

# Comparing the costs of alternative waste treatment options

WRAP's eighth annual gate fee report presents a summary of gate fees charged for a range of alternative waste treatment, recovery and disposal options.

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 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.

**Table 1: Summary information on gate fees 2014/15 (£ per tonne)**

Treatment	Material / Type of Facility / Grade	Median	Range
MRF <sup>1</sup>	Gate fee for sorting four or more materials (all contracts)	£6	-£43 to £86
	Contracts beginning in 2014 or later sorting four or more materials	£0	-£35 to £34
Organics	Open-air windrow (OAW) <sup>2</sup>	£24	£12 to £53
	In-vessel composting (IVC) <sup>3</sup>	£46	£24 to £75
	Anaerobic Digestion (AD) <sup>4</sup>	£40	£11 to £60
Wood Waste	All grades/types collected from Household Waste Recycling Centres (HWRCs) <sup>5</sup>	£35	-£4 to £90
MBT/MHT	Household waste	£88	£68 to £107
EfW <sup>6</sup>	Pre-2000 facilities	£73	£36 to £110
	Post-2000 facilities	£99	£65 to £132
Landfill (including landfill tax at £80 per tonne, 2014-15 tax year)	Gate fee only	£20	£9 to £55
	Gate fee plus landfill tax <sup>7</sup>	£100	£89 to £135

## Gate fee information in context

This survey of facilities in England, Wales, Scotland and Northern Ireland was conducted between December 2014 and March 2015. The survey covered both those procuring waste treatment, disposal and recovery services (primarily local authorities) and service providers. Following the survey work, interviews were carried out with senior managers of waste management companies (WMCs) and companies involved in Materials Recovery Facilities (MRF) operations.

The pricing of municipal waste management services can be complex. Users of gate fee information in this report should be aware of the following:

- Considerable variation in gate fees exists for similar treatment/disposal options within and between regions/countries;
- The gate fee information for individual treatment options may not be directly applicable in instances where multiple services are being procured, for example, a service that combines a MRF with MBT, or a service that includes collection together with EfW (every effort is made to eliminate such responses from the sample);

- The precise terms of individual contracts, in particular relating to the allocation of key operational and commercial risks, vary significantly across facilities and directly influence gate fees. Where possible these issues are accounted for. However it cannot be guaranteed that all issues are accounted for. Moreover, it should be noted that long term local authority contracts procured through PFI or PPP can be structured quite differently from other contracts, and therefore, such gate fees may not be directly comparable;
- Gate fees for contracts signed in earlier years are included in the survey sample but may not be reflective of current market conditions, particularly where the market is evolving rapidly. For example, 46% of MRF contracts (where year of contract commencement was submitted) were signed in 2013 and 2014. Likewise, in the case of Anaerobic Digestion (AD) it was found that 50% of local authority contract gate fees were for contracts which had been signed in 2013 and 2014 (where year of contract commencement was submitted). Where samples are sufficiently large the gate fees associated with contracts let in more recent years have been reported separately to provide a better indication of the current market;
- The year on year changes in gate fees may also reflect sampling variation and the fact that sample sizes vary from one survey to the next. The large majority of survey work in this year and the previous year was conducted using an online questionnaire, whereas in previous years the survey has been sent to potential respondents in an excel spreadsheet format. The sample size for each treatment type depends on who responds to the survey and the quality of the data provided;
- When comparing gate fees from one year to another it is important to consider the comparability of the data. For example, in previous years where gate fee data for a specific treatment type has been presented as 'all waste streams' (i.e. not broken down into subsets of different waste streams), this may not be directly comparable with gate fee data that is broken down into different waste streams in this year's survey; and
- The gate fees in this report are presented in nominal terms with no adjustment being made for inflation.

<b>Introduction and Summary</b>	<b>Gate Fees in Context</b>	<b>Key Findings</b>	<b>Material Recovery Facilities</b>	<b>Organics</b>	<b>Wood Waste Recycling and Recovery</b>	<b>Mechanical Biological Treatment</b>	<b>Energy from waste</b>	<b>Landfill</b>	<b>Appendix</b>
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## Key Findings

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

The key findings of this year’s survey of gate fees (**Table 1**) across the UK as a whole include:

- The median gate fee paid by local authorities for MRF services is £6 per tonne, whereas in the previous year’s survey the median MRF gate fee was £10 per tonne.<sup>8</sup> However, feedback from the waste management companies interviewed suggested a trend increase in gate fees in recent years at their MRF operations.<sup>9</sup>
- The range of MRF gate fees is much broader than the range associated with other facility types. This reflects the diverse range of services which fall into the MRF category, incorporating a range of different waste stream compositions, long contract gate fees agreed years ago, facility types, and revenue sharing arrangements. However, a large amount of variation still remains and this is reflected in the reported range of gate fees. Consequently, caution should be exercised when using a summary statistic such as the median MRF gate fee.
- From the sample of usable gate fees, a total of 33 local authorities (40%) reported that they do not pay a MRF gate fee (i.e. the gate fee is £0 or negative). However, when haulage and revenue were accounted for this number rose to 38 authorities (46%). Some of these contracts were procured in the last 12-18 months, but the highest revenue for local authorities is typically achieved on older contracts, when market prices for materials were higher.
- For the 21 contracts in the survey signed by local authorities in 2014 the median MRF gate fee is the same (£0 per tonne) as that for the 14 contracts signed in 2013. Based on feedback from respondents, future MRF gate fees will be affected by the declining value of materials, the increasing importance of quality and consequent increase in MRF operating costs, and contractors’ changing view of future market values for the materials (reflected in contract terms and conditions);

Key Findings

Introduction and Summary	Gate Fees in Context	Key Findings	Material Recovery Facilities	Organics	Wood Waste Recycling and Recovery	Mechanical Biological Treatment	Energy from waste	Landfill	Appendix
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- This year a number of gate fees were also received for treating residual waste at 'dirty MRFs' for which the median gate fee paid by local authorities is £84 per tonne.
- The median Open Air Windrow (OAW) composting gate fee for green waste is £24 per tonne and unchanged from the previous two surveys, suggesting a degree of stability in the OAW market(albeit that this reflects a fall in real terms).
- The median In-Vessel Composting (IVC) gate fee for mixed food and green waste is £46 per tonne, unchanged from the previous two surveys, suggesting stability in the IVC market.
- The median gate fee paid by local authorities for the treatment of food waste at Anaerobic Digestion (AD) facilities is £40 per tonne, unchanged from last year.
- The median fee paid by local authorities for recycling and recovery of waste wood (all grades) collected from Household Waste Recycling Centres (HWRCs) is £35 per tonne, marginally higher than the £32 per tonne reported in the previous survey.

- The median gate fee paid by local authorities for waste treatment via Mechanical Biological Treatment (MBT) facilities is £88 per tonne compared to £84 per tonne in the previous survey.
- The median gate fee at EfW facilities constructed prior to the year 2000 is £73 per tonne, an increase from the £58 per tonne reported in last year's survey. The difference is potentially explained by the 67% increase in the number of gate fees received for pre-2000 facilities compared to last year's survey. The median EfW gate fee for facilities constructed post 2000 is £99 per tonne as compared with £94 per tonne in the previous survey.

Further details of the gate fees associated with each of the major technology options are provided in the sections below.



Introduction and Summary	Gate Fees in Context	<b>Key Findings</b>	Material Recovery Facilities	Organics	Wood Waste Recycling and Recovery	Mechanical Biological Treatment	Energy from waste	Landfill	Appendix
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## Material Recovery Facilities

- The median MRF gate fee in the current survey is £6 per tonne, down from £10 per tonne reported in the previous survey.<sup>10</sup> The median gate fees in both years include MRF gate fees for on-going contracts (some contracts started as far back as 1995) which tend to dampen the impact of gate fees in more recent contracts.
- For recent MRF contracts (a sample of 21 local authority contracts were signed in 2014 for sorting four or more materials) the median gate fee is £0 per tonne which appears to be consistent with the gate fee for contracts signed in 2013.<sup>11</sup> All but one of these contracts are for a period of 6 years or less.
- A majority of local authorities (65%; 99 authorities) who answered questions on future trends thought that MRF gate fees would increase. The factors that local authorities identified as being most likely to influence future gate fees are commodity prices for secondary materials and the quality of input material.
- The range of MRF gate fees (from -£43 to £86 per tonne) is substantially wider than that associated with gate fees for other technologies.<sup>12</sup> This variation may be related to a number of factors, including: contract length and commencement date; total volumes of waste being sorted<sup>13</sup>; different levels of sophistication and cost associated with the MRF technologies being employed; different prices for sale of materials; and different ways of apportioning materials revenue risk between the MRF operator and the local authority.
- Fewer MRF gate fees were reported by local authorities outside England, from the data provided median MRF gate fees are higher in Wales and Scotland, but lower in Northern Ireland (Table 2).

**Table 2:** MRF gate fees by nation (2014/15)<sup>14</sup>

Country	No.of Gate Fees	Gate Fee (£ per tonne)	
		Median	Range
Contracts started in 2014 (UK)	21	£0	-£35 to £34
UK	82	£6	-£43 to £86
England	58	£0	-£43 to £86
Wales	9	£40	£1 to £55
Scotland	8	£18	-£2 to £31
Northern Ireland	7	-£5	-£35 to £48

# Organics

## Open-Air Windrow Composting

- The median OAW composting gate fee for green waste only, reported by local authorities, is unchanged from the previous survey at £24 per tonne.
- However, around 45% of local authorities considered it likely that OAW gate fees would increase in the future, while a smaller proportion (around 6%) thought that they would decrease.
- The geographic pattern of OAW gate fees observed this year is similar to that observed in previous surveys, with median gate fees similar to England in Scotland, and higher in Wales and Northern Ireland. This may reflect a relatively less competitive market in Wales and Northern Ireland (although the nation samples are small so the median is less certain).
- A summary of median gate fees (for green waste only) by nation is presented in Table 3. From the survey of OAW operators the median contract gate fee is £24 per tonne which corroborates the feedback received from local authorities.

**Table 3:** Open-Air Windrow composting gate fees by nation (2014/15)<sup>15</sup>

Country	No. of Gate Fees	Gate Fee (£ per tonne)	
		Median	Range
UK	122	£24	£12 to £53
England	104	£24	£12 to £53
Wales	5	£33	£17 to £36
Scotland	9	£25	£15 to £34
Northern Ireland	4	£35	£20 to £39

## In-Vessel Composting

- The median IVC gate fee for mixed food and green waste is unchanged from last year at £46 per tonne (Table 4).
- Similar to last year, the median IVC gate fee reported this year for treating food waste is £45 per tonne. The median IVC gate fee for green waste is £38 per tonne, which is lower than the gate fee for wastes that include food but above the median OAW gate fee for green waste (£24 per tonne).
- Terms of existing contracts, inflation, and legislative requirements for IVC treatments were considered to be the top three factors influencing current and future IVC gate fees. The majority (53%) of local authorities who responded thought that IVC gate fees would increase in the future.
- The survey of IVC operators found that the median contract gate fee paid for composting mixed food and green waste was £45 per tonne (based on a sample of 15 gate fees), similar to that reported by local authorities.

**Table 4:** IVC gate fees provided by local authorities (2014/15)

Feedstock	No. of Gate Fees	Gate Fee (£ per tonne)	
		Median	Range
Mixed food and green waste	36	£46	£24 to £75
Green waste only	14	£38	£22 to £59
Food waste only	9	£45	£38 to £58
Mixed food waste, green waste & card	7	£59	£41 to £75

# Organics Cont.

## Anaerobic Digestion

- The median AD gate fee for food waste reported by local authorities is £40 per tonne, unchanged from the previous survey (Table 5).
- The lowest median AD gate fee is in England (£35 per tonne), compared to £40 per tonne in Scotland and £54 per tonne in Wales.
- The median food waste gate fee reported by AD operators (£25 per tonne, range £18 per tonne to £35 per tonne) is significantly lower than the AD gate fee for food waste provided by local authorities.
- AD operators reported gate fees for unpackaged C&I food waste in a range from £8 per tonne to £48 per tonne, with a median of £26 per tonne. Gate fees for packaged C&I food waste range from £18 to £55 per tonne, with a median of £34 per tonne.
- While a majority of local authorities (41%) believed that future AD gate fees would be higher, 33% expected no change and 26% expected lower gate fees. The key drivers cited were the terms of the contract with AD operators, and competition with other AD facilities.
- By contrast, 58% of AD operators who responded expected AD gate fees to decline, and 33% expected no change in gate fees. The key factors behind these expectations are competition with other AD facilities and availability of capacity.
- The majority of local authority contracts with AD facilities are on a short term basis, with 58% contracts being up to 5 years long, and 33% 2 years long.

**Table 5:** Anaerobic Digestion gate fees by nation (2014/15)<sup>16</sup>

Country	No. of Gate Fees	Gate Fee (£ per tonne)	
		Median	Range
UK	28	£40	£11 to £60
England	15	£35	£11 to £58
Wales	6	£54	£30 to £60
Scotland	7	£40	£33 to £45

## Wood Waste Recycling and Recovery

- The median gate fee for recycling/recovery of all types of wood waste from HWRCs increased to £35 per tonne from £32 per tonne in the previous survey.
- The median wood waste gate fee is £51 per tonne in Wales, compared to £31 per tonne in Northern Ireland and £8 per tonne in Scotland (Table 6). The large variation in wood waste gate fees across nations identifiable in previous years remains.
- This year few local authorities (10%) considered gate fees for wood wastes to be compatible with achieving Grade B quality (i.e. suitable for making panel board). The remaining 90% 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 from local authority responses for higher quality Grade B wood waste is £25 per tonne. This is lower than the median gate fee of £35 per tonne for lower quality Grade C wood waste. These gate fees are comparable to those reported by members of the Wood Recyclers' Association (WRA).
- This difference in Grade B and Grade C gate fees is supported by responses regarding the key factors influencing wood waste gate fees. The majority (53%) of local authorities considered the quality of the recovered wood waste to be a key factor influencing current gate fees. Quality is also the key factor considered to influence gate fees in future, although opinions are relatively mixed, reflecting the wide variation in market conditions across the UK.

**Table 6:** Gate fees for recovery and recycling of HWRC wood waste (£ per tonne)

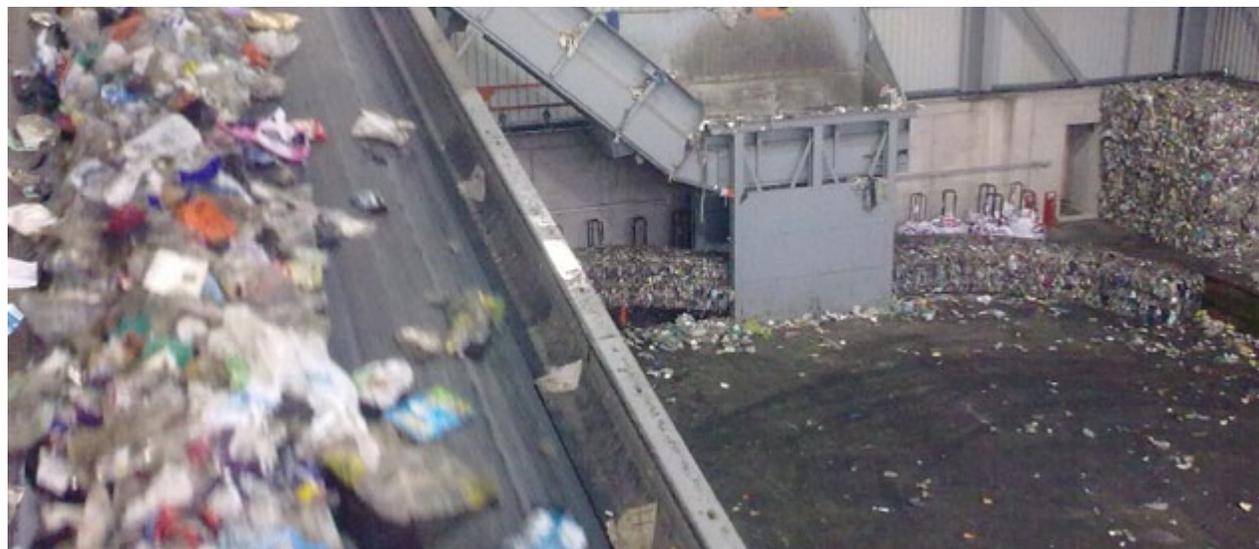
Country	No. of Gate Fees	Gate Fee (£ per tonne)	
		Median	Range
UK	73	£35	-£4 to £90
England	48	£35	-£4 to £90
Wales	8	£51	£15 to £73
Scotland	11	£8	£0 to £43
Northern Ireland	6	£31	£0 to £61

# Mechanical Biological Treatment

- The median MBT gate fee is £88 per tonne (Table 7) based on a sample of 10 responses. This is higher than last year’s median gate fee of £84 per tonne; however, given the small sample sizes in both years the extent and direction of the price shift should be treated with caution.
- Over half of the MBT contracts reported by local authorities this year were less than 10 years in duration.
- Of local authorities utilising MBT facilities, there was an even split (44% each) between those that felt gate fees would increase in the future, and those that felt they would decrease. The key factors identified as drivers for future price changes include the terms of the contract between local authorities and MBT operators, and the cost of processing RDF.

**Table 7:** MBT gate fees reported (2014/15)

Type of Facility	No. of Gate Fees	Gate Fee (£ per tonne)	
		Median	Range
MBT	10	£88	£68 to £107



New Earth Solutions’ MBT facility, Avonmouth

## EfW (Incineration with energy recovery)

- The median EfW gate fees reported for facilities constructed prior to 2000 is £73 per tonne (Table 8), an increase from £59 per tonne last year although the difference is probably ‘explained’ by the 67% increase in the number of gate fees received for pre-2000 facilities.
- Similar to the pattern in previous surveys EfW gate fees for pre-2000 facilities are below those for post-2000 facilities, likely due to increases in construction, financing and operating costs. The majority of EfW gate fees for facilities constructed post-2000 were higher with a median value of £99 per tonne.
- Although the information on local authority EfW contracts contains many examples of long-term agreements (approximately 40% being 25 years in length or longer), a number of authorities have secured EfW contracts as short as 2 to 6 years.

**Table 8:** Incineration with energy recovery gate fees from local authorities (2014/15)

Type of Facility	No. of Gate Fees	Gate Fee (£ per tonne)	
		Median	Range
All facilities	52	£86	£36 to £132
Pre-2000	27	£73	£36 to £110
Post-2000	25	£99	£65 to £132



## Non Hazardous Landfill

- The median UK landfill gate fee (excluding the landfill tax) for non-hazardous waste is £20 per tonne, down £2 per tonne from the previous survey. The range is £9 per tonne to £55 per tonne (Table 9).
- At £17 per tonne Northern Ireland has the lowest median (pre-tax) gate fee for non-hazardous landfill, the highest median (pre-tax) non-hazardous landfill gate fees are in England and Wales at £21 per tonne.
- Although the median non-hazardous landfill gate fee has been broadly stable in past years, the majority of local authorities who responded to the survey (69%) thought that gate fees including landfill tax would increase in the future due to the likely increase in landfill tax. And that gate fees pre-tax would increase due to competition from alternative treatment options and availability of capacity.

**Table 9:** Landfill gate fee data from local authorities (2014/15)

Country	No. of Gate Fees	Gate Fee (£ per tonne)	
		Median	Range
UK (excluding landfill tax)	99	£20	£9 to £55
England	77	£21	£9 to £42
Wales	9	£21	£10 to £30
Scotland	7	£20	£12 to £40
Northern Ireland	6	£17	£10 to £55



## Endnotes

1. MRF gate fees reported here exclude haulage costs.
2. This gate fee is for green waste being sent to OAW facilities by local authorities.
3. This gate fee is for mixed food and green waste being sent to IVC facilities by local authorities under a contract.
4. This gate fee is for food waste only being sent to AD facilities by local authorities under a contract.
5. Local authority reported gate fees for the onward management or treatment of waste wood.
6. Incineration with energy recovery. Defra figures on gate fees for PPP/PFI projects have not been included in the summary report this year, as the Defra figures are very similar to those reported here and therefore provide little additional information.
7. At the time of the survey the standard rate of landfill tax was £80 per tonne (i.e. from April 2014).
8. This year's median MRF gate fee (£6 per tonne) is not directly comparable with the median MRF gate fee from the 2013/14 survey (£10 per tonne) due to the differences in how the sample was selected. The 2013/14 median MRF gate fee is based on all material streams, whereas this year's equivalent is based on gate fees for MRF contracts that sort four or more materials.
9. The median gate fee reported is based on the data provided by local authorities within the sample. As the authorities that respond to the survey changes from year to year, the median may not always indicate the same trend as that reflected in the market as a whole or the sentiments of MRF operators.
10. This year's median MRF gate fee (£6 per tonne) is not directly comparable with the median MRF gate fee from the 2013/14 survey (£10 per tonne) due to the differences in how the sample was selected. The 2013/14 median MRF gate fee is based on all material streams, whereas this year's equivalent is based on gate fees for MRF contracts that sort four or more materials.
11. Contracts signed in 2013 include all material streams, whereas the 21 contracts signed in 2014 are those that sort four or more materials. On this basis these figures are not directly comparable.
12. In this report all negative gate fees designate that the local authority receives an income, whereas positive costs reflect a cost to the local authority.
13. Whilst tonnage may have an impact on the MRF gate fee charged in some instances, there is no relationship between tonnage and gate fee, based on the sample of usable gate fees provided by local authorities.
14. For all material streams where four or more materials are delivered co-mingled to a facility. MRF gate fees reported here cover all contracts and exclude haulage costs.
15. These gate fees represent green waste being sent to OAW facilities by local authorities.
16. These gate fees represent food waste being sent to AD facilities by local authorities.

## Summary information on gate fees 2013/14

Treatment	Material / Type of Facility / Grade	Median	Range
MRF	All contracts (all wastes)	£10	-£100 to £96
	Contracts beginning in 2013 or later(all wastes) <sup>a</sup>	£0	-£43 to £96
Organics	Open-air windrow (OAW) <sup>b</sup>	£24	£6 to £63
	In-vessel composting (IVC) <sup>c</sup>	£46	£8 to £66
	Anaerobic Digestion (AD)	£40	£19 to £63
Wood Waste	All grades/types collected from Household Waste Recycling Centres (HWRCs) <sup>d</sup>	£32	£3 to £112
MBT/MHT	Household waste	£84	£25 to £104
EfW <sup>e</sup>	Pre-2000 facilities	£58	£35 to £100
	Post-2000 facilities	£94	£62 to £112
Landfill (including landfill tax at £80 per tonne, 2014 -15 tax year)	Non hazardous waste	£102	£89 to £130
	Hazardous waste code: 17 05 03 <sup>f</sup>	£120	£100 to £130
	Hazardous waste code: 17 06 01 <sup>g</sup>	£155	£115 to £260
	Hazardous waste code: 17 06 05 <sup>h</sup>	£155	£105 to £205

- This median figure is based on 14 gate fees only and should therefore be interpreted with caution.
- This gate fee is for all waste streams being sent to OAW facilities by local authorities.
- This gate fee is for mixed food and green waste.
- Local authority reported gate fees for the onward management or treatment of waste wood.
- Defra figures on gate fees for PPP/PFI projects have not been included in the summary report this year, as the latest Defra figures are very similar to those reported here and therefore provide little additional information.
- Soils and stones containing dangerous substances.
- Insulation materials containing asbestos.
- Construction materials containing asbestos.

## 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 recycling and re-use.

**Find out more at [www.wrap.org.uk](http://www.wrap.org.uk)**

## Feedback

If you wish to comment on these findings or take part in the next WRAP gate fees survey, due to begin in November 2015, please e-mail [gatefees@wrap.org.uk](mailto:gatefees@wrap.org.uk) (note that existing participants do not have to re-apply).

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