

Comparing the cost of alternative waste treatment options

Introduction

WRAP's fifth annual Gate Fees report presents a summary of gate fees charged for a range of alternative waste treatment, recovery and disposal options, together with an analysis of the factors likely to influence future gate fees and comparison with last year's report. The indicative gate fees in the report are based on survey information from local authorities, materials recovery facility (MRF) operators, compost facilities, wood waste processors, waste management companies (WMCs) and other market intelligence.

The report aims to increase price transparency and, through improving the flow of information, enhance the efficiency with which the waste management market operates. Providing indicative information about gate fees and the factors which influence gates fees should assist in better informed decision making regarding alternative waste management options.

This survey of facilities and local authorities covers England, Wales, Scotland and Northern Ireland. It was conducted between November 2011 and February 2012.

Table 1: Summary information on gate fees (£ per tonne)

Treatment	Grade / material / type of facility	Median ¹	Range ¹
MRF	All	£9	-£66 to £73
	Contracts starting in 2011 or later	-£26	-£55 to £4
Organics	Open-air windrow (OAW)	£25	£15 to £53
	In-vessel composting (IVC) ²	£44	£28 to £60
	Anaerobic digestion (AD) ³	£41	£35 to £60
Wood Waste	All grades/types collected from HWRCs ⁴	£26	£0 to £70
	Gate Fees for end use markets:		
	Animal bedding ⁵	-£44	-£130 to -£12
	Panelboard	-£22	-£36 to -£12
	Biomass ⁶	-£21	-£38 to £25
MBT		£79	£65 to £84
EFW⁷	Pre-2000 facilities ⁸	£64	£32 to £75
	Post-2000 facilities	£82	£44 to £101
	Defra Gate fee data ⁹		
	<200kt	£90	£79 to £131
	200kt to 300kt	£76	£56 to £102
	350kt to 450kt	£68	£57 to £78
Landfill	Non hazardous waste gate fee only	£21	£9 to £63
	Non hazardous waste gate fee plus Landfill Tax ¹⁰	£85	£73 to £127
	Hazardous waste gate fee (code 17 05 03) ¹¹	£29	£23 to £50
	Hazardous waste gate fee (code 17 06 01)	£85	£40 to £95
	Hazardous waste gate fee (code 17 06 05)	£40	£30 to £60

1. UK wide figures, regional estimates appear elsewhere in the report.

A negative gate fee indicates that a facility is paying to receive material.

2. Mixed food and green/garden waste.

3. Local authority food waste.

4. Local authority gate fees for the onward management/treatment of waste wood.

5. Includes equine bedding, poultry bedding and cattle bedding.

6. Includes wood waste sent to WID compliant facilities and clean wood sent to non-WID compliant facilities.

7. Incineration with energy recovery.

8. Facilities used by local authorities surveyed.

9. Based on size of facilities (1'000s tonnes per annum) Defra information on PPP/PFI projects that have reached contract closure in the last 5 years or are about to reach contractual close in the next 12 months.

10. At the time of the survey the standard rate of landfill tax was £56 per tonne, it increased to £64 per tonne on 1 April 2012

11. Excluding landfill tax. The Hazardous Waste Codes refer to the following materials: 17 05 03 – soil and stones containing dangerous substances; 17 06 01 – insulation materials containing asbestos; and 17 06 05 – construction materials containing asbestos.

Gate fees in context

Reporting summary gate fee information:

- protects the commercially sensitive nature of the individual responses surveyed; and
- provides a simple, accessible resource to the waste industry and local authorities.

However, caution must be exercised when taking the typical gate fees reported here out of context for the following reasons:

- considerable variation in gate fees exists for similar treatment/disposal options within and between regions/countries;
- the gate fee information does not take into account collection costs;
- the gate fee information for individual treatment options may not be directly applicable in instances where multiple services are being procured, for example, a service that combines a MRF with MBT or a service that includes collection together with EfW; and
- the precise terms of individual contracts, in particular relating to the nature of risk sharing between local authorities and contractors (for example guarantees around tonnages handled), vary significantly and directly influence gate fees at facilities. Moreover, it should be noted that long term local authority contracts procured through PFI or PPP with Defra and HM Treasury guidance are structured quite differently from other contracts. Therefore, such gate fees may not be directly comparable.

Key findings

Gate fees for similar waste management options vary substantially – both across and within regions. Indeed, the factors which determine specific gate fees at a facility are complex, ranging from the size of a facility, the nature and duration of contracts (including risk-sharing arrangements), financing arrangements, the age of the facility, the level of revenues generated from the sale of recovered materials and other outputs (such as energy, compost and digestate), and charges for the management of process residues.

Notwithstanding these variations, the summary gate fee information (Table 1) from the survey indicates that:

- For non-hazardous material, median gate fees for waste recovery/recycling options are substantially lower than those for waste disposal routes.
- MRF gate fees continue to fall and overall are substantially lower than our previous surveys, many local authorities are receiving revenue rather than *paying* gate fees for their recovered materials.
- For organic treatments, median open-air windrow (OAW) gate fees are lower than those for anaerobic digestion (AD) and in-vessel composting (IVC) which may reflect lower capital and operating costs at OAW sites.
- The median AD gate fee for separately collected food waste is slightly lower than the median IVC gate fee for food only and food mixed with garden waste or card.
- The median IVC gate fee for garden waste has declined by around £10 per tonne compared to last year's report.
- The cost of disposal to landfill including the landfill tax continues to increase.
- Non-hazardous landfill gate fees (including the landfill tax) remain broadly comparable to gate fees for EfW and MBT options.
- The median UK gate fee charged to local authorities for the onward management of wood waste collected from Household Waste Recycling Centres (HWRCs) is £26 per tonne.

Gate fees by waste management option

Material Recovery Facilities

- MRF gate fees (Table 2) have continued to fall and are substantially lower than our previous surveys. Many local authorities are receiving revenue rather than *paying* gate fees for their material. The median MRF gate fee is £9 per tonne, down from a median gate fee of £15 per tonne in the 2011 report.
- For contracts starting in 2011 (or later) MRFs are *paying* local authorities median revenue of £26 per tonne for unsorted recovered materials.
- Gate fees tend to be lower in England compared to elsewhere in the UK.
- The substantial variation in MRF gate fees paid by local authorities (Graph 1) may be due to a variety of factors including: local authority share of recovered materials sales, contract duration, the year in which the contact commenced, quality and quantity of materials received, operating costs and the market value of sorted materials.
- According to survey contacts, the decline in MRF gate fees reflects additional MRF capacity and buoyant prices for recovered materials (at the start of 2011). These factors are reported to be the dominant influences on future gate fees.

Open-Air Windrow Composting

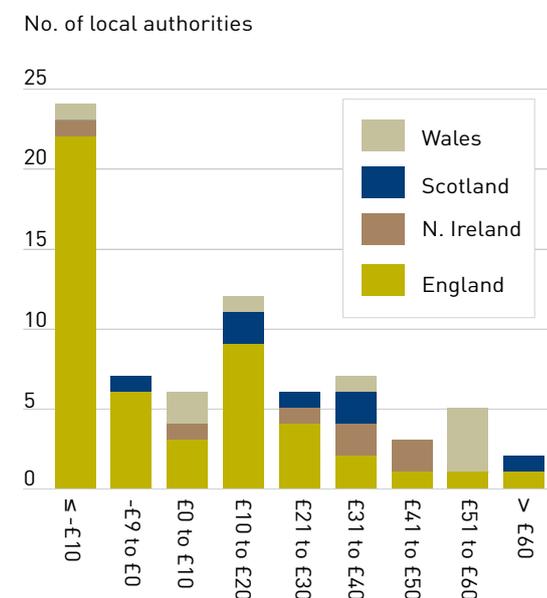
- The median OAW gate fee is little changed compared with last year's report.
- Median OAW gate fees are lower in England and Scotland than they are in Northern Ireland and Wales (Table 3).
- Feedback from some operators suggests that local/regional competition for input material was a key driver behind the current level of gate fees.
- However, local authority and industry contacts noted uncertainty about the future direction of OAW gate fees.

Table 2: Gate fee information for MRFs (£ per tonne)¹²

	Median	Range
UK contracts started in 2011 (or later)	-£26	-£55 to £4
UK all survey responses	£9	-£66 to £73
England	£0	-£55 to £73
Wales	£35	-£66 to £56
Scotland	£20	-£8 to £62
Northern Ireland	£35	-£38 to £46

¹² Survey responses for MRFs accepting three or more comingled materials

Graph 1: MRF gate fees by country (£ per tonne)¹³



¹³ All survey responses

Table 3: Open air windrow composting gate fees by country (£ per tonne)

Country	Median	Range
UK	£25	£15 to £53
England¹⁴	£25	£15 to £53
Northern Ireland	£27	£15 to £37
Scotland	£20	£16 to £29
Wales	£32	£20 to £32

¹⁴ No responses were received from facilities in London in this year's survey.

Table 4: In-vessel composting gate fees by waste type (£ per tonne)

Waste type	Median	Range
Food waste	£49	£31 to £60
Garden waste	£25	£18 to £36
Mixed food and garden waste	£44	£28 to £60
Mixed food waste, garden waste & card	£55	£32 to £86

Table 5: Anaerobic digestion gate fees for household food waste (£ per tonne)¹⁵

Waste type	Median	Range
Household food waste	£41	£35 to £60

¹⁵ Based on gate fees from 12 local authorities

In-Vessel Composting

- Compared to last year's report, IVC gate fees for food waste and mixed food & garden waste are little changed. However, the median IVC gate fee for garden waste has declined by around £10 per tonne.
- The variation in IVC gate fees depends partly on the composition of the material received by facilities. Food waste mixed with garden waste and card attracts the higher gate fees, followed by food waste only and mixed food and garden waste. The lowest IVC gate fees are for garden waste only, which is similar to the median OAW gate fee (Table 4).
- IVC operators reported that gate fees are primarily driven by increased competition from other IVC facilities and other competing treatment technologies, most notably AD.
- However, feedback from IVC facilities indicates uncertainty about the future direction of IVC gate fees.

Anaerobic Digestion

- Based on responses from local authorities the median AD gate fee for food waste collected from households is £41 per tonne, ranging from £35 per tonne to £60 per tonne (Table 5). As the AD industry is still in development these findings are based on a relatively small sample and therefore need to be interpreted with caution.
- The median AD gate fee for household food waste is marginally lower than that reported in last year's survey. AD gate fees are likely to be higher than this in London and the South East due to a combination of higher land values and high demand relative to supply.
- In this report, the median AD gate fee for food waste is below the median IVC gate fees for "food waste only" and "food waste mixed with garden waste".
- AD facilities receive a variety of waste feed stocks from municipal and commercial sources which have varying degrees of associated packaging. The 9 facilities in our sample of operators reported contract gate fees for food waste in municipal biobags ranging from £20 to £40 per tonne. Gate fees for commercial waste feed stocks requiring de-packaging ranged from £40 to £65 per tonne.
- Operators of AD facilities cited; direct competition for feed stocks, energy prices, and broader economic pressures as factors likely to influence future AD gate fees. Some AD operators thought that future gate fees might be slightly lower, others claimed that any fall in gate fees would compromise financial viability.

Wood Waste Recycling and Recovery

- The median UK gate fee charged to local authorities for the onward management of wood waste collected from Household Waste Recycling Centres (HWRCs) is £26 per tonne.
- Wood waste gate fees in Scotland are substantially lower compared to the rest of the UK (Table 6).
- Interviews with members of the Wood Recyclers Association (WRA) noted that the regional variation in wood waste gate fees reflects regional imbalances in supply and demand. In the South East of England supply exceeds demand, so gate fees are higher, while in the North East of England and Scotland demand exceeds supply and gate fees are lower.
- At the time of this survey, operators of biomass facilities were understood to be *paying* (ie a negative gate fee) for their input material with some commenting that this was more than they had anticipated in their business plans.
- Based on industry feedback the revenue per tonne generated from wood waste in various end markets is summarised in Table 7.

EfW (Incineration with energy recovery)

- As in previous gate fee reports, older existing EfW facilities (pre-2000) tend to have lower gate fees than newer (post-2000) facilities, although the sample size for newer EfW facilities is much smaller (Table 8).
- The median gate fee for older facilities has increased faster than inflation reflecting, it seems, reporting of more contracts with authorities for use of spare capacity.
- It is worth noting that gate fees at existing facilities may not be a reliable indicator of the gate fees that would be payable for facilities procured in the current market. Table 8 therefore also shows Defra estimates of 'gate fee equivalents' for projects that have reached contractual close in the last 5 years, or are about to reach contractual close in the next 12 months.
- The Defra figures for EfW facilities sized between 200ktpa-300ktpa, are similar to those reported in the survey for existing post-2000 facilities (Table 8).

Table 6: Gate fees paid by local authorities for the onward management of wood waste (£ per tonne)¹⁶

Country	Median	Range
UK	£26	£0 to £76
England	£27	£8 to £76
Northern Ireland	£35	£25 to £47
Scotland	£11	£0 to £30

¹⁶ Two gate fees received from facilities in Wales are not reported separately.

Table 7: Gate fees paid for wood waste in end markets (£ per tonne)¹⁷

Wood waste end market	Median	Range
Animal bedding (equine, poultry and cattle)	-£43	-£130 to -£12
Panelboard	-£22	-£36 to -£12
Wood waste sent to WID compliant facilities	-£21	-£29 to £25

¹⁷ Two gate fees for clean biomass sent to non-WID compliant facilities are not separately reported.

Table 8: Gate fees at EfW facilities (£ per tonne)

Type of facility	Median	Range
Existing Facilities¹⁸		
Pre-2000 facilities	£64	£32 to £75
Post-2000 facilities	£82	£44 to £101
Defra Gate Fee data¹⁹		
<200kt	£90	£79 to £131
200kt-300kt	£76	£56 to £102
350kt-450kt	£68	£57 to £78

¹⁸ Survey data obtained from local authorities.

¹⁹ Defra information on gate fees for PPP/PFI projects that have reached contractual close in the last 5 years or are expected to reach contractual close during the next 12 months. These gate fees are presented in 2012 prices.

Table 9: MBT gate fees (£ per tonne)²⁰

Type of facility	Median	Range
MBT Facilities	£79	£65 to £84

²⁰ These gate fees take into account costs associated with the disposal of process residues, including fuel/SRF and revenues from the sale of recovered materials.

Table 10: Non-hazardous landfill gate fees by country (£ per tonne)

Country	Median	Range
UK	£21	£9 to £63
England	£20	£9 to £37
Northern Ireland	£39	£20 to £63
Scotland	£18	£12 to £49
Wales	£26	£23 to £36

Mechanical Biological Treatment

- The wide range of facility types and the variety of treatment processes to which the label of MBT is attached makes it difficult to provide an analysis of MBT gate fees.
- The quality of the MBT output has a significant impact on the gate fee, as low quality process residues may have to be landfilled. Other major influencing factors on MBT gate fees are the SRF/RDF market (the price for off-take of high calorific fractions), recovered materials prices, the level of support for energy generation and the allocation of contractual risk.
- The median MBT gate fee of £79 per tonne, compares to £84 per tonne in last year's survey (Table 9).
- MBT operators reported a key trend for local authority contracts was the reduction of contract lengths, with procurements now frequently being seen in the 7 to 12 year range, rather than the previous 'standard' of 25 years.
- Factors likely to affect gate fees in the future include the Landfill Tax, the SRF/RDF market, and the value of recovered materials.

Non-hazardous Landfill

- The median landfill gate fee for non-hazardous material in the UK (excluding tax and haulage) is £21 per tonne.
- As reported in our previous surveys, median landfill gate fees in Scotland and England are lower than median landfill gate fees in Wales and Northern Ireland (Table 10).
- As our previous surveys have also reported, landfill operators noted the highly competitive marketplace for landfill, with reduced quantities of residual waste and increased competition from other treatments leading some operators to reduce their prices to maintain volumes into their sites.
- Some landfill gate fees (excluding tax) have increased in line with inflation, others have declined in real terms.

Hazardous Landfill

- Hazardous landfill is a new area of investigation for the Gate Fees Survey. Gate fees for landfilling materials classified under the following three Hazardous Waste Codes are reported:
 1. 17 05 03: soil and stones²¹ containing dangerous substances;
 2. 17 06 01: insulation materials containing asbestos; and
 3. 17 06 05: construction materials containing asbestos.
- The median gate fee for soil and stones containing dangerous substances (17 05 03) was the lowest at £29 per tonne (Table 11), with a range of £23 to £50 per tonne. This range is for typical/average gate fees; however, respondents reported that gate fees for this material could range from as little as £10 per tonne to as much as £90 per tonne, depending on the nature and severity of the contamination (all gate fees exclude Landfill Tax and haulage).
- Gate fees for bonded asbestos materials (17 06 05) are significantly lower than for unbonded/fibrous insulation materials containing asbestos (17 06 01). This is due to the fact that unbonded insulation materials take up a significant amount of space, are difficult to compress, and frequently require special management measures.
- Only a small number of responses were received, with marked variations in prices; thus, the median gate fees presented in Table 11 should be interpreted with some caution.
- Operators expected that the main driver likely to influence future gate fees would be the availability of void space, particularly for asbestos. Some operators reported that they had lowered gate fees to help maintain volume in the current construction downturn, and that a lack of void space in the future may act to drive up gate fees as the economy recovers. However, there was no consensus amongst operators regarding the future direction of hazardous waste gate fees.

²¹ The Gate Fees survey was carried out before the HMRCs publication of Qualifying Material Order 2011 regarding the tax status of 'trommel fines'.

Table 11: Gate fees at hazardous landfill sites (£ per tonne)

Hazardous Waste Code	Median	Range
17 05 03	£29	£23 to £50
17 06 01	£85	£40 to £95
17 06 05	£30	£30 to £60

Feedback

If you wish to comment on these findings or take part in the next WRAP gate fees survey, due to begin in November 2012, please e-mail gatefees@wrap.org.uk or call 0808 100 2040 (note that existing participants do not have to re-apply).

Summary information from the 2011 and 2010 gate fees reports follows:

Summary information on gate fees: 2011

Treatment	Grade / material / type of facility	Median ^a	Range ^a
MRF	All	£15	-£36 to £85
	Contracts starting in 2010 or later	£4	-£30 to £63
Organics	Open-air windrow (OAW)	£24	£6 to £51
	In-vessel (IV), food & garden waste	£43	£29 to £82
	Anaerobic digestion (AD)	£43	£36 to £64
Landfill	Gate fee only	£20	£12 to £55
	Gate fee plus Landfill Tax ^b	£76	£68 to £111
EfW^c	Pre-2000 facilities ^d	£54	£35 to £79
	Post-2000 facilities ^e	£73	£54 to £97
MBT		£84	£57 to £100

a UK wide figures, regional estimates appear elsewhere in the 2011 report

b At the time of the 2011 survey the standard rate of landfill tax was £48 per tonne, it increased to £56 per tonne on 1 April 2011.

c Incineration with energy recovery

d Information from local authorities in the 2011 survey.

e Includes 2011 survey information from local authorities and information from Defra on planned EfW facilities in procurement through PPP/PFI.

Summary information on gate fees: 2010

Treatment	Grade / material / type of facility	Median ^{aa}	Range ^{aa}
MRF	Paper/card/plastic bottles/cans	£33	-£5 to £42
Organics	Open-air windrow (OAW)	£24	£11 to £51
	In vessel (IV)	£45	£26 to £104
	Anaerobic Digestion (AD)	£57	£50 to £90
Landfill	Gate fee only	£22	£11 to £44
	Gate fee plus landfill tax ^{bb}	£70	£59 to £92
EfW^{cc}	Pre-2000 facilities ^{dd}	£49	£32 to £79
	Post-2000 facilities ^{ee}	£71	-
MBT^{ee}		£75	-

aa UK wide figures, regional estimates appear elsewhere in the 2010 report

bb At the time of the 2010 survey the standard rate of landfill tax was £40 per tonne, it increased to £48 per tonne on 1 April 2010.

cc Incineration with energy recovery.

dd Survey responses from local authorities. At the time of the survey, feedback from WMCs indicated that an estimate of gate fees in the current market was £85 to £120 per tonne.

ee Insufficient data points for a range.

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