

Comparing the costs of waste treatment options



In May 2016 WRAP published a short report summarising the gate fees paid by LAs across the UK for a range waste management options. This report is the full detailed technical gate fees report as a companion to the summary report. It includes comprehensive reporting and analysis of gate fee information for a range of waste treatment, recovery and disposal options and for wastes supplied from both municipal *and* commercial/industrial sources.

Project code: RCY111-001

Research date: October 2015 – March 2016 **Date:** September 2016

WRAP's vision is a world in which resources are used sustainably.

Our mission is to accelerate the move to a sustainable resource-efficient economy through re-inventing how we design, produce and sell products; re-thinking how we use and consume products; and re-defining what is possible through re-use and recycling.

Find out more at www.wrap.org.uk

Written by: Anthesis Consulting Group (Hannah Dick, Andrew Hennig & Peter Scholes)



Front cover photography: Blackmore Vale Dairy, Shaftesbury - Anaerobic Digestion Plant

While we have tried to make sure this report is accurate, we cannot accept responsibility or be held legally responsible for any loss or damage arising out of or in connection with this information being inaccurate, incomplete or misleading. This material is copyrighted. You can copy it free of charge as long as the material is accurate and not used in a misleading context. You must identify the source of the material and acknowledge our copyright. You must not use material to endorse or suggest we have endorsed a commercial product or service. For more details please see our terms and conditions on our website at www.wrap.org.uk

Executive summary

In May 2016 WRAP published a short report summarising the gate fees paid by LAs across the UK for a range waste management options. This report is the full detailed technical gate fees report as a companion to the summary report. The survey covers gate fees reported by local authorities in the UK for a range of waste recycling, recovery, treatment and disposal options for wastes from municipal sources. In addition, information on organic wastes supplied from commercial and industrial sources is provided by organics treatment facility operators (as part of the gate fees survey).

The aim of this report is to increase price transparency and, by improving the flow of information, improve efficiency in the waste management market. A lack of market information may reduce a local authority's ability to make informed decisions on waste management options. The publication of indicative gate fee information such as this should assist in making better informed decisions regarding waste management options.

Summary gate fee data reported by local authorities in 2015/16 for a range of technology and waste types are presented in Table 1.

Table 1: Summary of UK gate fees 2015/16 (£/tonne)¹

Treatment	Materials / Type of facility / Grade	Median	Mode ²	Range ³	Number of gate fees
MRF	All contracts (4 materials or more)	£25	£0 to £5	-£62 to £89	109
	Contracts started in 2015 (4 materials or more)	£38	£20 to £25	£3 to £89	20
Organics	Open Air Windrow (OAW) ⁴	£24	£20 to £25	£9 to £57	127
	In-Vessel Composting (IVC) ⁵	£47	£55 to £60	£22 to £61	39
	Anaerobic Digestion (AD)	£40	£40 to £45	£0 to £75	50
MBT	Household residual waste	£85	£95 to £100	£67 to £111	19

¹ Gate fees in the table are those reported by local authorities exclusive of haulage costs. Further detail and discussion of the gate fees reported by local authorities is provided in the Executive Summary below and in the main body of the report, together with information on gate fees provided by organics treatment facility operators for wastes supplied from commercial/industrial sources and gate fees provided by wood reprocessors.

² Mode is the gate fee range (in £5 increments) which received the most responses in the survey data. Mode has not been reported in previous years.

³ Range lists simply the ranges between the maximum and minimum data points in the survey data collected.

⁴ OAW gate fee is for all waste streams being sent to OAW facilities by local authorities.

⁵ IVC gate fee is for mixed food and green waste.

EfW ⁶	All	£86	£85 to £90	£22 to £131	59
	Pre-2000 facilities	£58	£40 to £45	£22 to £90	24
	Post-2000 facilities	£95	£85 to £90	£65 to £131	35
Wood Waste	All Grades /tonne collected from Household Waste Recycling Centres (HWRCs) ⁷	£35	£45 to £50	-£5 to £82	99
Landfill	Non-hazardous waste including landfill tax ⁸	£102	£90 to £95	£91 to £145	100
	Non-hazardous waste excluding landfill tax	£19	£10 to £15	£8 to £62	100

Introduction

Data gathering for this gate fee survey was conducted between December 2015 and January 2016. The survey targeted three main stakeholder groups: local authorities (including unitary, waste collection and waste disposal authorities); private sector operators of waste management facilities; and senior managers of large waste management companies operating within the UK market.

The pricing of municipal waste management services can be complex. In providing summary gate fee information (as in this report) other factors relating to the provision and operation of waste management services, which may also be important to a local authority, are not addressed. Users of the gate fee information in this report should be aware of the following:

- Not all waste management services are costed or charged on a simple gate fee basis (£/tonne). In some cases a tonnage-related payment is just one element of a wider unitary charge⁹ paid by an authority. For many authorities it is not appropriate, or practicable, to isolate a pro-rata cost per tonne for a facility that may form just part of a broader integrated service provision. **As a consequence, only services for which it has been possible to identify a gate fee (£/tonne) are included within this report;**
- 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

⁶ Incineration with energy recovery

⁷ Local authority reported gate fees for the onward management or treatment of waste wood.

⁸ The standard rate of landfill tax for 2015/16 was £82.60 /tonne, for 2016/17 it is £84.40 /tonne

⁹ For an integrated or PFI infrastructure waste services contract, the private sector contractor can bundle the payments for a variety of waste management services (including potentially the initial capital spend and the ongoing maintenance and operation cost for associated waste management facilities) into a single ('unitary') charge to the local authority customer, rather than charging individual gate fees for each individual service.

together with EfW (every effort is made to eliminate such responses from the sample);

- Contract terms, risk allocations and performance guarantees may vary significantly between different authorities' contracts, even in instances where the same technology is being utilised. Such differences could have a significant impact on the associated gate fees;
- A significant proportion of municipal waste management services are delivered under long-term contracts. Gate fees for such historic long-term contracts are included in the survey sample but may not be reflective of the current market. However, where reasonable samples were available the gate fees associated with more recent contracts have been separately reported;
- Year on year changes in gate fees may reflect market factors as well as sampling variation¹⁰;
- Gate fees in this report are presented in nominal terms with no adjustment for inflation.

Key findings

The key findings of this year's survey in relation to gate fees charged to local authorities across the UK for a range waste recycling, recovery, treatment and disposal options for wastes from municipal sources are as follows:

- The median MRF gate fee for contracts sorting 4 or more materials is £25/tonne (based on 109 usable gate fees), compared to £6/tonne last year. This year, 28% of local authority respondents reported not paying a gate fee for MRF services i.e. a zero or negative gate fee, in comparison to 46% last year. For contracts signed in 2015, the median gate fee is £38/tonne, compared to £5/tonne for contracts signed in 2014. Of the authorities supplying responses, 55% reported a change in gate fee in 2015/16, made up of 5% reporting a decrease and 40% an increase in gate fee (10% did not report direction of change). Of those reporting a change, 5% gave the reason for the change as the signing of new contracts, 46% changes in commodity prices (reflected through variable gate fee arrangements or changes to such arrangements), 12% the impact of the MRF code of practice and contamination issues, 25% contracted indexation (RPI increases), with 12% giving no explanation.
- Feedback from waste management companies suggested that the overall MRF survey medians were at the low end of gate fees now being charged to local authorities, reflecting the number of historical contracts in the data. They confirmed the need for increased risk share due to falling commodity prices and increasing contamination issues, and expect MRF gate fees will increase further.
- The median OAW composting gate fee for green waste only, is unchanged from the previous year's survey at £24/tonne. Small increases in individual local authority gate fees were explained by RPI increases. The operator survey

¹⁰ Report tables referring to 2015/16 are based on data from the 2015/16 Gate Fees report, charts/tables that make gate fee comparisons over time are based on information from the current and previous Gate Fees reports.

confirmed that OAW is a stable, mature market¹¹ and operators report similar current contract gate fees to local authorities at £25/tonne, and spot market figures of £30/tonne.

- The median gate fee for IVC of mixed food and green waste is slightly higher than last year at £47/tonne (£46 in 2014/15), although 65% (38 of 59) of those responding cited no change in gate fees paid from last year. However the range in gate fees has narrowed, from £24 - £75 last year, to £22 - £61 this year. The operators cite a median contract gate fee of £45/tonne for this input material. The median gate fee for food waste only is also unchanged at £45/tonne. However the lower range of gate fees cited for food waste has fallen by £8/tonne, with waste management company interviews suggesting this could be due to increasing competition from AD facilities in some regions. The operators survey median was £48/tonne and so slightly higher.
- The median AD gate fee for food waste reported by local authorities is unchanged at £40/tonne. In the current survey the range has broadened with some local authorities reporting gate fees (excluding haulage) as low as £0/tonne (3 out of 50 AD gate fees reported by LAs), and the median gate fee for contracts signed in 2014 and 2015 is down to £25/tonne. From the information provided by AD facility operators the median contract AD gate fee is £15/tonne, with a gate fee of £0/tonne for organic waste supplied from municipal sources in a small number (6 out of 43) cases. The interviews with the waste contractors affirmed gate fees have been dropping in the last 6 to 9 months due to the constrained supply of food waste from local authorities and excess of capacity in some regions, and they say this trend is likely to continue.
- Median gate fee for MBT from this year's survey is £85 compared to £88 last year, based on 19 usable responses. Of those reporting a gate fee increase, the majority listed indexation (RPI) increase, with increased landfill tax also being a factor.
- The median gate fee for EfW is £86/tonne which is identical to last years' with 60% of gate fees relating to post-2000 facilities in comparison to 48% last year. Of the 59 respondents this year, 7 reported new contracts in 2015/16 of which 2 were for pre-2000 facilities.
- For pre-2000 EfW facilities, median gate fee was £58, compared to £73 last year and £59 in 2013-14. The difference appears to be due to differences in the sample (i.e. local authorities reporting figures this year that did not report last year) rather than a move in the market. Of the gate fees provided this year, only 13 of the 24 were provided by authorities that also provided gate fees last year. For post-2000 facilities, the median gate fee was £95 compared to £99 last year¹².
- The median gate fee for recycling and recovery of all types of wood wastes from HWRCs has remained the same as last year's at £35/tonne. This is relatively consistent with the contracted gate fee cited by operators at £38/tonne.

¹¹ A market is considered to be mature when it has reached a state of equilibrium, with minimal changes in price due to supply matching demand.

¹² Market factors may play a role in addition to sample variation, variation in response rates and the composition of the sample, therefore year-to-year comparisons for consecutive surveys are subject to uncertainty and should be interpreted cautiously

- The median gate fee for non-hazardous landfill is £19/tonne (excluding tax), down £1/tonne from last year. Although this is similar to previous years, there is a slight declining trend (i.e. from £22/tonne in 2013/14).

The key findings for treatment of organic wastes supplied from C&I sources¹³ are:

- The median OAW contract gate (excluding haulage) is £28/t for separate green waste.
- OAW appears to be a mature market with operators reporting contract gate fees for green waste from C&I sources at similar levels to green waste from municipal sources.¹⁴
- The median IVC contract gate fee (excluding haulage) for separate green waste from C&I sources is £28/t. For separated green wastes from C&I sources treatment costs are very similar at either IVC or OAW facilities.¹⁵
- The median contract AD gate fee (excluding haulage) for receiving unpackaged food wastes from C&I sources (excluding haulage) is £10/t.
- The vast majority (64 of 79 or 81%) of the AD gate fees reported are charges by the AD facility operators to the entities supplying organic wastes but there are some instances identified in the current survey where AD facility operators pay for supply of organic waste from C&I sources. None of the AD operators reported payments for supply of food waste from municipal sources, the median gate fee for food waste being £15/tonne, ranging from £0/tonne to £47/tonne. There were 3 AD operators (12% of the 25 providing gate fee information) who reported payments, of up to £25/tonne, for supply of food waste from C&I sources. For other organic wastes such as blood, effluent, gelatine, waste animal feed, bulk liquids or animal slurry received from C&I sources, 4 of the gate fees indicated a payment of up to £20/tonne.

Survey coverage

The Gate Fees survey provides information on gate fees reported by local authorities in the UK for a range of waste recycling, recovery, treatment and disposal options for wastes from municipal sources. Gate fee information is also provided by a survey of organic waste treatment facility operators covering wastes supplied from both municipal and commercial and industrial sources.

The major focus of the Gate Fees survey is the gate fee information provided by LAs in the UK, therefore the LA is the unit of analysis in the survey design. Details of response rates and the number of gate fees reported are provided in Sections 3 & 4. It is also useful to provide indicative information on the proportion of the overall waste streams covered by the sample of LAs providing gate fees for each of the waste treatment technology types. Based on the estimated proportion of waste covered by the sample

¹³Details of the number of organics facilities providing C&I gate fees to the survey are provided in sections 4.2.5, 4.3.4 & 4.4.4 of the report.

¹⁴ the prior expectation was that OAW gate fees for separate green waste supplied from C&I and Municipal sources would be similar because OAW is a mature market

¹⁵ From the information provided by Local Authorities the reported (median) IVC green waste only gate fee (£37/t) is higher than (median) OAW gate fee for green waste only (£24/t)

of LAs providing gate fees: the sample providing MRF gate fees accounts for 28% of the total UK tonnage of dry materials going to MRFs, for OAW gate fees 33% of the overall tonnage of green waste going to OAW is accounted for, the IVC gate fees sample accounts for 15% of all mixed food and green waste tonnage treated at IVC sites, the sample of AD gate fees account for 36% of the separate food waste tonnage from households going to AD, 46% of all residual waste to EfW is covered by the sample of LAs providing EfW gate fees, around 20% of residual waste tonnes to landfill is covered, and 38% of wood waste at HWRCs.

For the survey of organics treatment facility operators target sample for the number of sites and response rates are reported in Sections 3 & 4. As an indicator of the tonnage of the waste streams covered by each of the organic treatment facility types we estimate the combined annual treatment capacity represented by the sites providing information as a proportion of overall capacity by treatment type. For IVC treatment the sample of facilities providing IVC gate fees accounts for 25% of overall IVC capacity, for OAW 10% of overall capacity is accounted and for AD around 20% of overall treatment capacity (for separate food waste from households or C&I) is accounted for by the facilities providing information on gate fees.

More detailed observations regarding the gate fees associated with each of the major technology options in the latest survey are provided in the sections below.

Materials Recovery Facilities (MRF)

- The median MRF gate fee (for MRF contracts which sort 4 materials or more) is £25 /tonne (based on 109 responses), up from a median of £6/tonne last year.
- 30 local authorities (28% of responses) report not paying a gate fee to MRFs i.e. a zero or negative gate fee compared to 38 (46%) last year.
- The local authority gate fees include historic (long term contracts) therefore the median may not necessarily reflect the current market. For contracts signed in 2015, the median MRF gate fee is £38/tonne, a significant increase on contracts signed in 2014 (£5/tonne).
- Of the 121 authorities supplying responses, 67 (55%) reported a change in gate fee in 2015/16, with 6 reporting a decrease and 48 an increase in gate fee (13 did not report direction of change). Of those reporting a change in gate fee and providing a reason, 3 (4%) reported the signing of new contracts, 31 (46%) changes in commodity prices (due to contracted variable gate fee arrangements or change to such arrangements), 8 (12%) the impact of the MRF code of practice and contamination issues, and 17 (25%) due to contracted indexation (RPI increases).
- Most gate fees reported ranged from £0 to £5/tonne (modal range, compared - £62 to £89 full range) influenced by a wide range of factors including material mix, contract length and age, contractual pricing mechanism, annual tonnage, MRF technology employed, and degree of risk share between the authority and contractor.
- Increased gate fees compared to last year, are evident in national figures too. The median gate fee for England is £15 (v. £0 last year), Scotland is £37 (v. £18 last

year), Wales £43 (v. £40 last year) and Northern Ireland £37 (v. -£5 last year). Although comparable data is not available for London for last year, most authorities cited an increase in their gate fees on the previous year.

- According to the local authority respondents, the key factors driving MRF gate fees are: commodity and end market prices, input material quality and operating costs. Of the 122 councils that expressed an opinion, 98 (80%) expect MRF gate fees to increase in the future.
- Feedback from operators suggested that the survey medians were at the low end of the range of gate fees now being charged to local authorities, reflecting the number of historical contracts in the data. They confirmed the need for increased risk share due to falling commodity prices (reflected either by higher gate fees and/or lower rebates for material sales) and increasing contamination issues, and expected gate fees to continue to increase in the next year.

Table 2: Summary of MRF gate fees by nation (and London) (2015/16) (£/tonne)

Country/Region	Median	Mode	Range	No. of gate fees
Contracts started in 2015 (UK)	£38	£20 to £25	£3 to £89	20
UK	£25	£0 to £5	-£62 to £89	109
England (incl. London)	£15	£0 to £5	-£62 to £89	70
London	£35	£25 to £30	£3 to £89	8
Wales	£43	£75 to £80	-£47 to £80	10
Scotland	£37	£35 to £40	£0 to £88	17
Northern Ireland	£37	£45 to £50	-£30 to £78	12

Organics recycling

Open Air Windrow Composting (OAW)

- The median OAW composting gate fee for green waste only, reported by local authorities, is unchanged from the previous year's survey at £24 /tonne. Small increases in individual local authority data were explained by RPI increases.
- However, 68% of the 101 local authorities expressing an opinion, thought that gate fees would increase in the future, compared to 25% that thought they would stay the same and just 7% that said they would decrease. This is not reflective of the maturity of the market and recent trends.
- By nation, the median gate fees for England, Scotland and Wales do not show significant change from last year's results, although the ranges in England and Scotland are larger.
- Northern Ireland's results suggest there has been a significant increase since last year's median of £35/tonne, despite all authorities responding that their gate fees

have not changed since last year. It is likely that there has been no significant change since last year, but that this year's data represent the market more accurately.

- The operator survey confirmed that OAW was a mature market and operators report similar current contract gate fees to local authorities at £25 /tonne, and spot market figures of £31 /tonne.
- The median OAW contract gate (excluding haulage) is £28/t for separate green waste supplied from C&I sources.
- The commercial OAW market appears to also be a mature market with operators reporting contract gate fees for green waste from C&I sources at similar levels to green waste from municipal sources.

Table 3: Summary of Open-Air Windrow composting gate fees reported by local authorities (excluding haulage, £/tonne) by nation (2015/16) – green waste only

Country	Median	Mode	Range	Responses
UK	£24	£20 to £25	£9 to £57	127
England (incl. London)	£23	£20 to £25	£10 to £57	95
London	£20	£15 to £20	£19 to £57	5
Wales	£32	£30 to £35	£17 to £38	10
Scotland	£26	£25 to £30	£9 to £50	17
Northern Ireland	£42	N/A(*)	£27 to £45	5

(*) broadly dispersed range of data means there is no unique mode

In-Vessel Composting (IVC)

As in previous years, IVC gate fees are reported by waste feedstock type:

- The median gate fee for IVC of mixed food and green waste is slightly higher than last year at £47/tonne (£46 in 2014/15), although 65% (38 of 59) of those local authorities responding to the survey cited no change in gate fees paid from last year. The operators cite a median contract gate fee of £45/tonne for this input material.
- The median IVC gate fee for food waste is the same as last year at £45/tonne. However the lower range of gate fees cited for food waste has fallen by £8/tonne, with waste management company interviews suggesting this could be due to increasing competition from AD facilities in some regions at local level. The operators' survey median was slightly higher at £48/tonne. The median IVC gate fee reported by LAs for green waste only is little changed at £37/tonne but remains higher than the median gate fee for green waste at OAW facilities of £24/tonne. Operators cite a gate fee of £28/tonne for green waste under contract.
- For both mixed food & green waste and food waste, more gate fee responses were received between £55-£60/tonne, despite the medians being lower at £46

and £45/tonne respectively. This reiterates there is significant variation in gate fees.

- In terms of future trends, 59% of local authorities thought that gate fees would increase in the future, compared to 27% that thought they would stay the same and 14% that said they would decrease (59 responses). Operating costs and availability of capacity were cited as the most influential factor on future gate fees.
- The median IVC contract gate fee (excluding haulage) for separate green waste from C&I sources is £28/t.¹⁶
- For separated green wastes supplied from C&I sources gate fees (excluding haulage) are very similar at either IVC or OAW facilities¹⁷.
- Operator feedback cited localised variations in gate fees for food waste in particular, depending upon the level of competition with local AD facilities.

Table 4: Summary of In-Vessel Composting gate fees reported by local authorities (excluding haulage, £/tonne) by material type (2015/16)

Waste type	Median	Mode	Range	Responses
Mixed food & green waste	£47	£55 to £60	£22 to £61	39
Food waste only	£45	£55 to £60	£30 to £59	14
Green waste only	£37	£35 to £40	£20 to £60	17

Anaerobic Digestion (AD)

- The median AD gate fee for food waste is unchanged at £40 /tonne. However, there appears to have been recent market changes, particularly in England, which as yet have not appeared in the median figure due to the historic contracts in the reported data. Although the median is unchanged, the overall range has expanded with some local authorities citing gate fees as low as £0/tonne, and the median gate fee for contracts signed in 2014 and 2015 is down to £25/tonne. Operators cited current contract AD gate fees typically as low as £15/tonne, and confirmed £0/tonne in exceptional cases.
- By nation, the median AD gate fee in England decreased by £5/tonne (to £30/tonne), for Wales it decreased significantly to £42/tonne (from £54/tonne), but for Scotland it increased to £44/tonne (from £40/tonne) . The median AD gate fee for councils in London is lower at £12/tonne, from 5 different gate fees. Figures are not available from last year's survey for comparison, however the local authorities in question reported that their fees had not changed since last year.

¹⁶ The median IVC gate fee for green waste only reported by Local Authorities is £37/tonne

¹⁷ For separate green waste supplied from C&I sources the (median) OAW and IVC gate fees reported by facility operators is £28/tonne

- Of the 9 new contracts in 2015, 4 were in Scotland, 4 were in Wales and the other waste in northwest England. The median for these contracts was £44/tonne. Of contracts which started in 2014, the median was £12/tonne, which included both English and Welsh authorities. To get a wider picture of the UK as a whole, a post 2013 contract analysis was carried out, showing a median of £25/tonne, which is lower than that of contracts started in 2013, which was £40/tonne. This suggests that in part, the overall median is unchanged due to historic contracts, and due to higher gate fees in some regions of the UK, primarily Scotland.
- Operators cited current contract gate fees of £15/tonne for organic wastes from municipal sources which agreed with recent prices cited by local authorities. The interviews with the waste contractors affirmed that in Scotland the availability of food waste from local authority collections is good, driven by Zero Waste legislation, and so had seen some gate fee movement upwards due to capacity shortages. However, in the rest of the UK, gate fees have been dropping in the last 6 to 9 months due to the constrained supply of food waste from local authorities and excess of capacity in some regions.
- Of the 40 local authorities giving an opinion, only 23% of local authorities thought that gate fees would decrease over the next year, compared to 80% of operators.
- The median contract AD gate fee (excluding haulage) for receiving unpackaged food wastes from C&I sources (excluding haulage) is £10/t.
- The vast majority (64 of 79 or 81%) of the AD gate fees reported are *charges* by the AD facility operators to the entities supplying organic wastes but there are some instances where the AD facility operator may pay for supply of organic waste from C&I sources.
- The median contract AD gate fee for receiving unpackaged food wastes from C&I sources (excluding haulage) is £10/t; the median contract gate fee for accepting food waste in biobags is £20/t; and the median gate fee for packaged food waste from C&I sources is £35/t.
- For food wastes going into AD from C&I food preparation processes, the median gate fee is £16/t, and for other organic waste types (blood, effluent, gelatine, waste animal feed, bulk liquids from food preparation processes or animal slurry) received into AD facilities from C&I sources the median gate fee is £3/t
- For food preparation wastes supplied to AD facilities from C&I sources two gate fees received indicated a *payment of* up to £25/t (2 of 14 or 14% of the gate fees reported for C&I food preparation wastes). For other wastes reported gate fees indicate a *payment of* up to £20/t for organic wastes such as blood, effluent, gelatine, waste animal feed, bulk liquids or animal slurry received from C&I sources (4 of 12 or 33% of the gate fees reported for other organic wastes).

Table 5: Summary of Anaerobic Digestion facility gate fees reported by local authorities (excluding haulage, £/tonne) by region (2015/16)

	Median	Mode	Range	Responses
UK	£40	£40 to £45	£0 to £75	50
England (incl. London)	£30	£40 to £45	£0 to £58	27

	Median	Mode	Range	Responses
London	£12	£10 to £15	£10 to £12	5
Wales	£42	£40 to £45	£0 to £75	12
Scotland	£44	£35 to £40	£40 to £55	11

Mechanical Biological Treatment (MBT)

- As with previous years, due to the relatively small number of contracts, results are reported at UK rather than national level.
- Median gate fee for MBT from this year's survey is £85 compared to £88 last year, from 19 usable responses compared to 10 last year. It is likely therefore those small differences in median gate fee are due to the larger sample size rather than any shifts in the market. Of those responding to the survey, 2 responses were for contracts which started in 2015.
- Of those reporting a gate fee change, the majority listed indexation (RPI) increase, with increased landfill tax also being the cause. Of those factors respondents expected to influence gate fees, operating costs, output end markets and inflation (RPI) were expected to have the most impact on current pricing, with availability of capacity and competition from alternative treatment options becoming more important influencing factors on future gate fees.
- Of 38 respondents expressing an opinion, 30 (79%) expected gate fees to increase in the future.

Table 6: Summary of Mechanical Biological Treatment gate fees reported by local authorities (excluding haulage, £ /tonne) 2015/16

	Median	Mode	Range	Responses
UK	£85	£95 to £100	£67 to £111	19

Energy from Waste (EfW)

- As in previous years, results are reported for the UK as a whole, segregating results for facilities built before and after 2000.
- This year, the median gate fee for EfW is £86/tonne which is identical to last years' with 60% of gate fees relating to post-2000 facilities in comparison to 48% last year. Of the 59 respondents this year, 7 reported new contracts in 2015/16 of which 2 were for pre-2000 facilities.
- For pre-2000 EfW facilities, median gate fee was £58, compared to £73 last year and £59 in 2013-14. In addition to market factors discussed below, the difference may be explained by sample variation (i.e. local authorities reporting figures this year that did not report last year) rather than a move in the market. Of the gate fees provided this year, only 13 of the 24 were provided by authorities who also

provided gate fees last year. For post-2000 facilities, the median gate fee was £95 compared to £99 last year.

- Of factors influencing gate fees, respondents reported increased operating costs, availability of capacity and indexation (RPI) having the most impact on current and future gate fees. Respondents expected competition between contractors to become more of an issue in the future. Of the 65 respondents providing an opinion, 44 (68%) expected gate fees to increase in the future, 15% to reduce.
- The range in reported gate fees is broad at £22 to £131 (£85-90 mode range). This is because there is a significant range of contractual and funding factors which can have an influence on gate fee charged including mode of financing (PFI, PPP or prudential borrowing), whether the asset reverts to the Local Authority or not, contract length, and whether the authority made a capital contribution. Operators reported that contracts are getting more sophisticated and more unique, therefore making it difficult to compare individual gate fee figures.
- Operators reported significant regional differences in non-contracted gate fees, particularly near the east and south east ports where exports of RDF to Europe have the most significant impact. It was also pointed out that a number of the pre-2000 facilities are reaching the end of their contracts and will be re-tendered in the next few years.

Table 7: Summary of Energy from Waste (EfW) gate fees reported by local authorities (excluding haulage, £/tonne) 2015/16

Type of facility	Median	Mode	Range	Responses
All	£86	£85 to £90	£22 to £131	59
Pre-year 2000	£58	£40 to £45	£22 to £90	24
Post-year 2000	£95	£85 to £90	£65 to £131	35

Wood waste recycling and recovery

- The median gate fee for recycling and recovery of all types of wood wastes from HWRCs has remained the same as last year's at £35/tonne. This is relatively consistent with the contracted gate fee cited by operators at £38/tonne.
- There is still considerable variation by nation which has also been identified in previous years' results. For example, the median gate fee is lowest in Scotland at £7/tonne (relatively stable with last year's result of £8/tonne) and Wales is highest at £46/tonne (which is a decrease from last year's £51/tonne).
- Only 2 responses were received from London, therefore they have not been provided separately.
- Approximately 8% of responses were deemed compatible with achieving Grade B quality (i.e. suitable for making panel board). The remaining 92% of gate fees

received from local authorities were consistent with gate fees for Grade C wood waste (i.e. can be used for biomass fuel).

- The median gate fee for higher quality Grade B wood waste was £25/tonne, which is the same as last year. This is consistent with the operators that cited Grade B at £30/tonne.
- Operating costs were cited at the most influential factor on current gate fees, and commodity and end market prices were most likely to influence future gate fees, according to local authority respondents.

Table 8: Summary of gate fees (excluding haulage, £/tonne) for the recycling or recovery of all grades of HWRC wood waste reported by local authorities by nation (2015/16)

	Median	Range	Responses
UK	£35	-£5 to £82	99
England (incl. London)	£38	-£5 to £82	62
Wales	£46	£6 to £67	15
Scotland	£7	-£5 to £44	14
Northern Ireland	£30	£0 to £45	8

Non Hazardous Landfill

- The median pre-tax gate fee for non-hazardous landfill is £19/tonne, down £1/tonne from last year. Although this is relatively consistent with previous years, there is a slight declining trend (i.e. from £22/tonne in 2013/14).
- Similarly to last year, the lowest gate fee is found in Northern Ireland (at £15/tonne).
- However, the median gate fee in Wales is significantly higher than last year, having increased from £21/tonne to £27/tonne. As a nation within the UK it has the highest gate fee.
- At a regional level, London has the highest gate fee at £31/tonne. Although the sample size is small, it is relatively consistent with last year's result of £30/tonne.
- From 90 local authorities responding, 76% believe that landfill gate fees will increase over the next 12 months with landfill tax cited as the predominant reason.
- The waste contractor interviews suggested that there may be decreases in gate fees (pre-landfill tax) in the shorter term future, while operators aim to fill their landfills. However in the longer term, gate fees may actually increase as sites close and residual demand starts to outweigh capacity.

Table 9: Summary of landfill gate fees by nation (and London) reported by local authorities 2015/16 (excluding haulage, £/tonne)

Type of facility	Median	Mode	Range	Responses
UK (including £80 landfill tax, 2015/16 tax year)	£102	£90 to £95	£91 to £145	100
UK (excluding landfill tax)	£19	£10 to £15	£8 to £62	100
England (incl. London)	£20	£15 to £20	£8 to £62	70
London	£31	n/a	n/a	3
Wales	£27	£25 to £30	£10 to £34	10
Scotland	£17	£10 to £15	£10 to £48	13
Northern Ireland	£15	£10 to £15	£12 to £51	7

Contents

1.0	Introduction.....	21
2.0	Approach to this study.....	21
2.1	Scope.....	21
2.2	Data collection.....	22
2.2.1	Local authority survey	22
2.2.2	Survey of organic waste treatment operators.....	24
2.2.3	Wood waste recyclers, reprocessors and thermal processors	25
2.2.4	Waste management companies	26
2.3	Data analysis and quality assurance	26
2.3.1	Data checking and cleansing	27
2.3.2	Haulage costs.....	27
2.3.3	PFI / integrated contracts.....	28
2.3.4	Materials Recovery Facilities.....	28
2.3.5	Mechanical Biological Treatment.....	28
2.3.6	Data analysis limitations	28
3.0	Local authority response rates	29
3.1	Local authorities.....	29
3.2	Organic operators survey	30
3.3	Wood recyclers and reprocessors	31
3.4	Interviews with waste management companies.....	32
4.0	Results and analysis	32
4.1	Materials Recovery Facilities (MRF)	32
4.1.1	Current gate fees and trends	32
4.1.2	Gate fee by contract year.....	35
4.1.3	Contract review.....	36
4.1.4	Materials collected and sorted.....	37
4.1.5	Key influencing factors	38
4.1.6	Waste contractor interviews.....	40
4.2	Open Air Windrow Composting (OAW).....	40
4.2.1	Current gate fees and trends	40
4.2.2	Gate fees at English regional level	44
4.2.3	Contract review.....	45
4.2.4	Key influencing factors	46
4.2.5	Survey of OAW operators	48
4.2.6	Key influencing factors – operators.....	49
4.2.7	Waste contractor interviews.....	50
4.3	In-vessel composting (IVC).....	50
4.3.1	Current gate fees and trends	50
4.3.2	Contract review.....	54
4.3.3	Key influencing factors	55
4.3.4	Survey of IVC operators.....	57
4.3.5	Key influencing factors - operators	58
4.3.6	Waste contractor interviews.....	59
4.4	Anaerobic Digestion (AD).....	59
4.4.1	Current gate fee and trends	60

4.4.2	Contract review.....	61
4.4.3	Key influencing factors – AD gate fees paid by local authorities.....	62
4.4.4	Survey of AD operators	63
4.4.5	Key influencing factors for gate fees – AD facility operators (municipal and C&I wastes)	67
4.4.6	Waste contractor interviews.....	69
4.5	Mechanical Biological Treatment (MBT)	70
4.5.1	Current gate fees and trends	70
4.5.2	Contract review.....	71
4.5.3	Key Influencing factors	72
4.5.4	Waste contractor interviews.....	73
4.6	Energy from Waste (EfW)	73
4.6.1	Current gate fees and trends	73
4.6.2	Contract review.....	76
4.6.3	Key influencing factors	77
4.6.4	Waste contractor Interviews.....	78
4.7	Wood waste recycling and recovery.....	78
4.7.1	Current gate fees and trends	79
4.7.2	Key influencing factors	80
4.7.3	Survey of wood recyclers, reprocessors and thermal reprocessors	81
4.7.4	Waste contractor interviews.....	83
4.8	Non-hazardous landfill	83
4.8.1	Current gate fees and trends	83
4.8.2	Contract review.....	87
4.8.3	Key influencing factors	89
4.8.4	Waste contractor interviews.....	91

Figures

Figure 1: UK MRF gate fees over time (£/tonne)	33
Figure 2: MRF gate fees by nation (and London) (2015/16 in £/tonne)	34
Figure 3: MRF gate fees by English region (2015/16 in £/tonne)	35
Figure 4: OAW composting gate fee comparison over time for all materials, UK wide (£ /tonne).....	41
Figure 5: OAW composting gate fees by nation in 2015/16 (£/tonne).....	42
Figure 6: OAW composting gate fee comparison over time by nation for all materials (£/tonne).....	43
Figure 7: OAW composting gate fees by region in 2015/16 (England).....	45
Figure 8: IVC gate fees by contract duration (£/tonne, 2015/16).....	46
Figure 9: IVC gate fees by material stream in 2015/16 (£/tonne)	52
Figure 10: IVC gate fees over time by material stream (2015/16 in £/tonne).....	53
Figure 11: IVC gate fees for mixed green and food waste, by nation (and London) for 2015/16 (£/tonne).....	54
Figure 12: AD gate fees over time for the whole of the UK (£/tonne).....	60
Figure 13: Impact of contract start date on AD gate fees (£/tonne).....	62
Figure 14: The distribution of contract gate fees (excluding haulage) reported by AD facility operators for receiving organic wastes from commercial/industrial sources by waste type (£/tonne)	67
Figure 15: MBT gate fees over time (all UK in £/tonne).....	71

Figure 16: Pre 2000 EfW gate fees over time (UK, £/tonne)	75
Figure 17: Post 2000 EfW gate fees over time (UK, £/tonne).....	75
Figure 18: Gate fees paid by local authorities for the disposal, treatment and recycling of all grades of wood waste (£/tonne).....	80
Figure 19: Landfill gate fees over time for the whole UK (£/tonne)	84
Figure 20: Landfill gate fees by nation in 2015/16 (£/tonne).....	85
Figure 21: Landfill gate fees over time by nation (£/tonne)	86
Figure 22: Landfill gate fees by English region in 2015/16 (£/tonne).....	87
Figure 23: Impact of landfill contract lengths on gate fees (£/tonne).....	89
Figure 24: Impact of contract start date on gate fees (£/tonne).....	89

Tables

Table 1: Summary of UK gate fees 2015/16 (£/tonne)	1
Table 2: Summary of MRF gate fees by nation (and London) (2015/16) (£/tonne).....	7
Table 3: Summary of Open-Air Windrow composting gate fees (£/tonne) by nation (2015/16) – green waste only	8
Table 4: Summary of In-Vessel Composting gate fees (£/tonne) by material type (2015/16)	9
Table 5: Summary of Anaerobic Digestion facility gate fees (£/tonne) by region (2015/16)	10
Table 6: Summary of Mechanical Biological Treatment gate fees 2015/16 (£ /tonne).....	11
Table 7: Summary of Energy from Waste (EfW) gate fees 2015/16 (£/tonne)	12
Table 8: Summary of gate fees (£/tonne) for the recycling or recovery of all grades of HWRC wood waste by nation (2015/16)	13
Table 9: Summary of landfill gate fees by nation (and London) 2015/16 (£/tonne).....	14
Table 10: Sample size (targets)	23
Table 11: Local authority response rates 2015/16	29
Table 12: Local authority response rates 2014/15	30
Table 13: Composting and AD response rates 2015/16	31
Table 14: Composting and AD response rates and (responses with usable gate fees) by survey year	31
Table 15: MRF gate fees by nation (and London) (2015/16) (£/tonne).....	32
Table 16: MRF gate fees by contract start year (from 2015/16 data in £/tonne)	35
Table 17: Changes in MRF gate fee in 2015/16 with reasons.....	36
Table 18: MRF contract length	36
Table 19: Range and frequency of materials being sorted at MRFs in 2015/16, with change in material prices in 2015 (as % of 2015 starting price)	38
Table 20: Key influencing factors – current MRF pricing (indicated by local authority survey – 122 respondents)	39
Table 21: Key influencing factors – future MRF pricing (indicated by local authority survey – 122 respondents).....	39
Table 22: Open Air Windrow composting gate fees by nation (2015/16 in £/tonne)	42
Table 23: Regional breakdown of OAW gate fees in England (2015/16)	44
Table 24: OAW contract lengths (for which contract length data was submitted)	45
Table 25: Factors influencing current OAW gate fees (indicated by local authority survey – 99 respondents).....	47

Table 26: Factors most likely to influence future OAW gate fees (indicated by local authorities surveyed – 98 respondents).....	47
Table 27: Contract and spot OAW gate fees provided by facility operators (2015/16)	48
Table 28: Factors influencing current OAW gate fees (indicated by OAW operators surveyed – 15 responses)	49
Table 29: Factors most likely to influence future OAW gate fees (indicated by OAW operators surveyed – 14 responses)	50
Table 30: IVC gate fees provided by local authorities by waste material type (2015/16 in £/tonne).....	51
Table 31: IVC contract lengths (for which contract length data was submitted).....	54
Table 32: IVC gate fees based on contract start year (£/tonne).....	55
Table 33: Factors influencing current IVC gate fees (indicated by local authority survey – 59 respondents).....	56
Table 34: Factors most likely to influence future OAW gate fees (indicated by local authority survey – 59 responses)	56
Table 35: Contract and spot IVC gate fees provided by facilities (2015/16, £/tonne).....	57
Table 36: Factors influencing current IVC gate fees (indicated by IVC operators surveyed – 11 responses)	58
Table 37: Factors most likely to influence future IVC gate fees (indicated by IVC operators surveyed – 11 responses).....	59
Table 38: AD gate fees provided by local authorities in 2015/16 (£/tonne).....	60
Table 39: AD contract lengths 2015/16	61
Table 40: Factors influencing current AD gate fees (indicated by local authorities surveyed – 40 Responses)	63
Table 41: Factors most likely to influence future AD gate fees (identified by local authorities surveyed – 40 responses).....	63
Table 42: Contract and spot gate fees (excluding haulage) provided by AD facility operators in 2015/16 (£/tonne)	64
Table 43: Contract gate fees (excluding haulage) reported by AD facility operators for receiving organic wastes from municipal sources by waste type, 2015/16.....	65
Table 44: Contract gate fees (excluding haulage) reported by AD facility operators for receiving organic wastes from commercial/industrial sources by waste type, 2015/16 ..	66
Table 45: Factors influencing current AD gate fees (9 AD facilities responded to the questions on current influencing factors).....	68
Table 46: Factors influencing future AD gate fees (9 AD facilities responded to the questions on future influencing factors).....	68
Table 47: Summary of MBT gate fees 2015/16 (£/tonne)	70
Table 48: MBT contract lengths (for responses where contract length waste given)	71
Table 49: Key influencing factors – current MBT pricing (indicated by local authority survey – 36 responses)	72
Table 50: Key influencing factors – future MBT pricing (indicated by local authority survey – 36 responses)	72
Table 51: Summary of energy recovery (EfW) gate fees 2015/16, with and without contracts (£/tonne).....	74
Table 52: EfW Contracts started and median gate fees 2011-2015 (£/tonne).....	76
Table 53: Energy recovery contract lengths.....	76
Table 54: Key influencing factors – current energy recovery gate fees (indicated by local authority survey – 66 responses)	77

Table 55: Key influencing factors – future energy recovery gate fees (indicated by local authority survey – 66 responses)	77
Table 56: Gate fees (£/tonne) paid by local authorities for the disposal, treatment and recycling of wood waste in 2015/16.....	79
Table 57: Factors influencing current wood waste gate fees (indicated by local authorities surveyed – 91 responses).....	80
Table 58: Factors most likely to influence future wood waste gate fees (indicated by local authorities surveyed – 93 responses).....	81
Table 59: Wood waste gate fees for the different grades of wood received for 2015/16 (£/tonne).....	82
Table 60: Revenues for wood waste end markets in 2015/16 (£/tonne).....	83
Table 61: Landfill gate fees for 2015/16, broken down by nation and regions within England (£/tonne)	84
Table 62: Landfill contract lengths (for which contract length data was submitted)	88
Table 63: Factors influencing current landfill gate fees (indicated by local authorities surveyed – 90 responses).....	90
Table 64: Factors most likely to influence future landfill gate fees (indicated by local authorities – 89 responses).....	90

Glossary

AD	Anaerobic Digestion
C&I	Commercial and Industrial
C&D	Construction and Demolition
EFW	Energy from Waste
HWRC	Household Waste Recycling Centre
IVC	In-Vessel Composting
MBT	Mechanical Biological Treatment
MHT	Mechanical Heat Treatment
MRF	Materials Recovery Facility
OAW	Open-Air Windrow
PFI	Private Finance Initiative
SRF	Solid Recovered Fuel
RDF	Refuse Derived Fuel
WCA	Waste Collection Authority
WDA	Waste Disposal Authority
WRA	Wood Recyclers Association

Acknowledgements

Our thanks to all of the local authorities who took time to contribute towards this survey, and all of the waste management companies and facility operators who generously provided information or agreed to be interviewed. In addition, our thanks to the Department of the Environment (Northern Ireland), Zero Waste Scotland, the Welsh Local Government Association and the Welsh Government for their support to this project.

1.0 Introduction

This report contains the findings of WRAP's ninth annual gate fees survey. It summarises the gate fees charged for a range of waste treatment, recovery and disposal options, focusing on the management of municipal wastes. The report also looks at the factors likely to influence future gate fees and includes comparisons to the previous year's results.

The aim of the gate fees survey is to increase price transparency and, by improving the flow of information, improve efficiency in the waste management market. A lack of market information can reduce a local authority's ability to make informed decisions on waste management options. Therefore, the publication of indicative gate fee information, such as that contained within this report, should assist local authorities in making better informed decisions regarding waste management options. The year-on-year changes in gate fees are also valuable in informing the changes in the state of the market for different ways of managing waste.

The objectives of this year's survey were as follows:

- To capture the variation in gate fees by treatment/disposal option by surveying local authorities that procure waste disposal services and service providers including Waste Management Companies (WMCs), operators of organic treatment facilities, and wood waste recyclers;
- To encompass a broad regional distribution of gate fees for facilities across England (including London as a separate region, and where possible, to carry out analysis on a regional basis within England), Scotland, Wales and Northern Ireland; and
- To assess market trends via a comparison of gate fees over time.

This report presents a detailed summary of gate fees for a range of options for the treatment and disposal of waste, together with a forward looking analysis of the factors likely to influence future gate fees.

2.0 Approach to this study

2.1 Scope

This survey compiles information regarding gate fees charged in 2015/16 for a variety of waste management services. The geographic scope covers the whole of the UK: Scotland, England (with the data allocated between the nine English regions where sample size allowed), Wales and Northern Ireland.

Requests for gate fee information were issued to local authorities, including all Unitary Authorities, Waste Disposal Authorities (WDAs), and Waste Collection Authorities (WCAs) within the UK. The waste management services included in the local authority survey questionnaire were:

- Materials Recovery Facilities (MRF);
- Open Air Windrow Composting (OAW);
- In-Vessel Composting (IVC);

- Anaerobic Digestion (AD);
- Mechanical Biological Treatment (MBT);
- Energy from Waste (EfW);
- Wood waste recycling / recovery; and
- Non-hazardous landfill

Separate requests for information were also distributed to waste management operators in the following sectors:

- In-Vessel Composting;
- Anaerobic Digestion;
- Open Air Windrow composting; and
- Wood waste recycling and recovery.

In addition to the above, telephone or face-to-face interviews were held with representatives of major waste management companies. These interviews were flexible in their scope, in that they addressed all major waste service types offered by the company in question.

2.2 Data collection

2.2.1 Local authority survey

This year's survey followed the format of the 2013/14 and 2014/15 surveys, in that it was conducted using a web-based questionnaire. The questionnaire was constructed and designed by Anthesis, and hosted by SurveyMonkey.

The online questionnaire was publicised to local authorities by a covering email containing a survey link for each local authority contact. At least one email was sent to every local authority in the UK. Where multiple contact details were available within an authority, the survey was sent to each one. The survey was also publicised on WRAP's website.

The covering email contained summary information about the gate fees survey in general, and provided links to WRAP's webpage for the previous year's survey. As the summary report from last year's survey is available on WRAP's website, a link to the relevant webpage was provided for both of these reports rather than providing attachments in the email. The covering email also confirmed the support of relevant organisations¹⁸; this support was extremely important in demonstrating the credibility and importance of the survey.

The covering email was sent to all local authorities on either 30th November or 1st December 2015. A second email was then sent out to all contacts on 22nd December 2015 to remind them about the survey and that the deadline was during the Christmas holiday period. To pick up any remaining authorities that may have intended to

¹⁸ Supporting organisations include: Department for Environment, Food & Rural Affairs (England), The Welsh Government, The Welsh Local Government Association, the Department for the Environment (Northern Ireland), LARAC, Resource London, the Organics Recycling Group (ORG) and the Anaerobic Digestion & Bioresources Association (ADBA).

complete the survey but had not yet been able to do so, or may have started the survey but not yet completed it, a third email was sent on 12th January 2016, informing them of the extended deadline and encourage further responses.

The local authority survey remained open until 15th January 2015. Authority responses were monitored throughout the survey. Phone calls were made throughout the survey period to local authorities, to ensure they had received the invitation to participate, to ask if the correct people had received it, and to establish whether they intended or were able to complete the survey, by the required deadline. Local authorities were also offered the chance to complete the survey over the phone with the Anthesis team member making the calls. During the survey period a helpline and email address were made available by Anthesis to answer questions and support local authority officers with filling in the questionnaire.

Sampling strategy

The sampling approach for the local authority survey was based upon a stratified population of the 4 UK Nations and 3 Authority types, which together constitute a stratum. A stratified random sampling approach was used to determine the target sample size and hence develop the sample matrix for the survey. The stratified sampling approach used was based upon proportionate sampling; in proportionate stratified sampling, the sample size of each stratum is proportional to the total number of local authorities within each stratum.

The intention was to target a sample size large enough for each stratum, to produce results that would reach 90% confidence levels at UK level. Given the overall target figure of 202 authorities, target sample sizes were adjusted for Wales, Scotland, Northern Ireland and London, that would reach 90% confidence levels – however for England, the target number would mean a 80% confidence level if the target were met. The sample size targets are shown in Table 10.

Table 10: Sample size (targets)

Nation	Authority type			Total
	UAs	WDAs	WCAs	
England	27	13	65	105
Scotland	30	0	0	30
Wales	22	0	0	22
Northern Ireland	11	0	0	11
London	12	4	18	34
Total	102	17	83	202

The aim was to maximise survey responses rather than keeping to over-strict significance levels which may prevent higher response rates and sector coverage, so these figures were used as a guide to focus the telephone chase up of non-responding authorities.

The contact database for local authority officers was used to send emails to at least one contact from each local authority. If a bounce-back email message was received, which included details of a new officer, the contact list was updated and the email was re-sent. If no new contact details were provided, attempts were made to try to identify updated contact details (during the reminder phone calls) to which the questionnaire could be sent.

Questionnaire

A single questionnaire was used for capturing all data from local authorities. This questionnaire included detailed questions covering all waste management services listed within the survey scope (Section 2.1). Question logic was built into the survey so that if the authority answered 'no' to using a specific service (e.g. a MRF or IVC) they then bypassed all subsequent questions regarding that service type. In this manner the questionnaire was kept relevant to the individual authority.

The online questionnaire that was developed for the 2014/15 survey was used as the template. However, a number of alterations were made based on recommendations from last year's gate fees report, as well as additional feedback collated by WRAP from local authorities.

All questions relating to gate fees and changes in gate fees were open questions that required the input of £ /tonne values. Closed questions were restricted to the section that asked about current and future factors influencing gate fees. This section provided a number of possible options that respondents could select from a predefined list; however, respondents could also select 'other', and add additional comments in a free text box if relevant factors were not contained in the list. This included additional options from the last year's survey, such as whether MRF gate fees may have been influenced by operators needing to comply with the MRF Code of Practice.

2.2.2 Survey of organic waste treatment operators

The organic waste treatment operators' survey followed the same approach as the local authority survey, in that it was conducted using web-based questionnaires. A different questionnaire was compiled for each of OAW, IVC and AD operators. The questionnaires were constructed and designed by Anthesis, and hosted by market research firm Survey Monkey.

The online questionnaires were publicised to organic waste treatment operators by a covering email containing the relevant survey links depending on the contact and which treatment technologies were relevant to them. Where multiple contact details were available within a company the survey was sent to each one. The survey was also publicised on WRAP's website.

The covering email contained summary information about the gate fees survey in general, and provided links to WRAP's webpage for the previous years' survey. As the summary report from last year's survey are now available on request via WRAP's website, a link to the relevant webpage was provided for both of these reports rather

than providing attachments in the email. The covering email also contained the logos of the supporting organisations identified in Section 2.2.1.

The covering email was sent to organic waste treatment operators on 1st December 2015. A second email was then sent out to all contacts on 22nd December to remind them about the survey and that the deadline was during the Christmas holiday period. A third email was sent out on 12th January 2016 to operators that had partially completed a survey or had not yet responded, and the survey deadline was extended to the 22nd January 2016, to encourage further responses.

Operator responses were monitored throughout the entire duration of the survey. Phone calls were made throughout the survey period, to ensure they had received the invitation to participate, to ask if the correct people had received it, and to establish whether they intended or were able to complete the survey, by the required deadline. Operators were also offered the chance to complete the survey over the phone with the Anthesis team member making the calls. During the survey period a helpline and email address were made available by Anthesis to answer questions and support local authority officers with filling in the questionnaire.

Sampling frame

For this year's study a contact database for OAW, IVC and AD operators, was updated from last year using Anthesis' contact details for relevant operators. A total of 276 emails were sent to over 200 operators at the start of the survey period (some with multiple contacts). For context, this compares to a total population of c. 300 composting facilities and c. 100 AD facilities, of which a proportion do not accept local authority wastes¹⁹.

Questionnaires

Individual questionnaires were devised for OAW, IVC and AD operators. If an operator was known to have more than one type of organic facility, multiple links were included within the emails sent to these contacts.

2.2.3 Wood waste recyclers, reprocessors and thermal processors

Unlike last year, the wood waste treatment operators survey was also conducted using a web-based questionnaire. The questionnaire was constructed and designed by Anthesis, and hosted by market research firm Survey Monkey.

The online questionnaires were publicised to wood waste treatment operators by a covering email containing the survey link. Where multiple contact details were available within a company the survey was sent to each one. The survey was also publicised on WRAP's website.

The covering email contained summary information about the gate fees survey in general, and provided links to WRAP's webpage for the previous years' survey, and also included logos of the supporting organisations identified in Section 2.2.1.

¹⁹ WRAP Annual Survey of the Organic Recycling Industry (ASORI) 2013 and ASORI 2014

The covering email was sent to wood waste treatment operators on 1st December 2015. A second email was then sent out to all contacts on 22nd December to remind them about the survey and that the deadline was during the Christmas holiday period. A third email was sent out on 12th January 2016 to operators that had partially completed a survey or had not yet responded, and the survey deadline was extended to the 22nd January 2016, to encourage further responses.

Operator responses were monitored throughout the entire duration of the survey. Phone calls were made throughout the survey period, to ensure they had received the invitation to participate, to ask if the correct people had received it, and to establish whether they intended or were able to complete the survey, by the required deadline. Operators were also offered the chance to complete the survey over the phone with the Anthesis team member making the calls. During the survey period a helpline and email address were made available by Anthesis to answer questions and support local authority officers with filling in the questionnaire.

Sampling frame

The contact database was updated from last year using Anthesis' internal contact database. A total of 95 emails were sent to around 90 different operators.

Questionnaire

The questionnaire used question logic to ask a different set of questions depending on if the respondent was a wood recycler, panel board manufacturer or generated energy from waste wood biomass.

2.2.4 Waste management companies

A number of waste management companies, that have a range of technology types and regional distribution, were identified. Key contacts within these companies were contacted to see whether they would be willing to take part in either a telephone or face-to-face interview, with a senior member of the Anthesis delivery team.

As was the case with previous years, it was anticipated that information gained from these interviews would not necessarily be actual gate fee figures associated with particular facilities, but, more likely, a range of gate fees and a market trend commentary. This information was used to 'sense check' the information received from local authorities. The rationale was that by not asking for gate fees for specific facilities, companies would be more willing to participate, and would also engage in a discussion about relevant drivers in the market place. The approach taken was to present a summary of the gate fees collected in the local authority survey (median and ranges) and ask the company representatives to confirm or otherwise comment on them. General questions (rather than specific questions about gate fees) were also asked about the local authority and merchant markets.

2.3 Data analysis and quality assurance

Whilst there is some data analysis functionality available through the website used to host the online questionnaires it was insufficient for all the survey requirements.

Consequently, the data was downloaded into Microsoft Excel file format to facilitate detailed analysis and the production of charts.

2.3.1 Data checking and cleansing

Once the data was downloaded it was checked for obvious errors, as well as less likely errors which required potential clarification with the respondents. This primarily involved senior members of the team examining the data and highlighting potential errors using their knowledge of the market.

Typical issues which were identified during this data checking and cleaning stage include, for example:

- Where £0/tonne gate fees were stated, checking with the authority these were valid and that they hadn't intended to leave blank;
- Haulage costs entered in the excluding haulage costs fields;
- Excluding 'dirty' MRF responses within MRF and MBT sections;
- Data which appeared to be outlying (either high or low) or illogical; and
- Landfill tax included in the landfill gate fee (this was specifically requested to be excluded in the questionnaire text).

Such issues were identified within the data, checked with the supplying local authority and corrected prior to analysis of the data. In some cases, where responses were not received and gate fees looked significantly out of step with others, they were eliminated from the analysis.

Some authorities had problems re-entering a survey which they had started due to working remotely. SurveyMonkey works on recognising the IP address to send the user back to a partially completed survey, however this did not always work for respondents that worked remotely. Therefore some had more than one entry. For some authorities, more than one respondent had completed the survey. Therefore some of these entries were identified as repeats and were excluded from the analysis.

2.3.2 Haulage costs

The key data for this survey are the gate fees charged at each type of facility (£ /tonne). For comparability reasons these must exclude all other costs which may be associated with the management of a waste e.g. collection, bulking, or haulage costs. For this reason this survey has differentiated between prices for 'gate fees excluding transport' and 'gate fees including transport'.

For comparison calculations only gate fees excluding haulage have been used in the analysis of data. Where responses had been received which included transport only, an estimate was made as to what the transport element of that gate fee was, so a gate fee excluding haulage could be calculated. Some authorities had provided gate fees both including and excluding haulage. These were used to calculate an average 'transport /tonne' cost for each facility type and then removed from the gate fees which included haulage costs. This enabled additional data points to be considered in the overall analysis. Due care was taken to identify any calculated gate fees where transport costs

were thought not be accurately accounted for through this method and these were removed from the analysis.

2.3.3 PFI / integrated contracts

A number of local authorities, with existing PFI or integrated contracts, quoted gate fees which were obviously not 'gate fees' for a specific treatment facility, but represented the whole, or part of a payment for an integrated service. Comments provided within the survey and further questioning of some of these authorities revealed that complex payment mechanisms were in place for waste treatment and disposal, whereby the true cost of the technology or technologies used was masked by the structure of the payment mechanism. This issue is particularly marked under integrated contracts, where service fees may be paid to operators covering a range of services.

Given the issues outlined above, all gate fees that were identified as being linked to complex payment mechanisms, and that led to unusual gate fees being quoted, were excluded from the dataset. Clear examples of this issue are when authorities quote the same gate fee for a range of services.

2.3.4 Materials Recovery Facilities

MRF gate fees depend on the range of materials collected for sorting, and therefore to allow for comparability, only gate fees provided which represented sorting a of a typical mix of at least four key materials were included in the overall analysis. Local authorities that received revenues, for instance from the sale of recyclates, which were not included in the reported gate fee, were also excluded.

2.3.5 Mechanical Biological Treatment

Authorities were asked whether they were liable for any risk or further costs for the onward disposal of residues and/or refuse derived fuel, either by landfill or energy recovery. Any gate fees provided where the authority was liable for further costs were excluded from the analysis, as the gate fee specified was likely to be artificially lower.

2.3.6 Data analysis limitations

In the following analysis of the data collected, relevant sample sizes are reported. Although overall sample rates exceeded the targeted sample size at 90% confidence level for key data from unitary and WDA authorities, when examining data in detail, or comparing results per waste management service from this year to those obtained from previous years, the size of the sample on which results are based needs to be considered. This is particularly relevant when, for instance, comparing results for particular waste management type at national level, or comparing results between English regions, where a small sample size per individual nation or region may make robust comparison difficult. Where such issues arise, these are highlighted in the text.

3.0 Local authority response rates

3.1 Local authorities

A summary of response rates by authority type and the gate fee data by facility type that have been secured by this year's survey are shown in Table 11 below. For comparison purposes the same data reported in last year's survey are shown in Table 12.

Table 11: Local authority response rates 2015/16

	England				Scotland	Wales	NI	UK
	WDA	WCA	Unitary	London	Unitary			Total
No. of Local Authorities	32	230	91	37	32	22	11	418
No. of emails sent out	142	659	353	116	90	68	56	1368
No. of Local Authorities responding	25 (78%)	87 (38%)	57 (63%)	17 (46%)	25 (78%)	17 (77%)	11 (100%)	222 (53%)
No. responding with gate fee(s)	19 (59%)	31 (13%)	48 (53%)	8 (22%)	22 (69%)	16 (73%)	11 (100%)	147 (35%)
Target at 90% confidence ²⁰	13	65	27	34	30	22	11	168
No. of LAs that provided gate fee data for the following facilities:²¹								
MRFs	74 (18%)							
OAW	98 (23%)							
IVC	56 (13%)							
AD	39 (9%)							
MBT	32 (8%)							
EfW (Incineration with Energy Recovery)	51 (12%)							
Landfill	78 (19%)							
Wood	73 (17%)							

For England, the target response rates were exceeded for both WDAs and Unitaries, the key holders of data. Only a little over a third of WCAs provided actual gate fees. In most cases it was reported that the relevant WDA was responsible for contracting and therefore could provide the required data.

The current survey received funding from London Boroughs to collate and report information on gate fees in the capital, and so a specific target sample for London was devised. However, it was very challenging as it is made up of a significant number of WCAs that do not have responsibility for paying gate fees. There are only 4 WDAs, only two of which were able or willing to provide gate fee data. Of the 8 unitary authorities, 6 responded to the survey, 5 of which were able to provide gate fee data. However, given not all local authorities use all the different facility types, this meant a very small sample

²⁰ Except for England

²¹ The survey design is based on LAs as the unit of analysis, however it is useful to provide indicative information on coverage based on the estimated proportion of all waste types covered by the sample of LAs providing gate fees for each of the treatment technologies. The sample of LAs providing MRF gate fees accounts for 28% of the total tonnage of dry materials going to MRFs, for OAW gate fees 33% of green waste tonnage is accounted for, the IVC sample accounts for 15% of all mixed food and green waste treated at IVC, the AD sample accounts for 36% of separate food waste from households, 46% of LA collected residual waste to EfW, 20% of residual waste to landfill, and 38% of wood waste at HWRCs.

for each of the facility types which has made reported at this level not possible for all types of facility.

Scotland, Northern Ireland and Wales have smaller numbers of local authorities compared to England, which meant that the target was a high proportion of the overall number. In Northern Ireland, 100% coverage was achieved, partially due to the fact that arc21 provided data on behalf of several of its constituent authorities. However, the sample fell short of the targets for both Scotland and Wales despite regular contact with non-responding authorities during the survey period encouraging participation.

Table 12: Local authority response rates 2014/15

	England			Scotland	Wales	NI	UK
	WDA	WCA	Unitary	Unitary			Total
No. of Local Authorities	33	236	90	32	22	26	439
No. of emails sent out	195	1087	501	142	122	99	2146
No. of Local Authorities responding	16 (48%)	141 (50%)	46 (51%)	16 (50%)	12 (55%)	20 (77%)	251 (57%)
No. responding with gate fee(s)	16 (48%)	65 (28%)	46 (51%)	16 (50%)	12 (55%)	8 (31%)	163 (37%)
No. of LAs that provided gate fee data for the following facilities:							
MRFs	114 (26%)						
OAW	91 (21%)						
IVC	53 (12%)						
AD	29 (7%)						
MBT	19 (4%)						
EfW (Incineration with Energy Recovery)	66 (15%)						
Landfill	95 (22%)						
Wood	90 (21%)						

The number of authorities has changed since last year's survey, particularly in Northern Ireland where 26 authorities have merged to become just 11. The data show that the authority response rate to this year's survey is slightly lower than last year, down from 57% to 53%. 35% of local authorities responded with gate fees this year in comparison to last year's 37%. However, data cleaning does remove some reported gate fees – the proportion of usable gate fees is reported in the results section for each facility type, showing an increase of usable data for most types from last year.

The rate of participation in Scotland, Northern Ireland and Wales has increased significantly, meaning that results from this year's survey are likely to be more accurate for these regions.

In England, WDAs and unitary authority were the focus of chase up calls, as these are the most relevant authority types to collect data from, as they are most likely to pay gate fees. The total of these authorities participating in the survey from last year has increased from 62 (50%) to 82 (67%) this year.

3.2 Organic operators survey

The results of the operators' survey for IVC and AD facilities show an improvement on last year in terms of overall respondents, with slightly fewer OAW operators responding compared to last year, despite chasing. However, the number of respondents that provided usable gate fees is slightly lower than last year. The results of the operators' survey for composting and AD facilities are shown in Table 13.

Table 13: Composting and AD facility operators response rates 2015/16²²

	IVC	OAW	AD
No. of operators contacted in relation to each type of facility	88	135	90
Total No. of responses (and % operators that responded)	17 (19%)	29 (21%)	25 (28%)
Total No. with usable gate fees (and % operators that responded)	11 (13%)	16 (12%)	11 (12%)

The response rates achieved by this year's survey compared with previous years are shown in Table 14 below.

Table 14: Composting and AD facility operators response rates and (number of usable gate fees) by survey year

Survey Year	IVC	OAW	AD
2015/16	17 (11)	29 (16)	25 (11)
2014/15	14 (14)	27 (27)	12 (12)
2013/14	20(17)	49(43)	32(10)
2012/13	10 (10)	17 (17)	14 (11)
2011/12	10 (7)	12 (10)	11 (9)
2010/11	9	14	3
2009/10	7	10	n/a
2008/09	13	20	n/a

3.3 Wood recyclers and reprocessors

A total of 92 wood recyclers, reprocessors and thermal processors were contacted to complete the survey. Of these 16 responses were received 12 of which provided some usable gate fee data of which 11 respondents were wood recyclers with the remaining 5 were thermal processors.

²² As an indicator of the tonnage of the waste stream covered by each of the organic treatment facility types we estimate the combined annual capacity of the sites providing information to the survey as a proportion of overall capacity. For IVC treatment the sample of facilities providing gate fees accounts for 25% of overall capacity, for OAW 10% is accounted for and for AD around 20% of overall treatment capacity (for separate food waste from household or C&I) is accounted for by the facilities providing gate fees.

3.4 Interviews with waste management companies

Interviews were conducted at senior level with 7 large waste management companies to test the draft conclusions from the local authority and operators' surveys. The interviews with these companies were timetabled such that the initial gate fee findings of this year's surveys could be tabled and discussed. Discussions were open in scope, potentially including all aspects of the market that were relevant to gate fees in the UK.

4.0 Results and analysis

As with previous years, analysis of the cleaned survey data focussed upon generation of:

- Median gate fee i.e. the value in the midpoint of the distribution of gate fee data collected, with an equal probability of falling above or below it;
- Gate fee range i.e. the range between the minimum and maximum values obtained in the survey.

Due to the problems of interpreting the sometimes large range between minimum and maximum figures collected, this year we have introduced the calculation of the mode to give an idea of the most common responses received. In this case, mode is the gate fee range (in £5 increments) which received the most responses in the survey data. Mode has not been reported in previous years and therefore comparisons cannot be made. Note that the median gate fee does not always reside within the mode range.

4.1 Materials Recovery Facilities (MRF)

To make the reported data compatible and comparable to that published last year, only gate fees for mixed recycle streams of 4 materials or more have been included in the following analysis. Of a total of 133 responses from local authorities, 13 were rejected as either mixed streams containing less than 4 materials, 5 for being dirty MRFs, 2 for local authority operated MRFs which gave £0 gate fees, 1 for being part of an integrated contract, and 2 for otherwise invalid responses. Of those accepted responses, 109 included usable gate fee data upon which the following analysis was based.

4.1.1 Current gate fees and trends

The high level results from the survey are given in Table 15. The median MRF gate fee (for MRF contracts which sort 4 materials or more) in the current survey is £25 from 109 responses, with a range of responses between -£62 (i.e. an income) and £89.

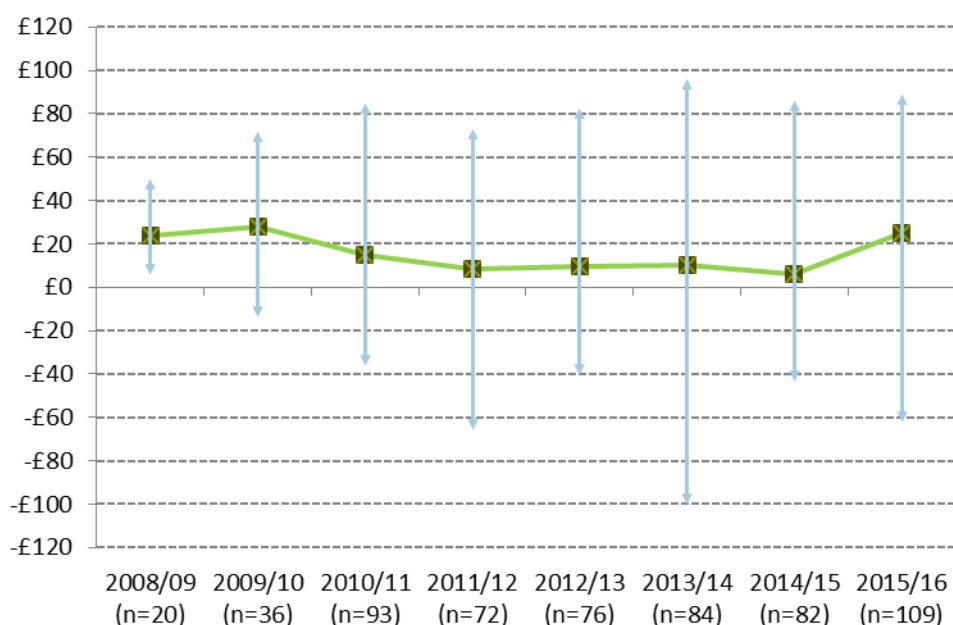
Table 15: MRF gate fees by nation (and London) (2015/16) (£/tonne)

Country/Region	Median	Mode	Range	Responses
UK	£25	£0 to £5	-£62 to £89	109

England (incl. London)	£15	£0 to £5	-£62 to £89	70
Wales	£43	£75 to £80	-£47 to £80	7
Scotland	£37	£35 to £40	£0 to £88	17
Northern Ireland	£37	£45 to £50	-£30 to £78	10
London	£35	£25 to £30	£3 to £89	8

The median gate fee is considerably more than the £6 reported last year for the UK as a whole. Figure 1 charts the median MRF gate fee over time from the 2008/9 survey, plus min-max ranges. At a median of £25, this is the highest median gate fee recorded since 2009-10.

Figure 1: UK MRF gate fees over time (£/tonne)

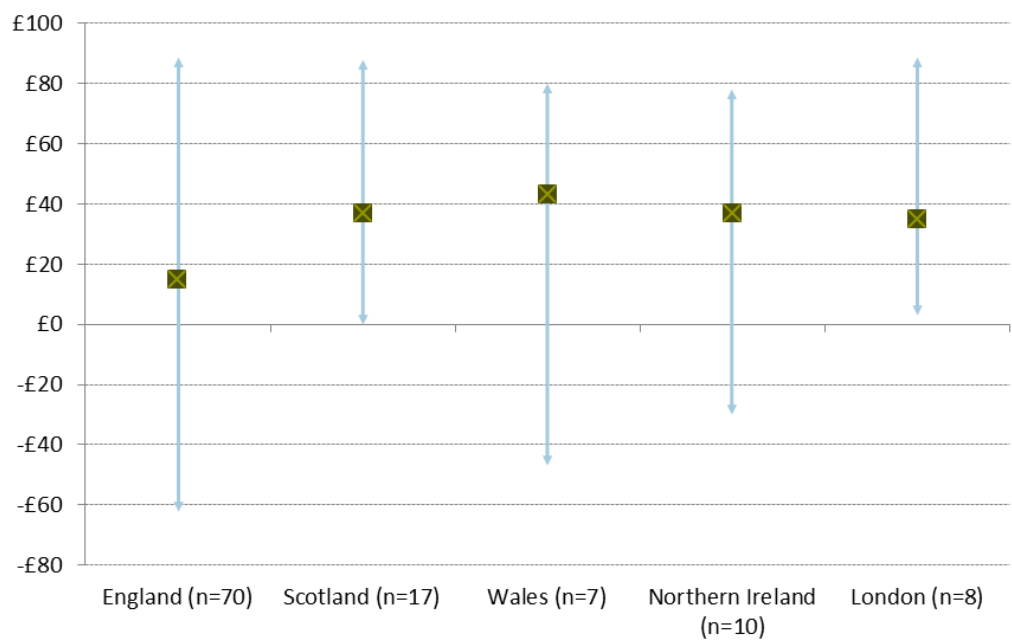


In last year's survey, 38 local authorities (46% of those responding) reported not paying a gate fee for MRF services i.e. a zero or negative gate fee. This year this number reduced to 30 (28% of those responding). Of these, the majority have fixed rather than variable price gate fee contracts (68% v. 44% for all responses) and the majority are short term contracts (<7 years) started between 2009 and 2014.

Most gate fees reported ranged from £0 to £5/tonne (modal range, compared -£62 to £89 full range) influenced by a wide range of factors including material mix, contract length and age, contractual pricing mechanism, annual tonnage, MRF technology employed, and degree of risk share between the authority and contractor.

Analysing median gate fee and range per UK nation (plus London) shows Scotland, Wales and Northern Ireland experiencing higher median gate fees and minimum gate fees than England, potentially due to relative market size. For Scotland and Wales in particular, this corroborates trends seen in previous years. Median gate fee and range per nation are shown in Figure 2.

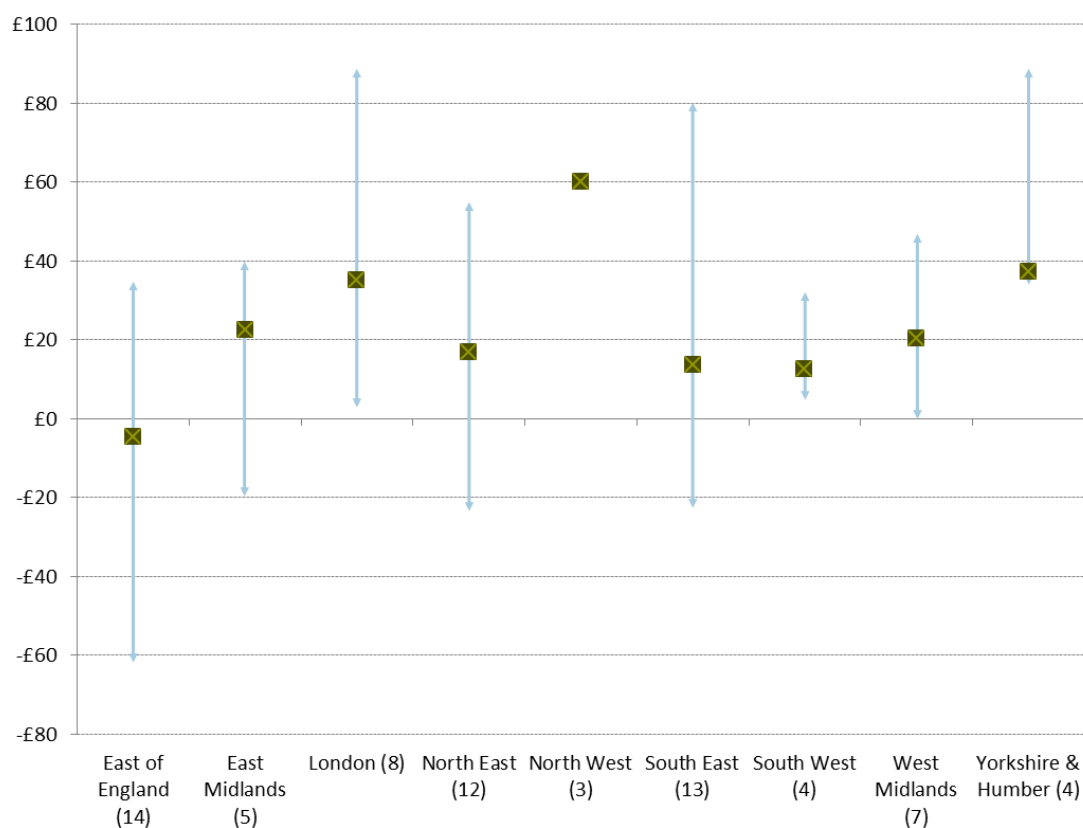
Figure 2: MRF gate fees by nation (and London) (2015/16 in £/tonne)



Increased gate fees compared to last year, are evident in national figures too, with median gate fee for England is £15 (v. £0 last year), Scotland being £37 (v. £18 last year), Wales £43 (£40 last year) and Northern Ireland £37 (-£5 last year).

Analysing MRF gate fee per English region, low response rates in some regions mean that direct comparisons are difficult. The data collected does show peaks in gate fee in London and the North West. Previous surveys have indicated stronger gate fees in the capital compared to other regions of England. Median gate fees and ranges per English region are shown in Figure 3.

Figure 3: MRF gate fees by English region (2015/16 in £/tonne)



4.1.2 Gate fee by contract year

The data received from local authorities includes a considerable amount of historic (long term contract) data which does not necessarily reflect current market conditions. Median gate fees were therefore determined for each contract start year, from which trends could be identified. This analysis reveals, for instance, that for contracts signed in 2015, the median gate fee is £38/tonne, reflecting a significant market change since 2014 when median was only £5/tonne. Results are summarised in Table 16.

Analysing the data received in 2015/16 for median gate fee per contract start year, in the last 4 years median gate fees have clearly increased year on year from an income of £26 /tonne for contracts started in 2012 to £38/tonne gate fee for those starting in 2015. The same trend is seen in mode range and overall gate fee range.

Table 16: MRF gate fees by contract start year (from 2015/16 data in £/tonne)

Contract start year	Median	Mode	Range	Number of contracts started
2015	£38	£20 to £25	£3 to £89	20
2014	£5	£0 to £5	-£18 to £80	19
2013	£0	£0 to £5	-£47 to £40	10
2012	-£26	-£60 to -£55	-£62 to £36	8

Contract start year	Median	Mode	Range	Number of contracts started
Before 2012	£32	£45 to £50	-£20 to £89	27

Of the 121 authorities supplying responses, 67 (55%) reported a change in gate fee in 2015, with 6 reporting a decrease and 48 an increase in gate fee (13 did not report direction of change). Of those reporting a change in gate fee and providing a reason, 3 (4%) reported the signing of a new contract, 31 (46%) increases in commodity prices, 8 (12%) the impact of the MRF code of practice and the need for improved quality, and 17 (25%) contractual RPI increases. These results are summarised in Table 17.

Table 17: Changes in MRF gate fee in 2015/16 with reasons

Change in Gate Fee in 2015	Responses	Reason	Responses
Yes	67 (55%)	New Contract	3 (4%)
		Change in commodity prices	31 (46%)
		Quality – impact of MRF Code of Practice	8 (12%)
		RPI increase	17 (25%)
		No explanation	8 (12%)
No	54 (45%)		
Total	121		67

4.1.3 Contract review

Reported contract length covers a wide range, although the majority (51 responses, 53%) were short term i.e. less than 5 years, with 21 responses (21%) between 6 and 10 years. Nevertheless, there are some long term contracts reported with 15 responses (15%) giving contract lengths of between 20 and 25 years, with 4 responses greater than 25 years.

Table 18: MRF contract length

Contract length (Years)	Count	Proportion of count
0	3	3%
1	6	6%

Contract length (Years)	Count	Proportion of count
2	14	14%
3	10	10%
4	8	8%
5	13	13%
6	4	4%
7	4	4%
8	3	3%
9	2	2%
10	8	8%
12	1	1%
14	1	1%
15	3	3%
18	2	2%
22	3	3%
23	2	2%
25	10	10%
30	2	2%
33	2	2%

4.1.4 Materials collected and sorted

Respondents reported the materials collected and sent to MRFs for sorting. Almost all report the collection of key recyclates such as cans, plastic bottles, card and paper, with a significant proportion (85%) including aerosols.

Just over half i.e. 65% of respondents reported collecting glass in their multimaterial collections. The range and frequency of local authority responses per material type is shown in Table 19.

As previously described, falling recyclate prices have been cited as having a significant impact on gate fees. To test this, change in material prices (from January 2015 to January 2016) has been added to the survey results in Table 19, using data published by WRAP. These show a significant annual reduction in material prices for key recyclates such as cans (aluminium and ferrous), plastic bottles and paper & card, which would have a considerable impact on the revenues obtained from collecting and separating these materials.

Table 19: Range and frequency of materials being sorted at MRFs in 2015/16, with change in material prices in 2015 (as % of 2015 starting price)

Material	Number of times material is cited as part of MRF gate fee	% of responses	Materials price change 2015 ¹
Cans	109	99%	-40% Al -86% Fe
Plastic bottles	108	98%	-39% ²
Card (exc. drinks cartons)	107	97%	+11% ³
Paper	104	95%	-12% ⁴
Aerosols	93	85%	Not available
Drinks cartons, e.g. Tetrapak	84	76%	Not available
Plastic: non-bottle rigids	76	69%	-44% ⁵
Glass	71	65%	-100% ⁶
Foil	70	64%	Not available
Plastic other	36	33%	Not available
Plastic film	34	31%	-45% ⁷
Other	11	10%	Not available

Key:

1 source of data: WRAP Materials Pricing Report, comparing first week Jan 2015 to first week Jan 2016

2 As clear PET

3 As mixed paper & card

4 As News & PAMS

5 As mixed rigids

6 As mixed glass, avg Jan 2015 £7.50, Avg Jan 2016 £0 /tonne.

7 As plastic bags (baled)

4.1.5 Key influencing factors

As part of the survey, local authority officers were asked to select, from pre-defined lists, up to three factors that they felt were important in influencing current and future gate fees (respondents could select 'other' if they wished to add additional comments not covered in the lists). All percentages quoted here are based on the total number of local authorities that responded to these questions.

Of factors influencing gate fees, commodity prices, input material quality and operating costs are deemed those having most impact on gate fees now and in the future. Of the 122 respondents expressing an opinion, 98 (80%) expect gate fees to increase in the future. Results are summarised in Table 20 and Table 21 following.

Table 20: Key influencing factors – current MRF pricing (indicated by local authority survey – 122 respondents)

Influencing factor	No. of responses	%
Product/commodity end market prices	82	69%
Quality of input materials	52	44%
Operating costs	29	25%
Complying with the MRF Code of Practice	18	15%
Competition between similar facilities	16	14%
Inflation (RPI, RPIX)	15	13%
Cost of managing residues	14	12%
Other	14	12%
Availability of capacity	13	11%
Investment/capital costs	9	8%
Legislative requirements	6	5%
Competition from alternative treatment options	2	2%
Government incentive schemes e.g. renewables	1	1%

Table 21: Key influencing factors – future MRF pricing (indicated by local authority survey – 122 respondents)

Influencing factor	No. of responses	%
Product/commodity end market prices	85	72%
Quality of input materials	54	46%
Operating costs	25	21%
Competition between similar facilities	21	18%
Availability of capacity	18	15%
Complying with the MRF Code of Practice	17	14%
Cost of managing residues	16	14%
Legislative requirements	17	14%
Investment/capital costs	6	5%
Inflation (RPI, RPIX)	5	4%
Competition from alternative treatment options	4	3%
Government incentive schemes e.g. renewables	3	3%
Other	1	1%

4.1.6 Waste contractor interviews

Feedback from waste contractors suggest that the survey medians are at the low end of gate fees now being charged to local authorities, reflecting the number of historical contracts in the data. The following factors were reported as reasons for the significant increase in gate fees over the last year:

- The collapse of commodity prices;
- Need for more risk sharing i.e. pushing more of the risk onto the authority;
- Lower reprocessor capacity (for instance for fibre, plastics) as sites close;
- Quality and contamination now more of an issue;
- Basket mix relevant i.e. big variation in composition means bigger risk;
- For plastics, although weak crude oil prices mean virgin plastics are cheap, PRN price is keeping up recycled plastics values.

One operator expected gate fees to continue to increase to maybe £50 to £60/tonne as all key material markets are still very low.

4.2 Open Air Windrow Composting (OAW)

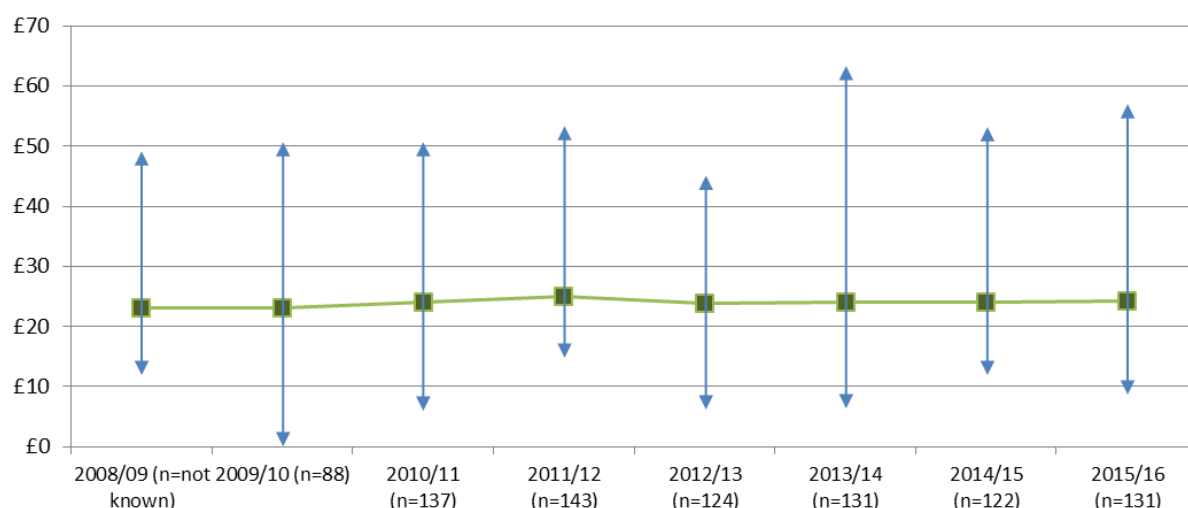
From 145 responses, 138 usable gate fees in total were collected from across the UK. From the original dataset, eliminated data included data associated with integrated contracts (3 responses), outlying data (1 response) and otherwise invalid data (3 responses).

4.2.1 Current gate fees and trends

Looking at the UK as a whole, the median gate fee for OAW composting this year is £24 /tonne which is unchanged from last year.

The data gathered over the last few years' surveys of OAW composting indicate that the trend has been and remains that of continuing stable median gate fees over time, although ranges remain broad. This is illustrated in the Figure 4 below.

Figure 4: OAW composting gate fee comparison over time for all materials, UK wide (£/tonne)



The key statistics regarding OAW gate fees by nation are provided in Table 22 and Figure 5. The majority of OAW gate fee data were collected from English authorities with fewer data being received from the other nations. This limits the degree to which comparisons can be made between the figures for individual nations.

At the national level, the median gate fees for England, Scotland and Wales do not show significant change from last year's results (see Figure 6), although the ranges in England and Scotland are larger. They also fall in the same order as last year, with Northern Ireland being the highest, followed by Wales, Scotland and then England.

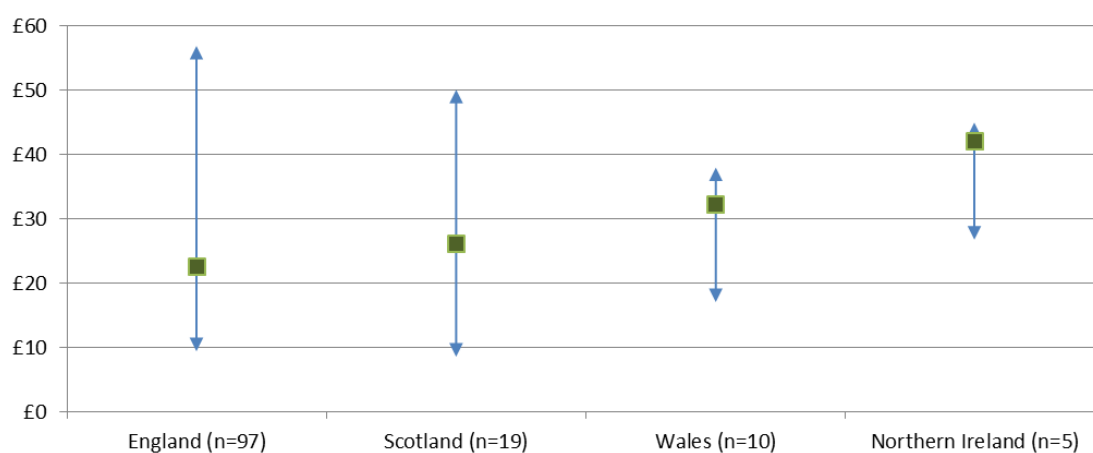
Northern Ireland's results suggest a significant increase since last year, despite all authorities stating that there has been no change in their gate fees since last year. In Northern Ireland there are fewer data and the median is more variable making year on year comparisons less certain. Northern Ireland has undergone significant change since the reorganisation of the local authorities (amalgamated from 26 to 11) and even though the sample of 5 is only one more than last year's 4, it represents a greater proportion of Northern Ireland as there are fewer authorities and therefore arguable, could be considered more accurate than last year's median. It is therefore likely that there has been no change since last year, but this year's results represent a more accurate picture of the Northern Ireland OAW market.

The mode has been provided this year to help provide more information as to the distribution of the data. In all cases the median falls within the mode range i.e. the overall median of £24/tonne falls in the mode range of £20-25/tonne. However, in Northern Ireland, a mode range could not be calculated, again indicating that the data is more variable.

Table 22: Open Air Windrow composting gate fees by nation (2015/16 in £/tonne)

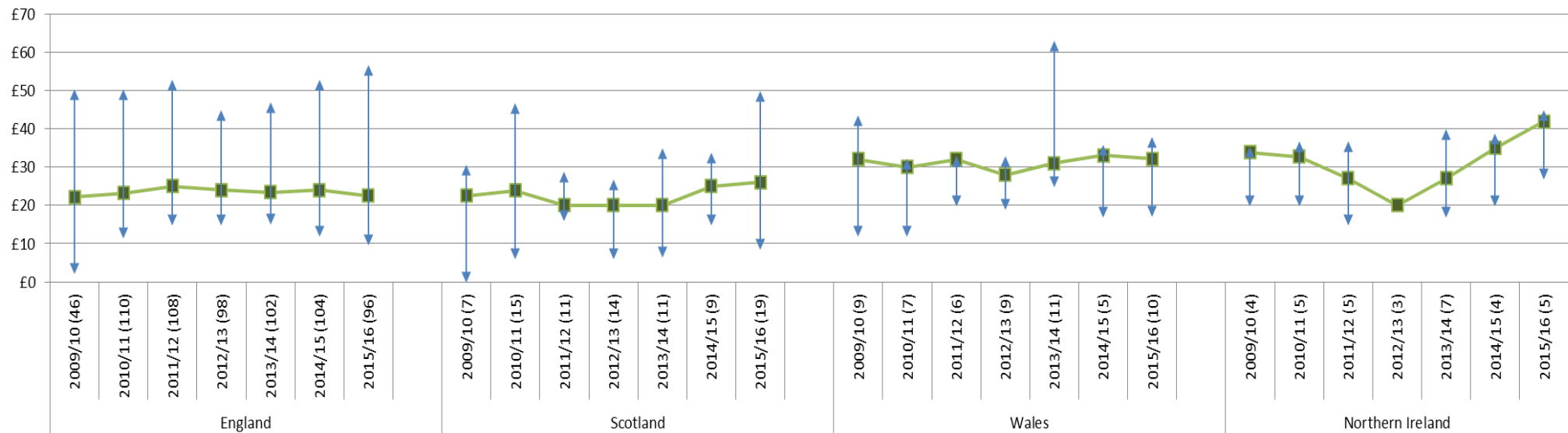
	Median	Mode	Range	Responses
UK	£24	£20 to £25	£9 to £57	131
England (incl. London)	£23	£20 to £25	£10 to £57	97
Wales	£32	£30 to £35	£17 to £38	10
Scotland	£26	£25 to £30	£9 to £50	19
Northern Ireland	£42	N/A	£27 to £45	5

Figure 5: OAW composting gate fees by nation in 2015/16 (£/tonne)



Just over a third of local authorities say that their gate fees have changed since last year. Over half of these changes are annual changes made based on inflation. Year on year changes per nation are summarised in Figure 6.

Figure 6: OAW composting gate fee comparison over time by nation for all materials (£/tonne)



4.2.2 Gate fees at English regional level

In this year's survey the lowest median gate fees are found in the North West (£17/tonne), West Midlands (£18/tonne) and East Midlands (£20/tonne); the highest fees are being charged in the South East (£31/tonne). Last year the lowest gate fee was also in the North West, however the highest were found in the South West.

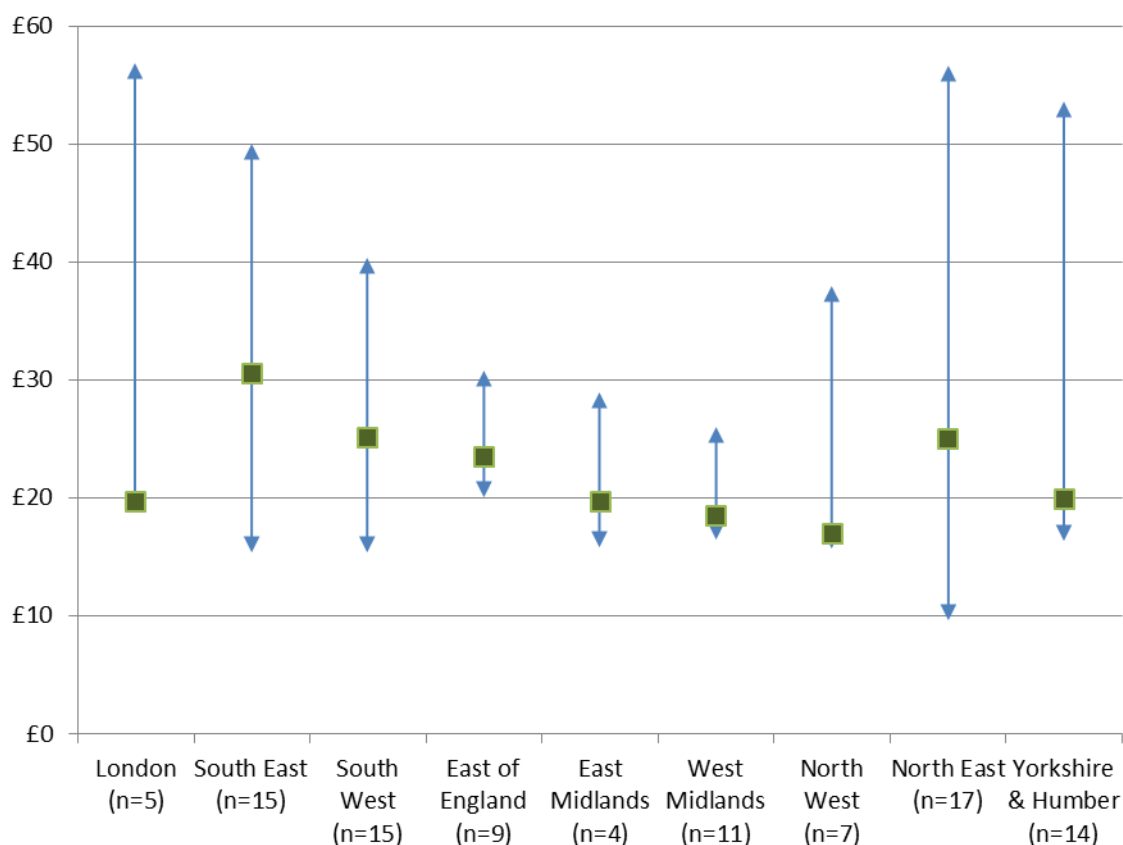
It is also worth noting that some areas are characterised by much higher variance in gate fees compared to others; for example, the North East shows the greatest variance with a £47/tonne difference between the highest and lowest gate fees (as shown in Table 23 and Figure 7).

Figure 7 in particular demonstrates the distribution of the data e.g. in London and the North West, the median figure sits at the lower end of the range reported, demonstrating that although there is a wide variation in gate fee, the majority of those cited fall at the lower end of the ranges.

Table 23: Regional breakdown of OAW gate fees in England (2015/16)

English Region	Median	Range	Responses
London	£20	£19 to £57	5
South East	£31	£15 to £50	15
South West	£25	£15 to £40	15
East of England	£24	£16 to £31	9
East Midlands	£20	£16 to £29	4
West Midlands	£18	£17 to £26	11
North West	£17	£16 to £38	7
North East	£25	£10 to £57	17
Yorkshire & Humber	£20	£16 to £54	14

Figure 7: OAW composting gate fees by region in 2015/16 (England)



4.2.3 Contract review

Of those local authorities responding to the survey, 73% of the authorities reported sending material to an OAW facility under a contract, while 15% said they were not using a contract at present. The remaining 12% of the authorities did not provide a response.

Of those under contract, 88% of the authorities provided start and end dates which has allowed for calculation of the contract length. Table 24 demonstrates that 59% of contract gate fees are associated with contracts of a duration of 5 years or less, whilst 72% were for a duration of 10 years or less.

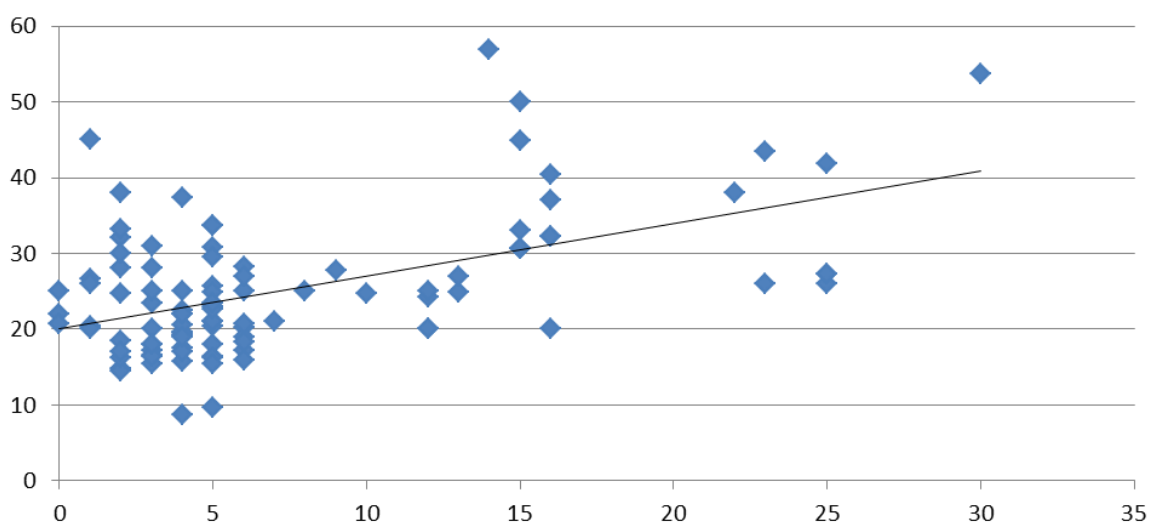
Table 24: OAW contract lengths (for which contract length data was submitted)

Contract length (years)	Number of contracts	
	No.	%
Less than 1 year	3	3%
1	5	5%
2	11	10%
3	11	10%
4	15	14%
5	19	18%
6	9	8%

Contract length (years)	Number of contracts	
	No.	%
7	2	2%
8	1	1%
9	1	1%
10	2	2%
12	4	4%
13	2	2%
14	1	1%
15	6	6%
16	5	5%
22	1	1%
23	2	2%
25	6	6%
29	1	1%
30	1	1%
Total	108	100%

There is no correlation between gate fee and the year the contract started. However there does seem to be a correlation between contract length and gate fee, with those authorities engaged in shorter contracts generally paying less than those with contracts of 15 years or longer (see Figure 8).

Figure 8: OAW gate fees by contract duration (£/tonne, 2015/16)



4.2.4 Key influencing factors

Table 25 shows that almost half local authority respondents thought that operating costs were the most influential factor on their existing gate fees. This was followed by competition between similar facilities, availability of capacity and quality of input materials.

Table 25: Factors influencing current OAW gate fees (indicated by local authority survey – 99 respondents)

Factor influencing current gate fees	Response rates	
	No.	%
Operating costs	48	48%
Competition between similar facilities	36	36%
Availability of capacity	32	32%
Quality of input materials	32	32%
Legislative requirements	21	21%
Competition from alternative treatment options	12	12%
Product/commodity end market prices	13	13%
Inflation (RPI, RPIX)	18	18%
Cost of managing residues	7	7%
Investment/capital costs	4	4%
Government incentive schemes e.g. renewables	1	1%
Other	5	5%

The factors that local authorities identified as being most likely to influence future gate fees (see Table 26) were similar to those which affect the current gate fee, with competition between similar facilities, then operating costs and availability of capacity seen to be most influential. Inflation was relatively low on the list, despite the majority of authorities which claimed an increase in gate fees from last year in this year's survey, citing inflation as reason for those increases.

Table 26: Factors most likely to influence future OAW gate fees (indicated by local authorities surveyed – 98 respondents)

Factor influencing future gate fees	Response rates	
	No.	%
Competition between similar facilities	46	47%
Operating costs	40	41%
Availability of capacity	32	33%
Quality of input materials	28	29%
Legislative requirements	24	24%
Competition from alternative treatment options	23	23%
Product/commodity end market prices	15	15%
Inflation (RPI, RPIX)	9	9%
Cost of managing residues	7	7%

Factor influencing future gate fees	Response rates	
	No.	%
Investment/capital costs	4	4%
Government incentive schemes e.g. renewables	2	2%
Other	2	2%

In terms of future changes in gate fee, 68% of the 101 local authorities expressing an opinion, thought that gate fees would increase in the future, compared to 25% that thought they would stay the same and just 7% that said they would decrease. This is not necessarily reflective of the maturity of the market and recent trends. It also does not match with the fact that 47% of the respondents said that competition between similar facilities would be most likely to influence the gate fees in the future, which would be more likely to decrease gate fees than increase them.

4.2.5 Survey of OAW operators

A total of 29 OAW operators provided 170 usable gate fees (including both contract and spot market gate fees).

The majority of gate fees were received for green waste only. No operators provided gate fees for mixed green waste & cardboard.

Table 27 shows that contracted gate fees are similar to those cited by local authorities, at £26/tonne for all materials types, and £25/tonne for green waste only (which is the feedstock for which the majority of local authorities provided). Spot market gate fees are higher at £31/tonne.

Table 27: Contract and spot OAW gate fees provided by facility operators (2015/16)

Feedstock	No. of gate fees	Gate fee (£/tonne)	
		Median	Range
CONTRACT GATE FEES			
All waste streams	95	£26	£14 to £60
Green waste only	74	£25	£18 to £60
Mixed green waste & wood	3	£26	Not reported
Other	18	£36	£14 to £48
SPOT MARKET GATE FEES			
All waste streams	75	£31	£7 to £50
Green waste only	50	£28	£13 to £49
Mixed green waste & wood	8	£31	£18 to £50
Other	17	£35	£7 to £48

4.2.6 Key influencing factors – operators

As part of the survey, operators were asked to select, from pre-defined lists, up to three factors that they felt were important in influencing current and future gate fees (respondents could select 'other' if they wished to add additional comments not covered in the lists). All percentages quoted here are based on the total number of local authorities that responded to these questions.

The key factor influencing current gate fees was operating costs, which is the same highest scoring influencing factor as that cited by local authorities. Legislative requirements, inflation and cost of managing residues all follow with the same number of responses. These results are summarised in Table 28.

Table 28: Factors influencing current OAW gate fees (indicated by OAW operators surveyed – 15 responses)

Factor influencing current gate fees	Response rates	
	No.	%
Operating costs	9	60%
Legislative requirements	6	40%
Inflation (RPI, RPIX)	6	40%
Cost of managing residues	6	40%
Competition from similar facilities	4	27%
Availability of capacity	4	27%
Quantity of input materials	3	20%
Investment/capital costs	2	13%
Competition from alternative treatment options	1	7%
Other (please state below)	1	7%
Product/commodity end market prices	0	0%
Government incentive schemes e.g. renewables	0	0%

The factors that OAW composting operators identified as being most likely to influence future gate fees are presented in Table 29. Operating costs scored the highest again, followed by competition from similar facilities and legislative requirements.

Table 29: Factors most likely to influence future OAW gate fees (indicated by OAW operators surveyed – 14 responses)

Factor influencing current gate fees	Response rates	
	No.	%
Operating costs	9	64%
Competition from similar facilities	6	43%
Legislative requirements	6	43%
Inflation (RPI, RPIX)	5	36%
Availability of capacity	4	29%
Quantity of input materials	3	21%
Cost of managing residues	3	21%
Government incentive schemes e.g. renewables	3	21%
Competition from alternative treatment options	2	14%
Investment/capital costs	2	14%
Other (please state below)	2	14%
Product/commodity end market prices	0	0%

Of those operators responding, 58% said that they thought gate fees would remain the same over the next twelve months, 42% thought they would increase and no operators thought the gate fees would decrease.

4.2.7 Waste contractor interviews

The feedback from some of the large waste management companies that operate OAW facilities, through an interview, corresponds with the results seen in both the local authority and operator surveys.

The fact that the gate fees have remained stable for several years demonstrates that it is a mature, well established market. Interviewees expressed that they expect prices to remain stable and potentially reduce in the medium term, due to pressure from local authorities faced with further budget cuts and potentially reduced volumes, due in turn to more councils taking up the option to charge for green waste collections.

4.3 In-vessel composting (IVC)

From 81 responses, 73 usable gate fees were provided by local authorities. As in previous years, IVC gate fees are reported by waste feedstock type.

4.3.1 Current gate fees and trends

The median for all types of feedstock being sent to IVC facilities in 2015/16 is £43/tonne. However there are differences depending on the type of feedstock, as shown in Table 30 and Figure 9.

Table 30: IVC gate fees provided by local authorities by waste material type (2015/16 in £/tonne)

Waste type	Median	Mode	Range	No. of gate fees
All materials (UK)	£43	£35 to £40	£20 to £61	73
Mixed food & green waste	£47	£55 to £60	£22 to £61	39
Mixed food waste, green waste & card	Not reported	Not reported	Not reported	1
Food waste only	£45	£55 to £60	£30 to £59	14
Green waste only	£37	£35 to £40	£20 to £60	17
Other	Not reported	Not reported	Not reported	2

No median figures for mixed food, green and card waste, and for 'other' were generated as only one and two responses respectively were received. This could mean that fewer local authorities are sending mixed food waste, green waste & card to IVC facilities, which has been corroborated by feedback from operators.

Of the feedstocks able to be reported, mixed food and green waste is the most expensive at £47/tonne, followed by food waste at £45/tonne and £37/tonne for green waste.

For both mixed food & green waste and food waste, more gate fee responses were received between £55 and £60/tonne, despite the medians being lower at £47 and £45/tonne respectively. This reiterates there is significant variation in gate fees.

Figure 9: IVC gate fees by material stream in 2015/16 (£/tonne)

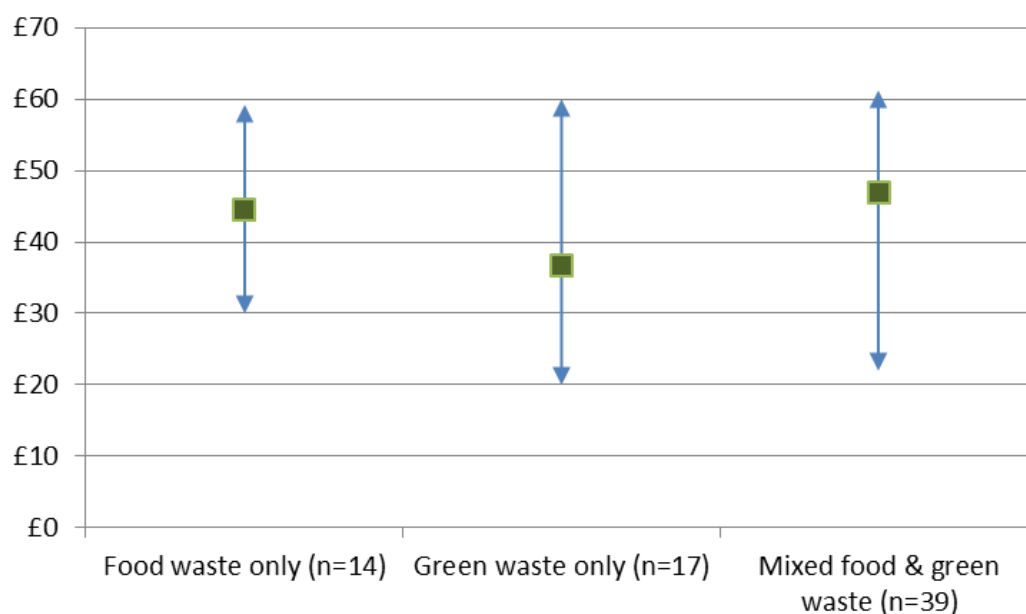


Figure 10 shows how the gate fees for the three types of reported feedstock, have changed since 2009/10. The following changes can be seen:

- The median gate for IVC using mixed food and green waste is £47/tonne, which is slightly higher than last year. However the range in gate fees has reduced, from £24 to £75 last year, to £22 to £61 this year.
- The median for food waste is the same as last year at £45/tonne. However the lower range of gate fees cited has fallen by £8/tonne, with waste management company interviews suggesting this could be due to increasing competition from AD facilities in some regions at local level.

The median for green waste only has decreased by £1/tonne, from £38 to £37/tonne. This is higher than the gate fee for green waste at OAW facilities.

Figure 10: IVC gate fees over time by material stream (2015/16 in £/tonne)

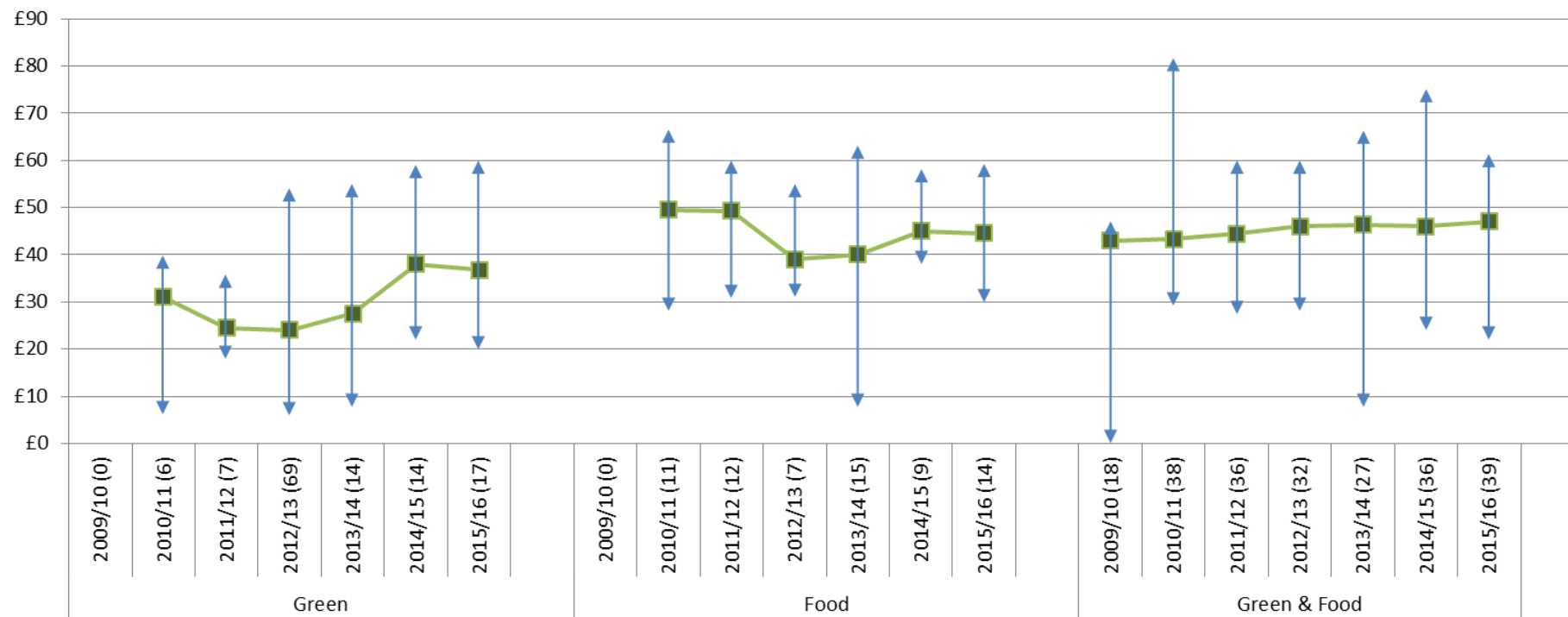
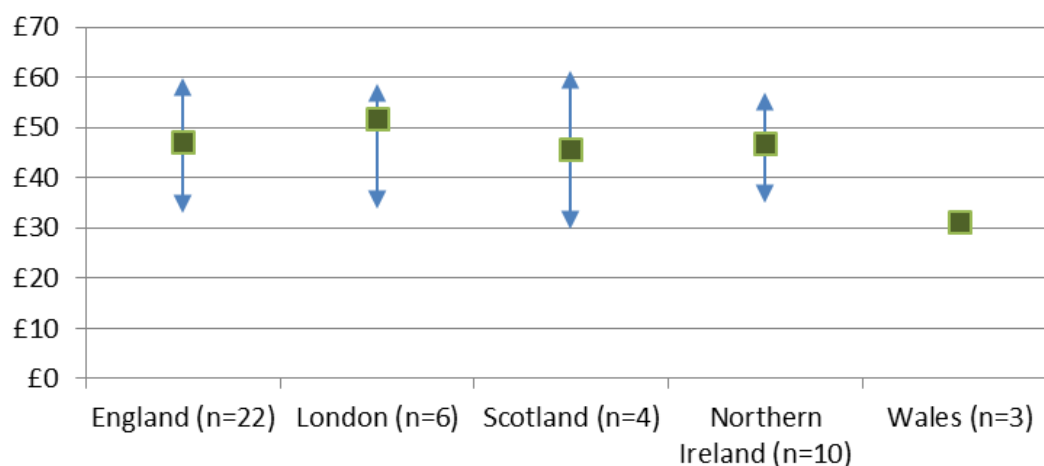


Figure 11 shows the difference between nation for gate fees for mixed green and food waste. The number of responses for some nations is relatively low and so should be used with caution. However they show that gate fees are relatively similar for England (£47/tonne), Scotland (£46/tonne) and Northern Ireland (£47/tonne). Figures in London are higher at £52/tonne and the gate fee in Wales is much lower at £31/tonne, but is calculated from only 3 responses.

Figure 11: IVC gate fees for mixed green and food waste, by nation (and London) for 2015/16 (£/tonne)



4.3.2 Contract review

Of those providing data, 75% of the authorities reported sending material to an IVC facility under a contract, while 11% said they were not using a contract at present; 14% of the authorities did not provide a response.

Of those under contract, 71% of the authorities provided start and end dates which has allowed for calculation of the contract length. Table 31 demonstrates that 43% of contract gate fees are associated with contracts of a duration of 5 years or less, 65% were for a duration of 10 years or less, and 88% being 15 years or less. This demonstrates a slight tendency towards longer contracts than those with OAW composting facilities.

Table 31: IVC contract lengths (for which contract length data was submitted)

Contract length (years)	Number of contracts	
	No.	%
Less than 1 year	4	8%
1	1	2%
2	4	8%
3	5	10%
4	4	8%

Contract length (years)	Number of contracts	
	No.	%
5	3	6%
6	3	6%
7	1	2%
9	3	6%
10	4	8%
11	1	2%
12	2	4%
15	8	16%
17	1	2%
22	1	2%
25	2	4%
28	1	2%
29	1	2%
Total	49	100%

There is no clear trend in gate fees based upon the year the contract started. Table 32 shows that the median for contracts started in 2015 is higher than for 2014. However this is based on a small number of contracts and covers all relevant feedstocks, which are different from year to year, which means the resultant gate fees may not be directly comparable.

Table 32: IVC gate fees based on contract start year (£/tonne)

Contract Start Year	Median	No of contracts started
2015	£44	5
2014	£35	10
2013	£49	4
2012	£22	2
Before 2012	£47	25

Approximately a third of the local authorities reported that their gate fees had changed in the last 12 months. The majority were small increases due to inflation. However, several authorities that had started new contracts, noted quite large changes on previous gate fees, notably reductions.

4.3.3 Key influencing factors

Table 33 shows that over half local authority respondents thought that operating costs were the most influential factor on their existing gate fees. This was followed by availability of capacity and competition between similar facilities.

Table 33: Factors influencing current IVC gate fees (indicated by local authority survey – 59 respondents)

Factor influencing current gate fees	Response Rates	
	No.	%
Operating costs	32	54%
Availability of capacity	21	36%
Competition between similar facilities	18	31%
Legislative requirements	15	25%
Competition from alternative treatment options	14	24%
Quality of input materials	12	20%
Product/commodity end market prices	10	17%
Inflation (RPI, RPIX)	9	15%
Cost of managing residues	6	10%
Investment/capital costs	4	7%
Government incentive schemes e.g. renewables	0	0%
Other	0	0%

The factors that local authorities identified as being most likely to influence future gate fees (see Table 34) were similar to those which affect the current gate fee, with operating costs, availability of capacity and competition between similar facilities seen to be most influential.

Table 34: Factors most likely to influence future OAW gate fees (indicated by local authority survey – 59 responses)

Factor influencing future gate fees	Response rates	
	No.	%
Operating costs	29	49%
Availability of capacity	24	41%
Competition between similar facilities	21	36%
Competition from alternative treatment options	19	32%
Legislative requirements	14	24%
Product/commodity end market prices	12	20%
Quality of input materials	10	17%
Inflation (RPI, RPIX)	5	8%
Investment/capital costs	5	8%
Cost of managing residues	3	5%

Factor influencing future gate fees	Response rates	
	No.	%
Government incentive schemes e.g. renewables	1	2%
Other	0	0%

Of the 59 local authorities expressing an opinion, 59% thought that gate fees would increase in the future, compared to 27% that thought they would stay the same and just 14% that said they would decrease.

4.3.4 Survey of IVC operators

A total of 17 responses were received from IVC operators' providing 163 usable gate fees (including both contract and spot market gate fees).

Table 35 shows a summary of the contract and spot gate fees provided by IVC facility operators. The median of £43/tonne for all feedstock types is the same as the median from the local authority survey. For individual feedstock types:

- For mixed food and green waste, IVC operators cited a slightly lower median contract gate fee of £45/tonne, than the median contract gate fee of £47/tonne reported by local authorities.
- For food waste the IVC operators median gate fee was £48/tonne and so slightly higher than the median gate fee reported by local authorities which was £45/tonne.
- For green waste only, operators cite a figure of £29/tonne for green waste under contract compared to a median of £37/tonne reported by local authorities.

Table 35: Contract and spot IVC gate fees provided by facilities (2015/16, £/tonne)

Feedstock	No. of gate fees	Gate fee (£/tonne)	
		Median	Range
CONTRACT GATE FEES			
All waste streams	108	£43	£16 to £180
Mixed food & green waste	28	£45	£38 to £60
Mixed food, green waste & card	3	£55	Not reported
Food waste only	26	£48	£20 to £80
Green waste only	42	£28	£16 to £54
Other	9	£65	£50 to £180
SPOT MARKET GATE FEES			
All waste streams	55	£58	£18 to £70
Mixed food & green waste	11	£60	£50 to £70

Feedstock	No. of gate fees	Gate fee (£/tonne)	
		Median	Range
Mixed food, green waste & card	1	Not reported	Not reported
Food waste only	18	£60	£50 to £70
Green waste only	23	£35	£18 to £44
Other	2	£60	Not reported

4.3.5 Key influencing factors - operators

The key factor influencing current gate fees cited by operators was competition from alternative treatment options, followed by competition by similar facilities, as shown in Table 36. Operating costs and legislative requirements then follow with the same number of responses.

Table 36: Factors influencing current IVC gate fees (indicated by IVC operators surveyed – 11 responses)

Factor influencing current gate fees	Response rates	
	No.	%
Competition from alternative treatment options	5	45%
Competition from similar facilities	4	36%
Operating costs	3	27%
Legislative requirements	3	27%
Availability of capacity	2	18%
Product/commodity end market prices	2	18%
Inflation (RPI, RPIX)	2	18%
Government incentive schemes e.g. renewables	2	18%
Quantity of input materials	1	9%
Cost of managing residues	1	9%
Investment/capital costs	1	9%
Other	1	9%

Table 37 shows that operating costs together with competition from alternative treatment options, were the most popular reasons given for future changes in gate fees. Competition from similar facilities and availability of capacity were the next highest scoring options.

Table 37: Factors most likely to influence future IVC gate fees (indicated by IVC operators surveyed – 11 responses)

Factor influencing future gate fees	Response rates	
	No.	%
Operating costs	5	45%
Competition from alternative treatment options	5	45%
Competition from similar facilities	4	36%
Availability of capacity	4	36%
Legislative requirements	2	18%
Government incentive schemes e.g. renewables	2	18%
Quantity of input materials	1	9%
Product/commodity end market prices	1	9%
Inflation (RPI, RPIX)	1	9%
Cost of managing residues	1	9%
Investment/capital costs	1	9%
Other	1	9%

Of those responding, 43% of the operators thought that gate fees would remain the same in the next 12 months, compared to 36% increase and 21% that thought they would decrease.

4.3.6 Waste contractor interviews

The feedback from some of the large waste management companies that operate IVC facilities, through an interview, largely corresponds with the results seen in both the local authority and operator surveys i.e. that prices are fairly static.

However, comments were made about gate fees, particularly for food waste, showing local variation depending on the level of competition from AD. However this decrease does not yet seem to have been reflected in the overall median numbers. It was also noted that there are increasing regulatory requirements such as more restrictions on odour. These comments reflect the key influencing factors as identified through the surveys, as both competition and operating costs were high on these lists, cited both by the local authorities and operators.

4.4 Anaerobic Digestion (AD)

A total of 57 responses provided 50 usable gate fees from local authorities through the survey. Responses from local authority owned AD that reported £0/t gate fees were excluded from the analysis, together with those reported gate fees which included collection costs.

4.4.1 Current gate fee and trends

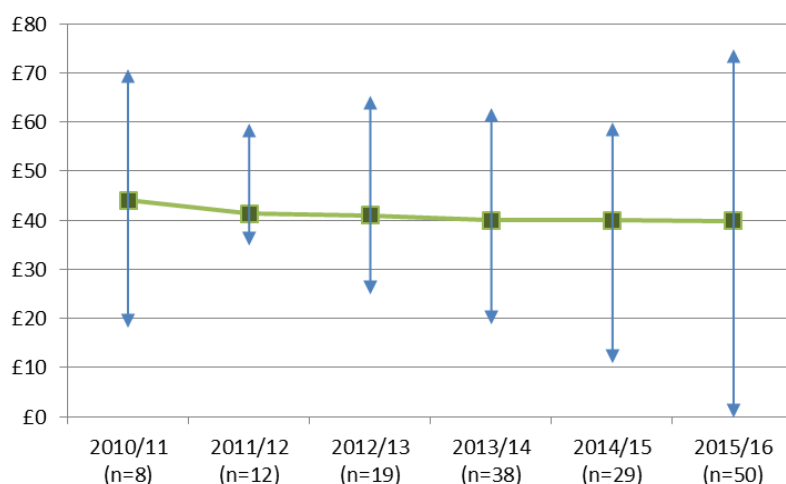
Table 38 and Figure 12 show the median AD gate fee is £40 /tonne this year, unchanged from last year's survey. However the range has significantly increased, with some local authorities citing £0/tonne gate fees.

Table 38: AD gate fees provided by local authorities in 2015/16 (£/tonne)

	Median	Mode	Range	Responses
UK	£40	£40 to £45	£0 to £75	50
England (incl. London)	£30	£40 to £45	£0 to £58	27
London	£12	£10 to £15	£10 to £12	5
Wales	£42	£40 to £45	£0 to £75	12
Scotland	£44	£35 to £40	£40 to £55	11

Median AD gate fee reported over time is summarised in Figure 12, suggesting a slow decrease in gate fees from 2010/11 along with a steep decrease in minimum gate fees charged.

Figure 12: AD gate fees over time for the whole of the UK (£/tonne)



By nation, the median AD gate fee in England decreased by £5/tonne, for Wales it decreased significantly to £42/tonne (from £54/tonne), but for Scotland it increased to £44/tonne (from £40/tonne). The median AD gate fee for councils in London is lower at £12/tonne, from 5 different gate fees. Figures are not available from last year's survey for comparison, however the local authorities said their fees had not changed since last year.

4.4.2 Contract review

Of those responding, 77% of the authorities reported sending material to an AD facility under a contract, while 11% said they were not using a contract at present; 13% of the authorities did not provide a response.

Of those under contract, 88% of the authorities provided start and end dates which has allowed for calculation of the contract length. Table 39 demonstrates that over half (58%) of contract gate fees are associated with contracts of a duration of 5 years or less, 68% were for a duration of 10 years or less, and 95% being 15 years or less.

Table 39: AD contract lengths 2015/16

Contract length (years)	Number of contracts	
	No.	%
Less than 1 year	0	0%
1	4	11%
2	6	16%
3	6	16%
4	5	13%
5	1	3%
7	1	3%
8	1	3%
10	2	5%
12	2	5%
13	2	5%
15	6	16%
19	1	3%
25	1	3%
Total	38	100%

Figure 13 shows the impact of contract start dates on AD gate fees; 2014 and 2015 have been combined to provide a median figure and range for post 2013²³. Looking at the overall trend, it seems that contract start year does have an impact on the gate fee, with the trend being down.

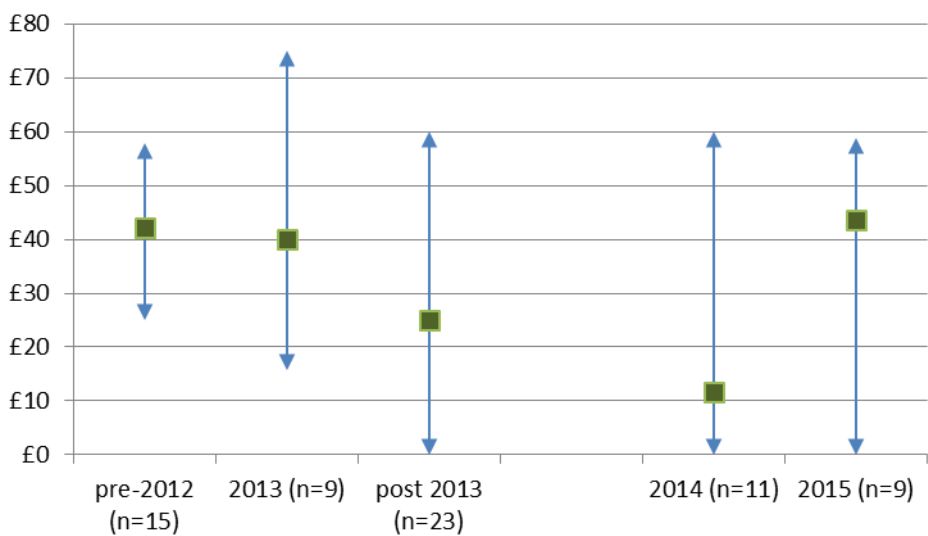
Of the 9 new contracts started in 2015, 4 were in Scotland, 4 were in Wales and the other was in the Northwest of England. The median for these contracts was £44/tonne. Of contracts which started in 2014, the median was £12/tonne, which included both English and Welsh authorities. To get a wider picture of the UK as a whole, a post 2013 contract analysis was carried out, showing a median of £25/tonne, which is lower than

²³ 5 of the 9 contracts which started in 2015 were in Scotland, in comparison to 2014 where none of the new contracts were from Scotland. Therefore post 2013 figures have been combined to provide a more balanced picture of the UK overall.

that of contracts started in 2013, which was £40/tonne. This suggests that in part, the overall median is unchanged due to historic contracts, and due to comparatively higher gate fees in some nations, primarily Scotland.

As seen in Figure 12, although the median in unchanged from last year, the overall range has changed, most significantly at the lower range which now sees £0/tonne gate fees. This result reflects the significant number of historic contracts in the reported data and Figure 13 gives a good indication that more recent contract gate fees are decreasing. However this affect is fairly regional, with gate fees in Scotland remaining high and increasing in some cases, due to good food waste availability, in comparison with the rest of the UK where demand outstrips supply, pushing down gate fees.

Figure 13: Impact of contract start date on AD gate fees (£/tonne)



4.4.3 Key influencing factors – AD gate fees paid by local authorities

Table 40 shows that nearly half of local authorities believe that operating costs are the greatest influencing factor on current AD gate fees. A third also believe that competition between similar facilities and availability of capacity are the next most influential factors.

Authorities think that operating costs is the most influential factor on AD gate fees, followed by availability or capacity. A third think that legislative requirements will have an impact.

Of those responding, 50% of local authorities thought that gate fees are likely to remain the same over the next twelve months; 28% thought they would increase and 23% thought they would decrease.

Table 40: Factors influencing current AD gate fees (indicated by local authorities surveyed – 40 Responses)

Factor influencing current gate fees	Response rates	
	No.	%
Operating costs	19	48%
Competition between similar facilities	13	33%
Availability of capacity	13	33%
Legislative requirements	11	28%
Government incentive schemes e.g. renewables	8	20%
Quality of input materials	7	18%
Competition from alternative treatment options	6	15%
Product/commodity end market prices	6	15%
Inflation (RPI, RPIX)	5	13%
Investment/capital costs	3	8%
Other	1	3%
Cost of managing residues	0	0%

Table 41: Factors most likely to influence future AD gate fees (identified by local authorities surveyed – 40 responses)

Factor influencing future gate fees	Response Rates	
	No.	%
Operating costs	17	43%
Availability of capacity	15	38%
Legislative requirements	13	33%
Competition between similar facilities	12	30%
Product/commodity end market prices	9	23%
Quality of input materials	7	18%
Competition from alternative treatment options	7	18%
Government incentive schemes e.g. renewables	7	18%
Investment/capital costs	4	10%
Inflation (RPI, RPIX)	2	5%
Other	1	3%
Cost of managing residues	0	0%

4.4.4 Survey of AD operators

AD facility operators provided information on contract and spot gate fees (excluding haulage) for wastes received from both municipal and commercial/industrial sources.

A summary of the gate fees (excluding haulage costs) reported are presented in Table 42. Across all waste streams²⁴ the median contract gate fee (excluding haulage) reported by AD facility operators across all waste streams is £15/t, which is lower than the median contract gate fee (excluding haulage) calculated from the responses for AD gate fees from local authorities²⁵. Table 42 also presents a split for contract gate fees for all types of organic wastes received from municipal sources (the median gate fee is £15/tonne) and for contract gate fees for all organic wastes received from commercial sources (the median gate fee is £20/tonne). The median gate fee for food waste provided by facility operators (from municipal and commercial/industrial sources) is £18/tonne.

For unpackaged food waste, both contract and spot market gate fees have a negative minimum range, meaning that municipalities or commercial/industrial businesses supplying the organic waste might receive a *payment* from the AD facility operator rather than be *charged* a gate fee. For packaged food waste and for food waste in biobags from either municipal or C&I sources, the median contract gate fees (excluding haulage) are £15/t and £30/t, for each there are substantial ranges reported by AD facility operators, from as low as £0/t, to as high as £47/t for packaged food waste and £70/t for food waste in biobags.

Table 42: Contract and spot gate fees (excluding haulage) provided by AD facility operators in 2015/16 (£/tonne)

Feedstock	No. of Gate Fees	Gate Fee (£/tonne)	
		Median	Range
CONTRACT GATE FEES			
All waste streams	122	£15	-£25 to £70
All food waste	110	£18	-£25 to £70
Unpackaged food waste	25	£10	-£10 to £40
Food waste in biobags	27	£15	£0 to £47
Packaged food waste	35	£30	£0 to £70
Food preparation waste	23	£20	-£25 to £47
Other waste	12	£3	-£20 to £35
Municipal	43	£15	£0 to £47
Commercial	79	£20	-£25 to £70

²⁴ By waste type (packaged/unpackaged, biobags, food prep waste and 'other wastes' such as blood, effluent, gelatine, waste animal feed, bulk liquids from food preparation processes or animal slurry and from both municipal and commercial/industrial sources

²⁵ The UK median AD gate fee for separate food waste is £40/t, range £0/t to £75/t from the information provided by local authorities for food waste only (Table 1 & Table 5). The median gate fee provided by operators for food waste from municipal sources is £15/t (Table 42 & Table 43). The C&I contract gate fees for food waste provided by facility operators, median £20/t, range -£25/t to £47/t, shows a wider range (Table 42 and Table 44) and includes higher gate fees for some food waste types eg packaged food. Figure 14 shows the distribution of gate fees from C&I sources by waste type. Differences are likely to reflect the sample of local authorities and the sample of facility operators and the inclusion of gate fees from historic contracts in the local authority sample. Feedback from separate interviews with waste management companies affirmed that AD gate fees were reducing in the last 6 to 9 months (May 2015 to January 2016) due to the constrained supply of food waste from local authorities and excess of capacity in some regions, and they expected this trend to continue.

SPOT MARKET GATE FEES			
All waste streams	14	£28	-£10 to £65
Unpackaged food waste	6	£23	-£10 to £50
Food waste in biobags	-	-	-
Packaged food waste	6	£58	£25 to £65
Other waste	2	£13	£6 to £20
Municipal	-	-	-
Commercial	14	£28	-£10 to £65

Table 43 reports contract gate fees (excluding haulage) for organic wastes from municipal sources by waste type. The 25 AD facility operators responding to the survey provided 43 contract gate fees for municipal organic wastes. As noted above the median gate fees (excluding haulage) reported by AD facility operators for accepting food wastes from municipal sources are substantially below the median gate fee (excluding haulage) calculated from the responses provided by local authorities for food waste sent to AD for treatment.

In terms of the range of contract gate fees (excluding haulage) for organic wastes from municipal sources, none of the AD facility operators responding to the survey indicated a negative gate fee (ie a *payment* by the facility operator to the waste supplier) but there are gate fees as low as £0/t (excluding haulage) for organic wastes sourced from municipal sources.

Table 43: Contract gate fees (excluding haulage) reported by AD facility operators for receiving organic wastes from municipal sources by waste type, 2015/16

Feedstock	No. of Gate Fees	Gate Fee (£/tonne)	
		Median	Range
All food waste	43	£15	£0 to £47
Unpackaged food waste	9	£13	£0 to £15
Food waste in biobags	16	£15	£0 to £47
Packaged food waste	9	£20	£5 to £47
Food preparation waste	9	£20	£0 to £47

Table 44 reports contract gate fees (excluding haulage) for organic wastes from commercial/industrial sources. The 25 AD facility operators responding to the survey provided 79 contract gate fees (excluding haulage) for organic wastes received from commercial/industrial sources.

Table 44: Contract gate fees (excluding haulage) reported by AD facility operators for receiving organic wastes from commercial/industrial sources by waste type, 2015/16

Feedstock	No. of Gate Fees	Gate Fee (£/tonne)	
		Median	Range
All waste streams	79	£20	-£25 to £70
All food waste	67	£20	-£25 to £70
Unpackaged food waste	16	£10	-£10 to £40
Food waste in biobags	11	£20	£5 to £47
Packaged food waste	26	£35	£0 to £70
Food preparation waste	14	£16	-£25 to £47
Other waste	12	£3	-£20 to £35

Across all waste types received by the AD facility operators the median contact gate fee (excluding haulage) is £20/t with a range from -£25/t (ie a *payment* by the facility operator to the waste supplier) to a *charge* to the waste supplier of £70 per tonne for food waste types and formats accepted from commercial/industrial sources.

Based on the small sample of AD facility operators providing gate fee information by type of organic wastes received from commercial/industrial sources, there are some instances indicated where the facility may *pay* the waste supplier. The survey responses indicate that the amount that may be paid to the waste supplier is highly variable across facility operators, and for individual facility operators it can also vary substantially from a *charge* to the waste supplier to a *payment* even for similar waste types and formats. The amount *charged* or *paid* to the waste supplier is strongly dependent on the characteristics and composition of the organic material received into the facility and the associated biogas yield achievable in the AD processes at individual facilities.

For unpackaged food wastes the median gate fee (excluding haulage) is £10/t. The median gate fee (excluding haulage) for food waste in biobags from commercial/industrial sources is £20/t, the median gate fee (excluding haulage) for packaged food waste sourced from commercial/industrial sources is £35/t.

For food wastes from food preparation processes, the median gate fee is £16/t and for other organic waste types (blood, effluent, gelatine, waste animal feed, bulk liquids from food preparation processes or animal slurry) received into AD facilities from commercial/industrial sources the median gate fee is £3 per tonne.

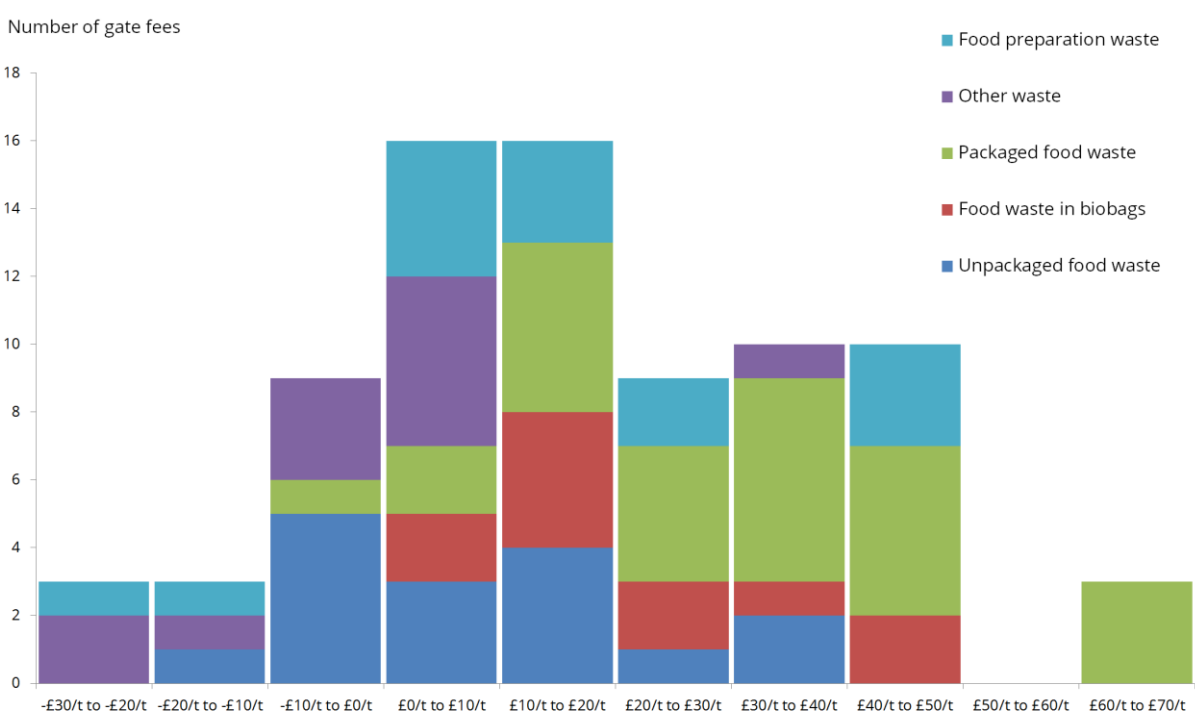
Figure 14 summarises the distribution of the range of contract gate fees (excluding haulage) reported by AD facility operators for receiving organic wastes from commercial/industrial sources by waste type. The survey responses indicate that the vast majority (64 of 79 or 81%) of the gate fees provided to the survey are *charges* by the AD facility operator to the entities supplying organic wastes.

However, there are 15 (of 79 or 19%) contract gate fees reported by AD operators for organic wastes accepted from commercial/industrial sources which are £0/t or lower.

There are 3 AD facility operators, or 12% of 25 operators responding to the survey, who reported negative contract gate fees (excluding haulage) ie *payments* to the suppliers organic wastes from commercial/industrial sources.

For unpackaged food waste from commercial/industrial sources one gate fee (1 of 16 or 6% of the gate fees reported for accepting unpackaged food waste from C&I) indicated a payment, of £10/t. For food preparation wastes received from commercial/industrial sources two gate fees received indicated a *payment of* up to £25/t (2 of 14 or 14% of the gate fees reported for food preparation wastes). For other wastes reported gate fees indicated a payment of up to £20/t for organic wastes such as blood, effluent, gelatine, waste animal feed, bulk liquids or animal slurry received from C&I sources (4 of 12 or 33% of the gate fees reported for other organic wastes).

Figure 14: The distribution of contract gate fees (excluding haulage) reported by AD facility operators for receiving organic wastes from commercial/industrial sources by waste type (£/tonne)



From the spot gate fees reported in Table 42, there was one AD facility operator that indicated a payment of up to £10 per tonne to receive unpackaged food waste not under a contract from a commercial/industrial source²⁶.

4.4.5 Key influencing factors for gate fees – AD facility operators (municipal and C&I wastes)

There were 9 AD facility operators who provided responses to questions in the survey on key factors influencing current and future AD gate fees. From these responses, (7 of 9

²⁶ In the 2012/13 gate fees survey AD facility operators reported a spot gate fee of £12 per tonne for bulk liquid waste received from industrial sources

facilities) cited competition from similar organic waste treatment facilities as an influence on current gate fees (see Table 45), and (5 of 9 facilities) mentioned availability of capacity. A third (3 of 9 facilities) reported the quantity of input materials as an influence on current AD gate fees.

Table 45: Factors influencing current AD gate fees (9 AD facilities responded to the questions on current influencing factors)

Factor influencing current gate fees	Number citing factor as an influence	% citing factor as an influence
Competition from similar facilities	7	78%
Availability of capacity	5	56%
Quantity of input materials	3	33%
Other (please state below)	3	33%
Operating costs	1	11%
Product/commodity end market prices	1	11%
Cost of managing residues	1	11%
Legislative requirements	0	0%
Competition from alternative treatment options	0	0%
Inflation (RPI, RPIX)	0	0%
Investment/capital costs	0	0%
Government incentive schemes e.g. renewables	0	0%

Table 46 summarises the responses of the 9 AD facility operators who answered questions on the factors likely to influence future (over the next 12 months) AD gate fees for waste accepted from municipal and commercial/industrial sources. The table shows that facility operators expect factors similar to those influencing current AD gate fees to continue to be the main influence AD gate fees.

Table 46: Factors expected to influence future AD gate fees (9 AD facilities responded to the questions on future influencing factors)

Factor influencing future gate fees	Number citing factor as an influence	% citing factor as an influence
Competition from similar facilities	7	78%
Availability of capacity	5	56%
Quantity of input materials	3	33%

Factor influencing future gate fees	Number citing factor as an influence	% citing factor as an influence
Competition from alternative treatment options	2	22%
Other (please state below)	2	22%
Legislative requirements	1	11%
Cost of managing residues	1	11%
Government incentive schemes e.g. renewables	1	11%
Operating costs	0	0%
Product/commodity end market prices	0	0%
Inflation (RPI, RPIX)	0	0%
Investment/capital costs	0	0%

From the information reported by the 9 AD facility operators on the direction of change in gate fees for organic wastes over the next 12 months, 7 out of 9 or 78% expected that gate fees for accepting organic wastes from municipal and commercial/industrial sources were likely to decrease²⁷ in the next twelve months (compared to only 23% of local authorities who thought that their AD gate fees would decrease). One facility operator (11%) thought that AD gate fees would increase over the next 12 months and one facility operator (11%) thought that gate fees would remain the same.

4.4.6 Waste contractor interviews

The interviews with the waste contractors affirmed that in Scotland the availability of food waste from local authority collections is good, due to Zero Waste legislation, and so had seen some gate fee movement upwards due to capacity shortages. However, in the rest of the UK, gate fees have been dropping in the last 6 to 9 months due to the constrained supply of food waste from local authorities and excess of capacity in some regions. The median of £40/tonne from the local authority survey does not necessarily reflect this picture, due to the historic nature of some of the contracts. Concerns were expressed for the long term viability of the market and that it is likely that some facilities may close if low gate fees are maintained.

²⁷ Direction of change in AD gate fees over the next 12 months is summarised by the majority response across waste types for each facility. One facility operator thought that gate fees for food waste in biobags from C&I sources would increase over the next 12 months, another expected an increase in gate fees for food prep wastes from C&I, two facilities expected gate fees for other wastes from C&I sources to remain the same. One facility expected gate fees for food waste in biobags from municipal sources to increase, another thought that gate fees for food preparation wastes from municipal sources would increase.

4.5 Mechanical Biological Treatment (MBT)

Of those local authorities responding to the survey, 64 said they sent residual waste to MBT facilities. Of these responses, 3 were rejected as being dirty MRFs, 5 as repeats and 13 were rejected as the local authority indicated that they, in addition to the gate fees quoted, paid for the cost of subsequent landfill or energy recovery of the waste derived fuel (RDF or SRF) they produced. This ensured that only “all inclusive” data was used for the subsequent analysis.

Therefore the remaining 43 responses, from which 19 usable gate fees were provided, were analysed to determine gate fees, ranges and trends for 2015/16. Of those providing usable data, 14 were in England, 3 in Scotland and 2 in Wales, all unitary or waste disposal authorities.

4.5.1 Current gate fees and trends

As with previous years, due to the relatively small number of contracts, results are reported at UK rather than national level.

Median gate fee for MBT from this year’s survey is £85 compared to £88 last year, from 19 usable responses compared to 10 last year. It is likely therefore that small differences in median gate fees are due to the larger sample size rather than any shifts in the market.

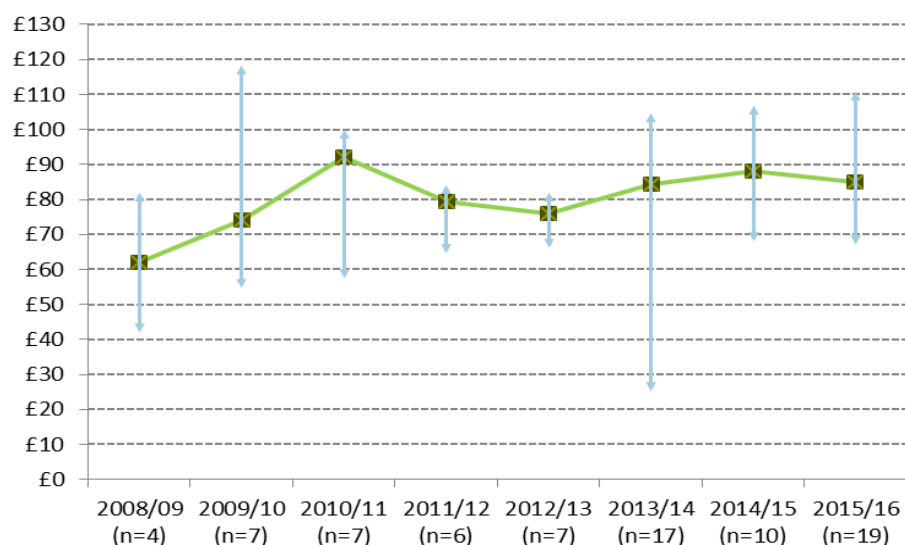
The most common (mode range) response was £95-£100 /tonne.

Table 47: Summary of MBT gate fees 2015/16 (£/tonne)

	Median	Mode	Range	Responses
UK	£85	£95 to £100	£67 to £111	19

Taking sampling changes into account, median gate fees have been relatively stable for the last 3 years at least, as demonstrated in Figure 15.

Figure 15: MBT gate fees over time (all UK in £/tonne)



Of those reporting a gate fee change, the majority listed indexation (RPI) increase, with increased landfill tax also being cited.

4.5.2 Contract review

Of those respondents providing contract data, the majority relate to mid to short term contracts of 10 years or less (73% 10 years or less, 27% 5 years or less). The shorter term contracts tend to be supply of residual waste to already operating MBT facilities, whilst the longer term (up to 25 years) contracts tended to be of PFI/PPP type and included the construction of dedicated MBT facilities.

Of the reported contracts, 2 were signed in 2015. As the response rate was relatively low, it was not possible to analyse sufficiently any changes in gate fee and contract start dates to identify trends.

Table 48: MBT contract lengths (for responses where contract length waste given)

Contract length (years)	Count	Proportion of count
<1	0	0%
2	1	5%
3	2	9%
4	3	14%
6	2	9%
7	2	9%
8	2	9%
9	0	0%
10	4	18%
12	1	5%
23	1	5%

Contract length (years)	Count	Proportion of count
25	4	18%

4.5.3 Key Influencing factors

In terms of likely future trends, 38 respondents expressing an opinion, 30 (79%) expected gate fees to increase in the future.

For factors likely to influence prices in the future, respondents' feedback is summarised in Table 49 and Table 50.

For current pricing, respondents cited operating costs, inflation, and output end market prices (e.g. RSF/SRF) as key factors. The same factors were cited for future prices, although the availability of capacity and competition from other technologies were also expected to influence future pricing.

Table 49: Key influencing factors – current MBT pricing (indicated by local authority survey – 36 responses)

Influencing factor	No of responses	%
Operating costs	13	36%
Inflation (RPI, RPIX)	13	36%
Product/commodity end market prices	12	33%
Availability of capacity	9	25%
Cost of managing residues	8	22%
Competition from alternative treatment options	7	19%
Legislative requirements	5	14%
Competition between similar facilities	4	11%
Investment/capital costs	4	11%
Quality of input materials	2	6%
Government incentive schemes e.g. renewables	1	3%
Other	1	3%

Table 50: Key influencing factors – future MBT pricing (indicated by local authority survey – 36 responses)

Influencing factor	No of responses	%
Operating costs	13	36%
Availability of capacity	13	36%
Product/commodity end market prices	11	31%
Competition from alternative treatment options	11	31%

Influencing factor	No of responses	%
Cost of managing residues	9	25%
Competition between similar facilities	9	25%
Legislative requirements	6	17%
Inflation (RPI, RPIX)	5	14%
Quality of input materials	4	11%
Investment/capital costs	1	3%
Government incentive schemes e.g. renewables	1	3%
Other	0	0%

4.5.4 Waste contractor interviews

Discussions with operators confirmed the reported prices, although one operator thought reported gate fees low compared to prices quoted for new projects. Discussions confirmed this is a small mature market, with no significant movements in the last year.

4.6 Energy from Waste (EfW)

In total, 108 responses to the survey reported use of energy from waste as a residual waste recovery method. Of these responses, 5 were excluded from the analysis as they were repeats, 5 because they covered RDF manufacture and export, 1 biomass recovery, 1 because the gate fee covered facility commissioning (pre-entering into long term contract), 1 because the reported gate fee was deemed an outlier and 1 because the data covered tyre energy recovery.

This left 94 responses from which 59 had usable gate fees. Of these 82 were from English authorities, 3 from Scotland, 8 from Wales and none from Northern Ireland.

4.6.1 Current gate fees and trends

As in previous years, results are reported for the UK as a whole, with results split for facilities built before and after 2000. Results are summarised in Table 51.

This year, reported median gate fee for EfW (all responses) is £86/tonne which is identical to last years' with 60% of gate fees relating to post-2000 facilities in comparison to 48% last year. Of the 59 respondents this year, 7 reported new contracts in 2015/16 of which 2 were for pre-2000 facilities.

For pre-2000 EfW facilities, median gate fee was £58, compared to £73 last year and £59 in 2013-14. The difference appears to be due to differences in the sample (i.e. local authorities reporting figures this year that did not report last year) rather than a move in the market. Of the gate fees provided this year, only 13 of the 24 were provided by authorities that also provided gate fees last year.

For post-2000 facilities, median gate fee is £95 compared to £99 last year.

Table 51: Summary of energy recovery (EfW) gate fees 2015/16, with and without contracts (£/tonne)

Type of facility		Median	Mode	Range	Responses
All		£86	£85 to £90	£22 to £131	59
Pre-year 2000	All responses	£58	£40 to £45	£22 to £90	24
	With contracts	£60	£50 to £55	£22 to £90	20
	Without contracts	£50	£40 to £45	£44 to £83	4
Post-year 2000	All responses	£95	£85 to £90	£65 to £131	35
	With contracts	£97	£85 to £90	£65 to £131	32
	Without contracts	£95	£95 to £100	Not reported	3

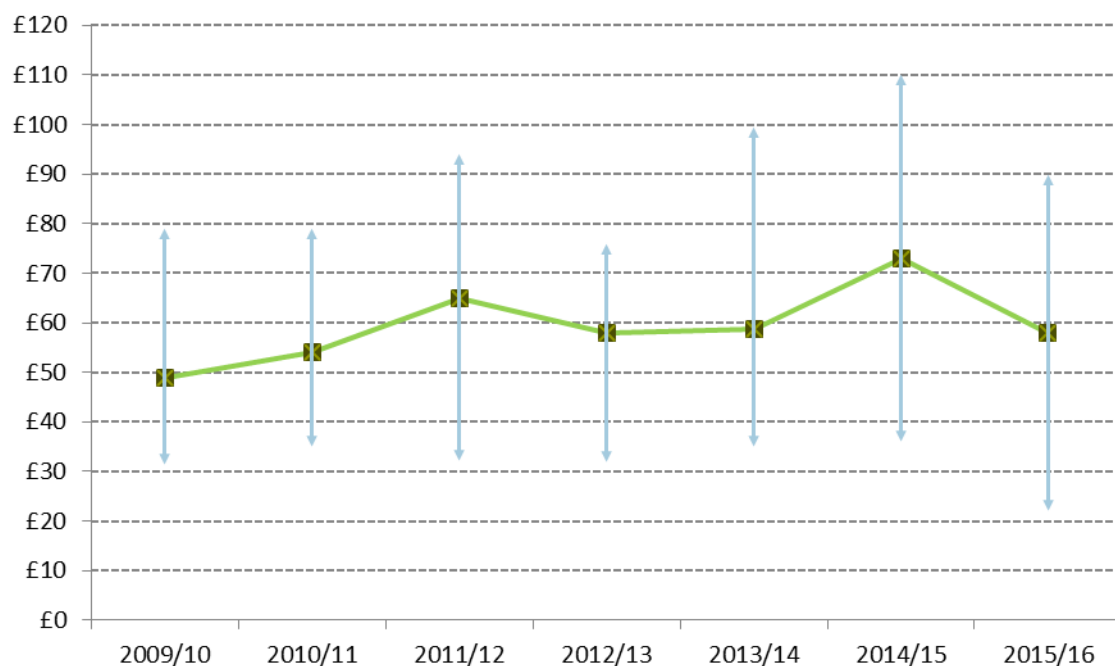
The majority of responses received were for contracted gate fees (83% pre 2000, 91% post 2000). For pre 2000 facilities, non-contracted gate fees showed a lower median than for contracted (£50 v £60) but as only 4 authorities reported non-contracted gate fees these figures should be treated with caution. For post 2000 facilities, contracted and non-contracted medians were similar (£97 v £95), although again only 3 authorities reported non-contracted gate fees.

For those that reported changes in their annual gate fees (41 responses), 37 (88%) said this was due to inflation increases or some other contractual annual uplift, 1 due to contract extension, and 3 due to end of the facility commissioning period.

The range in reported gate fees is broad at £22 to £131 (£85-95 mode range). This is because there is a significant range of contractual and funding factors which can have an influence on gate fee charged including mode of financing (PFI/PPP or prudential borrowing), whether the asset reverts to the local authority or not, contract length, and whether the authority made a capital contribution. Operators reported that contracts getting more sophisticated and more unique, therefore making it difficult to compare individual gate fee figures.

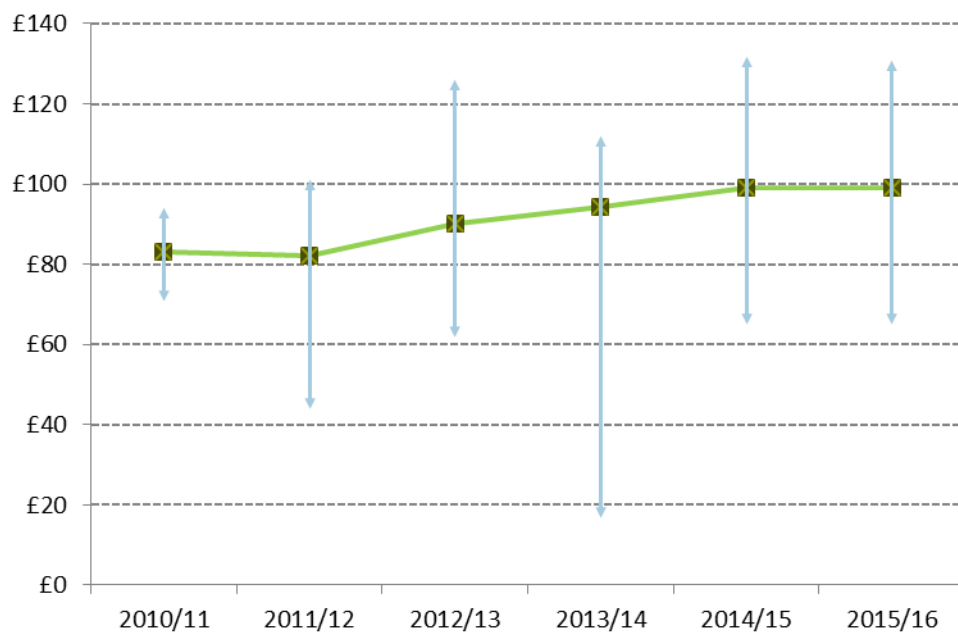
Looking at trends in gate fees over time, the pre 2000 gate fee has consistently hovered around £60 /tonne, with last year's figure of £73 likely due to sampling differences. One authority reported new contracts with pre 2000 facilities in 2015, sending material to two separate facilities. Pre 2000 gate fee trends are shown in Figure 16.

Figure 16: Pre 2000 EfW gate fees over time (UK, £/tonne)



For post 2000 facilities, median gate fees have increased from £80 to £100 /tonne from 2011/12 to 2015/16. Four authorities reported new contracts with post 2000 facilities in 2015. Data is summarised in Figure 17.

Figure 17: Post 2000 EfW gate fees over time (UK, £/tonne)



Based upon the responses to this survey, in the period 2011 to 2015, a total of 23 new contracts are reported to have started. For these contracts, median gate fees and ranges are reported in Table 52. These show that for pre 2000 facilities, new contracts are being

signed at gate fees above the overall median gate fee suggesting an upward trend in pricing for new contracts. For post 2000 facilities, new contracts are being signed with gate fees around the median and range of all contracts reported for this type of facility, suggesting no significant move.

Table 52: EfW Contracts started and median gate fees 2011-2015 (£/tonne)

Facility type	Contracts started	Median gate fee (£/tonne)	Range (£/tonne)
Pre 2000	6	£77	£57-£88
Post 2000	17	£94	£81-£119

4.6.2 Contract review

A range of contract lengths were reported. The split was mainly between authorities sending material to established energy recovery facilities, with short to medium term contracts (22% of reported contracts of length 8 years or less) with a significant proportion of PFI/PPP related contracts for which dedicated energy recovery plants were constructed, with long term contracts (65% of reported contracts with length 20 year or more). Contract length data is summarised in Table 53.

Table 53: Energy recovery contract lengths

Contract length (years)	Count	Proportion of count
1	2	4%
2	2	4%
4	2	4%
5	3	5%
6	1	2%
8	1	2%
11	2	4%
12	1	2%
14	1	2%
15	3	5%
20	3	5%
21	0	0%
22	1	2%
23	1	2%
25	20	36%
29	3	5%
30	7	13%
32	1	2%

4.6.3 Key influencing factors

Of factors influencing gate fees, respondents reported increased operating costs, availability of capacity and indexation (RPI) having the most impact on current and future gate fees. Respondents expected competition between contractors to become more of an issue in the future. Responses are summarised in Table 455 and Table 46.

Of the 65 respondents providing an opinion, 44 (68%) expected gate fees to increase in the future, 15% reduce.

Table 54: Key influencing factors – current energy recovery gate fees (indicated by local authority survey – 66 responses)

Influencing factor	No of responses	%
Operating costs	29	44%
Availability of capacity	20	30%
Inflation (RPI, RPIX)	24	36%
Competition between similar facilities	13	20%
Investment/capital costs	16	24%
Legislative requirements	12	18%
Competition from alternative treatment options	7	11%
Cost of landfilling residues	10	15%
Competition from foreign incinerators	2	3%
Government incentive schemes e.g. renewables	6	9%
Product/commodity end market prices	5	8%
Quality of input materials	2	3%
Cost of recycling residues	1	2%
Other	6	9%

Table 55: Key influencing factors – future energy recovery gate fees (indicated by local authority survey – 66 responses)

Influencing Factor	No of responses	%
Operating costs	33	50%
Availability of capacity	24	36%
Inflation (RPI, RPIX)	12	18%
Competition between similar facilities	19	29%
Investment/capital costs	12	18%

Influencing Factor	No of responses	%
Legislative requirements	10	15%
Competition from alternative treatment options	13	20%
Cost of landfilling residues	6	9%
Competition from foreign incinerators	13	20%
Government incentive schemes e.g. renewables	5	8%
Product/commodity end market prices	4	6%
Quality of input materials	3	5%
Cost of recycling residues	1	2%
Other	1	2%

4.6.4 *Waste contractor Interviews*

Discussions with the waste management companies confirmed the figures generated by the survey. The gate fees for pre-2000 facilities were deemed typical of the current market, although those coming up to re-contracting are seeing gate fee reductions for new contracts i.e. “cash strapped local authorities looking for reductions”. It was also pointed out that a number of the pre-2000 facilities are reaching the end of their contracts and will be re-tendered in the next few years.

Operators reported significant regional differences in non-contracted gate fees, particularly near the east and south east ports where exports of RDF to Europe have the most significant impact.

Operators also reported that commercial and industrial (C&I) waste input to plants which are mostly dedicated to municipal waste, follow market prices at around £80 /tonne at moment, although this is on a downward trend pushed by export pricing.

4.7 *Wood waste recycling and recovery*

The survey identified 128 authorities reporting the collection of wood waste separately at HWRCs. From these responses, 106 usable gate fees were received for wood waste recycling and recovery.

Local authorities which responded ‘yes’ to separately collected wood for recycling and/or recovery were asked to provide details of specific segregation arrangements they had in place. Of these 16% of authorities reported segregation of wood types of some kind. Further questions regarding the type of wood items accepted in each segregated waste stream enabled the likely grade of wood waste being collected to be established.

Of the four grades of wood recognised by the Wood Recyclers’ Association (WRA) the segregated wood waste for each authority was allocated into either Grade B or Grade C

categories (where no segregation system was in place all wood collected was deemed to be Grade C, hence the high number of gate fees under the Grade C heading in Table 56 below). These grades are consistent with the findings of last year's survey (in which all wood wastes were deemed to be Grade B or Grade C). These grades of wood are nominally described as:

- Grade B: Industrial feedstock grade – including Grade A material plus construction and demolition waste, this is suitable for making panel board.
- Grade C: Fuel grade – this is made from all the above material plus that from municipal collections and civic amenity sites and can be used for biomass fuel.

4.7.1 Current gate fees and trends

Against each segregated wood waste stream (and hence grade of wood) gate fees were requested. The results are shown in Table 56 below.

Table 56: Gate fees (£/tonne) paid by local authorities for the disposal, treatment and recycling of wood waste in 2015/16

Nation	Grades B and C Combined				Grade B			Grade C		
	No.	Median	Mode	Range	No.	Median	Range	No.	Median	Range
UK	99	£35	£45 to £50	-£5 to £82	8	£25	Not reported	91	£36	-£5 to £82
England (incl. London)	62	£38	£50 to £55	-£5 to £82	7	£30	£20 to £53	55	£38	-£5 to £82
London	2	£47	Not reported	Not reported	0	N/A	N/A	2	£47	Not reported
Wales	15	£46	£60 to £65	£6 to £67	1	Not reported	Not reported	14	£49	£6 to £67
Scotland	14	£7	£0 to £5	-£5 to £44	0	N/A	N/A	14	£7	-£5 to £44
Northern Ireland	8	£30	£45 to £50	£0 to £45	0	N/A	N/A	8	£30	£0 to £45

The median gate fee for recycling/recovery of all types of wood waste from HWRCs has remained the same as last year's at £35/tonne. There is still considerable variation by nation which has also been identified in previous years' results. For example, the median gate is lowest in Scotland at £7/tonne (relatively stable with last year's result of £8/tonne) and Wales is highest at £46/tonne (which is a decrease from last year's £51/tonne). Northern Ireland's median has remained relatively stable, decreasing from £31/tonne last year to £30/tonne this year. England's has increased from £35/tonne last year to £38/tonne this year. Only 2 responses were received for London and so these were not reported separately.

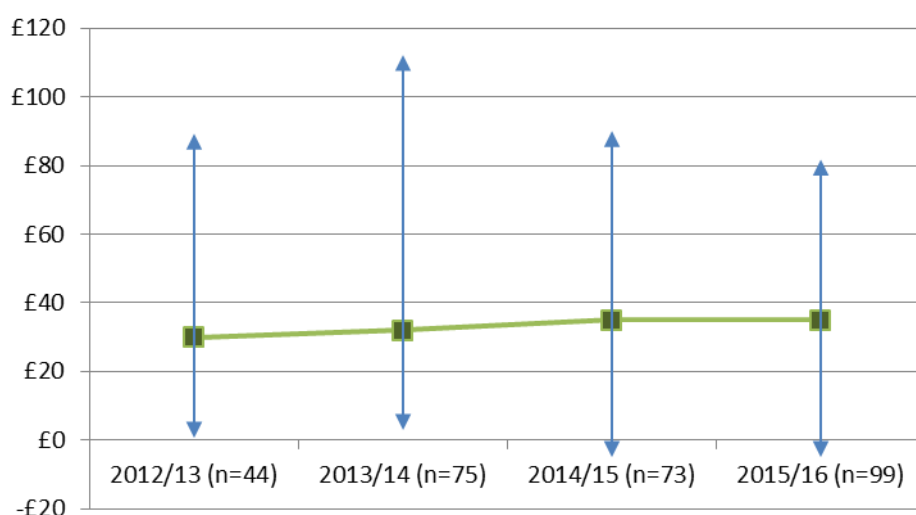
The vast majority of responses were for Grade C, with approximately 8% of responses being deemed compatible with achieving Grade B quality (i.e. suitable for making panel board). The remaining 92% of gate fees received from local authorities were consistent with gate fees for Grade C wood waste (i.e. can be used for biomass fuel). The median gate fee for higher quality Grade B wood waste was £25/tonne, which is the same as last

year. The median for Grade C wood waste was marginally higher than last year at £36/tonne.

In all cases, the median does not fall within the mode range, which shows, along with the range, there is significant variation in gate fees. However, the highest mode range is found for Wales and the lowest in Scotland, which is consistent with the ranking of the medians. It is important to note, that unlike other gate fee sections in this report, this section reflects all types of wood waste treatment facilities from recycling to energy recovery, and this is also reflected in the high variation of gate fees.

Figure 18 shows gate fees paid over time – showing a slow increase in gate fees since 2012/13.

Figure 18: Gate fees paid by local authorities for the disposal, treatment and recycling of all grades of wood waste (£/tonne)



4.7.2 Key influencing factors

Table 57 shows that 41% of respondents think that operating costs have the big influence on current gate fees. Availability of capacity, quality of input materials and product/commodity end prices all score similarly as the next influential factors.

Table 58 shows that by far the most influential factor considered by local authorities to have an impact on their gate fees is product and commodity end prices.

Table 57: Factors influencing current wood waste gate fees (indicated by local authorities surveyed – 91 responses)

Factor influencing current gate fees	Response rates	
	No.	%
Operating costs	37	41%
Availability of capacity	33	36%
Quality of input materials	33	36%

Factor influencing current gate fees	Response rates	
	No.	%
Product/commodity end market prices	32	35%
Competition between similar facilities	26	29%
Legislative requirements	14	15%
Competition from alternative treatment options	14	15%
Inflation (RPI, RPIX)	11	12%
Cost of managing residues	5	5%
Other	5	5%
Investment/capital costs	1	1%
Government incentive schemes e.g. renewables	1	1%

Table 58: Factors most likely to influence future wood waste gate fees (indicated by local authorities surveyed – 93 responses)

Factor influencing future gate fees	Response Rates	
	No.	%
Product/commodity end market prices	45	48%
Operating costs	35	38%
Quality of input materials	33	35%
Availability of capacity	29	31%
Competition between similar facilities	22	24%
Competition from alternative treatment options	22	24%
Legislative requirements	18	19%
Inflation (RPI, RPIX)	6	6%
Cost of managing residues	6	6%
Investment/capital costs	4	4%
Government incentive schemes e.g. renewables	3	3%
Other	1	1%

Of those responding, 68% of local authorities believe that wood waste gate fees will increase in the next twelve month, with 25% believing they'll stay the same and only 6% think they'll decrease.

4.7.3 Survey of wood recyclers, reprocessors and thermal reprocessors

Wood reprocessors were asked a series of questions regarding the gate fees they charge and the results of this are presented below. There were responses from 16 companies,

11 of which were wood recyclers and 5 being operators of a plant generating energy from the incineration of wood biomass.

The operators were asked about the gate fees they charge for different grades of wood from different market sources. These are presented in Table 59 below.

Table 59: Wood waste gate fees for the different grades of wood received for 2015/16 (£/tonne)

Market source	Grade A - £ /tonne			Grade B - £ /tonne			Grade C - £ /tonne		
	No. of gate fees	Median	Range	No. of gate fees	Median	Range	No. of gate fees	Median	Range
HWRC	10	£20	£0 to £55	12	£30	£5 to £55	15	£50	£5 to £79
Spot Market	6	£27	£0 to £55	6	£32	£0 to £75	11	£50	£5 to £75
Commercial contracts	4	£14	£0 to £15	5	£18	-£3 to £55	5	£45	£2 to £75

The median for all gate fees for wood from HWRCs is reported as £37/tonne, with the range being £0 to £79/tonne. This is relatively consistent with the median from the local authority survey of £35/tonne. However, as Table 59 shows, these figures vary depending on the grade of wood waste.

As would be expected the median gate fee rises from the highest grade ('A') to the lowest grade ('C'). There is a similar pattern for the minimum and maximum gate fees charged across the grades. The gate fees charged for wood from HWRCs tend to be higher than those for the spot market. Commercial contracts tend to offer more favourable gate fees than spot market gate fees. It should be noted that the lower range of gate fees for grade B was noted to be a low gate fee due to quantities, and so it is important to note that other factors other than grade may influence gate fees.

As per last year, grade C wood waste sees the greatest variation in gate fees due to the large variance in end markets. Due to a relatively small sample size, no regional analysis is able to be done. However, broadly speaking, higher gate fees are charged in southern and central England in comparison to those in Scotland in north England.

Interestingly, very few operators are reporting paying for wood waste, which is a shift from last year's operator survey and also differs from the local authority survey where some authorities in England and Scotland were reporting receiving a (small) income.

Table 60 shows gate fees by end market. There is a relatively small sample size and therefore should be used with caution. However, in comparison to last year's data:

- Animal bedding has fallen slightly, from £32/tonne in 2012/13 (the last year data is available for) to £23/tonne this year;
- The median for panel board is £22/tonne, which is higher than both of the figures provided last year (£11/tonne ex works and £20/tonne for delivered);
- Data for wood chip was not presented last year; and

- Biomass fuel: median has increased from to £6/tonne. Last year data were presented depending on the type of biomass facility (i.e. whether clean wood sent to non-WID compliant facility or wood waste sent to WID compliant facilities). This figure is therefore difficult to directly compare, however one notable difference is that all the medians last year showed an income being paid for biomass fuel, or a £0/tonne gate fee. This year's result of £6/tonne median may indicate a decrease in demand for this material. However this will be very dependent on the region.

Table 60: Revenues for wood waste end markets in 2015/16 (£/tonne)

End market	Number of gate fees	Median	Range
All routes	19	£20	-£50 to £40
Animal bedding	4	£23	£20 to £40
Panel board	7	£22	£4 to £32
Wood chip	3	£21	Not reported
Biomass fuel	5	£6	-£50 to £35

The majority of operators thought that gate fees for spot market would increase in the next twelve months. This was for all grades.

4.7.4 Waste contractor interviews

When asked about the wood waste market, the waste contractor's view was that largely, gate fees would decrease as more facilities become operational. However, local authority volumes are not high enough on their own and so the market is controlled by consolidator and large waste management companies and wood recyclers.

The view was that due to the number of new wood waste and biomass fuel energy recovery facilities currently being financed, gate fees would decrease in the longer term as demand for material increases.

4.8 Non-hazardous landfill

A total of 122 local authority responses yielded 100 usable gate fees which are included in the analysis. Responses which included some form of processing, were from an integrated contract, or concerned the landfilling of inerts, were excluded.

4.8.1 Current gate fees and trends

Across the UK the median landfill gate fee was cited to be £19/tonne, ranging from £8 to £62/tonne, and mode £10 to £15, excluding landfill tax and haulage costs. This is a slight decrease on last year's median (£20/tonne in 2014/15). However as Figure 19 shows, landfill gate fees are relatively stable, with a slight declining trend in the last few years.

Figure 19: Landfill gate fees over time for the whole UK (£/tonne)

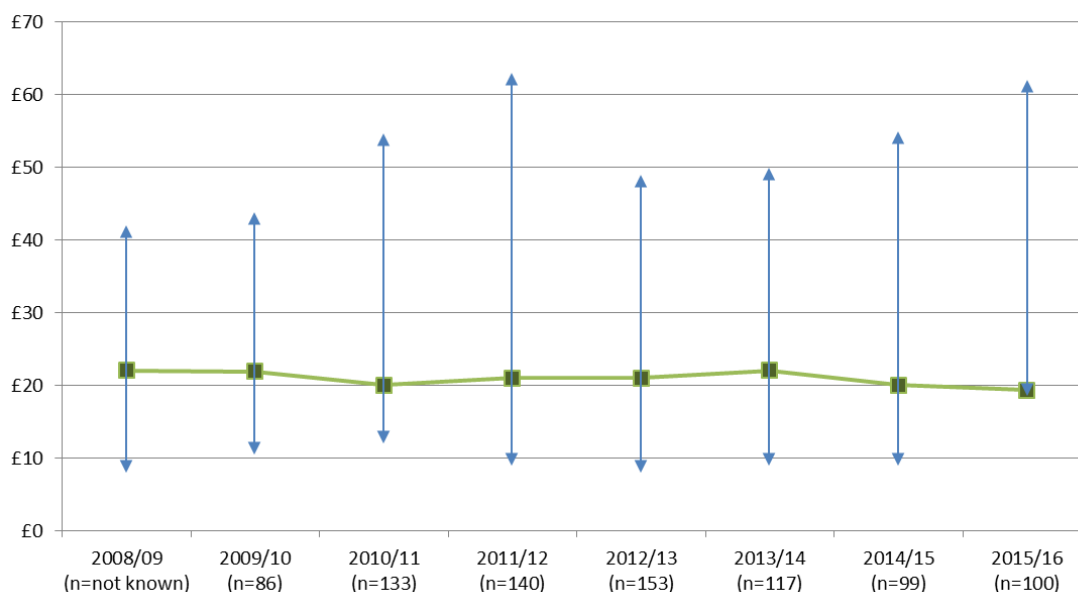


Table 61 shows the breakdown of gate fee data by nation as well as per region within England.

Table 61: Landfill gate fees for 2015/16, broken down by nation and regions within England (£/tonne)

	Median	Mode	Range	Responses
UK (including £80 landfill tax, 2014/15 tax year)	£102	£90 to £95	£91 to £145	100
UK (excluding landfill tax)	£19	£10 to £15	£8 to £62	100
England	£20	£15 to £20	£8 to £62	70
London	£31	N/A	Not reported	3
South East	£21	£15 to £20	£14 to £62	16
South West	£23	£25 to £30	£9 to £30	16
East of England	£15	£10 to £15	£8 to £28	8
East Midlands	£16	£20 to £25	£11 to £22	4
West Midlands	£19	£10 to £15	£12 to £30	7
North West	£19	£15 to £20	£15 to £40	7
North East	£21	£10 to £15	£11 to £47	6

	Median	Mode	Range	Responses
Yorkshire & Humber	£13	N/A	£9 to £55	4
Wales	£27	£25 to £30	£10 to £34	10
Scotland	£17	£10 to £15	£10 to £48	13
Northern Ireland	£15	£10 to £15	£12 to £51	7

Figure 20 shows the results for each of the nations graphically and Figure 21 shows by region over time. Similarly to last year, the lowest gate fee is found in Northern Ireland (at £15/tonne). Gate fees in both England and Scotland have seen slight decreases. However, the median gate fee in Wales is significantly higher than last year, having increased from £21/tonne to £27/tonne. As a nation within the UK it has the highest gate fee.

Figure 20: Landfill gate fees by nation in 2015/16 (£/tonne)

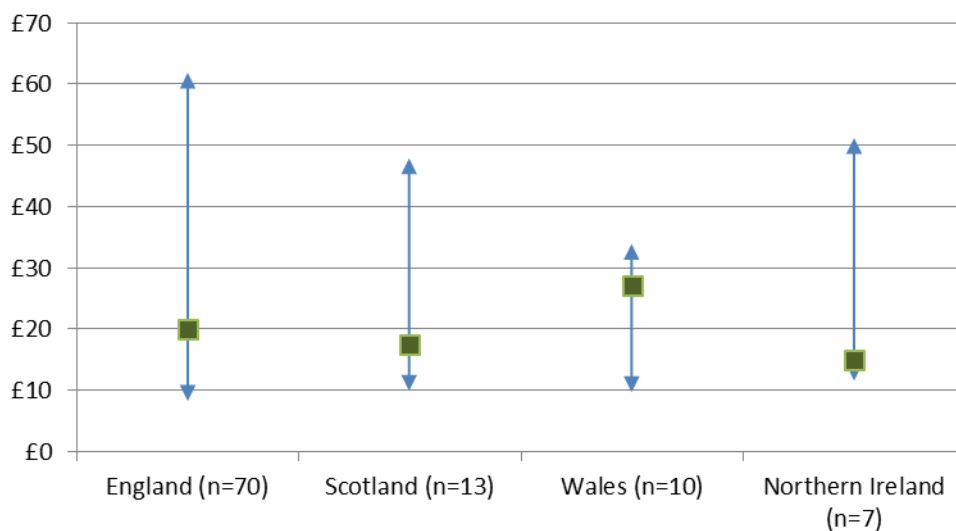
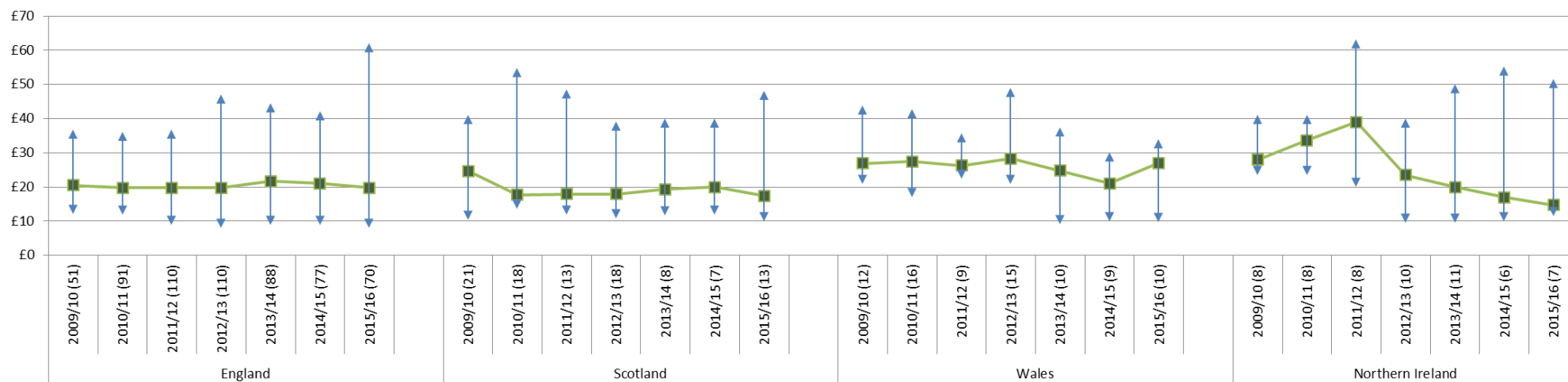
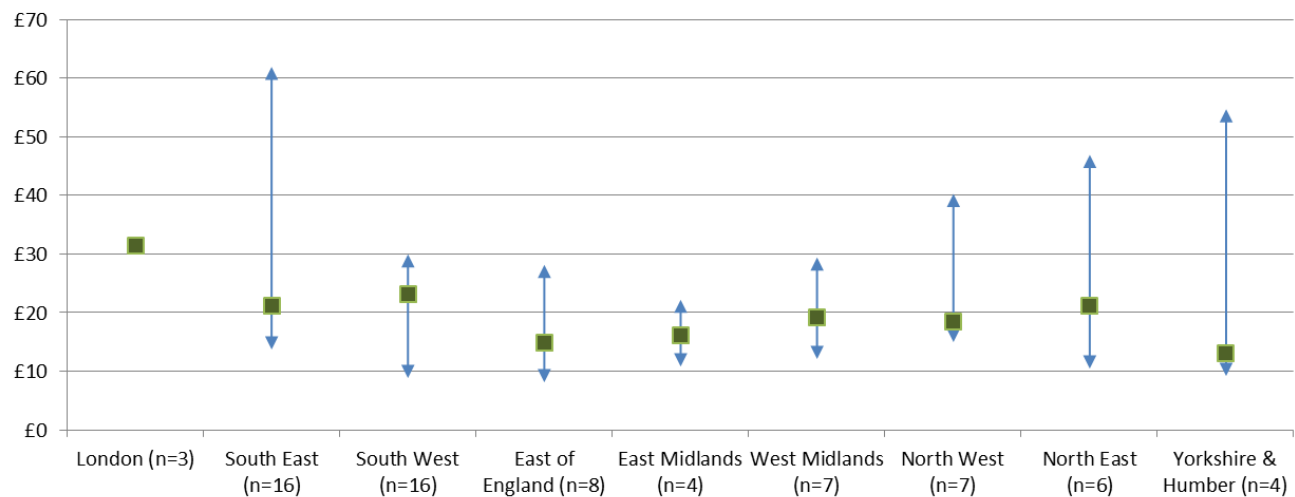


Figure 21: Landfill gate fees over time by nation (£/tonne)



At a regional level, London has the highest gate fee at £31/tonne. Although the sample size is small, it is relatively consistent with last year’s result of £30/tonne. The gate fee in the East of England is the lowest at £15/tonne, which is a change from last year where the cheapest gate fees were found in the North East.

Figure 22: Landfill gate fees by English region in 2015/16 (£/tonne)



Approximately half of the authorities say their gate fee has changed in the last twelve months, the vast majority of which can be attributed to inflation increases.

4.8.2 Contract review

Of those authorities sending material to landfill, 67% did so under a contract, while 22% said they were not using a contract at present; 11% of the authorities did not provide a response.

Of those under contract, 84% of the authorities provided start and end dates which has allowed for calculation of the contract length. Table 62 demonstrates that a little under a third (32%) of the contracts are of a duration of 5 years or less, just under two thirds (64%) were for a duration of 15 years or less; 30% of contracts are 22 years or longer, and 10% are 27 years or longer. The longest contract is 36 years. This demonstrates a trend to longer term contracts for landfill, in comparison to some other waste management facility types.

Table 62: Landfill contract lengths (for which contract length data was submitted)

Contract length (years)	Number of contracts	
	No.	%
Less than 1 year	1	1%
1	7	8%
2	7	8%
3	6	7%
4	4	5%
5	3	3%
6	7	8%
7	3	3%
8	10	11%
10	1	1%
12	1	1%
13	2	2%
15	4	5%
16	3	3%
19	1	1%
22	1	1%
23	1	1%
25	15	17%
27	1	1%
28	1	1%
29	1	1%
30	5	6%
32	1	1%
36	1	1%
Total	87	100%

Figure 23 shows that there is a clear relationship between contract length and landfill gate fees, with longer contracts have higher gate fees than shorter contracts. Figure 24 shows that there is no clear relationship demonstrated by considering the year the contract was started. However, it does show that landfill gate fees have been relatively stable since 2010.

Figure 23: Impact of landfill contract lengths on gate fees (£/tonne)

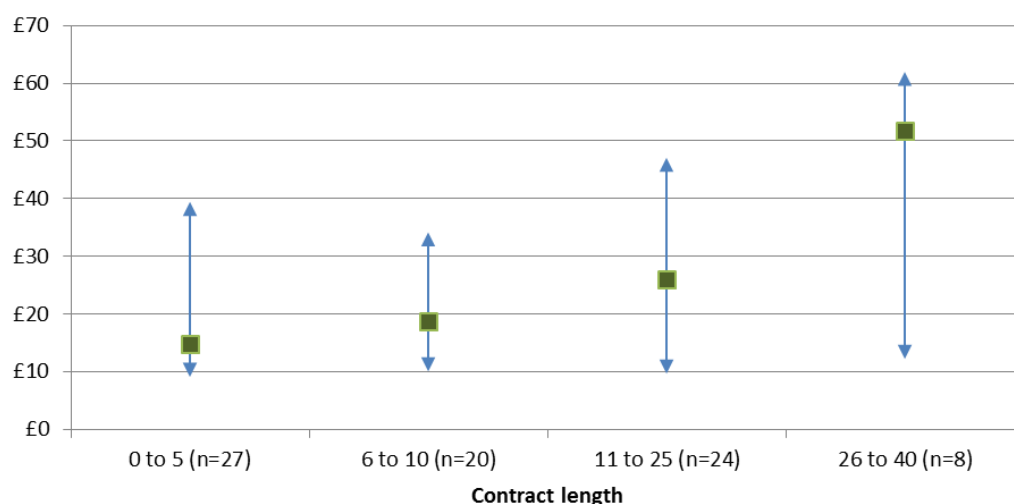
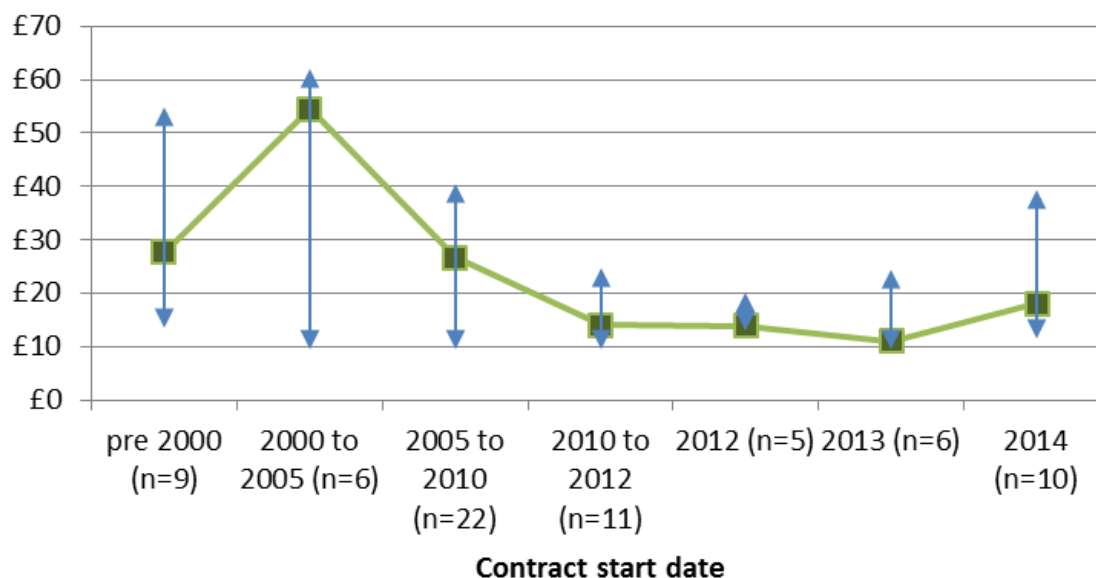


Figure 24: Impact of contract start date on gate fees (£/tonne)



4.8.3 Key influencing factors

Table 63 shows that over one third (37%) of the authorities thought that landfill tax was the most influential factor on their existing gate fees. Operating costs, competition from alternative treatment options, legislative requirements, inflation and availability of capacity all scored very similarly at between 29% and 31%.

The factors identified by local authorities as being the most likely to influence gate fees in the future are very similar (see Table 64). The main difference is that far fewer respondents thought that inflation was likely to influence gate fee in the future.

Of the 90 authorities expressing an opinion, 76% thought that gate fees would increase in the future, compared to 14% that thought they would stay the same and just 10% that said they would decrease. Given the high proportion of respondents that said it would increase, it is likely a proportion of respondents were including landfill tax in their assessment.

Table 63: Factors influencing current landfill gate fees (indicated by local authorities surveyed – 90 responses)

Factor influencing current gate fees	Response rates	
	No.	%
Landfill tax	33	37%
Operating costs	28	31%
Competition from alternative treatment options	27	30%
Legislative requirements	27	30%
Inflation (RPI, RPIX)	27	30%
Availability of capacity	26	29%
Competition between similar facilities	22	24%
Other	5	6%
Product/commodity end market prices	2	2%
Government incentive schemes e.g. renewables	1	1%
Investment/capital costs	1	1%
Quality of input materials	1	1%

Table 64: Factors most likely to influence future landfill gate fees (indicated by local authorities – 89 responses)

Factor influencing future gate fees	Response rates	
	No.	%
Landfill tax	36	40%
Operating costs	34	38%
Competition from alternative treatment options	32	36%
Legislative requirements	30	34%
Availability of capacity	29	33%
Competition between similar facilities	23	26%
Inflation (RPI, RPIX)	14	16%
Government incentive schemes e.g. renewables	4	4%
Investment/capital costs	3	3%

Factor influencing future gate fees	Response rates	
	No.	%
Product/commodity end market prices	1	1%
Quality of input materials	0	0%
Other	0	0%

4.8.4 Waste contractor interviews

The waste contractor interviews reiterated that landfill gate fees are very dependent on the region. Some gate fees are said to be kept up by short term local authority interim contracts and problems with MBT outputs boosting volumes. This is supported by the increase in local authorities not having contracts with landfills – last year the figure was 14% and this year 22% don't have contracts with their landfill providers.

Depending on the region, it was suggested that there may be decreases in gate fees (pre-landfill tax) in the shorter term future, while operators aim to fill their landfills. However in the longer term, gate fees may actually increase as sites close and residual demand starts to outweigh capacity.

www.wrap.org.uk/gatefees