

Comparing the cost of alternative waste treatment options



WRAP's (Waste & Resources Action Programme's) third Gate Fees Report presents a summary of gate fees charged for a range of alternative waste treatment, recovery and disposal options.

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to help them reap the benefits of reducing
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Front cover photography: Waste at landfill site.

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Introduction

WRAP's (Waste & Resources Action Programme's) third 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 report aims to raise price transparency and, through improving the flow of information, enhance the efficiency with which the waste management market operates. A lack of market information may reduce a local authority's ability to make informed decisions on waste management options in terms of both economic and environmental costs. Indicative gate fee information should assist them in making better informed decisions regarding waste management options.

This survey of facilities in England, Wales, Scotland and Northern Ireland was conducted during February/March 2010 and covered both those procuring waste treatment, disposal and recovery services (primarily local authorities) and service providers, including interviews with senior managers in waste management companies (WMCs). In addition, Defra information on facilities in PFI/PPP planning and other market intelligence is incorporated.

Summary information on gate fees

Treatment	Grade / material / type of facility	Median	Range
MRF	Paper/card/plastic bottles/cans	£33	-£5 to £42
Composting	Open-air windrow (OAW)	£24	£11 to £51
	In-vessel (IV) ¹	£45	£26 to £104
AD	Anaerobic digestion (AD)	£57	£50 to £90
Landfill	Gate fee only ²	£22	£11 to £44
	Gate fee plus Landfill tax ³	£70	£59 to £92
Incineration	Existing facilities ⁴	£49	£32 to £79
	Planned facilities ⁵	£92	£78 to £109
	Current market estimate ⁶	-	£85 to £120
MBT⁷		£75	-

¹ Mixed food and green/garden waste. ² This is a UK wide figure. Regional estimates appear elsewhere in the report. ³ The standard rate of landfill tax increased to £48 per tonne on 1 April 2010. ⁴ Facilities used by local authorities surveyed. Feedback from WMCs indicates that these may not be a reliable estimate of gate fees in the current market. ⁵ Based on a capacity of between 200kt and 300kt from Defra information on facilities currently in procurement via PPP/PFI. Refer to the text in the report for information on other capacity ranges and gate fees. ⁶ Industry estimate through feedback from WMCs surveyed who provided an indicative range. ⁷ Insufficient data points for a range.

Gate fees by waste management option

Key findings

Gate fees for similar waste management options vary substantially – both across and within regions. For example, spot and contract gate fees can differ depending on spare capacity and local market conditions (markets are localised to some extent by haulage costs). 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 to technology, the age of facility and possible revenues from the sale of recovered materials.

Notwithstanding these variations, gate fees at material recovery facilities (MRFs) and landfill sites are substantially lower than those at incineration facilities. For organics, open-air windrow (OAW) gate fees are lower than those for anaerobic digestion (AD) and in-vessel composting (IV). These, in turn, are lower than gate fees for mechanical biological treatment (MBT) facilities.

When compared with previous gate fees surveys, few clear trends in gate fees emerge. However, the effect of the landfill tax escalator is to make landfill relatively more expensive over time compared with other options. This trend is likely to continue as landfill tax rises further.

The median UK landfill gate fee (excluding landfill tax) has increased only slightly since 2008. However, this masks differences in individual experiences. Where comparisons can be made, landfill gate fees (before tax) have increased for more than half of the local authorities surveyed but by less than £5 per tonne in most instances while, for around a quarter of local authorities surveyed, landfill gate fees (before tax) have declined but again by less than £5 per tonne.

At IV facilities, gate fees for food waste only appear to have increased, but there is little change in gate fees for mixed food and green waste or green waste only streams. OAW median gate fees are broadly unchanged, however the gate fees at the upper end of the range reported in this year's survey were higher than those reported in the previous survey. For individual facilities, both upward and downwards changes were reported. There is no clear trend emerging in MRF gate fees: gate fees at some facilities have increased while others have declined.

MRFs

- A variety of factors affect MRF gate fees including: local authority share of recovered materials sales, contract duration, quality and quantity of materials received, operating costs and the market value of the sorted materials.
- The median gate fee is higher compared to last year's survey but the range of gate fees sampled has narrowed. For some short-term contracts, gate fees are below the median in this report, perhaps because recovered material prices (which at the time of the survey were relatively high by historical standards) tend to be more predictable in the short term.

Composting

- Overall, gate fees for green waste at IV and OAW facilities have been broadly stable over time. OAW gate fees tend to be on average lower in England and Scotland than in Northern Ireland and Wales (Table 1). For England, OAW gate fees are higher in the London area than elsewhere.

Table 1: Open-air windrow composting gate fees by region

Region	Median	Range
UK	£24	£11 to £51
England	£23	£11 to £51
Northern Ireland	£26	£20 to £35
Scotland	£23	£16 to £41
Wales	£32	£12 to £50

- Gate fees for food waste only have increased at some IV facilities over time but there is no clear trend across all facilities: some facilities have lowered their gate fees and others are unchanged. Comparing across IV facilities, gate fees for food waste alone tend to be higher than gate fees for mixed food and green waste (Table 2). IV gate fees for green waste are broadly comparable with OAW gate fees.

Table 2: In vessel composting gate fees by waste type

Waste type	Median	Range
Food	£51	£30 to £60
Mixed food/green	£45	£26 to £104
Green/garden ¹	£26	£20 to £36

¹ based on small sample but this was confirmed by interviews.

Anaerobic digestion

- Anaerobic digestion (AD), for the treatment of food waste, is an emerging technology in the UK so the sample of gate fees here is small. A gate fee of around £57/tonne is felt to be representative of this market, but gate fees are likely to be higher than this in London and the South East. The approach to procurement, contract structure and precise nature of the input materials are also likely to be important determinants of gate fees. Although the median AD gate fee is higher than the gate fee for food waste only at an IV facility, it is lower than the implied marginal IV gate fee on food in a mixed food and green waste stream. The latter depends on the relative proportion of food waste and green waste in the mixed input stream but, at £45 per tonne, this would appear to be a relatively expensive option for treatment of food waste compared to other options for treatment of food waste on its own.

Landfill

- Landfill gate fees (excluding the landfill tax) have seen little change since the first Gate Fees report in 2007/8 as the majority of contracts are annually indexed to RPI (Retail Prices Index).
- Gate fees (before tax) in Scotland and England are on average lower than in Wales and Northern Ireland (Table 3). In Wales and Northern Ireland, low competition may be an explanatory factor for higher gate fees.

Table 3: Landfill gate fees by region

Region	Median	Range
UK	£22	£11 to £44
England	£21	£12 to £37
London ¹	£24	-
South West	£24	£20 to £37
East	£22	£12 to £36
Yorkshire & Humber	£22	£13 to £30
North East	£21	£13 to £34
East Midlands	£19	£18 to £26
South East	£18	£15 to £21
West Midlands	£17	£14 to £21
North West	£14	£14 to £19
Northern Ireland	£28	£24 to £40
Scotland	£18	£11 to £41
Wales	£30	£21 to £44

¹ range omitted due to small sample

- Regional variation in available landfill capacity is also a significant factor behind the difference in gate fees across English regions.

Incineration

- As in previous gate fees reports, existing facilities that are older (pre-2000) tend to have much lower gate fees than newer (post 2000) facilities. However, 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 4).

Table 4: Gate fees at incineration facilities

	Median	Range
Existing facilities ¹	£49	£32 to £79
Planned facilities ²		
Capacity range ³		
50kt – 100kt	£138	£128 to £151
200kt – 300kt	£92	£78 to £109
400kt – 600kt ⁴	£76	-
Current market estimate ⁵	-	£85 to £120

¹ Facilities used by local authorities surveyed. Feedback from WMCs indicates that this may not be a reliable estimate of gate fees in the current market. ² Based on Defra information on planned facilities currently in procurement via PPP/PFI. ³ The implied relationship between capacity and gate fee may not give a true picture of scale economies, see text for more information. ⁴ Range omitted because of the small number of facilities. ⁵ Industry estimate of indicative range in the current market provided by WMC interviews.

- Based on Defra information on PPP/PFI projects in procurement (and feedback from waste management companies), gate fees for incineration facilities in the current market are likely to be substantially higher than those for existing facilities.
- Industry feedback suggests that while scale economies between facility size and the gate fees exist, they are limited. Therefore, the gate fee data presented here should be interpreted carefully: the vast majority of facilities currently being planned have capacities between 200k and 300k tonnes per annum. There are relatively few facilities outside this range and the figures reported may therefore not give a true picture of economies of scale in relation to gate fees.

MBT

- The diverse nature of MBT technologies means that the interpretation of the summary gate fee presented is not straightforward. Broadly speaking, at present, gate fees for facilities producing residue for landfill or land restoration are lower than those producing solid recovered fuel (SRF).
- While facilities producing residue for landfill currently have the lowest gate fees, their costs are likely to increase significantly as landfill taxes continue to rise.
- Facilities producing SRF for use in dedicated thermal treatment facilities on site are likely to charge the highest gate fees due to associated capital expenditure, operating and logistical costs.
- Cement kilns have been the main destination of SRF. However, the downturn in the construction industry has constrained SRF outlets and a number of SRF producers are currently exporting to Europe.

Looking forward

Respondents were asked what they considered as key drivers for future change to gate fees. General feedback suggests that as the UK pulls out of the recession, and the cost of borrowing reduces, gate fees may fall for some facilities. However, local authorities are unlikely to benefit from reduced gate fees until they retender their contracts.

A range of incentives such as Renewables Obligation Certificates (ROCs) and Feed-in Tariffs (FITs) are currently in place for waste treatment options that facilitate electricity production. Anaerobic digestion facilities, advanced gasification and pyrolysis are all eligible (subject to appropriate accreditation) for double ROCs (two ROCs per MWh) which may, over time, lead to lower gate fees. Some waste treatment facilities thought that the revised Environmental Permitting Regulations (April 2010) may add to running costs and therefore some may try to recoup these through higher gate fees.

MRFs

- Feedback from large WMCs surveyed suggests that quality of materials is going to become an increasingly important factor. Since quality materials attract higher market values, it was thought possible that over time some MRFs might seek to generate an increasing share of revenue from sales of their recovered materials, and a declining share from gate fees, which could result in a decline in their gate fees. Recent and planned development of merchant capacity targeted partly at municipal waste was also thought to be driving gate fees lower for some MRF procurements. However, other factors, such as the impact of increasing landfill disposal costs (including taxes) on rejected material, may act to increase gate fees at some MRFs.

Open-air windrow composting

- There is some industry concern that the revised Environmental Permitting Regulations (April 2010), introduced to create a level 'playing field' in the industry, may add to operating costs for small open-air windrow composting facilities. Some OAW facilities thought that the regulations could therefore result in a reduction in the number of composting sites (reducing competition and increasing gate fees) and furthermore a reduction in profit margins for those operational (due to the new costs associated with spreading to land) which could also lead to an increase in gate fees.
- Feedback from OAW facilities also indicated that increasing competition is likely to be an important influence on gate fees. But opinion was divided on the impact of future capacity on gate fees. For some, a future shortfall in capacity, and higher gate fees, was likely as more garden waste was collected. For others, surplus capacity and lower gate fees were likely to emerge as new OAW facilities were built and competition from IV composting increased.

In-vessel composting

- Availability of future capacity was also cited as a key driver of higher gate fees in the future as authorities strive to meet landfill diversion targets before new infrastructure becomes available. The interplay between collection systems and treatment facilities is also likely to become increasingly important. In some areas, local authorities collect food waste separately from green/garden waste and it was thought that competition for these streams might lead to IV composters 'losing out' to OAW and AD in some cases.

Anaerobic digestion

- Feedback from WMCs indicated that with improved security of supply, as more food waste is collected, investment in AD facilities was likely to boost capacity substantially. Additional income from double ROCs and FITs was also thought likely to enable AD gate fees for food waste to remain competitive with IV composting facilities and may lead to lower gate fees in some cases.

Landfill

- The standard rate of landfill tax is set to rise to £80 per tonne by 2014, substantially increasing the overall gate fee for disposal to landfill. Initially, this might lower gate fees (excluding tax) as WMCs strive to attract material into their facilities. But as landfill capacity declines over time, gate fees (before tax) may increase. Feedback from some operators suggested that gate fees might also increase as the economy recovers from recession. This reflected a view that the economic recovery would lead to an increase in residual waste volumes, enabling them to unwind gate fee reductions they had made during the recession.

Feedback

If you wish to comment on these findings or take part in the next WRAP gate fees survey, due to begin in November 2010, please e-mail gatefees@wrap.org.uk or call 0808 100 2040 (note existing participants do not have to re-apply).

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