30 SEPTEMBER 2019

WEEE COMPLIANCE FEE METHODOLOGY

PROPOSED METHODOLOGY FOR THE CALCULATION OF A COMPLIANCE FEE IN RELATION TO THE WASTE ELECTRONIC AND ELECTRICAL EQUIPMENT REGULATIONS 2013

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Glossary

Term	Definition
AATF	Approved Authorised Treatment Facility
BIS	Department for Business, Innovation & Skills
Defra	Department for the Environment, Food and Rural Affairs
EEE	Electrical and Electronic Equipment
FTI Consulting	FTI Consulting LLP
GBP	British pounds
JTA	Joint Trade Associations Group (Producer Responsibility)
LA	Local Authority
LA-DCF	Local Authority Designated Collection Facility
LDA	Large Domestic Appliance
LHAs	Large household appliances
PBS	PCS Balancing System
POPs	Persistent organic pollutants
PCS	Producer Compliance Scheme
SMW	Small Mixed WEEE
WEEE	Waste Electrical and Electronic Equipment
WEEE Regulations	Waste Electrical and Electronic Equipment Regulations 2013

1. Introduction

Purpose of this report

1.1 This report has been prepared by FTI Consulting for the Joint Trade Associations ("JTA"). It summarises and consolidates into one report, work undertaken by FTI Consulting for previous Fee submissions made by the JTA, and sets out a proposed calculation methodology for the compliance fee (the "Fee") in accordance with Regulation 76 of the Waste Electrical and Electronic Equipment Regulations 2013 (as amended) ("WEEE Regulations") for the compliance year ending 31 December 2019.

1.2 We understand that this report will help inform the JTA's proposal to the Department for the Environment, Food and Rural Affairs ("Defra") for the Fee calculation methodology for the 2019 compliance year.

1.3 The restrictions and limitations on our work are set out in Appendix 1.

Instructions

1.4 FTI Consulting has been instructed by the JTA to:

(1) set out the objectives of the Fee and the criteria against which the proposed methodology should be assessed;

(2) review recent developments in the WEEE market and evidence on the effectiveness of the Fee methodology adopted in previous compliance years; and

(3) recommend the most appropriate Fee calculation methodology for 2019.

Sources of information

1.5 In preparing this report, we have relied on:

- EU and UK government publications relating to the WEEE Regulations, including guidance published at the time the WEEE Regulations were introduced;
- data published by the Environment Agency;

- information from the recycling trade press; and
- discussions with JTA members concerning the WEEE market and operation of the Fee.

1.6 We identify where we have relied on this information throughout the report.

Structure of this report

1.7 In Section 2, we explain our understanding of the objectives of the Fee. We consider the history of the WEEE market, and what criteria should be used in assessing an appropriate Fee methodology.

1.8 In Section 3, we summarise our understanding of developments in the WEEE market in 2018/19, which might affect the appropriate Fee methodology.

1.9 In Section 4, we set out proposed changes to the Fee methodology taking account of the issues discussed in sections 2 and 3.

1.10 In Section 5, we set out our proposed Fee formula for 2019.

1.11 In Appendix 1, we explain the restrictions and limitations in producing this report.

1.12 In Appendix 2, we summarise the development of the Fee methodology and its rationale since the introduction of the WEEE Regulations, and provide calculation methods for some of the terms used in our Fee calculation proposal.

1.13 Finally, in Appendix 3, we set out examples of the proposed Fee methodology in use.

2. Objectives of the WEEE compliance fee

Introduction

2.1 In this section we set out our understanding of the history of the WEEE market, Defra guidance on the Fee methodology and the criteria against which we consider the Fee methodology should be assessed.

History of the WEEE market

2.2 The previous WEEE regulations were introduced in 2007, in response to EU Directive 2002/96/EU. Under these regulations, producers of Electrical and Electronic Equipment ("EEE") were required to finance the collection, treatment, recovery and environmentally-sound disposal of WEEE. Producers were required to join a Producer Compliance Scheme ("PCS") which would be responsible for organising the recycling of WEEE on their behalf. PCSs collected evidence notes showing the amount of WEEE collection and treatment they had financed.

2.3 Under these regulations, each PCS was responsible for financing the treatment of a percentage of household WEEE reported in each category. Each PCS's percentages were set by reference to the EEE intended for private households that was put on the UK market by its members in the year. As a result, no PCS knew its recycling obligations until the end of the year.

2.4 Collectors of WEEE were free to make arrangements with any PCS, regardless of whether the PCS required the WEEE to meet its recycling obligations, and the requirement for a PCS to finance its share of all WEEE arising in a year resulted in a significant amount of "trading" of evidence notes between PCSs. Historically, some PCSs were consistent "over-collectors", and others were consistent "under-collectors".

2.5 Demand for evidence notes was inelastic, due to high penalties for non-compliance. This mechanism had the following undesirable consequences:

(1) PCSs with a shortage could be forced to pay extremely high prices for evidence notes on the secondary market, as there was no alternative method of compliance;

(2) if any PCS had a surplus of evidence notes, it was guaranteed that another PCS would face a shortfall;

(3) there was no incentive for a PCS with a surplus to attract new producers with lower fees;

(4) there was limited incentive for WEEE collectors and PCSs to operate efficiently and keep costs down, as they were guaranteed to sell all their evidence notes at prices that could bear little or no relation to the true cost of treatment; and

(5) for certain positive value streams, PCSs could profit from both the collection of materials and the sale of evidence notes. There was consequently an additional incentive for PCSs to collect more than their own obligation of such WEEE streams to maximise their profits.

2.6 In December 2013, the UK Government laid the 2013 WEEE Regulations. These regulations transposed the recast Directive 2012/19/EU and came into effect in January 2014.

2.7 Under the 2013 WEEE Regulations, collection targets for household WEEE in tonnes are set for fourteen EEE categories. Each PCS is given a collection target for each category for each compliance year. This target is determined based on the amount of EEE in each category that was put on the market by the PCS's members in the previous year, and other factors determined by Defra.

2.8 Regulation 28 of the 2013 WEEE Regulations sets out the responsibilities of PCSs for financing the handling of household WEEE. Under Regulation 33, a PCS may choose to pay a Fee to meet its collection target, where one is set. This prevents the enforced purchase of WEEE evidence notes by PCSs through the secondary market as the only means of achieving compliance. It also works in the event that the UK, despite collecting and treating all WEEE available, falls short of its overall PCS aggregated target, by ensuring all producers still fulfil their financing obligation.

2.9 In each compliance period, the Secretary of State may approve a methodology for the calculation of the Fee.

The Fee methodology

2.10 The most recent Defra guidance on Fee design proposals was published in July 2019, and specifies that:[1]

> *"Proposals should:*
>
> *- set out a methodology for calculation of a compliance fee across each WEEE collection stream that encourages schemes to take all reasonable steps to meet their collection target without recourse to the compliance fee;"*

2.11 The WEEE Directive also requires member states to establish a national network of "public collection points" for consumers.[2] The UK primarily uses the Local Authority Designated Collection Facilities ("LA-DCF") network to meet this obligation. There is an implicit objective in the WEEE Regulations to incentivise the collection of WEEE from LA-DCFs.

2.12 This is reinforced by Regulation 34 of the WEEE Regulations.[3] If a Local Authority ("LA") requests the collection of WEEE by a PCS, that PCS is obliged to organise collection regardless of the location of the LA-DCF. PCSs may not refuse these collections, irrespective of the cost to them, or whether they have met (or will meet) their collection target without this additional WEEE. PCSs are however able to share the burden of Regulation 34 requests through the PCS Balancing System ("PBS").

Criteria for assessing the Fee methodology

2.13 In this section, we set out the criteria that we consider should be fulfilled by the methodology for setting the Fee. Taking into account the objectives of the Fee and economic incentives of PCSs, we identify the following criteria:

(1) effectiveness;

(2) cost reflectivity;

(3) transparency;

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1 DEFRA (July 2019), Guidance on submitting proposals for a WEEE Compliance Fee Methodology.

2 EU Directive 2012/19/EU, recital 14. Source: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012L0019

3 Under which LAs have an automatic right of uplift of WEEE for their DCFs.

(4) reasonableness;

(5) feasibility;

(6) robustness; and

(7) competition issues.

2.14 We explain each below.

Effectiveness

2.15 Under the WEEE Regulations, paying the Fee is a legitimate form of compliance. However, the WEEE Regulations contain an implicit objective to incentivise the collection of WEEE from LA-DCFs. The Fee should therefore be set such that PCSs are always incentivised to collect WEEE directly where it has been made available to them at a reasonable cost. It is an explicit objective in the WEEE Regulations for the fee to be stream specific, so as to account for the different costs of different streams.[4]

2.16 For the Fee to be 'effective' in this respect, it must be set higher than or equal to the incremental cost of collecting WEEE. It may also be appropriate to increase the Fee for PCSs that fail to meet their collection targets by a significant extent, to further incentivise collection where possible.

2.17 Equally, the existence of a compliance fee should discourage individual PCSs from intentionally collecting WEEE above their targets (independent of the overall level of UK collections).[5] To be effective, the Fee must be set at a level which encourages collection, but not to encourage intentional over-collection by individual PCSs. Such intentional over-collection could distort the WEEE market.

Cost reflectivity

2.18 The "effective" criterion could alone be met by setting the Fee to some arbitrary, excessively high figure. However, a Fee that is not cost reflective would risk incentivising similar market distortions as arose in the past, such as deliberate over-collection and excessive pricing on secondary markets, as well as influencing the prices charged by recyclers. To avoid this while maintaining effectiveness, the level of the Fee should be related to the additional costs PCSs would have incurred if they had met their target through collections. Hence, the basis for the Fee should be 'cost reflective'.

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4 WEEE Regulations, Regulation 76, paragraph (4).

5 DEFRA (July 2019), Guidance on submitting proposals for a WEEE Compliance Fee Methodology, "Introduction".

2.19 In assessing the cost reflectiveness of the Fee, consideration will need to be given to several market factors:

(1) variations in costs (and benefits) by WEEE stream;

(2) PCS structure and accounting; and

(3) the relative scale of some PCSs and other collectors in certain categories.

2.20 A consequence of the 2013 WEEE Regulations is that PCSs and other collectors can over-collect positive net value WEEE to generate profit, whether or not they also gain from the sale of evidence to under-collecting PCSs. We consider that:

(1) the Fee must be directly related to the true cost of directly collecting and treating WEEE;

(2) the Fee for positive net value streams should be set at zero; and

(3) the Fee must not be punitive in nature. If it were, PCSs could be incentivised to over-collect, particularly positive net value WEEE, as a way of forcing their competitors to pay the unduly high Fee.

Transparency

2.21 A clear and transparent calculation methodology that can be understood by all PCSs is preferable so that they can understand how their Fee has been calculated. A transparent methodology will make commercial decisions easier, and it could reinforce the efficacy of other criteria. For instance, if a method is transparent to PCSs, then it is more likely to be effective in incentivising desired behaviour.

2.22 Whilst ensuring transparency, consideration should also be given to maintaining commercial confidentiality. It is important for an appropriate balance to be struck between full transparency and the appropriate treatment of confidential data.

Reasonableness

2.23 The administrative burden and cost of calculating the Fee must not be excessive. PCSs' administrative obligations, such as gathering and submitting data, should be proportionate and not unduly burdensome. The cost of calculating the Fee should be kept at a minimum.

Feasibility

2.24 The financial and other data needed to calculate and comply with the Fee must be available. A Fee mechanism that requires data that may not be available or reliable is unrealistic.

2.25 It should also be feasible to complete the calculation and administration of the Fee within a reasonable period of time, and certainly within any deadlines set within the WEEE Regulations.

Robustness

2.26 The Fee must be calculated in such a way that market participants are not able to manipulate the system. It should not be possible for a PCS to take any actions, including submitting intentionally misstated data, for their own advantage or to harm other PCSs.

Competition issues

2.27 The Fee should encourage and promote competition in the market for WEEE and should comply with competition law. In assessing the methodologies, we consider whether potential competition issues may arise, but we do not put forward any legal conclusions.

3. The WEEE market in 2019

Introduction

3.1 It is appropriate in determining the Fee for each compliance year to consider trends and other developments in the WEEE market and consider whether and how the Fee formula should be modified. Accordingly, we have:

(1) obtained data and other evidence on WEEE market developments in 2019;

(2) discussed with JTA members the developments they have observed in the WEEE market in 2019; and

(3) received feedback on the operation of the 2018 fee.

3.2 In this section, we summarise the main developments and issues identified through this process and consider whether and how the 2019 Fee methodology should be modified.

Significant increase in collection targets compared to 2018

3.3 Since 2018, there have been significant increases in the WEEE collection targets. Defra has explained that the higher targets are required to meet the EU's WEEE collection goals.[6] Table 1 below shows the difference between the actual WEEE collected in 2018 and the target WEEE collections for 2019.

[6] Letsrecycle, 'Challenging' 2019 WEEE targets confirmed. https://www.letsrecycle.com/news/latest-news/challenging-2019-weee-targets-confirmed/

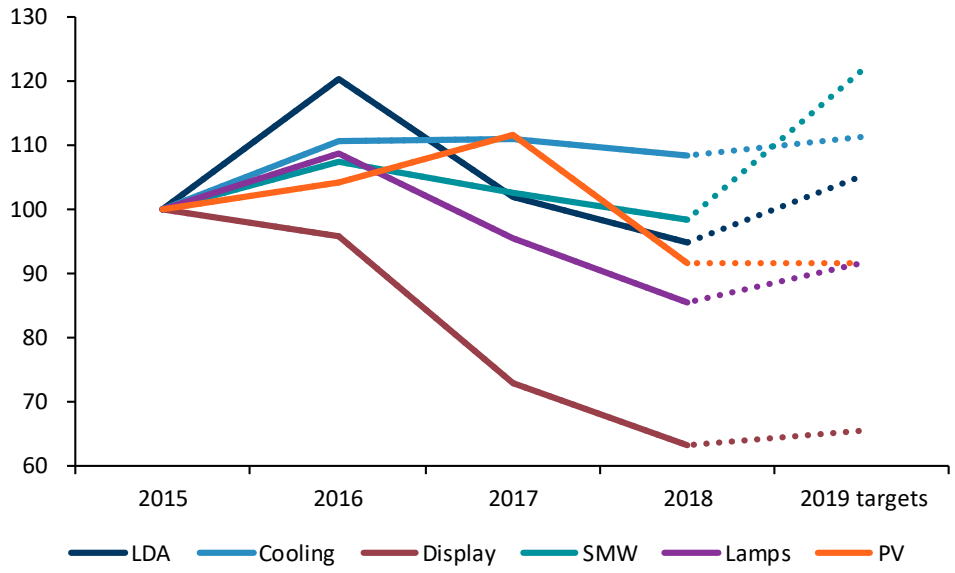
Table 3-1: Comparison of WEEE collected in 2018 and collection target for 2019

Stream	2018 collections	2019 targets	Increase
LHA	169,577	188,282	11%
Cooling	131,939	135,415	3%
Display	47,066	48,708	3%
SMW	139,835	172,917	24%
Lamps	4,819	5,168	7%
PV	87	87	0%

Source: European Recycling Platform.

3.4 The table shows that the 2019 targets are higher than 2018 collections for all streams except for the PV stream. The increase is particularly large for the Large Household Appliances ("LHA") and Small Mixed WEEE ("SMW") streams. In addition, some individual categories within the SMW stream were subject to target increases in excess of 40%.[7] A higher 2019 target compared to 2018 actual collections would be reasonable if the total WEEE for the stream were trending upwards. We set out WEEE stream collections over time in Figure 3-1 below.

Figure 3-1: Trend of WEEE collected since 2015 (Index: 2015 = 100)



Source: FTI analysis.

[7] Source: https://www.letsrecycle.com/news/latest-news/challenging-2019-weee-targets-confirmed/

3.5 The graph shows that there has been a general downward trend across all streams since 2016.

3.6 We have also been provided with the data for WEEE collections by stream in Q1 2019. Although this data is only for one quarter and is not necessarily representative of the whole year, it is still indicative of whether streams are likely to reach their targets. Table 3-2 below shows this comparison.

Table 3-2: WEEE collections - targets versus actuals Q1 2019 (tonnes)

Stream	2019 target	Pro rata Q1 2019 target	Q1 2019 collections	Q1 shortfall (tonnes)	Q1 shortfall (%)
LHA	188,282	47,071	45,640	-1,431	-3.0%
Cooling	135,415	33,854	31,448	-2,406	-7.1%
Display	48,708	12,177	11,388	-789	-6.5%
SMW	172,919	43,230	33,851	-9,379	-21.7%
Lamps	5,168	1,292	1,144	-148	-11.5%
PV	87	21.75	18	-3.75	-17.2%

Source: European Recycling Platform.

3.7 The table shows that collections have fallen short of targets for all streams in Q1 2019. On that basis there is a risk that they will be significantly below the target for the year as a whole. In particular, it seems that the SMW, Lamps and PV streams are likely to finish substantially below their 2019 targets, as they are more than 10% short of their targets in just the first quarter, on a *pro rata* basis. For some of the categories within the SMW stream, the shortfall will be even greater than that presented in the table. The trade press agrees that the Q1 figures indicate that the targets will be challenging to reach.[8]

Scope of WEEE regulations widened

3.8 Since 2007, the WEEE Regulations have applied to a closed scope of products. This means that, unless a product could be assigned to a category in the WEEE Regulations, it was out of scope. However, from 2019 the WEEE Regulations have an "open scope". This means that only products that are specifically excluded under the regulations are not EEE.[9]

[8] Letsrecycle, Q1 WEEE data points to target 'challenge'. https://www.letsrecycle.com/news/latest-news/q1-weee-data-points-to-target-challenge/

[9] Recolight, New lighting products in scope of WEEE Regulations. https://www.recolight.co.uk/new-lighting-products-in-scope-of-weee-regulations/

3.9 The consequence of this change in the WEEE Regulations is that more products are in scope, although in our discussions with the JTA, they indicated that they do not expect this will significantly increase the volume of WEEE available in 2019. The Q1 2019 collection volumes appear to support this.

Increased concentration of WEEE in the hands of a small numbers of operators

3.10 Whilst there has always been concentration of WEEE in the hands of certain collectors, we understand from the JTA that this has increased over the past several years. There are three principal reasons for this:

3.11 Firstly, certain waste management companies control a significant proportion of LA-DCF WEEE.

3.12 Secondly, some distributors have control over a significant volume of WEEE that is returned to them.

3.13 Thirdly, vertical integration between PCSs and recyclers, and distributors and recyclers has become more common. That is, it has become more common for PCSs or distributors to own Approved Authorised Treatment Facilities ("AATFs") and for AATFs to be integrated with PCSs or distributors.

3.14 This vertical integration could potentially distort the market for WEEE. This is because a PCS or distributor that controls a treatment facility can direct where that WEEE goes. The potential advantages of vertical integration for a PCS are that: (i) it can obtain WEEE more readily; and (ii) it can obtain WEEE more cheaply. Whereas, a PCS that is not vertically integrated may be forced to collect WEEE which is more costly to obtain in order to hit its target. Furthermore, a recycler that has access to an 'in-house' PCS can always ensure that any household WEEE it collects is obligated.

3.15 This could distort the WEEE market because PCSs which are not vertically integrated may find it more difficult to meet their collection targets and may incur higher average collection costs.

3.16 An example of a distributor that owns an AATF is AO.com,[10] and an example of an AATF that owns a PCS is WasteCare.[11]

[10] Source: https://www.letsrecycle.com/news/latest-news/ao-recycling-million-fridges/

[11] Source: http://www.wastecare.co.uk/compliance-services/weeecare/about-weeecare/

Membership of the PBS to become mandatory

3.17 As described in Appendix 2, the PBS acts as a centralised system for sharing the costs of Regulation 34 requests from LAs. Previously, membership of the PBS was voluntary, meaning some but not all of PCSs were part of the scheme.

3.18 However, membership of the PBS became mandatory for PCSs from 18 August 2019.[12] Nevertheless, those PCSs that were members of the voluntary PBS for the first seven months of 2019 incurred additional costs compared to those PCSs that were not members.

Most PCSs do not collect from LA-DCFs

3.19 A continuing problem in the market is that many PCSs do not collect from LA-DCFs, because such collections are more expensive and PCSs receive no greater reward for undertaking them.

3.20 As such there is no incentive for PCSs to increase collections from LA-DCFs. This continues to be the case in 2019, with only 10 PCSs out of a total of 27 collecting from LA-DCFs. The 2018 Fee methodology, which was not announced until February 2019, incorporated an adjustment for the source of WEEE which aimed to increase the incentive for PCSs to collect from LA-DCFs. This adjustment is explained in Appendix 2.

PCSs have faced cost increases

3.21 There have been increasing costs for PCSs in collecting and treating WEEE in 2019. In particular, we understand that there are two factors which have caused cost increases.

3.22 Firstly, the cost of treating some WEEE plastics has increased. Plastics have been impacted by chemical restrictions which became subject to mandatory enforcement in July 2019 and have caused the cost of treatment to increase significantly. Those costs are being passed on to PCSs when WEEE containing such plastics is treated.[13]

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12 Source: https://www.letsrecycle.com/news/latest-news/weee-schemes-forum-option-selected-for-pbs/

13 Letsrecycle, WEEE costs in spotlight following POPs study: https://www.letsrecycle.com/news/latest-news/weee-costs-in-spotlight-following-pops-study/

3.23 Secondly, there is evidence of illegal exports for flat screen displays and IT, which are likely to have been stolen from Household Waste Recycling Centres,[14] as well as compressor thefts that remain an issue for fridge collections. Such illegal activities raise costs for PCSs collecting LA-DCF WEEE.

3.24 In addition, uncertainty about Brexit may mean that AATFs will face more costs in transporting and selling WEEE recyclates to Europe later this year.

[14] Resource, EA to investigate waste plastics exports fraud: https://resource.co/article/ea-investigate-waste-plastics-exports-fraud-12907.

4. Proposed changes to the Fee methodology for 2019

Introduction

4.1 We have considered the feedback and information we received from the JTA regarding the operation of the Fee in prior years and the WEEE market conditions for 2019. As a result of these discussions we have considered several possible adjustments to the Fee methodology.

4.2 In summary, we consider that adjustments should be made to the Fee methodology, for the following three factors:

(1) the significant uplift in the 2019 collection targets means that streams are more likely to have significant shortfalls at the end of the year. If a stream has a shortfall, Fees paid by PCSs should not be unduly punitive;

(2) the introduction of mandatory PBS membership in 2019 means that it is only necessary to apply an uplift to the Fee for part of 2019 for the operators that were not voluntarily part of the PBS; and

(3) the impact of the Environment Agency's updated position on persistent organic pollutants in WEEE plastics ("POPs").

4.3 In addition, we consider that there may be scope to make the Fee more effective through further changes to the guidance provided to organisations considering submitting a Fee methodology proposal, to give PCSs longer term visibility regarding the Fee methodology.

4.4 In the following sections, we expand on each of these points.

Adjustment to reflect likelihood of collection shortfalls

4.5 The Fee methodology includes an escalator mechanism which increases the Fee per tonne according to the percentage by which the PCS has fallen short of its target in that stream. This mechanism incentivises compliance by collection, because a PCS will pay a higher Fee per tonne than the cost it would have incurred if it had collected and treated its full target of WEEE.

4.6 The 2018 Fee included two escalator formulae. The Normal Escalator, which is applied when a stream is in net deficit versus aggregate targets, and the Surplus Escalator, which is applied when a stream is in a net surplus versus aggregate targets. The difference between these formulas is that the Surplus Escalator increases the Fee uplift more quickly than the Normal Escalator as the extent of the shortfall increases. This means that it further disincentivises under-collection where it should be easily avoidable i.e. when the stream has an aggregate surplus.

4.7 In a similar fashion, we consider that the Normal Escalator should not punish under-collection when it is almost impossible to avoid, i.e. when the aggregate collection target significantly exceeds total actual collections.

4.8 We consider that this would be best achieved by applying a multiplier which reflects the difference between the collection target and actual collections for each stream. We refer to this as the Collection Shortfall Factor. Specifically, we consider the Collection Shortfall Factor should be:

$$\left(\frac{\boldsymbol{C_n}}{\boldsymbol{T_n}}\right)$$

Where:

$\boldsymbol{C_n}$ is the sum of household WEEE collections by all PCSs in the relevant stream in the market, in tonnes.

$\boldsymbol{T_n}$ is the national target for that stream, in tonnes.

4.9 As the normal escalator is only applied when total collections ($\boldsymbol{C_n}$) are lower than target ($\boldsymbol{T_n}$), the Collection Shortfall Factor will always be less than 1.[15]

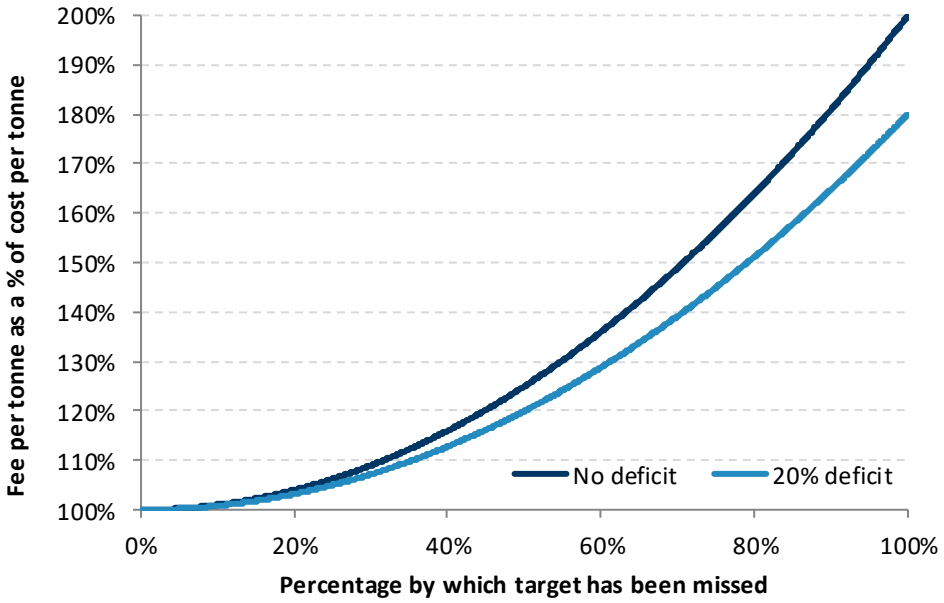
4.10 Therefore, this factor will decrease the escalated Fee for all PCSs when the stream is in a deficit.[16] When the stream is in only a small deficit, the impact of this multiple will be small, but increases linearly as the deficit increases, albeit that the Fee will still always exceed the weighted average base cost of collections from LA-DCFs.

[15] In fact, the normal escalator is also applied up to the point where collections exceed targets by 1.5%, as explained in paragraph 5.6. We propose that when collections are within 1.5% of targets (that is, collections are between 0% and 1.5% higher or lower than target), the Collection Shortfall Factor is not applied to the normal escalator. This is equivalent to assuming that unless there is a shortfall greater than 1.5%, the Collection Shortfall Factor is equal to1.

[16] Except when the deficit is smaller than 1.5%.

4.11 Figure 4-1 below illustrates the difference in the Fee per tonne for a PCS in a stream that has no deficit (so the total collections for that stream equal the target), compared to a stream in which total collections were 20% below the target collections.

Figure 4-1: Illustrative impact on Fee escalator of a 20% aggregate deficit



4.12 The figure illustrates that, for a stream with a significant deficit, the Fee per tonne a PCS has to pay is lower, for the same individual shortfall. For example, if a PCS misses its target by 40%, in a stream with no deficit it would pay a Fee 16% higher than the average cost per tonne, whereas in a stream with a 20% deficit it would pay a Fee only 13% higher than the average cost per tonne.

Assessment versus objectives

4.13 We consider that the proposed adjustment to the Normal Escalator meets the objectives for the Fee methodology. In particular, it is:

(1) effective, as it prevents the Fee becoming punitive for a stream which is in a large deficit, but will be set at a level which means that PCSs remain incentivised to collect WEEE directly;

(2) cost reflective, as without this adjustment PCSs would incur Fees disproportionate to collection costs, but which they could not have avoided due to the aggregate shortfall. This adjustment ensures that in streams in a large deficit the Fee is closer to the true cost of directly collecting the WEEE;

(3) transparent, as it uses a similar mechanism to the surplus escalator which has been applied in prior years; and

(4) reasonable, as it does not require any additional information to calculate.

Time apportioning the non-PBS participant uplift

4.14 The 2018 Fee methodology included an uplift payable by PCSs that did not voluntarily participate in the PBS, as explained in Appendix 2. This uplift was a transitional arrangement to incentivise participation in the PBS. It was anticipated that this uplift would no longer be required if PBS membership became mandatory. In 2018 it was confirmed that the PBS would become mandatory in 2019.

4.15 Therefore, for the 2019 Fee, we propose time apportioning the non-PBS participant uplift such that it is only applied to PCSs that did not voluntarily join the PBS for the months that it was not mandatory. Therefore, given that membership of the PBS became mandatory by 18 August, the non-PBS participant uplift will be multiplied by a factor of 7/12, to reflect the whole months of 2019 for which any non-participant remained outside the PBS.

4.16 Beyond 2019, no PBS uplift will be required in the Fee methodology.

Environment Agency's position on POPs

4.17 Recent research carried out by the Industry Council for Electronic Equipment Recycling showed that levels of POPs were present at levels higher than the permitted limit across multiple WEEE streams.[17] Based on this research, in July 2019 the Environment Agency outlined its position on the treatment of POPs in WEEE plastic, which resulted in many additional WEEE items being considered 'hazardous' waste, and the plastic fractions arising from recycling being subject to additional treatment requirements.

4.18 As POPs in waste plastics must be irreversibly destroyed, more plastic waste will have to be sent to high-temperature incineration plants to be disposed of by AATFs. The implication for PCSs is that the cost of disposing of this waste is now significantly higher.

[17] Source: https://www.letsrecycle.com/news/latest-news/weee-costs-in-spotlight-following-pops-study/.

4.19 According to the AATF Forum, the WEEE streams that will be impacted by the change in the Environment Agency's position on POPs are the SMW and Display streams. The members of the AATF Forum have committed to implementing the required changes immediately. Consequently, it is expected that the average cost of collecting WEEE from these streams will increase significantly from the date that the Environment Agency's position was updated.

4.20 The impact on the Fee methodology is that the average cost of WEEE collection for the SMW and Display streams is expected to be significantly higher after the Environment Agency updated its position on POPs compared to prior to that date. As a result, setting a Fee based on the average cost of collection for PCSs for the whole year in those streams would create the risk that the Fee might not be cost reflective. For example, if a PCS had an overall shortfall of 100 tonnes for the whole year, all of which arose in the first half of the year when the cost of collection was lower, it would not be fair for that PCS to pay a fee based on the average cost of collection for the whole year as this would overstate the cost that the PCS had avoided. Likewise, if the PCS's shortfall was in the second half of the year, and the Fee were to be based on the average cost of collection for the whole year, it would likely understate the costs that the PCS avoided.

4.21 To solve this, we consider it would be appropriate and pragmatic to perform two separate calculations of the weighted average net cost of direct WEEE collections from LA-DCFs and the shortfall between a PCS's target and the evidence obtained by the PCS, for each affected WEEE stream: one for the period before the Environment Agency updated its position and one for the period after. We understand the appropriate periods are January to July and August to December.

4.22 The steps to calculate the shortfall between a PCS's target and the evidence obtained by the PCS for each period in these streams would be as follows:[18]

(1) Determine whether the PCS reached its annual target. If it met its target, no Fee is due. If it did not meet its target for the SMW and/or Display streams, then the tonnage on which the Fee for that PCS should be calculated would be calculated by determining whether the shortfall occurred in the first period, second period, or both, based on actual collections reported by the PCS or any evidence obtained during each period and the time-apportioned annual target.[19]

[18] Examples of the Fee calculation for these streams are in Appendix 3.

[19] We suggest that the period prior to the Environment Agency updated position is 7 months, as the position came into force by the beginning of August 2019. Consequently, the PCS target should be multiplied by 7/12 for the first period (before the updated position) and 5/12 for the second period (after the updated position).

(2) This information would then be used to perform two separate Fee calculations for each PCS wishing to use the Fee; one for the period January to July, and one for the period August to December. To ensure the Fee methodology remains clear, we recommend all other aspects of the Fee calculation be undertaken on an annual basis i.e. the calculation of the appropriate escalator, any Collection Shortfall Factor and any WEEE Source Adjustment Premium.

4.23 To implement this approach, it will be necessary for the Administrator to obtain cost and collection data from PCSs split between the two periods i.e. the periods prior to and following the Environment Agency updating its position on POPs. The PCS advisers to the JTA inform us that such information will be readily available to collecting PCSs.

4.24 This adjustment to the fee is required due to the exceptional circumstance of the change to the Environment Agency's position on POPs part-way through this compliance year. This additional adjustment to the Fee methodology will not be required in future years, because the recycling treatment requirements will be the same throughout the whole year and hence only a single calculation will be required.

Changes to guidance on submitting a proposal for the Fee

4.25 The WEEE Regulations stipulate that proposed methodologies for the Fee can be submitted up to 30th September for the relevant compliance year.[20] Consequently, the Fee methodology for each year is not chosen until the end of the year for which the fee is applied. Uncertainty regarding which Fee methodology proposal will be adopted by Defra is a reason why PCSs may not adjust their behaviour to the incentives created. PCSs do not know how the Fee will be calculated in any given year. As a consequence, PCSs may be reluctant to respond to the incentives created by the prior year Fee, if the methodology is not seen as stable and predictable.

4.26 As an example, the WEEE source adjustment premium incorporated into the Fee in 2018 is meant to incentivise collections from LA-DCFs, as it removes the incentive for PCSs to collect cheaper WEEE. Although this adjustment was included in the 2018 Fee, PCSs do not know whether the adjustment will be included in the 2019 Fee.

[20] 2013 WEEE Regulations, paragraph 76(2).

4.27 To address this, we consider that it would be beneficial for Defra to provide PCSs with more certainty regarding the future Fee methodology, so they can be confident that it will not fundamentally change. Defra might achieve this by updating the guidance with what it considers to be the 'core' objectives or features of the Fee calculation methodology, which it expects it will always include. This could include, for example, that the Fee should:

(1) be designed to encourage PCSs to collect from LA-DCFs;

(2) be based on the extent to which a PCS meets its collection target; and

(3) take account of variable administrative costs.

4.28 The effect of providing longer term visibility of the key elements of the methodology would be to encourage the right behaviour changes in PCSs.

5. Proposed WEEE compliance fee methodology for 2019

Introduction

5.1 In this section, we set out the formula which we propose should be used to calculate the Fee for 2019 for a given WEEE stream (denoted 'n'). We present the Fee formulae under the normal escalator and the surplus escalators, including minor changes to the non-PBS participant uplift and the variable administrative costs.

5.2 Worked examples showing the impact of the proposed fee methodology on PCSs are given in Appendix 3 to this report.

Fee formula with Normal Escalator

5.3 We consider that the Fee for streams of WEEE where there is a net shortfall versus aggregate targets should be calculated using the following formula, in which the modifications compared to the JTA's 2018 Fee proposal are highlighted in red:

$$f_n = (t_n - c_n) \times \left[k_n \times \left(1 + \left(\frac{C_n}{T_n} \right) \times \left(\frac{t_n - c_n}{t_n} \right)^2 + \left(\frac{7}{12} \times u_n \right) + p_n \right) + v_n \right]$$

Where:

- f_n is the Fee for the relevant stream, in GBP.
- t_n is the PCS's target for the stream, in tonnes.
- c_n is the total amount of WEEE in that stream collected by that PCS, in tonnes.
- k_n is the weighted average net cost of collection from LA-DCFs for the stream excluding direct overheads, in GBP per tonne.

C_n is the sum of household WEEE collections by all PCSs in the relevant stream in the market, in tonnes. [21]

T_n is the national target for that stream, in tonnes.

u_n is the uplift applicable for a non-PBS participant, defined in Appendix 2.

p_n is the WEEE source adjustment premium, defined in Appendix 2.

v_n is the variable overhead cost per tonne, for that WEEE stream.

Fee formula with Surplus Escalator

5.4 We consider that the Fee for streams of WEEE where there is a net surplus versus aggregate targets should be calculated using the following formula. The changes compared to the 2018 Fee are highlighted in red:

$$f_n = (t_n - c_n) \times \left[k_n \times \left(\frac{C_n}{T_n} + 2 \times \left(\frac{t_n - c_n}{t_n} \right)^2 + \left(\frac{7}{12} \times u_n \right) \times u_n + p_n \right) + v_n \right]$$

5.5 All terms are as defined for the "normal" escalator.

5.6 As in prior years, we consider that this escalator should only apply when the collections exceed targets by an amount. We propose that this should be set as a fixed proportion of the total tonnage of WEEE collected in each stream, of 1.5%. That is, if the sum of household WEEE collections exceeds the sum of PCS targets by more than 1.5%, then the Surplus Escalator should apply. That is, the Surplus Escalator should apply if:

$$\frac{C_n}{T_n} - 1 > 1.5\%$$

[21] In the scenario where collections differ from target by between 0% and 1.5%, the Collection Shortfall Factor is not applied to the normal escalator. As explained in footnote 15 in Section 4, this is equivalent to setting it equal to 1.

Appendix 1
Restrictions and limitations

Restrictions

A1.1 This report has been prepared solely for the benefit of the JTA for use for the purpose described in the introduction. FTI Consulting accepts no liability or duty of care to any person other than the JTA for the content of the report and disclaims all responsibility for the consequences of any person other than the JTA acting or refraining to act in reliance on the report or for any decisions made or not made which are based upon the report.

Limitations to the scope of our work

A1.2 This report contains information obtained or derived from a variety of sources. Where appropriate FTI Consulting has been given assurances regarding the reliability of those sources and information provided. However, we have not sought to independently verify the information we have reviewed.

A1.3 No representation or warranty of any kind (whether express or implied) is given by FTI Consulting to any person (except to the JTA under the relevant terms of our engagement) as to the accuracy or completeness of this report.

A1.4 This report is based on information available to FTI Consulting at the time of writing of this report and does not take into account any new information which becomes known to us after the date of this report. We accept no responsibility for updating this report or informing any recipient of this report of any such new information.

Appendix 2
The development of the Fee methodology

Introduction

A2.1 For the first compliance year under the WEEE Regulations (i.e. 2014), BIS[22] adopted the Fee methodology proposed by the JTA, based on a report prepared by FTI Consulting.

A2.2 In this appendix, we explain the main elements of the Fee methodology which was adopted in 2014 and in three subsequent compliance years and how it fulfils the criteria set out in Section 2.

Elements of the Fee methodology

A2.3 The key features of the Fee methodology originally designed by FTI Consulting and which has been adopted in four of the past five compliance years are that:

(1) a separate Fee is calculated for each WEEE stream;

(2) the Fee is set per tonne of shortfall and is based on the average direct costs of collection of PCSs (since 2017, this has been based on the costs of WEEE collected from LA-DCFs); and

(3) an escalator is applied which adjusts upwards the Fee per tonne according to the magnitude of the PCS's shortfall versus its target. The uplift is higher, the larger the individual PCS's shortfall.

A2.4 We consider that the main principles of this methodology remain fundamentally economically sound.

A2.5 Since 2014, the original Fee methodology has been further refined to incorporate additional elements:

(1) the Surplus Escalator, which is a modified fee methodology for streams of WEEE where there is a net surplus versus aggregate targets;

[22] The UK government department then responsible for the WEEE Regulations.

(2) the non-PBS participant uplift, an additional uplift to the Fee paid by non-PBS participants;

(3) the variable administrative cost per tonne for each stream; and

(4) the WEEE source adjustment premium, which increases the Fee for PCSs which undertake a lower proportion of collections from LA-DCFs compared to the national average for the relevant stream.

A2.6 Below, we explain both the original Fee methodology and the four refinements with the justification for each.

Core Fee methodology

A2.7 In 2014, we proposed that the Fee for each stream should be calculated using the following formula:

$$f_n = k_n \times (t_n - c_n) \times \left(1 + \left(\frac{t_n - c_n}{t_n}\right)^2\right)$$

A2.8 Where:

f_n is the Fee for the relevant stream, in GBP.

k_n is the weighted average net cost of collections from LA-DCFs for the stream, in GBP per tonne. The calculation of this is explained below.

t_n is the PCS's target for the stream, in tonnes.

c_n is the amount of the stream of WEEE collected by the PCS, in tonnes.

A2.9 Below, we set out the rationale for this methodology by reference to the criteria set out in Section 2.

Effectiveness and cost reflectivity

A2.10 In its guidance, Defra explains that the Fee must incentivise PCSs to comply with their obligations by collecting and treating WEEE from LA-DCFs, or by returning WEEE from private households to the system. The methodology set out above incentivises both of these methods of compliance, as we explain below.

A2.11 Firstly, LAs have a right of free uplift of WEEE (under Regulation 34). This means that all WEEE will be collected from LA-DCFs regardless of the level of the Fee. The benefit of the methodology above is that:

(1) it encourages PCSs to actively seek to collect WEEE from LA-DCFs up to their targets. The base cost for the Fee is derived from LA-DCF collection costs, which are generally higher than other sources of WEEE and/or evidence notes. Therefore, the Fee payable by the PCS for any shortfall against target should on average be greater than the cost of collection and treatment. As a PCS's shortfall increases, the escalator mechanism increases the Fee, further incentivising collection;

(2) it discourages over-collection of net cost WEEE, because there is unlikely to be a material financial or other benefit to a PCS for collecting more than its target (in contrast with the regulations prior to 2014); and

(3) it is based on the actual costs incurred by PCSs in the compliance year. This means that the Fee, if any is payable, will be proportionate to costs.

A2.12 It is important to note that, for streams with positive net value, PCSs will still be incentivised to collect and treat up to and beyond their targets because of the income they can generate, and indeed other collectors may not necessarily make the evidence associated with such WEEE available to PCSs.

A2.13 Hence, this methodology is both cost reflective, and effective at incentivising compliance by collection. The harmful externalities associated with untreated WEEE will be reduced under this methodology, without the creation of undesirable market distortions.

Transparency

A2.14 The calculation methodology is clear, and comprehensible to all PCSs. All PCSs using the Fee will understand how the data submitted is used to calculate the Fee, and the different factors which impact the Fee.

A2.15 The methodology also maintains confidentiality, by requiring that individual PCSs' data submissions are only accessible to an independent Administrator. At no point will PCSs have access to the data of other PCSs. PCSs that pay the Fee will see a cost per tonne which includes the weighted average net cost figure and the variable administrative cost combined, but they will be unable to derive any confidential information from this average figure because they will not know which other PCSs' data have contributed to the calculation, nor will they know the proportion of the variable administrative cost.

A2.16 The methodology is therefore transparent.

Feasibility and reasonableness

A2.17 This Fee methodology has been found not to be unduly burdensome in previous compliance years. The Administrator is required to engage with PCSs and verify and calculate data, and the cost of this service to PCSs is not unreasonable given the overall merits of the methodology.

A2.18 As a result, we consider that the methodology is feasible and reasonable.

Robustness

A2.19 Under this methodology, the only way that a PCS could attempt to manipulate the Fee would be by submitting misstated data. The methodology includes several steps to prevent this happening:

(1) all data submissions must be subject to an independent review by the Administrator who is a registered auditor;

(2) a director of the PCS is required to sign off on all data submissions to verify that the data is true and fair to the best of his or her knowledge;

(3) all data submissions will be reviewed by the Administrator. The Administrator will compare data submissions between PCSs to identify any anomalies. Anomalies will be investigated with PCSs; and

(4) the Administrator has the right to ask questions of PCSs, request further data, request a full audit of data, reject a submission, or remove suspect data from the final calculation.

A2.20 In addition, subject to compliance with the criteria set out in points 1 to 4 above, all PCSs may submit data which will be included in the weighted average net cost calculation/stream, irrespective of whether or not the PCS wishes to use the Fee. This means that the Fee is based on as representative a cost base as possible, given that the number of PCSs collecting from LA-DCFs is limited. This means that the data from any one PCS cannot unduly influence the Fee paid by other PCSs.

A2.21 In summary, in our opinion it would be extremely difficult for any PCS to manipulate this Fee mechanism. It is therefore robust.

Competition issues

A2.22 A first benefit of this Fee methodology is that PCSs benefit from cost efficiency as lower costs will result in a lower Fee. Hence, the Fee methodology supports the normal commercial incentives for efficiency and innovation for PCSs.

A2.23 Secondly, the Fee only enables a PCS to assess whether it is more or less cost efficient than the Fee per tonne charged. However, the Fee will not provide a PCS with a more granular insight into its relative efficiency e.g. it will not be able to tell if it is the most efficient.

A2.24 Thirdly, this Fee methodology does not create any barriers to entry. New entrants to the market will face the same Fee structure as existing participants. This is fair.

A2.25 In our view, this methodology has a positive effect on competition.

Subsequent amendments to the core methodology

A2.26 In subsequent compliance years, we proposed further refinements to this core methodology. These were:

(1) Surplus Escalator;

(2) Non-PBS participant uplift;

(3) Variable administrative costs; and

(4) the WEEE source adjustment premium.

A2.27 We briefly explain these in turn below.

Surplus Escalator

A2.28 In previous compliance years, it was identified that there may be aggregate surpluses of WEEE versus total collection targets, for some WEEE streams. The escalator mechanism was therefore modified for streams of WEEE where this was the case, to reflect that there was less justification for a PCS to fail to meet its target through collections in such circumstances.

A2.29 On this basis, a modification to the Fee escalator was adopted for streams of WEEE where there is a net surplus versus aggregate targets. This is referred to as the Surplus Escalator. The modified Fee formula, to be used when the surplus escalator is applicable, is shown below with changes highlighted:

$$f_n = k_n \times (t_n - c_n) \times \left(\frac{C_n}{T_n} + 2 \times \left(\frac{t_n - c_n}{t_n} \right)^2 \right)$$

A2.30 Where:

C_n is the sum of household WEEE collections by all PCSs in the relevant stream in the market, in tonnes.

T_n is the national target for that stream, in tonnes.

A2.31 This Surplus Escalator is based on the same inputs as the Normal Escalator. The two adjustments had the effect of increasing:

(1) the starting point of the escalator; and

(2) the rate at which the Fee increases with increasing levels of collection shortfall versus target.

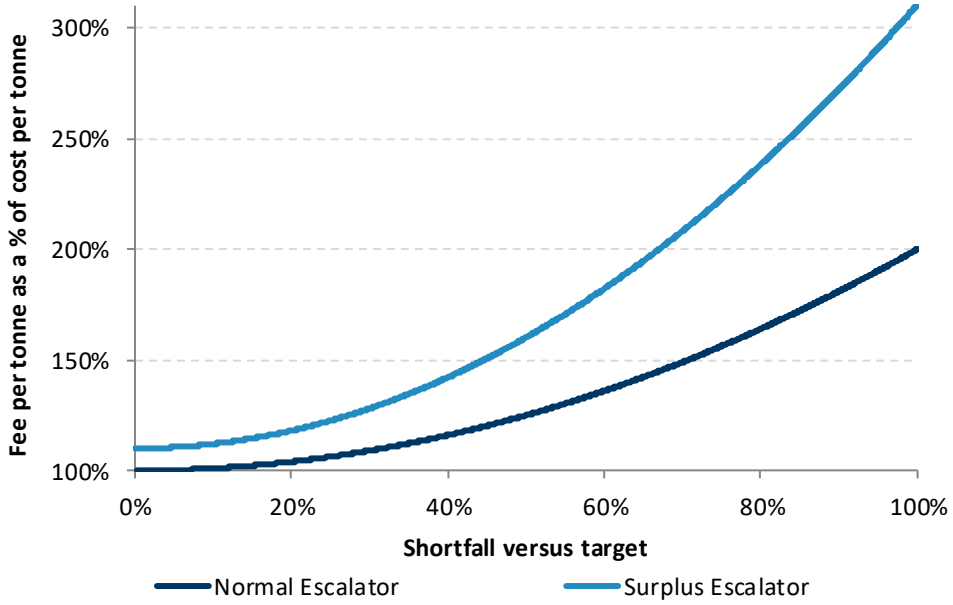
A2.32 These adjustments mean that the Surplus Escalator:

(1) starts at a level higher than the cost of collection which is proportionate to the extent of oversupply in that stream. This means that a PCS will pay a Fee per tonne which exceeds the weighted average cost of collection – even for a shortfall of a single tonne – which will further dis-incentivise under-collection; and

(2) increases the uplift more quickly than the Normal Escalator as the extent of the shortfall increases. This means that it further dis-incentivises under-collection, where this should be easily avoidable.

A2.33 In the figure below, we illustrate how the Fee per tonne changes as a PCS's collection shortfall increases, using each escalator.

Figure A2-1: Effect of escalator mechanism on Fee per tonne of shortfall



Note: The Surplus Escalator is shown based on an illustrative initial uplift of 10%. As set out above, the magnitude of this uplift would vary depending upon the factor by which total collections exceed the aggregate WEEE target.

A2.34 This figure shows that, under the Normal Escalator, the uplift to the Fee per tonne is around 4% for a shortfall of around 20%. Whereas, under the Surplus Escalator, given a *de minimis* initial uplift, the cost uplift is approximately double, for the same shortfall.

A2.35 In our opinion, it is fair and appropriate that:

(1) both escalators more heavily increase the Fee for a PCS which has a larger shortfall. Under the Normal Escalator, the uplift is modest for small shortfalls because such shortfalls could be due to factors beyond the PCS's control, such as the target being set unachievably high; and

(2) the Fee uplift is greater for a PCS which falls short of its collection target when there is an aggregate surplus of WEEE in that stream. This is because, in the presence of a surplus of WEEE evidence offered to the market, it should be easier to avoid a shortfall and, if one arises, this is therefore more likely to reflect intentional under-collection by the PCS.

A2.36 The Surplus Escalator discourages PCSs from deliberately under-collecting to any significant degree, even from sites with relatively high costs. This supports the objectives of the Regulations and associated Defra guidance.

A2.37 The Administrator determines whether the Normal Escalator or the Surplus Escalator applies to each WEEE stream. A threshold amount should be defined, above which the stream is assessed to be in 'surplus'. This has been set at 1.5% of the total tonnage of WEEE collected in each stream i.e. if the sum of household WEEE collections exceeds the sum of PCS targets by more than 1.5%, then the Surplus Escalator applies. That is:

$$\frac{C_n}{T_n} - 1 > 1.5\%$$

A2.38 Where:

C_n is the sum of household WEEE collections by all PCSs in the relevant stream in the market, in tonnes.

T_n is the national target for that stream, in tonnes.

A2.39 The Surplus Escalator fulfils the criteria discussed in Section 2, on the following basis:

(1) the partial divergence from cost-reflectivity is justified because shortfalls are much less likely to arise where the national collection target has been exceeded. In addition, uncertainty about which Fee escalator will apply, will further incentivise collection, while ensuring that the Fee remains modest and cost reflective when shortfalls occur;

(2) the Surplus Escalator does not affect the transparency of the methodology, which remains clear and comprehensible to all PCSs. It also does not affect data confidentiality considerations;

(3) no additional information is required from PCSs and so it is not burdensome;

(4) the Administrator needs to assess which escalator should apply to each WEEE stream. They will have sufficient information and knowledge to do this and hence this methodology is feasible;

(5) the Surplus Escalator does not affect the robustness of the methodology; and

(6) the Surplus Escalator increases the incentive for PCSs to collect WEEE, rather than pay the Fee, hence it promotes competition between PCSs.

Non-PBS participant uplift

A2.40 A voluntary PBS was created in 2016 as a mechanism to manage Regulation 34 requests between participating PCSs in a way that was intended to be fair and efficient. A request passed through two stages:

(1) Stage 1: PCSs could offer to fulfil directly the submitted Regulation 34 requests; and

(2) Stage 2: if no PCS offered to fulfil directly, the PCS submitting the lowest cost quote undertook the collection and the cost was shared among PBS members according to market share.

A2.41 As of August 2019, it became mandatory for PCSs to join the PBS. References in this appendix are to the previous voluntary PBS.

A2.42 The PBS was administered by an independent third party consultancy, Anthesis Consulting, which included allocating the share of costs between members.

A2.43 PBS membership was voluntary and some PCSs did not participate in the PBS. As a result, they did not bear any of the costs of undertaking Regulation 34 requests fulfilled through the PBS.

A2.44 Hence, an adjustment factor was added to the methodology for the costs avoided by PCSs which declined to join the PBS i.e. the costs of collecting WEEE from higher cost LA sites, which more often rely on Regulation 34.

A2.45 This uplift included as a simple uplift to the fee for non-PBS participants is (this example is for the Normal Escalator):

$$f_n = k_n \times (t_n - c_n) \times \left(1 + \left(\frac{t_n - c_n}{t_n}\right)^2 + u_n\right)$$

A2.46 The uplift (u_n) is proportional to the incremental additional cost per tonne of fulfilling such collections, which the PCS would have avoided by not being a member of the PBS. This is calculated as follows:

$$u_n = m_n \times \left(\frac{r_n}{k_n} - 1\right)$$

A2.47 Where:

- u_n is the uplift applicable for a non-PBS participant.
- m_n is a binary variable equal to 0 for a PBS member and 1 for a non-participant.
- r_n is the average cost per tonne of fulfilling Regulation 34 requests, including administrator charges.[23]
- k_n is the base cost of fulfilling LA-DCF collections, included in the existing Fee formula.

A2.48 This uplift ensured that the Fee as a whole remained cost reflective. This adjustment was intended as a transitional arrangement to incentivise PBS participation and will no longer be required in 2020 when PBS membership becomes mandatory in a full compliance year.

Variable administrative cost per tonne

A2.49 For the 2016 compliance period, Defra selected a Fee that was based on direct costs of collection plus "variable administrative costs". We understand that these comprised allocations of variable administrative costs associated with:

- preparing bids for collection contracts;
- on-going management of operational contracts including ensuring contractors are performing properly, liaising with LAs, addressing any day to day issues which arise;
- conducting site audits of both collection sites and treatment operators to ensure that they are operating correctly; and

[23] We understand that this data could be provided by PBS administrator, Anthesis Consulting.

- compiling, checking and making the regular reporting submissions required to the relevant enforcement agencies.

A2.50 In the 2016 and 2017 compliance years, the cost was calculated on a per tonne basis. For 2018, the costs were calculated principally by reference to the number of collections, rather than the volumes collected in tonnes. This had a material impact, given that very different volumes are associated with different WEEE streams. On this basis, we consider that the same mechanism should be adopted for the 2019 compliance period.

A2.51 The variable administrative costs per tonne is calculated for each stream as follows, based on data submitted by PCSs:

(1) PCS data on variable administrative costs, number of collections by WEEE stream and collection volumes by WEEE stream (in tonnes) is aggregated;

(2) an average cost per collection is calculated by dividing the aggregate variable administrative cost by the aggregate number of collections;

(3) the aggregate number of collections by WEEE stream is calculated;

(4) the average cost per collection is multiplied by the aggregate number of collections for each WEEE stream, to calculate an aggregate variable administrative cost per WEEE stream; and

(5) the aggregate variable administrative cost per WEEE stream is divided by the aggregate collection tonnage to calculate a variable administrative cost per stream, in £/tonne, for inclusion in the Fee.

A2.52 To ensure that the Fee is cost-reflective, the calculation allows for the following factors:

- some PCSs undertake collections of other non-WEEE waste, such as batteries, etc. These collections are included in the variable administrative cost per collection calculation because it is not possible to isolate the associated costs, to ensure that the cost per collection is not overstated; and
- some PCSs collect WEEE from two (or more) streams in the same collection. Given that costs are substantially driven by the number of collections, these are recorded as a single collection (and the corresponding fraction included in total collections for relevant WEEE streams), so that costs are not understated. Pragmatic assumptions are made where a PCS has more complex logistics chains, such as ‘milk round’ collections.

A2.53 The variable administrative cost per tonne was incorporated into the calculation by FTI in the 2017 compliance period methodology as follows (this example is for the Normal Escalator):

$$f_n = (t_n - c_n) \times \left[k_n \times \left(1 + \left(\frac{t_n - c_n}{t_n} \right)^2 + u_n \right) + v_n \right]$$

A2.54 Where v_n is the variable administrative cost per tonne, for that WEEE stream.[24]

WEEE source adjustment premium

A2.55 In 2017, it was noted that some LAs had difficulty obtaining collections and were forced to rely on Regulation 34, even though WEEE collections were below targets. Only a minority of PCSs bid for collection contracts with LAs; there were 32 PCSs accredited in the UK for household WEEE, however only 12 were listed as collecting from LAs in November 2016.[25] Since then, the JTA advises that the number contracting has fallen further to 10.[26] This suggests that PCSs are still not incentivised to collect from some higher cost LA-DCFs.

A2.56 This can be because PCSs may collect or make arrangements for WEEE from sources other than LA-DCFs and we understand from the JTA that the cost of collecting/obtaining WEEE from different sources can vary substantially. 2017 WEEE collection data shows that for three of the six WEEE streams, more than 40% of the WEEE collected came from non-LA-DCF sources.[27] For the other three streams it was more than 20%. This suggests that the impact of other sources of WEEE is material and may affect the incentives for market participants.

[24] The 2016 and 2017 compliance year Fees included a flat-rate overhead cost of £3.50 per tonne for all WEEE streams.

[25] Source: https://www.gov.uk/government/publications/weee-list-of-local-authority-designated-collection-facilities/weee-list-of-local-authority-designated-collection-facilities

[26] Source: https://www.gov.uk/government/publications/weee-list-of-local-authority-designated-collection-facilities/weee-list-of-local-authority-designated-collection-facilities

[27] Environment Agency (2018) "WEEE collected in the UK". Source: https://www.gov.uk/government/statistical-data-sets/waste-electrical-and-electronic-equipment-weee-in-the-uk.

A2.57 In addition, a change to the guidance on the classification of WEEE in 2015 meant that there was additional WEEE in some streams which qualified as household despite being collected from businesses.[28,29] Businesses generating such dual use WEEE often pay for its collection. As a result, the price for evidence arising from such arrangements may be artificially low because it need not cover the underlying cost of collection and treatment.

A2.58 PCSs have an economic incentive to meet their collection target by collecting or making arrangements to obtain WEEE with the lowest cost, irrespective of the source. WEEE from sources other than LA-DCFs is typically lower cost. Hence, an adjustment was proposed to reflect the source of WEEE for each PCS, as some PCSs might obtain WEEE primarily from sources which are lower cost.

A2.59 We considered that the Fee should also reflect the sources of the WEEE used by a PCS to fulfil its collection target. One way to achieve this was to set the Fee according to the national proportion of WEEE collected from LA-DCFs, such that PCSs which obtained a greater proportion of WEEE from lower cost (i.e. non LA-DCF) sources paid a higher Fee.

A2.60 Data from PCSs acting as advisers to the JTA on the direct costs of collections showed that:

- there is considerable variation in the costs of collection from different sources;
- the costs of collections from LA-DCFs are higher than other sources for all WEEE streams; and
- the average cost of collections from LA-DCFs is over double the cost of collecting from other sources for most streams for which data are available.

[28] On 23 February 2015, BIS issued Guidance entitled "Business to consumer (B2C) and business to business (B2B) EEE and WEEE: how to correctly identify". Available at: https://www.gov.uk/guidance/business-to-consumer-b2c-and-business-to-business-b2b-eee-and-weee-how-to-correctly-identify

[29] The Environment Agency publication "Scope of equipment covered by the UK Waste Electrical and Electronic Equipment (WEEE) Regulations" states that "*All products which fall into the categories, regardless of whether they are used in a household or in a non-household environment are covered by the Regulations*." Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/393740/LIT_7876.pdf

A2.61 The adjustment we proposed was not symmetrical. That is, PCSs which collected less than the average share of their WEEE from LA-DCFs paid a higher Fee but, for those that collected more than the average share did not receive a downward adjustment.

A2.62 This factor increased the Fee for PCSs which undertook a lower proportion of collections from LA-DCFs, compared to the national average for the relevant WEEE stream.

A2.63 The WEEE source adjustment premium ($\boldsymbol{p_n}$) is calculated as follows:[30]

$$\boldsymbol{p_n = d * \left(a - \frac{l_n + s_n}{t_n}\right)}$$

A2.64 Where:

- $\boldsymbol{d}$ is the percentage amount by which the cost of LA-DCF collections exceeds the cost of other WEEE sources, expressed as a ratio.
- $\boldsymbol{a}$ is the average share of collections from LA-DCFs, as a proportion of all household collections in that WEEE stream, expressed as a ratio.
- $\boldsymbol{l_n}$ is the actual volume of collections from LA-DCFs, made by the PCS itself, in tonnes.
- $\boldsymbol{s_n}$ is that PCS's shortfall, in tonnes.
- $\boldsymbol{t_n}$ is the PCS's target for the WEEE stream, in tonnes.

A2.65 This adjustment fulfilled the criteria discussed in Section 2. First, it reduced the cost advantage of obtaining WEEE from other sources and therefore incentivised PCSs to collect from LA-DCFs. This supported Defra's objective of incentivising collections from LA-DCFs as far as possible and hence increased the effectiveness of the Fee.

A2.66 Second, this calculation took into account the amount of a PCS's shortfall, which is appropriate given that the Fee paid on the shortfall reflects the cost of collection from LA-DCFs. This ensures that the Fee remains cost reflective and is not unduly punitive.

[30] We propose that the precise mathematical formula would be:
$\boldsymbol{p_n = d * max\left(a - \frac{l_n + s_n}{c_n}, 0\right).}$

Appendix 3
Revised fee calculation examples

A3.1 Below, we calculate the Fee that would be payable for an example WEEE stream in various scenarios, under this proposal. The calculations show the impact of each element of the proposed fee methodology.

Examples for streams unaffected by POPs

A3.2 The example calculations in this subsection are for streams unaffected by POPs, that is all streams except the SMW and Display streams. Calculations are based on the following assumptions:

(1) PCS's own collection target: 5,000 tonnes

(2) Aggregate share of WEEE collected from LA-DCFs by all PCSs: 70%

(3) PCS's total evidence collected: 3,000 tonnes

(4) PCS's own collections from LA-DCFs: 2,500 tonnes

(5) Weighted average cost per tonne of LA-DCF collections for all PCSs submitting data: £50

(6) Weighted average cost per tonne of all other collections for all PCSs submitting data: £30

(7) Overhead cost per tonne: £3.50

(8) National target: 20,000 tonnes

National shortfall (normal escalator)

A3.3 Assuming UK collections met the national target, and this PCS is a member of the PBS, the Fee per tonne payable by this PCS in this stream under the normal escalator would be £61.50 per tonne:

$$£50 \times \left(1 + \left(\frac{20{,}000}{20{,}000}\right) \times \left(\frac{5{,}000 - 3{,}000}{5{,}000}\right)^2 + 0 + 0\right) + £3.50 = \mathbf{£61.50/tonne}$$

A3.4 This is unchanged from the fee per tonne that would have been calculated in 2018 as the Collection Shortfall Factor has no effect when there is no shortfall.

A3.5 Whereas, assuming UK collections were 18,000 tonnes (i.e. 2,000 tonnes, or 10%, below target), and keeping the other assumptions the same, the Fee per tonne payable by this PCS in this stream would be £60.70 per tonne:

$$£50 \times \left(1 + \left(\frac{18{,}000}{20{,}000}\right) \times \left(\frac{5{,}000 - 3{,}000}{5{,}000}\right)^2 + 0 + 0\right) + £3.50 = \mathbf{£60.70/tonne}$$

A3.6 This is £0.80 per tonne lower than would have been calculated in 2018 due to the adjustment reflecting the collection shortfall.

National surplus (surplus escalator)

A3.7 Assuming UK collections are 22,000 tonnes, so above the national target, and this PCS is a member of the PBS, the Fee per tonne payable by this PCS in this stream under the surplus escalator would be £74.50 per tonne:

$$£50 \times \left(\frac{22{,}000}{20{,}000} + 2 * \left(\frac{5{,}000 - 3{,}000}{5{,}000}\right)^2 + 0 + 0\right) + £3.50 = \mathbf{£74.50/tonne}$$

A3.8 This is unchanged from the Fee/tonne which would have been calculated for this PCS in 2018.

WEEE source adjustment premium

A3.9 The WEEE Source Adjustment Premium for this example PCS using the parameters above would be zero. This is because the total of the PCS's LA-DCF collections and the tonnes for which it pays a fee exceed the national average share of PCS collections from LA-DCFs:

$$\frac{(2{,}500 + 2{,}000)}{5{,}000} = 0.90 = 90\% > 70\%$$

A3.10 Whereas, if the PCS's own LA-DCF collections were only 1,000 tonnes (and its total collections remained 3,000 tonnes), the WEEE Source Adjustment Premium would apply. In this case, an additional uplift to the Fee per tonne would apply, calculated as follows:

$$\left(\frac{50}{30} - 1\right) * \left(0.70 - \frac{(1{,}000 + 2{,}000)}{5{,}000}\right) = 0.07 = 7\%$$

Non-PBS participant uplift

A3.11 There would be no non-PBS participant uplift for the PCS using the parameters above because the PCS is assumed to be a member of the PBS.

A3.12 Whereas, if this PCS were not a member of the PBS, and the cost per tonne of fulfilling PBS collections provided by the PBS Administrator were (for example) £65, an additional uplift to the Fee per tonne would apply. The uplift would be time apportioned for the portion of the year which the PBS remains voluntary. The uplift is calculated as follows:

$$\left(\frac{£65}{£50} - 1\right) \times \frac{7}{12} = 0.175 = 17.5\%$$

Revised normal escalator calculation including a WEEE source adjustment premium and non-PBS participant uplift

A3.13 The Fee payable by this PCS in this stream under the normal escalator, using the revised assumptions in A3.5 and A3.12, would be £74.20 per tonne:

$$£50 \times \left(1 + \left(\frac{18{,}000}{20{,}000}\right) \times \left(\frac{5{,}000 - 3{,}000}{5{,}000}\right)^2 + 0.175 + 0.07\right) + £3.50 = \mathbf{£72.95/tonne}$$

A3.14 The size of the PCS's obligation does not impact the Fee; rather it is the PCS's shortfall that is important. A PCS with a shortfall of 40%, no matter the size of that PCS's obligation, would always pay the same fee.

Examples for streams affected by POPs

A3.15 The example calculations in this subsection are for streams affected by POPs, which are the SMW and Display streams. Calculations are based on the following assumptions:

(1) PCS's own collection target: 6,000 tonnes

(2) Aggregate share of WEEE collected from LA-DCFs by all PCSs: 70%

(3) PCS's total evidence collected: 5,000 tonnes

(4) PCS's own collections from LA-DCFs: 3,500 tonnes

(5) Weighted average cost per tonne of LA-DCF collections for all PCSs submitting data: (i) prior to August: £50; (ii) from August: £80; and (iii) for the full year: £60.

(6) Weighted average cost per tonne of all other collections for all PCSs submitting data: £40.

(7) Overhead cost per tonne: £3.50

(8) National target: 24,000 tonnes

A3.16 The PCS's collection target of 6,000 tonnes is equivalent to 500 tonnes per month. Therefore the PCS's collection target before the additional POPs costs is 3,500 tonnes (7 months x 500 tonnes), and 2,500 tonnes (5 months x 500 tonnes) after the additional POPs costs.

A3.17 If the PCS had no total shortfall (even if there was a shortfall in one period and a surplus in the other), no fee is paid. In this example, the PCS collected 5,000 tonnes in total, a shortfall of 1,000 tonnes. Therefore the fee must be paid according to which period the PCS's shortfall was in.

National shortfall (normal escalator)

A3.18 The normal escalator formula is the same way as for streams unaffected by POPs, however there is a separate calculation for the period prior to August and the period from August onwards. We have assumed that UK collections met the national target, and the PCS is a member of the PBS. A WEEE source adjustment premium is not applicable to this PCS because its LA DCF collections plus its tonnage shortfall exceeds the national proportion of LA DCF collections. The two formulae show that in the first period the fee per tonne is £54.89, and in the second period is £85.72.

$$£50 \times \left(1 + \left(\frac{24{,}000}{24{,}000}\right) \times \left(\frac{6{,}000 - 5{,}000}{6{,}000}\right)^2 + 0 + 0\right) + £3.50 = \mathbf{£54.89/tonn}$$

$$£80 \times \left(1 + \left(\frac{24{,}000}{24{,}000}\right) \times \left(\frac{6{,}000 - 5{,}000}{6{,}000}\right)^2 + 0 + 0\right) + £3.50 = \mathbf{£85.72/tonne}$$

A3.19 The fee which the PCS pays is determined by whether its shortfall was in the first or second period.

A3.20 Assuming the PCS collected 2,000 tonnes between January and July, and 3,000 tonnes between August and December, then it had a shortfall in the first period (of 1,500 tonnes) and a surplus in the second period (of 500 tonnes). In this scenario the shortfall is in the first period only, and so the PCS's fee should be calculated using a fee per tonne of £54.89, which should be applied to the whole shortfall.

A3.21 Alternatively, assuming the PCS collected 4,000 tonnes between January and July, and 1,000 tonnes between August and December, then it had a shortfall in the second period but not the first. This PCS's fee would be calculated based on a fee per tonne of £85.72, which should be applied to the whole shortfall.

A3.22 A PCS could have a shortfall in both periods. Assuming this time that the PCS collected 3,100 tonnes between January and July, and 1,900 tonnes between August and December, then the PCS has a 400 tonne shortfall in the first period, and a 600 tonne shortfall in the second period. This PCS's fee per tonne would be calculated as the weighted average of the two fees per tonne calculated above:

$$\left(£54.89 \times \frac{400}{400 + 600}\right) + \left(£85.72 \times \frac{600}{400 + 600}\right) = £\mathbf{73.39/tonne}$$

National surplus (surplus escalator)

A3.23 This time assuming national collections are 26,400 tonnes (i.e. 10% above target), meaning the surplus escalator is used, but otherwise using the other figures set out in A3.15 and continuing to assume the PCS is a member of the PBS, the fee for a PCS with a shortfall in the first period only would be:

$$£50 \times \left(\frac{26{,}400}{24{,}000} + 2 * \left(\frac{6{,}000 - 5{,}000}{6{,}000}\right)^2 + 0 + 0\right) + £3.50 = £\mathbf{61.28/tonne}$$

A3.24 Alternatively, the fee for a PCS with a shortfall in the second period only would be:

$$£80 \times \left(\frac{26{,}400}{24{,}000} + 2 * \left(\frac{6{,}000 - 5{,}000}{6{,}000}\right)^2 + 0 + 0\right) + £3.50 = £\mathbf{95.94/tonne}$$

A3.25 The fee for a PCS with a shortfall in both the first period and second period, using the figures in the example for the normal escalator, would also be calculated as the weighted average of the first period and second period fees:

$$\left(£61.28 \times \frac{400}{400 + 600}\right) + \left(£95.94 \times \frac{600}{400 + 600}\right) = £\mathbf{82.08/tonne}$$

Non-PBS participant uplift

A3.26 The non-PBS participant uplift is calculated in the same way as for a stream unaffected by POPs. The uplift is multiplied by 7/12 in both the first period and second period.

A3.27 In the example set out above, there would be no non-PBS participant uplift for the PCS because the PCS is assumed to be a member of the PBS.

A3.28 Whereas, if this PCS were not a member of the PBS, and the cost per tonne of fulfilling PBS collections provided by the PBS Administrator were (for example) £65, an additional uplift to the Fee per tonne would apply to the calculation of the fee in both periods. The uplift to apply to each period is calculated as follows:

$$\left(\frac{£65}{£50} - 1\right) \times \frac{7}{12} = 0.175 = 17.5\%$$

WEEE source adjustment premium

A3.29 The WEEE source adjustment premium is also calculated on an annual basis, and therefore is calculated as shown in the examples for streams unaffected by POPs.

A3.30 In this example, assuming the PCS LA DCF collections reduced to 3,000 the total of the PCS's LA-DCF collections and the tonnes for which it pays a fee are below the national average share of PCS collections from LA-DCFs:

$$\frac{(3{,}000 + 1{,}000)}{6{,}000} = 0.67 = 67\% < 70\%$$

A3.31 Therefore an uplift to the Fee per tonne applies to account for the source of the WEEE, calculated as follows:

$$\left(\frac{60}{40} - 1\right) * \left(0.70 - \frac{(3{,}000 + 1{,}000)}{6{,}000}\right) = 0.017 = 1.7\%$$

Revised normal escalator calculation including a WEEE source adjustment premium and non-PBS participant uplift

A3.32 Under the normal escalator, using a non-PBS participant uplift of 17.5% and a WEEE source adjustment of 1.7% the Fee payable by a PCS with a shortfall which occurs in the first period only would be:

$$£50 \times \left(1 + \left(\frac{24{,}000}{24{,}000}\right) \times \left(\frac{6{,}000 - 5{,}000}{6{,}000}\right)^2 + 0.175 + 0.017\right) + £3.50$$
$$= \mathbf{£64.49/tonne}$$

A3.33 If the PCS's shortfall occurred in the second period only the Fee payable would be:

$$£80 \times \left(1 + \left(\frac{24{,}000}{24{,}000}\right) \times \left(\frac{6{,}000 - 5{,}000}{6{,}000}\right)^2 + 0.175 + 0.017\right) + £3.50$$
$$= \mathbf{£101.08/tonne}$$

A3.34 A PCS with a shortfall in both the first period and the second period would pay the weighted average of the first period and second period fees:

$$\left(£64.49 \times \frac{400}{400 + 600}\right) + \left(£101.08 \times \frac{600}{400 + 600}\right) = \mathbf{£86.44/tonne}$$