tonnes of Digestate produced for use in the local agri industry. Replacing around **2,000** tonnes of synthetic chemical fertiliser, restoring carbon and micro nutrients to soils.

Continued >

# GRANVILLE ECO PARK, NORTHERN IRELAND

GRANVILLE ECOPARK LIMITED

## Smart Loop Customer 1:

**Dairy producer – cheese, milk, cream and butter.**
Their wastes and by-product are transported to Granville Eco Park for treatment. Biomethane is produced which is then distributed via biomethane fuelled lorries to be used in the customer's CHP engine. The engine produces power and heat in the factory for the continued production of dairy food products,completing a closed loop of recovery and dramatically reducing $CO_2$.

*"Around 53% of the customer's CHP engine fuel is biomethane."*

## Smart Loop Customer 2:

**Food Waste Collector – based in Dublin.**
The waste is collected and delivered to Granville Eco Park via their own gas fuelled lorries. The solitary fuel point in Northern Ireland allows the company to make longer journeys throughout Ireland and to access their preferred choice of AD facility. Collaboration with this company allows them to strive towards their goal of converting their entire fleet to gas, reducing their environmental impact.


*"All food waste collected is a resource for the biogas industry."*

# EMERALD BIOGAS, NORTH EAST ENGLAND

warrens
nothing wasted

**Established:** 2012

## Converting yesterday's waste into a cleaner, greener tomorrow.

Emerald Biogas is an AD plant that works symbiotically with Warrens waste collection to maximise environmental benefits. Having a dedicated collection service compliments the AD business to remain in control of continuous, reliable feedstock for customers, helping them towards their sustainability targets.

### Landfill Diversion

Food waste is diverted from landfill to generate electricity and biomethane.

### Investment & Expansion

Increase energy export capacity by 42%.

### Green Collection Vehicles

Biomethane produces 86% less carbon emissions than diesel.

*"Our goal is to become the essential partner of choice for all public sector organisations and private companies with food waste disposal challenges."*

Continued >

## 2021 Statistics

- **89,500** tonnes of Food Waste diverted from landfill. Saving **55,200** tonnes $CO_2$
- Injected **79,500 MWh** thermal of biomethane into the gas grid, saving **16,370** tonnes of $CO_2$. Using Biomethane to fuel 1 HGV lorry provides a further saving of **125** tonnes of $CO_2$ annually.
- **18,000 MWh** of renewable electricity produced. The equivalent of powering 4,800 average households annually.
- **85,000** tonnes of Digestate produced for use in the local agri industry. Replacing around **2,100** tonnes of synthetic chemical fertiliser, restoring carbon and micro nutrients to soils.

# EMERALD BIOGAS, NORTH EAST ENGLAND

warrens
nothing wasted

*"Building a more efficient and sustainable circular model could not have been achieved without the support of Warren's Group."*
**The Black Sheep Brewery**

## Warrens – Waste Collection Service

Warrens collection service provides 80%+ amount of Emerald Biogas' feedstock.

### Performance of Biomethane Fuelled RCV's

Scania 120000km / Ivecos 50,000km (km per annum)
Scania 350km / Iveco 300km on full tank (fill time 8-12 mins)

### Benefits

86% less $CO_2$ emissions, 99% less particulate matter, and NOx reduction of 80% against equivalent diesel.


*"The vehicles are refuelled at the disposal site, from the biomethane produced by food waste."*

# BRACKNELL FOREST COUNCIL, SOUTH EAST

Bracknell Forest Council

*"**41,000 caddies** collected **3,100 tonnes** of food in the first **six months**."*

**Established:** March 2021
**Food waste diverted from landfill:** 6,200tpa*
**Electricity produced:** 6,840MWh pa
**Waste diverted $CO_2$ saving:** 3,824tpa*
**Digestate supplied:** 5,208tpa*

In 2021, Bracknell Forest Council found that 43% of general waste bins consisted of food waste, leading to 7,800 tonnes being sent to landfill each year. Following a successful rollout of collections with extensive resident engagement, the Borough was able to successfully collect over 3,100 tonnes of food waste in the first six months.

**High food waste collection rates**
Bracknell Forest Council is on course to recycle 79% of all household food waste, based on the success of the first six months.

**Lower residual waste**
By reducing residual waste collections to once every 3 weeks alongside separate food waste collections, the council has decreased the residual waste by 2,900 tonnes – that's 25%.

*Annual estimate based on data from first 6 months of collections

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# BRACKNELL FOREST COUNCIL, SOUTH EAST

## The future of Bracknell Forest Council recycling

By introducing separate food waste collections, Bracknell Forest Council aims to increase household recycling rates up to 50% by 2021 and 65% by 2030.

Going beyond the already successful collections, the Council has established next steps for separate food waste collections. In Spring 2022, food waste collections will be rolled out to 1,800 flats and apartments.

*"The first 6 months of our food waste recycling service have been a huge success. These statistics really speak for themselves and show just how hard residents have been working to recycle their food waste and reduce their green bin waste."*
**Cllr Mrs Dorothy Hayes MBE, Executive Member for Environment**

As part of a successful public engagement campaign, the Council invited residents to vote on names for their food waste collection vehicles: Dame Foodie Dench, The Food Dude, Binderella, Truck Norris, Hank Marvin.

# WOKINGHAM BOROUGH COUNCIL, SOUTH EAST ENGLAND

**Established:** 2019
**Food waste diverted from landfill:** 5,400tpa
**Electricity produced:** 5,960MWh pa
**Waste diverted $CO_2$ saving:** 3,300tpa
**Digestate supplied:** 4,550tpa

When Wokingham Borough Council introduced separate food waste collections back in 2019, the Council was able to dramatically increase its overall recycling rate by 9.8%. In doing so, it was one of only four councils that increased its recycling rates by over 5% and the successful increase is attributed to separate food waste collections. By increasing its food waste collection rates, Wokingham Borough Council is making strides towards achieving its goal to be carbon neutral by 2030.

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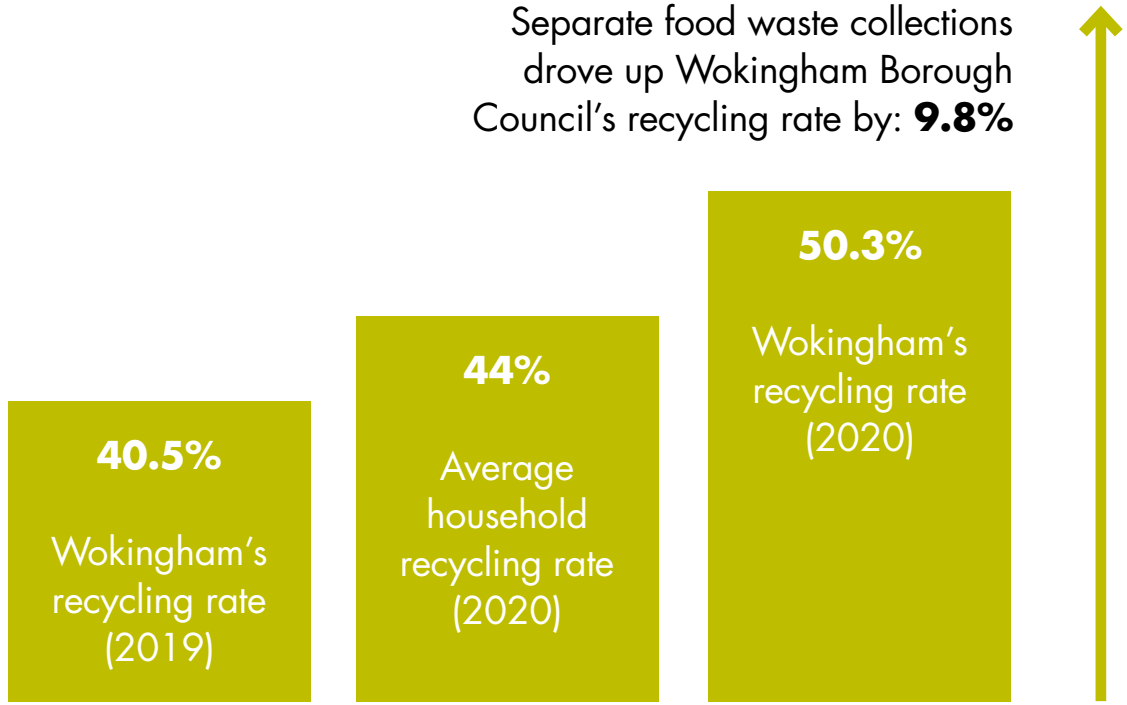
WOKINGHAM BOROUGH COUNCIL

*"This data showcases the huge impact it has had on recycling rates in our borough and it's a trend we hope to see continue in the years ahead."*
**Cllr Parry Batth**

Separate food waste collections drove up Wokingham Borough Council's recycling rate by: **9.8%**



# WOKINGHAM BOROUGH COUNCIL, SOUTH EAST ENGLAND

WOKINGHAM BOROUGH COUNCIL

*"If we can get even more residents to start using the service regularly we will see even more of a positive impact..."*

## The cost benefits

Each tonne of food waste recycled saves Wokingham Borough Council £100 in disposal costs. This means the Council saves over £0.5m every year on waste disposal, a saving £1.5m since 2019.

*Separate collections have saved the Council nearly **£1.5 million***

### Future potential for recycling rates

Despite the increase in recycling rates to date, the fact that just over 50% of all households participated in separate food waste collections demonstrates that there is an even greater potential for the recycling of food waste to drive up rates. If the Council is to meet its target of 70% by 2030, then getting more food waste recycled will be crucial.

### ↑ High food waste collection rates

The Council increased dry recycling by over 1,000 tonnes during in the first year of food waste collections.

### ↓ Lower residual waste

Residual waste reduced by nearly 6,000 tonnes during the first year of food waste collections.

# LEGAL AND CONTRACTUAL CONSIDERATIONS

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## How can local authorities manage the change and comply with the new statutory duty?

### Step 1: Understand the scale

Comprehensive planning at the outset around how to adapt waste collection and disposal is essential. Authorities will need to ensure that they meet their statutory duty, provide the best environmental outcome and deliver value for money.

### Step 2: Take stock and consider the options

Each local authority has bespoke arrangements for waste collection and disposal; so there will be no blueprint to follow. Investing time and resources at the planning stage is therefore essential.

Start with an appraisal of the options and take stock of current waste disposal arrangements at a practical, technical and legal level. Importantly, identify the art of the possible and use the challenge as an opportunity to realise value.

Unless authorities already have separate collection and disposal arrangements for food waste streams - or carry out all food waste collection and treatment in-house, there will be a range of issues to consider at that practical, technical and legal level including:

- **Cost efficiencies** - does your existing contract have minimum tonnage or CV guarantees? Will there be breakage costs associated with extracting food waste from any existing contract?
- **Compliance with procurement rules**, which prohibit certain "significant" changes to procured contracts.
- **Achievement of your target objectives.**
- How you can **ensure the most "upside"** for the authority.
- Allowing the authority to manage the **interface between providers of services** for different waste-streams

All need to be viewed in the round to ensure that the benefits are realisable and affordable. Exemptions apply only where a:

- separate collection is technically/economically impractical; and/or
- separate collection leads to no significant environmental benefit.

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# LEGAL AND CONTRACTUAL CONSIDERATIONS CONT.

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## Step 3: Implement the plan

If the local authority decides to outsource the disposal of separately-collected food waste, it will need a procurement strategy for the new contract and any variation of existing arrangements. Principally this will involve considering:

- **the variation mechanism** for any existing contract and the contractual consequences of any change - perhaps a new solution will include a profit share for the authority?
- **the solution sought** – for example, will the authority procure the design and build of new authority-owned disposal assets - e.g anaerobic digestion/compositing facilities, with an operating arrangement? Or, will the authority outsource disposal of the material as a service?
- the type of **procurement procedure** that the authority will take for the new contract.
- the **form of contract** that is to be let.

The choice of procurement procedure and form of contract used are critical to driving best value from the procurement. In some cases – likely a minority, it will be appropriate to procure a contract on the local authority's standard terms using the open procedure.

However, the potential value derived from a competitive tender that involves some dialogue or negotiation over a bespoke form of contract, cannot be underestimated. This is especially true when letting a contract for a new service, where the commercial opportunities need to be explored.

By outsourcing on a balanced contract that allocates risks to the parties best able to control those risks, local authorities could:

- meet their new statutory duties;
- generate an income stream from the resource of food waste;
- contribute towards the generation of renewable energy for the local community; and
- reduce the local authority's carbon footprint through the reduction of GHG emissions.

# ASHFORDS

**Ashfords is a UK law firm, and member of the ADBA board, with market-leading experience in the energy and waste sectors supporting public authorities, funders, investors and contractors across the sector.**

We work with our clients to design strategies that divert waste to achieve the waste hierarchy, accelerate decarbonisation and meet the targets driven by central government. From project set-up and financing through to construction, operational management, regulatory, supply and offtake, we have the legal expertise to help at every stage.

Our experience spans technologies including anaerobic digestion, energy recovery, gasification and pyrolysis for the full range of feedstocks/wastes. Our approach is to deliver actionable advice that works in our clients' world, ensuring that benefits and value are realised.

Find out more at: **www.ashfords.co.uk**

If you would like to find out more about how our team can help, please get in touch with one of our experts:

**Brian Farrell**, Partner, Energy & Waste sector, **brian.farrell@ashfords.co.uk**

**Jonathan Croley**, Senior Associate, Energy & Waste sector, **jonathan.croley@ashfords.co.uk**

**Rebecca Williams**, Client Manager, Energy & Waste sector, **rebecca.williams@ashfords.co.uk**

# BIO CAPITAL

## Formed in 2018 by Equitix and Helios Energy Investments, Bio Capital owns and operates AD plants in the UK with a growing and diverse portfolio.


We invest in both operational and greenfield assets, comprising of gas-to-grid, vehicle fuel and electricity generation. The group currently can generate 34MW annually with a combined yearly capacity of 520,000 tonnes for treatment of food waste and 80,000 tonnes for Agri-feedstock, making us one of the largest AD operators in the UK.

Our purpose is for our AD expertise to make a real contribution to the UK's transition to Net Zero and also have a positive impact on nature. We aim to lead the market with high performing assets working to the best industry standards, delivering organic wastes diverted from landfill and products that reduce the carbon impacts of the transport sector, the gas grid and the fertiliser industry.

As a Group, we have a clear vision of responsible growth to achieve our purpose and, through innovative practices, continue to work towards a more a circular economy.

**“What we bury today, haunts us – landfill is responsible for this, AD is the circular solution”**

## FIND OUT MORE

If you are interested in finding out more about ADBA, please contact
T: +44 (0)20 3176 0503  E: **enquiries@adbioresources.org**

ADBA | Anaerobic Digestion and Bioresources Association | **THE ENERGY BEHIND THE AD REVOLUTION**

Sustainable Workspaces, Third Floor, Riverside Building, County Hall, Westminster Bridge Road, London, SE1 7PB, United Kingdom

**www.adbioresources.org** **company/the-anaerobic-digestion-and-bioresources-association** **@adbioresources**