Title:
Waste Electrical and Electronic Equipment (WEEE) system
IA No: BIS 0393

Lead department or agency:
BIS

Other departments or agencies:
Defra, Environment Agency (for England and Wales)
Scottish Environment Protection Agency
Northern Ireland Department of the Environment

Impact Assessment (IA)

Date: 30/01/2013

Stage: Consultation

Source of intervention: EU

Type of measure: Secondary legislation

Contact for enquiries: Krupa Kothari, Graeme Vickery

Summary: Intervention and Options

RPC Opinion: AMBER

Cost of largest NPV Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANCB on 2009 prices)	**In scope of One-In, One-Out?**	**Measure qualifies as**
£135m	£136.95	-£15.91	No	NA

What is the problem under consideration? Why is government intervention necessary?

Market failures borne by regulatory failures include: Monopoly behaviour by some PCSs who are able to take advantage of a guaranteed buyer, low rates of producer members switching between schemes and the low impact producer membership is likely to have on their profitability. Price discrimination on larger producers is more likely as their ability to switch is lower. Moral hazard arises as the PCS acting on behalf of the producer will have asymmetric information on costs incurred/revenues obtained as a result of contracts between various agents. Given inelastic and guaranteed producer demand as a result of obligations being aligned to market share for 100% of DCF WEEE, excessive charging occurs.

What are the policy objectives and the intended effects?

Following the Environmental Red Tape Challenge, The Department for Business, Innovation and Skills committed to the below in the Budget 2012: "The Government will rationalise environmental regulation, including by….consulting on preventing excessive compliance costs for business from the Waste Electrical and Electronic Equipment Regulations." The objective is to address concerns from producers of EEE that the actual cost of compliance with their financial obligations set out in the existing WEEE Regulations is significantly higher than the true cost of collection, treatment, recovery, re-use, recycling, and environmentally sound disposal of WEEE that they are required to finance.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Option 1: Do Nothing. Option 2: National Compliance Scheme. Option 3 : Target and Compliance fee option. Option 4: Matching process option

Option1 is the business as usual case of not amending the current WEEE Directive, this forms the baseline to which all other options are compared. An alternative to regulation is not viable because it is unlikely to meet the Directive's requirement for enforcement across the single market and will lead to an uneven playing field between producers, whereby those who do not comply would 'free ride' and not incur cost of collecting and treating WEEE. Failure to ensure appropriate enforcement of the Directive requirements could lead to infraction proceedings. Please see WEEE recast IA number 0382 for more detail on alternative to regulations. Option 3 and 4 are the preferred options.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** 01/2019

Does implementation go beyond minimum EU requirements?			No			
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	**Micro** Yes	**< 20** Yes	**Small** Yes	**Medium** Yes	**Large** Yes	
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)			**Traded:** 0		**Non-traded:** 0	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister: Michael Fallon Date: 28/03/2013

Summary: Analysis & Evidence

Policy Option 1

Description: Do Nothing

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2014	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: Optional	**High:** Optional	**Best Estimate:** -188

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional		Optional	**Optional**
High	Optional		Optional	**Optional**
Best Estimate			337	**2783**

Description and scale of key monetised costs by 'main affected groups'

Producers: Enforcement Agencies fees, PCS membership fees, administrative, evidence price. Enforcement agencies/Gov': registering, monitoring, enforcement, settlement centre, prosecution. PCS: evidence costs, cost of providing support to DCF, admin/reporting cost, DCF/WMC: onsite running, overheads, administration. Distributors: DTS fee, In store take-back. AATF: administration costs, agencies fees, treatment costs, gate-fees. WEEE Recast costs, see IA no. 0382

Other key non-monetised costs by 'main affected groups'

Transport emissions from moving WEEE from DCF to AATF. Material revenues from GDL. Distributional impacts within main affected groups. See WEEE Recast non-monetised costs see IA no. 0382

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional		Optional	**Optional**
High	Optional		Optional	**Optional**
Best Estimate			315	**2595**

Description and scale of key monetised benefits by 'main affected groups'

Producers: gate-fee revenues from producer take back. Enforcement agencies: producer and AATF fees. PCS: membership fee revenues, revenues from evidence, gate-fees. DCF: financial support from PCS, DTS revenue. WMC: gate-fees, revenues from evidence. Distributers: gate-fees, evidence revenues. AATF: gate-fees, revenues from materials post treatment. Social: virgin material saving arising within UK, CO2 emissions avoided. WEEE Recast benefits see IA no. 0382

Other key non-monetised benefits by 'main affected groups'

The potential for hazardous substances to leach from landfill and contaminate soil and groundwater with consequent negative impacts on the environment and human health and animal health. Potential 'knock-on' benefits raising awareness of waste management. Avoided cost of landfill of WEEE from the gate-fee. Greater level of recyclates available for use as they are not landfilled and there will be less need to mine/produce primary/virgin materials. See WEEE Recast non monetised benefits see IA no. 0382

Key assumptions/sensitivities/risks **Discount rate (%)** 3.5

The EEE Pom and WEEE arisings projections - methodology in annex. Sensitivities for baseline are not estimated for simplicity so that all scenarios developed in options 2 to 3 are compared to the same central baseline case.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: 319	**Benefits:** 278.2	**Net:** -41	No	NA

Summary: Analysis & Evidence

Policy Option 2

Description: National Compliance Scheme

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2014	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: 90	**High:** 107	**Best Estimate:** 103

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	1		-113	**-928**
High	0.2	1	-126	**-1037**
Best Estimate	0.5		-123	**-1013**

Description and scale of key monetised costs by 'main affected groups'

Cost to PCS (transferred to producer) of setting up and implementing national PCS.

Cost to collectors of WEEE from managing net value WEEE streams and no longer recipients of financial support from PCSs. Distributors/ WMC - no longer receive revenues from selling evidence to PCSs. Equivalent reduced costs to producers. Reduced mark up of costs from PCS. Administration costs from producers who opt for direct registration. EA fees for direct registration.

Other key non-monetised costs by 'main affected groups'

Closure of existing PCSs and the number of jobs affected - short term disruption from changing existing contracts. Distribution of costs within sectors e.g. AATFs affected as tenders issued from 1 scheme. Agencies re-prioritisation of regulatory activity, e.g. cost of direct registration (DR), collect data on WEEE directly treated by collectors (could also increase AATF/DCF data requirement). Cost of DR for producers could include the need to establish a collection network. Potential penalty to PCS for non-compliance.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional		-102	**-838**
High	Optional		-113	**-930**
Best Estimate			-110	**-910**

Description and scale of key monetised benefits by 'main affected groups'

De-minimis threshold for producers of EEE with volumes under 1, 5 and 10 tonnes (low, central, high scenarios) - reducing their regulatory requirements. Gate fee revenues to collectors of WEEE from managing net value streams.

Other key non-monetised benefits by 'main affected groups'

Agencies re-prioritisation of regulatory activity e.g. due to reduced resources necessary for PCS monitoring for one scheme, no viable plans. Improved standards of treatment as a result of one PCS as there will be less pressure for price to be the key determinant when awarding contracts. Greater administrative economies of scale from reporting by a single scheme instead of the current 37 PCSs (equally could be x-inefficiencies from one PCS).

Key assumptions/sensitivities/risks — **Discount rate (%)** 3.5

See page 85 for sensitivity analysis

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: -122	**Benefits:** -110	**Net**: -12	No	NA

Summary: Analysis & Evidence

Policy Option 3

Description: Target and Compliance Fee

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2014	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: 115	**High:** 120	**Best Estimate:** 119

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0.1		56	**464**
High	0.1	1	-68	**-564**
Best Estimate	0.1		-43	**-356**

Description and scale of key monetised costs by 'main affected groups'

Cost to producers to establish and implement a compliance fee and a take back scheme
Cost to collectors of WEEE from managing value WEEE streams. Resultant lower cost to PCSs/Producers.
Cost to producers (PCSs) for paying compliance fee if collection target not achieved.

Other key non-monetised costs by 'main affected groups'

Risks outlined in table 3
Agencies re-prioritisation of regulatory activity e.g. collect data on WEEE directly treated by collectors (could also increase AATF/DCF data requirement)

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional		70	**578**
High	Optional		-54	**-443**
Best Estimate			-29	**-238**

Description and scale of key monetised benefits by 'main affected groups'

De-minimis threshold for producers of EEE with volumes under 1, 5 and 10 tonnes (low, central, high scenarios) - reducing their regulatory requirements. Gate fee revenues to collectors of WEEE from managing value streams.

Other key non-monetised benefits by 'main affected groups'

Agencies re-prioritisation of regulatory activity e.g. no longer requires viable plans.
Reduction in price charged for evidence as a result of more competitive dynamic engendered through the introduction of a compliance fee.

Key assumptions/sensitivities/risks **Discount rate (%)** 3.5

Central scenario assumed 10% of WEEE for GDL, displays and cooling is funded through the compliance fee which is set at double the cost of evidence relative to when a PCS has direct involvement.
See page 85 for sensitvitiy analysis.

BUSINESS ASSESSMENT (Option 3)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: -46.1	**Benefits:** -43.8	**Net:** 2.3	No	NA

Summary: Analysis & Evidence

Policy Option 4

Description: Matching Process

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2014	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: 126	**High:** 138	**Best Estimate:** 135

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	1	1	-128	**-1050**
High	0.2		-131	**-1077**
Best Estimate	0.5		-130	**-1069**

Description and scale of key monetised costs by 'main affected groups'

Cost to producer of setting up and implementing matching process. Cost to collectors of WEEE from managing value WEEE streams and no longer receipients of financial support from PCSs. Distributors/ WMC - no longer receive revenues from selling evidence. Equivalent reduction in cost for producers/PCSs.

Other key non-monetised costs by 'main affected groups'

Short term disruption from changing of existing contractual obligations.

Agencies re-prioritisation of regulatory activity.

Penalty fee for not meeting targets – assumed that all PCSs meet their given targets

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional		-112	**-924**
High	Optional		-114	**-939**
Best Estimate			-113	**-934**

Description and scale of key monetised benefits by 'main affected groups'

De-minimis threshold for producers of EEE with volumes under 1,5 and 10 tonnes (low, central, high scenarios) - reducing their regulatory requirements. Gate fee revenues to collectors of WEEE from managing own streams.

Other key non-monetised benefits by 'main affected groups'

Agencies re-priortisation of regulatory activity e.g. no longer requires viable plans.

Key assumptions/sensitivities/risks **Discount rate (%)** 3.5

See page 85 for sensitivity analysis.

BUSINESS ASSESSMENT (Option 4)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: -128.9	**Benefits:** -113	**Net:** 15.9	No	NA

Evidence Base (for summary sheets)

Contents

IMPACT ASSESSMENT OF SYTEM CHANGES TO THE UK WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) REGULATIONS

Executive Summary

1. This IA considers three options to reform the existing WEEE system in response to the Red Tape Challenge initiative which aims to reduce the burden of regulation on business. The three options which are compared to the baseline of do nothing (option 1) represent 3 very different approaches to addressing concerns within the existing system and are based on informal consultation with stakeholders and best practise examples from other European Member States:

    - **Option 1**: Do Nothing. This is the business as usual case of not amending the current WEEE Directive. This forms the baseline to which all other options are compared.
    - **Option 2**: National Compliance Scheme
    - **Option 3** : Target and Compliance fee option
    - **Option 4**: Matching process option

2. All three options are de-regulatory and lead to an overall cost saving. Two features which are present in all 3 options include

    - the introduction of a de-minimis threshold for low volume producers of EEE whereby those producers who place less than a certain amount of tonnage on the market have reduced obligations and are not required to join a producer compliance scheme.
    - giving collectors of WEEE the option to manage own WEEE streams, which allows collectors to receive the net revenues from materials where they exist and retracts obligation on producers where market forces would work to treat WEEE in the absence of regulations.

3. The calculations in the Impact Assessment do not reflect the complexity of the market given the long ‘chain’ of waste management, with rigidities in contracts. The estimates of costs and benefits overall show the impact of the 3 options are close to one another. The distributional implications between actors are more significant, however the distributional impacts within groups are not considered. There are two preferred options are options - 3 and 4. The consultation document should be considered in conjunction with this IA. A preferred option will be arrived at post consultation – with the expectation that legislative changes can be made by the end of 2013 calendar year.

Section 1: Background and objectives

1. The WEEE Directive (Directive 2002/96/EC) ('the 2002 Directive') of the European Parliament and Council) was adopted on 27 January 2003 and came into force on 13 February 2003. The UK transposed the 2002 Directive into UK law as 'The Waste Electrical and Electronic Equipment (WEEE) Regulations' (SI 2006 No. 3289). These Regulations were amended by 'The WEEE (Amendment) Regulations 2007' (SI 2007 No. 3454) and 'The WEEE (Amendment) Regulations 2009, No 1 & 2 (SIs 2009 No. 2957 and No. 3216) and 'The WEEE (Amendment) Regulations 2010, (SI No. 1155). The UK's WEEE Regulations were supported by a full Regulatory Impact Assessment in 2006 ((RIA), URN 06/2206) when they were made in Parliament.
2. The original WEEE Directive committed the European Commission to undertake a review within 5 years and submit a report to the European Parliament and the European Council based on the application of the Directive. A proposal was submitted to both institutions in December 2008. A Recast WEEE Directive was adopted in January 2012 and published in the Official Journal of the EU on 24 July 2012. Its provisions must be implemented in national legislation by 14 February 2014. The details are the subject of a separate Impact Assessment due to be published alongside this one (WEEE Recast IA number 0382).
3. The Red Tape Challenge (RTC) was launched by the Government in April 2010. It gave business and the public the chance to have their say on the regulations that impact on their businesses. The RTC is split into themes and the Environment Theme was launched in September 2011 and the outcome announced on 19 March 2012.
4. Large Producers of electrical and electronic equipment (EEE) raised concerns that the amount they have to pay for the collection, treatment, recovery and recycling of their market share of Waste Electrical and Electronic Equipment (WEEE) through producer compliance schemes is often much higher than the true costs of processing WEEE. Smaller producers complained about the disproportionate administrative costs associated with complying with WEEE Regulations.
5. The Government committed to introduce regulatory changes to address these concerns by 2014. Options for change would form part of the proposed consultation necessary as part of the process for introducing the requirements of the revised WEEE Directive in the UK.
6. This Impact Assessment is intended to appraise options for change in response to the Red Tape Challenge. A separate Impact Assessment will be published in parallel in relation to necessary changes to the UK WEEE Regulations as a consequence of the recast WEEE Directive (IA no. 0382).

Policy Objectives/ Problem under consideration

7. To address concerns from producers of EEE that the actual cost of compliance with their financial obligations set out in the *existing* WEEE Regulations is significantly higher than the true cost of collection, treatment, recovery, re-use, recycling, and environmentally sound disposal of WEEE that they are required to finance. To keep administrative burdens to a minimum – particularly for small volume producers.

Section 2: Operation of the current WEEE system

Actors in the WEEE system:

8. The existing system involves 37 Producer Compliance Schemes (PCSs) [1], 5945 producers of EEE, Distributors of EEE (retailers and distance sellers), 202 Approved Authorised Treatment Facilities (AATFs)[2], approx 1500 Designated Collection Facilities (DCFs) and a number of Waste Management Companies (WMCs) of which some have access to WEEE through PFI long term contacts with local authorities.

9. The number of intermediaries, variable operating models and lack of transparency between agents, heightens complexity and opaqueness as well as increasing overall administrative costs. As a consequence, there are a number of market failures borne as a result of regulatory failures. See fig 3 for a stylised diagram of the WEEE system.

WEEE Flows - profile and volumes:

10. The majority of obligated WEEE (76%) comes from Designated Collection Facilities (DCFs) and 24% from regulation 32/39 (e.g. retail take back). All other WEEE which is not counted in the official WEEE system is labelled 'unobligated WEEE' – the treatment of this WEEE is not funded by producers. Collection rates of obligated household WEEE have been fairly stable at around 7-8kg per head since 2007.

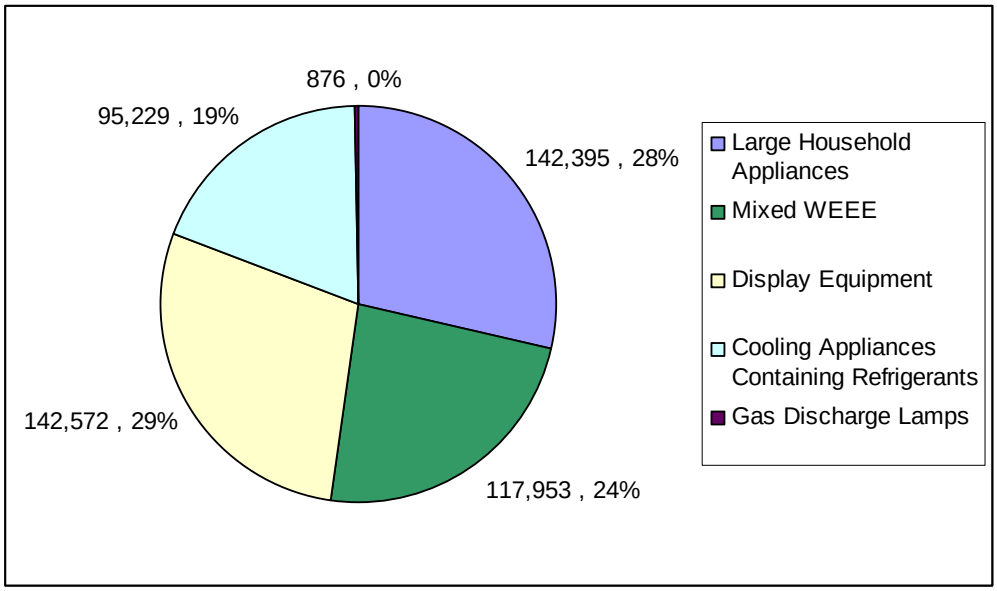
11. The material value and treatment process required varies across WEEE categories. Large Domestic Appliance (LDA) and Mixed WEEE are generally considered to be net revenue streams (AATFs will often pay to receive these). Gas Discharge Lamps (GDL) are the most costly WEEE stream (AATFs will receive payment to treat net cost streams). Costs/revenues (known as gate-fees) offered by AATFs will vary depending on local competition, volume of WEEE, material values and specifics in contractual agreements.

12. The WEEE Directive requires WEEE arisings and EEE placed on the market to be reported in 10 product categories (large domestic appliances, small domestic appliances, IT & Telecommunications equipment, consumer equipment, lighting equipment, electrical and electronic tools, toys leisure and sports equipment, medical devices, monitoring and control instruments and automatic dispensers). The UK regulations introduce 3 additional subcategories for refrigeration equipment, display equipment and gas discharge lamps. This ensures that producers of other equipment do not cross subsidise the cost of treatment of these hazardous waste streams. Collection is typically split into 5 collection streams as indicated below

[1] 2012 data. 36 PCS in 2011

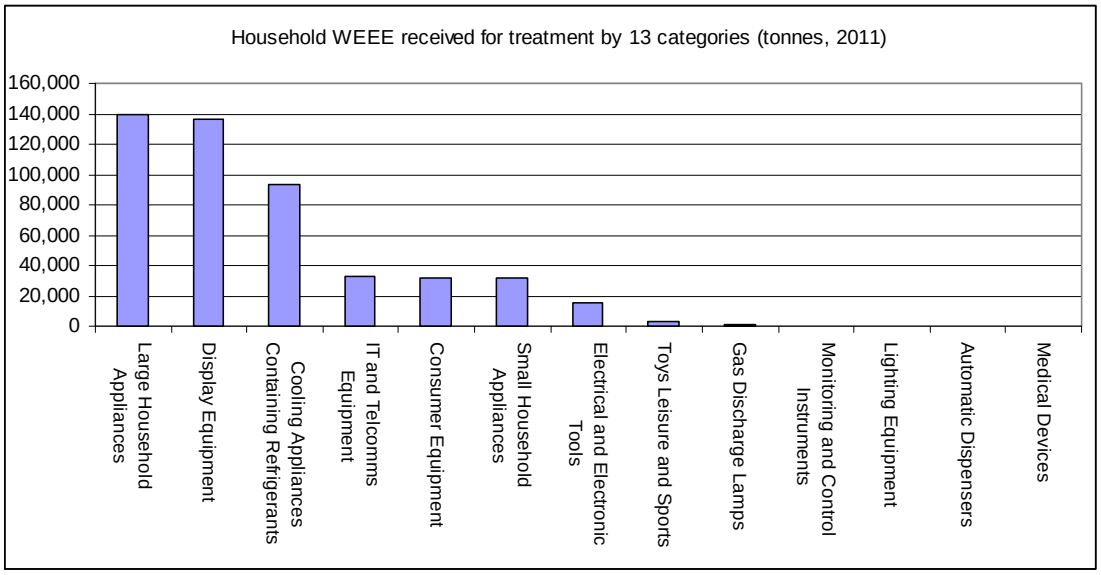
[2] 2012 data. 197 AAFTs in 2011 and 240 in 2010

Fig 1: Total separately collected household WEEE in tonnes and as a percentage of total WEEE by 5 collection streams (2011)



Source: Data from EA
* WEEE is split into 5 collection streams as this is how it's often separated for treatment

Fig 2: Tonnes of household WEEE received for treatment in 2011 by 13 WEEE categories.

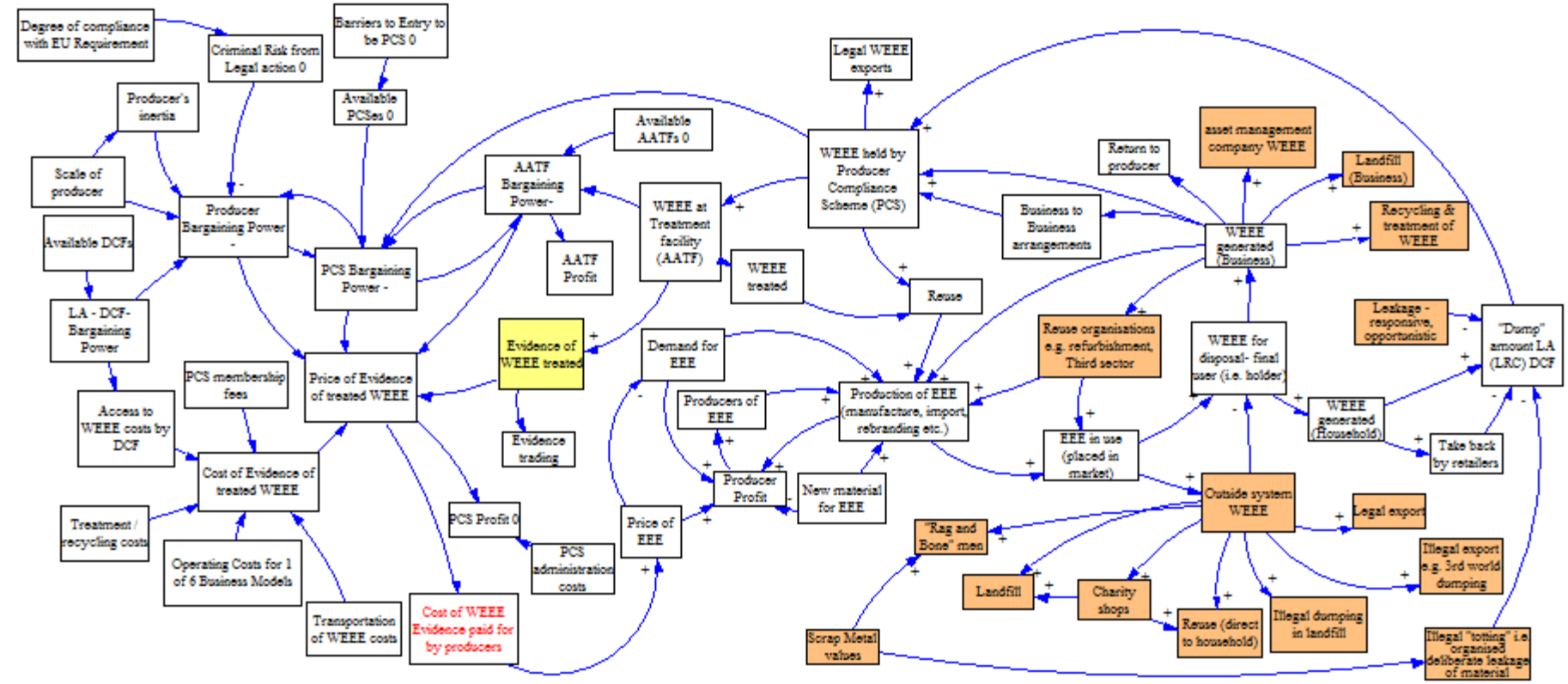


Source: Data from EA

13. Producers of B2B EEE have financial obligations for financing the cost of B2B WEEE in the following circumstances:
    - Where the producer puts EEE onto the UK market for non household use after 13 August 2005 and when this EEE is subsequently discarded as waste
    - Where the producer puts EEE on the market to replace EEE for non household use prior to 13 August 2005 (by him or any other producer)

14. The regulations do not prevent producers or business end users from making their own contractual arrangements to ensure WEEE is correctly treated and recovered. B2B producers are therefore not exposed to the same concerns expressed by B2C producers about the impact the current system has on the cost of compliance.

Fig 3: Stylised diagram of existing system



Source; BIS, operational research unit

15. The WEEE Regulations require Producer Compliance Schemes (PCSs) to finance the collection and treatment of 100% of separately collected household WEEE returned by distributors under Reg 32 and deposited at Designated Collection Facilities (typically Local Authority Household Recycling Centers). This responsibility is shared according to the UK market share of the producer members in each PCS and split between the 10 categories and 3 sub-categories of EEE laid down in the Regulations.

16. Regulation 22 states the financing obligations placed on PCSs in relation to WEEE from private households:

Regulation 22 – Financing: WEEE from Private Households

(1) Where regulation 10(5) applies in relation to a scheme the operator of that scheme shall be responsible for financing the costs referred to in regulation (8) for which each scheme member is responsible under regulation 8 in the compliance period for any part of the compliance period during which his membership of that scheme subsists.

(2) It shall be the duty of the appropriate authority to determine the amount of relevant WEEE for which each operator of a scheme shall be responsible under paragraph (1) by applying the calculation set out in paragraph (3)

(3) The amount of relevant WEEE for which each operator of a scheme shall be responsible under paragraph 2 shall be calculated in relation to each of the categories of EEE as follows –

$$(A / B) \times C$$

Where-

"A" is the total amount in tones of EEE intended for use by private household and falling within one of the categories of EEE ("the relevant category") that has been put on the market in the United Kingdom by all of the members of a particular scheme in a particular compliance period, or part of a particular compliance period ("the relevant compliance period ") during which their membership of that scheme subsists;

"B" is the total amount in tones of EEE intended for use by private households and falling within the relevant category that has been put on the market in the United Kingdom by all producers in the same compliance period used in "A" and

"C" is the total amount in tones of the relevant WEEE which is waste from electrical or electronic products and fall within the relevant category that

(a) is deposited at a designated collection facility; or

(b) is returned under regulation 32 or 40A but is not deposited at a designated collection facility

in the same relevant compliance period used in "A".

17. Tonnages of WEEE collected and treated by PCS are entered onto a central IT system called the "Settlement Centre". Data submitted is used as "evidence" of the amount of tonnage that a PCS has financed in each of the categories.

18. Each PCS is required to produce and maintain a "viable plan" to show how it will meet its expected obligations across the 10 categories and 3 sub-categories. These must be approved by the relevant environment agency. Financial obligations can be met either through a PCS making direct arrangements to access separately collected household WEEE or by contracting with others (including other PCSs) to have WEEE collected on its behalf.

19. Because the UK WEEE Regulations do not allocate a fixed obligation at the beginning of a compliance period PCSs do not know their actual obligation (i.e. the actual tonnage they are required to finance) until after the compliance period has ended and the total amount of WEEE that has been actually financed is known. This makes it difficult for any PCS to accurately plan to meet its true obligations. The Regulations recognise that it will be inevitable, even where all PCSs have viable plans and follow them, that PCSs will have collected too much WEEE in some categories and too little in others at the end of a compliance period. Following the end of each compliance period, there is a settlement period in which PCSs make arrangements to transfer amounts of evidence to resolve these imbalances using the Settlement Centre funded and managed by BIS. However, no PCS is entitled to rely on this trading mechanism to meet more than a 'marginal' proportion of its obligation.

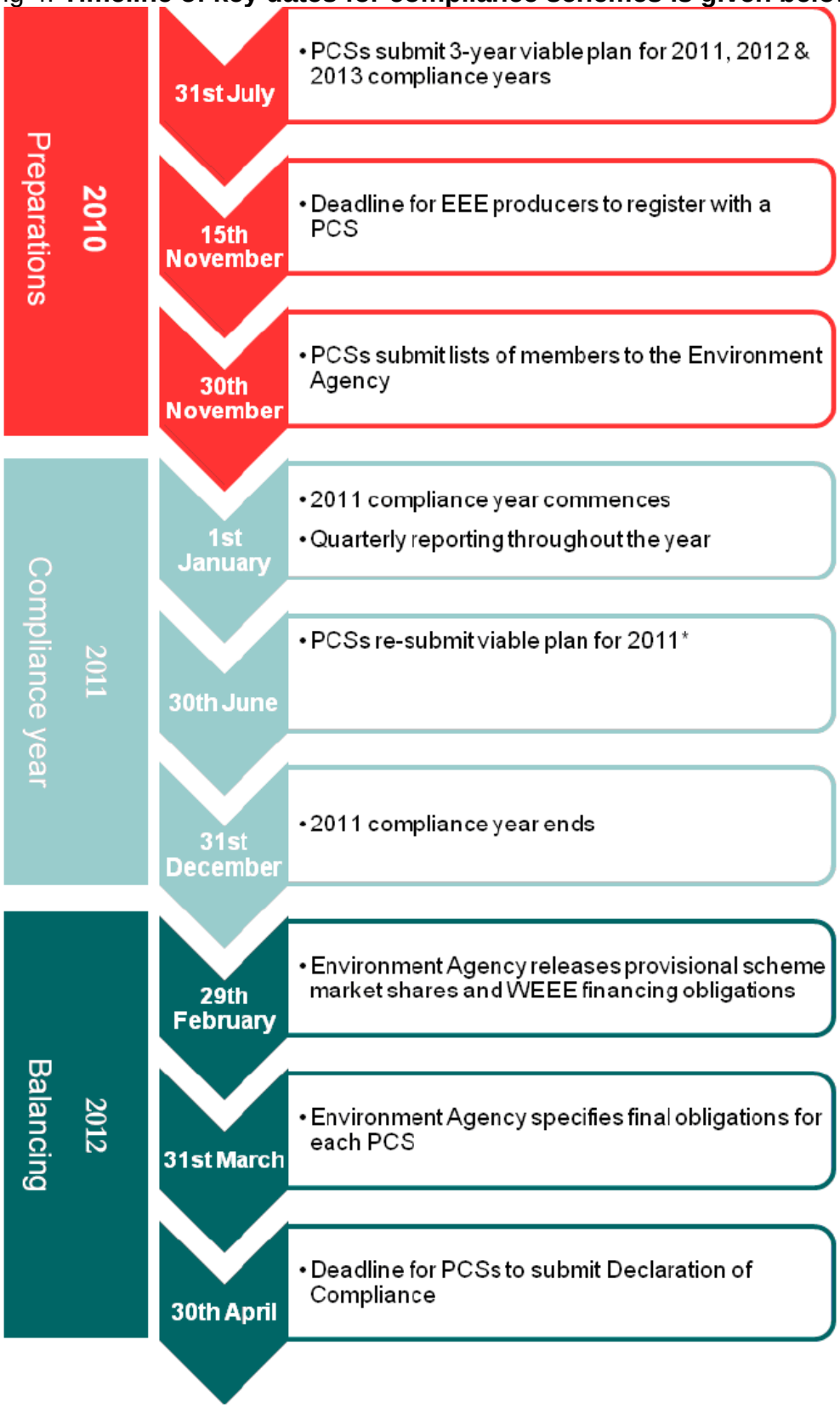
20. Because the WEEE regime operates with a 100% market (i.e. every kg of WEEE collected from private households under Regulation 8 must be financed by a PCS) there is an economic benefit to be gained from having access to WEEE in excess of forecast obligation because there is a guarantee that another PCS will require that surplus WEEE in order to meet its financial obligations. This leaves a PCS potentially vulnerable to excess charging – at any point in the year.

21. Viable Plans form part of a rolling 3-year Operational Plan that PCSs are required to update and submit to the Agency for approval by 31 July each year. It is specifically intended to demonstrate that a PCS has arrangements in place to collect an amount of WEEE that is 'equivalent' to the amount of WEEE for which it is responsible for financing. These plans are reviewed by the Agency and schemes notified of EA approval by 30 September in the year before the relevant compliance year. Agency decisions are open to appeal which if unsuccessful would result in withdrawal of the Scheme's approval for the forthcoming compliance period.

22. Producers of EEE (i.e. UK manufacturers, importers and re-branders) irrespective of company size and amounts placed on the UK market are required to:

- Join a Producer Compliance Scheme (PCS)
- Register as a producer with the relevant environment agency (via their PCS)
- Provide data to their PCS on tonnages of EEE placed on the UK Market
- Mark EEE placed on the UK market with the "crossed out wheeled bin" symbol
- Provide information on reuse and environmentally sound treatment of new products
- Provide a producer registration number to distributors.

Fig 4: **Timeline of key dates for compliance schemes is given below:**



Source: Frontier

Mid-Year changes to Viable Plans

23. Where a PCS makes a significant change to its viable plan, they must notify the relevant environment agency within 28 days and demonstrating that it remains in balance. This will often trigger a need for other PCSs to alter their plans and notify the relevant agency due to the inter-dependency between schemes in maintaining viable plans.

24. One material change in a scheme's viable plan can result in a relentless cycle of notifications, with most changes triggering the need for changes in other PCS plans. These significant changes typically arise due to changes by local authorities to their appointed PCS but could also include changes to membership, collection sites or changes to arrangements with other PCSs that result in a viable plan being significantly out of balance. It's worth noting that these changes are against a background of PCSs predicting their likely obligations rather than having a set target to plan against.

Re-tendering of Local Authority contracts

25. PCSs can bid to win new contracts to clear local authority DCFs without any clear need for that additional evidence in order to maintain their viable plan. If successful this can often result in some (if not all) of that evidence being offered to the PCS that lost the contract. The outgoing PCS will invariably be compelled to purchase evidence from the new incumbent in order to maintain their viable plan. Other PCSs may be affected where the previous incumbent had an arrangement to supply evidence for certain WEEE streams which included forecast tonnages arising from that contract.

26. In establishing the current system the regulations always anticipated these arrangements between PCSs and local authorities would be non-financial without transfer of funds to either party. However local authorities and their waste management partners have increasingly recognised the value of these arrangements to PCSs who will invariably financially incentivise their bid in order to win the contract. This is typically in the form of a return to the local authority of the scrap metal value of WEEE arisings and funding towards awareness raising of the importance of WEEE recycling. Typically the contract is awarded to the scheme that makes the most attractive financial offer. Schemes that do not need the WEEE for their own obligation bid in the knowledge that those costs and profit can be recovered through the guaranteed sale of that evidence to a scheme required to purchase their evidence.

27. Waste management companies are increasingly managing the selection and management of PCS's on behalf of the local authority. Their model typically is to enter arrangements for transport and treatment with AATFs and then simply enter an arrangement with a PCS for the supply of evidence. The 100% system in which all WEEE must be financed by a PCS encourages this type of operation which is conducive to excessive charging.

28. Taking overall control for transport and treatment of WEEE can in theory bring advantages and incentivises higher collection levels – by charging schemes an agreed price per tonne the WMC clearly benefits from higher volumes and the likely reduction in waste to landfill will also bring financial reward to the WMC as a consequence of incentives built into their local authority contract.

29. In summary it is this trading of WEEE evidence and the “must buy” requirement on schemes in order to meet their financial obligations that have created the excess costs that larger producers are pressing the Government to address.

Movement of Producers between Schemes

30. There is no evidence to suggest that, as a general rule, costs to producers are markedly different between schemes, even though it’s likely that costs are. This indicates those that enter direct arrangements with WEEE collectors to meet obligations are simply making a higher margin than those that rely on evidence from others in order to maintain a balanced plan. So shopping around would not bring significant savings to producers. There has been very little movement between schemes particularly by large producers since the regulations entered force in 2007.

31. Additionally some schemes reportedly have onerous exit clauses. The regulations only permit a producer to change schemes before the start of a compliance period. Some schemes will be reluctant to accept new members if it will result in their viable plans being out of balance and given they may become reliant on evidence from other schemes in order to maintain a balanced plan. Equally, it is difficult for them to provide the producer with a firm price since they would have no guarantee of the cost of evidence they would be required to purchase. Those schemes that sell evidence in order to maintain a balanced plan have a business model that is reliant on this activity in order to maximise revenue and profitability. An increased membership may not be compatible with their business model

32. If multiple schemes remain a feature of the revised regulation, the new system should seek to ensure greater competition between schemes for members and consider any unintended consequences that are likely to inhibit the movement of producers between schemes

Breakdown of costs to producers to discharge individual obligations:

33. As discussed, producers of household EEE must finance the collection, transport, treatment and recycling of WEEE collected with the volumes they are obligated to finance reflecting their market share of EEE placed on the market (pom). The cost incurred to discharge producers of their obligations is referred to as the ‘price of evidence’. Key factors which affect this cost (passed onto producers) have been highlighted as:
    - Transport cost (vary depending on geographical location)
    - Treatment and recycling (varies by category of WEEE, some are net revenue)
    - Material values (vary depending on category)
    - Access to WEEE costs from DCF
    - Environment agencies fees
    - PCS fees and administrative costs
    - Producer admin costs data monitoring and reporting requirements

34. The price of evidence is thought to be higher than costs because of:
    - Productive inefficiencies borne by guaranteed demand of evidence due to 100% clearance of WEEE requirement.
    - Trading of evidence by PCS holding surplus WEEE to balance obligations between PCSs.

- Number of intermediaries like WMC, distributors and PCS who have the opportunity to inflate prices
- Lack of transparency on costs
- Relative bargaining power of agents creating an uneven playing field and allowing for inflated costs to pass through to producers.

Responses to the Call for Evidence on the UK WEEE System

35. A Call for Evidence was launched on 28 May 2012 following the Red Tape Challenge commitment to address producers' concerns about the cost of compliance. Responses were supplemented by additional stakeholder engagement through September and October 2012. A summary of responses is out below:

Table 1: Issues identified by respondents with the current WEEE system

Issue	Producer	PCS	AATF	LA	Other	Total
'Must buy' system encourages price hikes in the costs of obtaining evidence, particularly at the end of the year. Creates a false market where over-collectors can profit at the expense of producers. The current system is closed, and does not enable an open, competitive marketplace, which would drive down costs.	7				1	**8**
Lack of direct access to WEEE/too many intermediaries. The significant differential in evidence prices appears to be occurring in the links between the AATFs and Producers (i.e. WMCs and PCSs).	14	2	1		1	**18**
The cost of evidence is affected by WEEE Settlement Centre timings and delays in the system. This tends to have higher impact on non-contractual transfers are undertaken during the settlement period; little evidence transfer occurs between January and March as schemes wait for their final obligations to be issued (reluctant to exchange evidence until they know whether they are in surplus or deficit).	4	3				**7**
There is currently no transparency in existing system relating to the actual costs of WEEE recycling and the resulting price of evidence[3].	5	1		1	1	**8**
Obligations should be set based on previous year's data – would provide more certainty and enable more effective planning.	2	4				**6**
Larger producers are not tendering for their PCSs and do not switch PCSs – could be due to producer-led schemes or that fact that their large obligation could not be met by other PCSs. Leads to lack of competition.	2					**2**
Lack of policing/controls on safe treatment of WEEE (for example GDLs), and enforcement of standards (for example BATRRT, DCF Code of Practice). Concerns over the standards of treatment applied to evidence obtained from third parties – cannot be verified. (Note: PCSs also have a responsibility to audit treatment standards at AATFs; however, this introduces conflict of interest as PCSs need to obtain evidence at low cost).	13	2	3		6	**24**
Better evidence data checks required by EA/PCSs.	3	1			1	**5**
Quarterly reporting significant burden (could be annualised).	2		1		2	**5**
Uncertainty in WEEE supply to AATFs. Retendering can accentuate these shifts.					1	**1**
The current system does not encourage growth in recycling; if effect the current system can almost act as a disincentive to recycle more, as the more that is collected (of the cost WEEE), the higher the costs for producers.					1	**1**
Lack of incentive to develop or design-in novel end-of-life recycling capability to products.	2					**2**

[3] *Increasing transparency and linking prices to the costs of collection were not welcome suggestions.*

Issue	Producer	PCS	AATF	LA	Other	Total
Lack of emphasis on WEEE re-use.					2	**2**
Lack of consistency with other producer responsibility systems/directives.	2	2	2		3	**9**
Ambiguity in regulations creates administrative burden liaising with authorities (for example filament bulbs are not in scope of the regulations nor are household light fittings, but LED bulbs, halogen bulbs and CFL bulbs are in scope).	1				1	**2**
Key licenses are very expensive in comparison to EU member states (notably Trans-Frontier Shipment (TFS) licence, Alkaline battery processing licence) and there are often delays associated with their issue.					1	**1**
Local authorities are not able to recoup revenues from WEEE that they are obliged to collect (at cost). Local authorities benefit from in-kind support of PCSs, through marketing support, communications, additional staff at DCFs, etc.		1		1		**2**
Dual use coming into scope as B2C under the Recast could see significant increase in costs – waste holders will have the opportunity to ransom price PCSs with IT/lamp obligations.	14	2				**16**
Viable Plan system restricts opportunity to grown collections and membership. The Viable Plan system ties PCSs into long term arrangements with other schemes and makes it very difficult to add new large members or new DCFs without continually updating the plan and then having to re-arrange supply contracts.		4				**4**
Total number of responses to call for evidence (including breakdown of group submissions)	**29**	**11**	**6**	**5**	**11**	**62**

Section 3: Rationale for intervention

Market failures borne from regulatory failures:

Monopoly Behaviour:

36. There is no incentive for a PCS to offer a lower price to attract new members even where it has surplus WEEE, since it can always sell surplus evidence to deficit PCSs who must buy at the given price to meet obligations or face criminal sanctions.

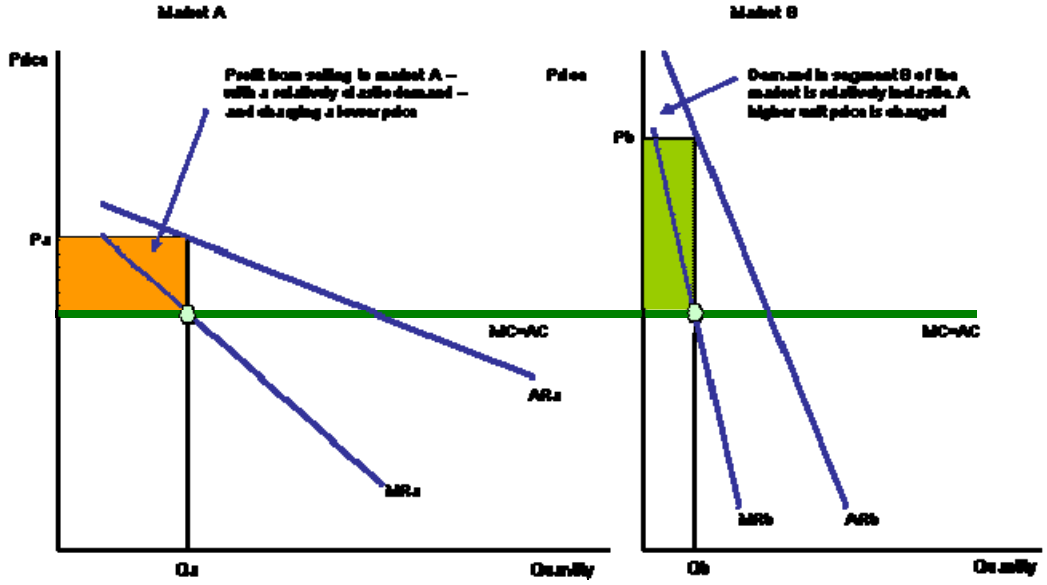
37. Furthermore, there is little incentive/ability for producers to switch between PCSs. A producer will not switch if the switching costs in terms of monetary cost, effort, time, uncertainty, and other reasons, outweigh the price differential between the two suppliers.[4] With prohibitively high switching costs, the producer is said to be locked-in to the supplier. If a supplier manages to lock-in consumers, the supplier can raise prices to a certain point without fear of losing customers because the additional effects of lock-in (time, effort, etc.) prevent the consumer from switching. Where switching costs for a producer are prohibitively high, the situation can be modeled as a **monopoly** – where there is increased risk of price discrimination.

38. **Price discrimination:** Producers, especially those with large proportions of EEE pom will be prevented from "switching" to other PCS because other PCSs may not have the means of accessing additional WEEE to cover a larger obligation (i.e. lock – in). Furthermore, a PCS will not be able to tell the producer it's charges as a result of them switching to them, given they won't know the cost of accessing the additional WEEE evidence required. This gives a PCS more leverage and could allow for third degree discrimination – this type of discrimination means that the prices charged may bear little or no relation to the actual costs. EA data from 2010 -11 shows that 3% of producers switched, on average those that didn't switch had over two times as much tonnage in obligation relative to those that did switch – i.e. smaller volume producers switch more.

39. To illustrate the point a large tonnage producer may want to switch from PCS1 to PCS2 – in order to access additional WEEE required to meet a higher obligation PCS2 may need to obtain additional WEEE from PCS1. With this knowledge, PCS1 can transfer that WEEE evidence to PCS2 at a higher rate, if passed through to producer at the same rate, switching will only increase the price paid by that producer.

[4] Types of switching costs include exit fees, search costs, learning costs, cognitive effort, emotional costs, equipment costs, installation and start-up costs, financial risk, psychological risk, and social risk. Exit fees include contractual obligations that must be paid to the current supplier and compensatory damages that may be awarded for breach of contract.

Fig 5: Price Discrimination



40. A PCS may want to retain some level of membership for reputational reasons and also financial, as it can raise revenues through membership fees. For producers that can switch easily (e.g. smaller producers) the PCS could fund WEEE up to where MRa = MC and charge price Pa, where producers are unable to switch easily the PCS could fund WEEE up to where MRb = MC and charge price Pb. Given the relatively inelastic demand (see para 43) for WEEE evidence (high willingness to pay), producers that are unable to move will pay a higher price (Pb) than those who can switch more readily (paying price Pa). However, some small producers are more likely to experience inertia and resource constraints with respect to switching, as they will have less resource to put towards investigating the market for a lower price.[5] There is also a risk of first degree price discrimination, where irrespective of the deficit PCS and the make up of it's membership, a surplus PCS can charge up to the maximum amount a deficit PCS would be willing to pay for the WEEE it needs to meet it's obligation – there is a greater risk of this towards the end of the compliance period where options for alternative sources of WEEE for the deficit PCS may be limited/zero.

41. **Asymmetric information** due to lack of transparency in the market on prices and the number of intermediaries that may provide a service to supply WEEE evidence. This leaves producers in a weaker position to move to a PCS that offers the best deal without going out to tender (incurring switching costs). Furthermore the PCS will have asymmetric information on costs incurred/revenues obtained as a result of contracts between PCSs acting on their behalf and LA's, WMC, and AATFs – given all agents can pass full cost onto producers without there being any requirement on them to be transparent about their costs there is scope for inefficiencies, profiteering and moral hazard. The extent to which this can take place may be influenced by the governance structure of the PCS for instance producer owned schemes with producer appointed directors may require transparency on pricing e.g. Repic, ERP and

[5] For producers who are also concerned about the quality of treatment of their WEEE they will also be limiting their search to PCSs with a credible reputation.

Recolight. Operators that are vertically integrated to AATFs and WMC will have the advantage of direct access to WEEE, treating it at their AATFs and then selling the evidence, potentially to the highest bidding PCS. Although costs may be lower for such operating models there are limited incentives to pass on these cost savings due to moral hazard.

42. **Moral hazard arises in a principal–agent problem**, where one party, called an agent (PCS), acts on behalf of another party (producer), called the principal. The agent usually has more information about his or her actions or intentions than the principal does, because the principal usually cannot completely monitor the agent. The agent may have an incentive to act inappropriately (from the viewpoint of the principal) if the interests of the agent and the principal are not aligned. The PCS, LA and AATF all work to make arrangements for the collection, transportation and treatment of WEEEE on behalf of the producer who funds these activities. There are limited incentives for them to pass through cost savings/revenues but limited barriers to prevent passing on exorbitant costs.

Regulatory Failures:

43. **Guaranteed demand/inelastic demand.** The regulatory requirement for producers to finance the collection and treatment of 100% of WEEE from DCF and that made available via distributors (Reg 32, Reg 39, 40A), in line with their market share means there is a guaranteed demand for every tonne of WEEE. Demand is price inelastic given the penalty for non-compliance is criminal sanctions with implications on reputation. The resultant high willingness to pay of producers means they are vulnerable to excessive charging. There will also be higher costs incurred as a result of productive inefficiencies in the knowledge all costs can be transferred to producers (see para 62). Producers and deficit PCSs are all price takers and suppliers (LAs, some AATFs and surplus PCSs) are price makers.

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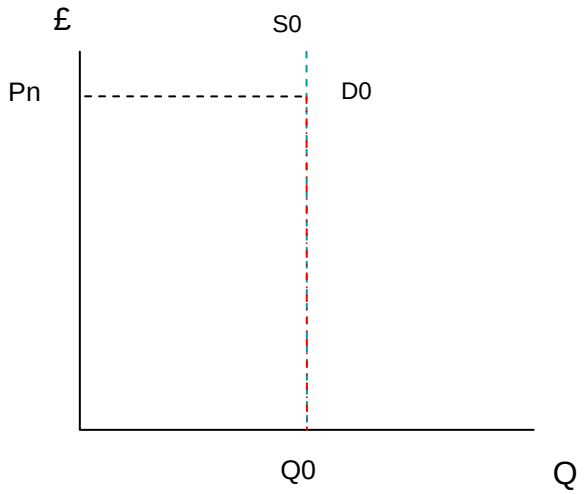
Fig 7: Inelastic demand and supply for WEEE



Pn – notional penalty; criminal sanction

44. The supply of evidence, S_0, is fixed (or perfectly inelastic) as there will be a given total quantity of WEEE, Q_0, in each compliance period. Q_0 is equal to the quantity of obligated WEEE collected/evidence notes produced in each compliance period.

45. At Q_0 the demand for evidence, D_0, is also perfectly inelastic as producers have an obligation to finance the collection, treatment and recovery of all DCF/Reg 39 obligated WEEE in each compliance period through a PCS. For the market overall the total available supply of evidence matches the total requirement for evidence i.e. supply can never be greater than demand and demand can never be greater than supply.

46. The demand curve, D_0 can be said to be perfectly inelastic up until the price of the penalty for non-compliance, P_n, as this is the maximum price buyers (ultimately producers but purchased through the PCSs acting as their agents) would be willing to pay for evidence. Where the cost of compliance and non-compliance are equal it can be assumed producers/PCSs will choose to comply, but will choose not to comply if the cost of compliance is greater than the cost of non-compliance.

47. Sellers of WEEE evidence are able to set the market price at any level up to a maximum price of P_n – this is above the marginal cost of evidence, MC_1, allowing suppliers to generate 'abnormal' profit.

48. Producers are locked into this market through their obligation and even if they suspect irregularity in the market cannot leave it. Not having an explicit penalty for non-compliance means that producers/PCSs face criminal enforcement proceedings for non-compliance and a fine of indeterminate, but potentially substantial value means there is effectively a 'sellers market' for WEEE evidence. Furthermore, the reputational damage from non-compliance for large producers in particular would heighten their willingness to pay for evidence.

49. The prices set by suppliers should theoretically be constrained by the penalty for non-compliance as no purchaser would pay more for evidence than the penalty price. However as the price of the penalty is unknown, it functions simply as a threat where the prices set by the suppliers of WEEE are in fact constrained by:

- Suppliers' perceptions of the producers/PCSs' price ceiling which will reflect how each individually values the threat of non-compliance and so allows sellers to price discriminate; and
- The possibility of Government intervention in the market (for example through sanctions) which might affect suppliers' level of profits and so leads them not to set too excessive a price for WEEE evidence.

50. Given the inelastic demand there is no incentive to pass on these savings in the price of evidence as suppliers can still set the market price.

51. Although the fact that suppliers and producers might both be fined should lead them to trade with each other to reduce their aggregate exposure to fines, this is offset by the specific possibility of price discrimination within what are

relatively thinly traded markets. A seller may be able to reduce their own risk of a fine (by agreeing a trade and reducing their potential unmatched volume) and also make money from selling to a buyer who is unaware of other possibilities in the market. This 'double benefit' is attractive to sellers especially where their loss of reputational risk may be low while the buyers' is high.

52. In this market structure and with these types of participants the market price comes to be set by suppliers of evidence at the price they believe the market will accept rather than at the costs of creating the evidence. An obvious reference point for this price is the price achieved in the previous compliance period as this represents a level the purchasers of evidence are willing to pay and, as the price is no higher than in previous compliance periods, a level which is unlikely to attract the attention of the regulators. Although prices are sticky downwards they are not necessarily sticky upwards. If total evidence costs increase, prices are likely to increase and potentially by the same amount in order to maintain levels of profit.

53. Therefore, the structure of the current market for evidence means the price of evidence is unlikely to decrease below a level perceived as acceptable to the market by suppliers but is likely to increase whenever costs increase.

54. In this market **trading** is necessary because the supply structure doesn't lend itself to specialisation i.e. the PCS has to clear all WEEE streams at DCF site irrespective of what WEEE streams it requires as per its obligation. The trading of evidence and consequent presence of a secondary market inflates prices by encouraging over collection as a result of the guaranteed demand, which allows surplus PCSs to transfer WEEE evidence to deficit PCSs at a premium.

55. There is no limit on over collection[6] a PCS just need to demonstrate how it will balance it's obligation through agreed transfers to other PCS. Some PCSs claim the phenomenon of excessive charging is heightened at year end. This may be because a PCS is more likely to find itself in a monopoly position with the last surplus tonnage in any given category resulting in up to 13 monopolies (i.e. for 13 categories). This is exacerbated by PCSs not knowing how much they need to meet their obligations until the end of the compliance period. Some PCSs argue that price transparency in the existing system would be unwelcome as it would lead to a rise in prices towards the maximum charge.[7] Especially given 5 PCSs account for ~75% of the total obligation for WEEE (2011).

56. The settlement centre data (2011) shows that WEEE evidence was purchased by a PCS in a scenario where that PCS didn't need it - i.e. it had already met it's obligation at category level. This was the case for 29% of GDL, 13% for Toys, leisure & sports equipment and 7% of WEEE evidence for both IT & telecommunications equipment and Consumer equipment. This suggests the WEEE may have been purchased for the sole purpose of re-sale, for commercial reasons only, rather than to balance obligations.

[6] The settlement centre is a trading platform for WEEE to assist PCSs in balancing their obligations – funded by BIS.

[7] Note that "over collection" does not imply higher levels of collection across the UK it simply means a PCS is collecting a higher share of the 100% that has been collected than they require to meet their obligation. That must therefore leave another scheme as an "under collector".

Competition Assessment: Porter five forces analysis

57. **Porter's five forces analysis** is a framework to derive five forces that determine the competitive intensity and therefore attractiveness of a market. Attractiveness in this context refers to the overall industry profitability. An "unattractive" industry is one in which the combination of these five forces acts to drive down overall profitability. This framework is used to explain some of the behaviors within the existing WEEE system.

Fig 8: Porter's five forces

58. Porter's five forces include - three forces from 'horizontal' competition: threat of substitute products, the threat of established rivals, and the threat of new entrants; and two forces from 'vertical' competition: the bargaining power of suppliers and the bargaining power of customers.

59. **Threat of new competition**. Access to DCF WEEE (supply) by PCSs may be established for lengthy periods as per contractual agreements, making it harder for new entrants to access WEEE at any given point. Furthermore, a large percentage of DCFs are in the hands of WMCs. However, new entrants can still enter the market by accessing WEEE via the secondary market (trading) at a higher price if not directly. Evidence from PCSs suggests that costs are on average 1.6 times higher when obtained via the secondary market. In a normal market it may be expected that PCSs with higher costs would be squeezed out by more competitive counterparts but the existing system means producers have limited options with respect to switching and prices charged by PCSs tend towards the maximum as there is little incentive to keep prices down.

60. **Threat of substitute products or services** is non existent, in the broader sense. ‘Evidence’ of any tonne of WEEE is directly substitutable with another tonne of WEEE within the same category. However, producers cannot substitute to ‘alternatives’ (e.g. non-WEEE waste) and given legal obligations on producers there is a guaranteed demand for WEEE evidence.

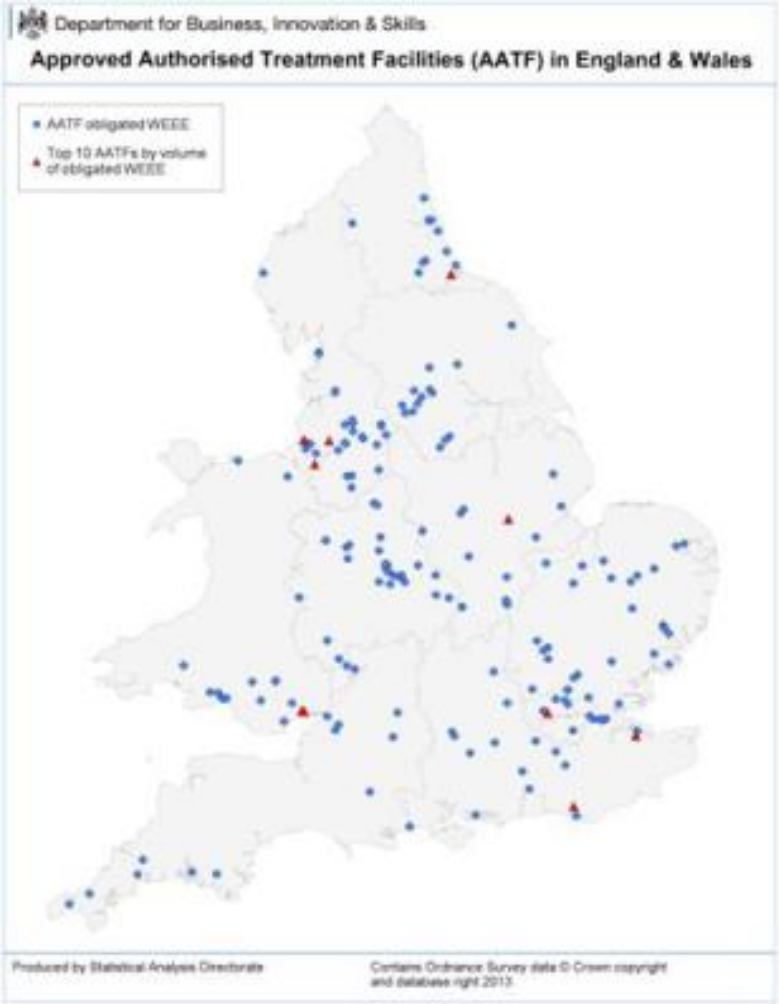
61. **The bargaining power of buyers (producer and deficit PCS).** If the producer carries large obligations, the degree of dependency upon a PCS may be high given alternative 'better' options are unlikely to transpire – especially given switching costs. Conversely smaller producers may have more bargaining power as they can switch between PCSs more easily. However, smaller producers may be more resource constrained with respect to search costs. Overall producer bargaining power is low. Likewise bargaining power of deficit PCS (as buyers) will be low as the market will be aware they must fulfill their obligation and alternatives are not available.
62. **Bargaining power of suppliers (local authorities, surplus PCSs)** is strong. LA's are aware PCSs need to access their WEEE in order to meet obligations, furthermore they are aware that costs will be covered by producers, ultimately. This allows LAs to release contracts to the highest bidder (/37 PCSs). There are approx 1500 DCF sites in the country, their attractiveness and consequent bargaining power will vary depending on their proximity to AATFs (to minimise transport costs) and volume of collection (to obtain EOS). A disproportionate amount of bargaining power rests with the supplier of WEEE leading to *productive inefficiencies* as WEEE collectors can move to increasingly expensive methods of collection as they are guaranteed a buyer for any WEEE irrespective of category.[8] The same situation arises with surplus PCSs who are in effect suppliers of WEEE for deficit PCSs, productive inefficiency arises here as PCSs are willing to tender LA/WMC contracts that contain onerous financial and operational clauses in the knowledge they will be able to sell the evidence obtained to other PCS, potentially with a commercial margin. Also, PCS can charge a premium for WEEE sold on the secondary market. The deficit PCS who purchases WEEE on the secondary market can pass costs onto their producers who won't want to risk not fulfilling their obligation.

63. **Intensity of competitive rivalry** with respect to PCSs in this system doesn't drive down the prices because of the guaranteed / price inelastic demand and 100% cost pass through to producers. The number of PCS competitors would not restrict abuse of the market or reduce prices as demand will remain inelastic and over collectors will always be guaranteed a buyer by definition as a result of obligations being borne from the 100% market share requirement.

64. AATFs can pass on all costs to PCSs who pass on full costs to producers. The treatment sector is generally seen as a competitive market with over capacity - although an AATFs competitive position will vary depending on where the site is located (e.g. close to other AATFs) and what categories of WEEE it treats. Incentives to pass on savings from efficiencies in logistics, technological progress etc will depend on the level of competition for any one site. See fig 9 for site map showing the geographical spread of AATFs.

[8] The theoretical upper bound being the level of collection where the marginal cost of collecting an additional tonne of WEEE reaching the maximum price the EEE producers are willing to pay for the additional tonne of WEEE,

Fig 9: Site map of AATFs in England and Wales



Data source: EA , 2011

Section 4: Description of Policy Options

65. This section provides detail on the 3 options appraised in this IA. It also provides a descriptive assessment of the options.

66. The call for evidence issued by BIS highlighted areas where respondents felt changes could improve the system

67. Following on from the call for evidence (cfe) and in consultation with stakeholders three main options have been worked up. A summary of which is presented after table 2.

Table 2: Proposed amendments to the existing system from respondents to the cfe.

Specifications	Producer	PCS	AATF	LA	Other	Total
Ensure that all WEEE from households is collected (i.e. no part-collections once obligations have been met/ensure that WEEE from rural areas/extremities is still collected).				1	1	**2**
Preserve free of charge WEEE collections from households.				1	1	**2**
Enable PCSs to continue existing support to local authorities (for example communications, additional staff at DCFs, etc.).				2	1	**3**
Provide more accountability relating to the costs of recycling WEEE.	5	1		1	1	**8**
Limit the amount of over collection of WEEE, where evidence is sold to other PCSs for high prices. Limit the ability of a PCS to self-appoint to collect WEEE on behalf of another PCS.					2	**2**
Focus on recycling and enable increases in the quantities of WEEE collected.		1			2	**3**
Enable a robust data reporting system, which is checked by PCSs and the Environment Agency.	3	1			1	**5**
Allow scrap metal values to stay with the DCF.					1	**1**
Show more consistency with other producer obligation schemes (for example similar to End of Life Vehicles, producers should only pay for negative value WEEE).	2	2	3		2	**9**
Allow longer contracts (local authorities to award contracts for several years if required. For AATFs, enable contracts of at least one year to provide better security in the case of AATF investment).			1	1		**2**
Address inconsistencies in UK legislation and provide clarification on specific terms/WEEE categorisation.					1	**1**
Ensure the safe collection and handling of hazardous WEEE (for example GDL), at appropriately licensed facilities, through better regulation and enforcement. Enable review of treatment standards for evidence – at present, PCSs are unable to enforce treatment standards on evidence purchased from third parties. PCSs are unable to verify the authenticity of the purchased evidence.	13	2	4		5	**24**
Provide PCSs with direct, free of charge access to any waste it is obligated to fund.	14	2	1		1	**18**
Enable annual, rather than quarterly reporting.	2		2		1	**5**
Align licensing costs with other EU member states.					1	**1**
Encourage design for re-use/recycling in EEE pom.	2					**2**
Minimise the burdens for small producers, SMEs and/or social enterprises.	3				1	**4**
Total number of responses to call for evidence (including breakdown of group submissions)	**29**	**11**	**6**	**5**	**11**	**62**

Summary of UK WEEE System Options

National PCS

- Producers can join a compliance scheme or fund their obligation through direct registration.
- WEEE collectors / producers (through DR) can choose, annually and by WEEE stream to manage collection and treatment directly, absorbing any revenues/costs. Posting evidence FOC into the central account.
- All DCFs / AATFs must report all WEEE separately collected to the PCS. Producers must report EEE pom figures to PCS.
- PCS contracts on an open tender basis for transport and treatment of WEEE – under independent scrutiny to ensure fair open competition.
- A Code of Practice for AATFs could be developed as contract criteria should include minimum standards as well as price. Not as much pressure to compete on price alone with one PCS.
- PCS runs a data analysis every year that calculates distribution of costs to producers based on their obligation and total net cost/revenue of WEEE category depending on type of EEE producer's pom - to prevent cross subsidising of streams.
- There is a possibility that IPR could be integrated via distribution of net revenues or for instance the Inclusion of weighted costs– e.g. provide pro-rated rebates to 'good' producers?
- Overall net revenues could be used to fund LA DCF collection infrastructure &/ activities to encourage consumer deposits to increase collections, enforcement, standards
- As scheme will have total net cost data, distribution of costs split fairly across producers (including where costs may be innately higher due to geographic location). Individual site to obligation matching not required.
- Governance structure of PCS could include direct control by board of representative producers. Strict operation on a not for profit basis (legal obligation for transparent accounts), requirement include transparent process for competitive tendering to transport and treat WEEE. PCS operates under a mission statement to ensure targets are met and DCF sites are cleared.
- If any one producer cannot/will not finance it's obligation it will face a penalty.
- Producers, will provide the funds to establish and operate PCS. Aim to achieve economies of scale in its operation.

Targets system/compliance fee option

- All producers must join a Producer Compliance Scheme.
- PCS's will each be given a tonnage target by stream or category (derived from portion of MS target and their market share at start of year.)
- WEEE delivered into an AATF/AE by a PCS generates evidence for that PCS.
- Any WEEE sent to/received by an AATF/AE by other persons generates data towards MS collection target
- Additional WEEE data generated from protocol sampling counts towards MS target.
- Evidence has no value and cannot be traded but Schemes may choose to contract with each other in advance of collections.
- PCS's are free to make any collection arrangements they wish. A PCS may collect more or less than its target but would face financial consequences:
- Collect too much, must finance it or retain the income. All the WEEE counts and the scheme is complaint
- Collect too little, can pay a compliance fee per tonne (category or collection group specific) into a fund (possibly to support WEEE related projects). Methodology to be agreed but designed to encourage achieving target. It is an alternative form of compliance and not a sanction.
- WEEE collectors can choose, annually and by WEEE stream to manage collection and treatment directly, absorbing any revenues/costs.
- A PCS must arrange collection FOC if asked by a DCF operator regardless of targets
- Development of a voluntary "PCS take-back scheme" is allowable, approved by BIS, intended to remove the risk of individual PCS's being asked by DCF operators to finance their WEEE collections at a level in excess of their own collection targets.

PCS-DCF matching process for cost streams

- All producers must join a Producer Compliance Scheme.
- WEEE collectors can choose, annually and by WEEE stream to manage collection and treatment directly, absorbing any revenues/costs. Posting evidence FOC into the central account.
- If they select the own-management route AATF/ eco operator must produce and report data of this WEEE treatment to a national WEEE database - this will be non-tradable (zero value) data. This data will count towards achievement of the national target
- LAs and/or other economic operators collecting can alternatively offer one or more of the household WEEE streams into the WEEE Matching Centre that will partner them with a Producer Compliance Scheme (PCS).
- A process will match LAs and other economic operators to PCSs based on their obligations by collection stream or cost based according to EEE market share.
- PCSs would be required to accept all LA sites matched to them in any one year. Where imbalances occur the matching would be adjusted in the following compliance period accordingly.
- For matched collection points PCSs are free to select all operational contractors, but must use AATFs and produce and report evidence of all WEEE treated.
- The Code of Practice will be strengthened and established as a high standard service level that all PCS must provide as a minimum, with appropriate investment requirements and performance levels specified, and penalties put in place for non-conformance.
- Producers, through PCSs, to provide the funds to establish and operate the WEEE PCS-DCF matching process.

Detail on 3 options

Option 2: National PCS

Detail

68. This approach contains few features of the current producer compliance system beyond ensuring clearance of WEEE from DCFs, providing a mechanism for distributors to return WEEE to the system and maintaining the current market share approach to calculating producer financial obligations. B2B producer obligations would remain unchanged. There would be one PCS which is responsible for establishing contracts with collectors and treatment facilities for WEEE returned to the system.
69. New features to be applied to the WEEE Regulations:
    - A single, national compliance scheme
    - Producers above a specified size given choice of direct registration
    - National PCS to be the sole collector of WEEE from DCFs, Distributors wanting the return WEEE to the system
    - DCFs can choose to control for arranging collection and treatment of value streams without the need to engage with PCSs thereby ensuring all value is retained by the collector.

70. Large producers that register directly with the relevant environment agency would not be required to join the producer compliance scheme. They would be responsible for setting up their own, individual collection system with the option to join and finance additional evidence from the National Compliance Scheme to make up any shortfall that accrued in any compliance period.

Assessment of option

Addressing market failures resulting from regulatory failures:

71. Risk of **moral hazard/principle agent problem** between PCS and producer reduced

    - Reduce **information asymmetry** between PCS and producers is possible e.g. by requiring PCS to publish accounts and or with governance arrangements agreed by producer community.
    - Board of representative producers given a role in overseeing its activity.

72. Impact of **switching**, **price discrimination**, **guaranteed demand and trading:**

    - This option would eliminate requirement to switch. But there is a risk that because of the inability to switch the PCS has no incentive to run efficiently / at low cost.
    - Price discrimination would be eliminated through agreement of PCS methodology for distributing costs fairly across producers. However, this won't necessarily lead to a reduction in the cost of compliance for producers but would ensure all competitor producers paid equitable price per tonne for compliance.

- The problems of inflated costs as a result of the guaranteed demand and trading are eliminated as there is only one PCS.

Impact on competition and costs:

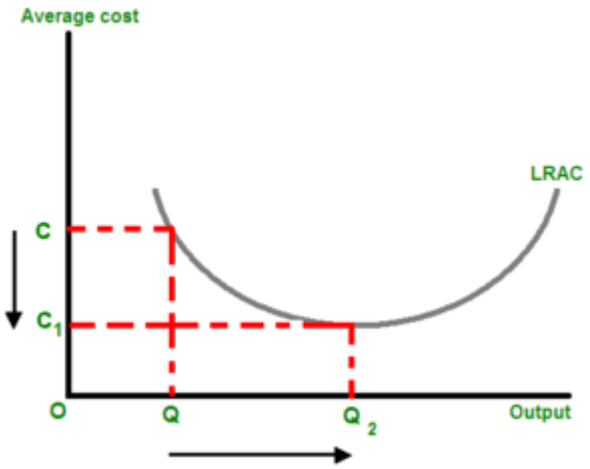
73. **Improving the bargaining power of buyers (producer and deficit PCS).** The 'deficit' PCS no longer exists. A governance structure of the PCS which allows producers to have direct control over its operation would give producers greater leverage. PCS will be able to access WEEE at lower costs due to greater bargaining power.
74. Giving producers over a certain size the option to directly register would maximise their bargaining power as it would have freedom to choose own collection and treatment routes.
75. **Reducing bargaining power of the supplier**. Currently LA's have access to WEEE and can negotiate with PCSs to maximise the financial benefits arising from the contract. PCSs will no longer be in competition for LA contracts and bid up the price. Where access is on a foc / standard basis, LA's still have the opportunity to raise revenue through self treatment and recycling of WEEE. The 'surplus' PCS will also be eliminated.
76. **Reducing bargaining power of AATF:** This option could leave AATFs with limited bargaining power as the single scheme controls all its obligated WEEE feedstock. However, the requirement for a geographic spread of AATFs to minimise transport costs could limit risks. In order to ensure that treatment facilities were competing on a level playing field the PCS would require clear and transparent tendering process. (See fig 9 for map of AATFs).

77. **Generating economies of sale (EOS):** Limiting the number of PCSs or having one PCS could generate for economies of scale, represented by a movement along the long run average cost curve (c to c1, fig 10) where there are reductions in unit cost as the size of a facility and the usage levels of other inputs increase.

78. Administrative costs per PCS which are passed onto producers appear to vary widely, reflecting in part scale efficiencies and the different levels of service a PCS may provide.

79. Managerial or administrative economies arise because the same people can usually manage with bigger output, so average administrative cost decreases when production increases. Large firms can employ specialists, which leads to the increase in efficiency. Limiting the number of PCSs would allow administrative burden of the PCS to be spread over a greater number of producers – keeping costs down.

Fig 10: Economies of Scale



80. Conversely there is a risk that limiting the number of PCSs could lead to inefficiency borne by lack of competition and consequent hike in cost of compliance for producers. Options to manage risks:

- PCS governance arrangements include transparency on costings and methodology and board of representative producers given a role in overseeing its activity.
- Introduction of competition through a Government Franchise governance structure.
- Price discrimination and excessive rents can be avoided if the PCS is obligated to share costs via agreed methodology.

Penalty of not meeting target

81. This would depend on governance arrangements e.g. a franchise could be removed. Levers to impose penalty for other arrangements could be limited, for instance, a fine from the enforcement agency may have little impact if the PCS lacks commercial interest and costs can be spread over the bulk of producers with minimal impact.

Standards of treatment

82. The standard of treatment is more likely to improve with this model as price will no longer be the key determinant of choosing between suppliers.
83. One PCS allows for tendering of contracts on a level playing field in this regard. If the PCS reduces the number of AATFs it operates with based on open tender competition process this could affect AATF industry – increasing economies of scale for those who receive extra diverted tonnage.
84. If long term contracts no longer guaranteed may adversely affect levels of long term investment e.g. innovative technologies.

Impact on collection

85. Incentives to increase collection rates could be engineered through utilising revenues received by PCS on a £/tonne basis in order to incentivise the PCS to maintain/increase collections.

Option 3: Collection Target/Compliance Fee

Detail

86. This option combines a number of features of the existing WEEE system with some features derived from the Batteries Regulations related to portable batteries combined with an option to pay a "compliance fee" by PCSs in the event that they do not achieve their collection target. Key features of the existing producer compliance system that are retained are:
- DCF operators free to appoint a PCS of their choice (if on the same basis as the existing system this would be after conducting a tendering process),
- PCSs free to appoint contractors to undertake collection treatment and recovery of WEEE in line with legislative requirements,
- Distributors free to enter arrangements with a PCS of their choice to return WEEE under Regulation 32,
- Provision for PCSs to establish collection routes under Regulation 39,
- PCSs free to enter commercial contracts for subcontracting of collections on behalf of another PCS,
- Producers free join a compliance scheme of their choice and to remain with that scheme for a compliance period,
- B2B producer obligations remain unchanged,
- The Settlement Centre is the mechanism in place to demonstrate evidence of the amount of WEEE tonnage financed by each PCS.

87. Key features derived from the Batteries Regulations:
- Provision of an annual collection target expressed in tonnes for each PCS at the start of the compliance year and split by WEEE collection stream,
- A requirement for PCSs to provide free uplift of WEEE if requested to do so from a DCF operator. In the Batteries Regulations a similar guarantee is provided to distributors,
- No provision to trade evidence once it has been accredited to a PCS.

88. New features to be applied to the WEEE Regulations:
- Provision for establishing a compliance fee as a means of compliance for PCSs that do not achieve their collection target,
- Provision to establish a PCS run body to develop a mechanism designed to remove/reduce the potential risk that an individual PCS may be asked by DCF operators to finance WEEE collections at levels beyond its target amount,
- Provision to establish a "Producer Take-back Scheme" to develop a mechanism for equitably sharing costs excess collections in the scenario in which all PCS members exceed their collection target in any given WEEE stream,
- DCFs can choose to take control of arranging collection and treatment of value streams without the need to engage with PCSs thereby ensuring all value is retained by the collector.

Setting the Collection Target

89. Until 2016 the collection target would be derived from the member state collection target based on historic annual average over the previous three years. PCSs

would therefore be required to maintain current collection rates for B2C WEEE based on existing market shares of EEE placed on the market in each of the 5 collection streams and adjusted to take account of any movement in PCS membership of .producers. The requirement to finance the collection and treatment of all WEEE that arises via the collection network would still be in place (see para 96 on producer take-back scheme).

90. From 2016 the Member State collection target is based on 45% of EEE placed on the market as an average over the preceding three years. It is proposed that the UK achieves that target by combining data from 3 sources:
- "Substantiated estimates" of WEEE likely to be collected and treated outside of the producer compliance system in any given compliance year (B2C+B2B), see IA0382.
- B2B WEEE financed by producers,
- B2C WEEE financed by producers arising from DCFs, Distributors and collected under Regulation 39.
- B2C WEEE financed by collectors directly e.g. DCFs

91. The target established for B2C PCSs aim to capture sufficient WEEE to achieve the member state target having first taken into account estimates of WEEE being collected and treated outside of the system and via B2B producers. It would be split by collection stream and apportioned according to market share to each PCS. Due account would need to be taken of the need to ensure fair allocation across the categories that comprise the small mixed WEEE collection stream

Establishing the Compliance Fee

92. The compliance fee would be set at a level that ensured undertaking physical collection was the most price competitive means of compliance. This would encourage and reward physical collection thus optimising the prospect of achieving the member state target each year.

93. The mechanism and pricing should be established in such a way that would minimise any risks that it could set a ceiling price for access to WEEE or pricing of subcontracting arrangements between schemes.

94. It is proposed that the regulations simply provide enabling legislation for such a system to be established subject to approval of the Secretary of Sate. In that sense the approach is similar to the provision in the existing WEEE Regulations that allow for the establishment of the Distributor Take-back Scheme (DTS).

95. It is envisaged that producers working with PCSs would formulate proposals setting out who would run the compliance fee scheme, the mechanism for setting the price, management of the scheme including calculating and verifying the amount to be paid by PCSs, management of the dispersal of funds and liaison as necessary with the regulators and Government.

Establishing a Producer Take-back Scheme

96. The regulations would provide enabling legislation that allowed for such a scheme to be established subject to approval by the Secretary of State. The overriding objective would be to establish a mechanism under which PCSs that chose to join the scheme would be able to minimise commercial risks of being forced to collect WEEE in excess of their target amount.
97. In a scenario in which a PCS was asked to collect WEEE from a DCF that was in excess of its target, the Scheme would develop a method to ensure that WEEE was assigned to a member that was in shortfall. If all PCSs exceeded their targets in any WEEE stream, the Scheme would design a mechanism to ensure the costs of collecting that excess were fairly apportioned across the PCS membership.

98. There is an argument to allow more than one Producer Take-back Scheme to be established. The Scheme(s) could also be responsible for management of the compliance fee however the methodology for its operation would have to be common to all in the event that multiple Producer Take-back Schemes were established.

Assessment of option

Addressing market failures resulting from regulatory failures and regulatory failures:

99. Unlikely to address risk of **moral hazard/principle agent problem** between PCS and producer or reduce **information asymmetry**. There will still be the same number of intermediaries acting on behalf of producers – but their ability to pass on excessive costs above a certain level will be dampened.

100. Encouraging **switching** and reducing the risk of **price discrimination**. This option could reduce the risk of over collecting by weakening the guaranteed demand that exists within the existing system. This would lead to PCSs limiting their surplus (and deficit) collections and could improve competitive pressures between PCSs as membership affects obligations and the level of access the PCS bids for to meet its obligation. Surplus PCSs would have a greater incentive to attract new members in order to finance any surplus since sale to another PCS would no longer be guaranteed. This option however may not eliminate the 'lock in' for larger producers as deficit PCSs may not be able to guarantee (lower cost) access to additional WEEE required with the entry of new larger producers in their membership. In this scenario the PCS may still be reliant on WEEE subcontracted from other PCSs and may be unable to guarantee lower prices for the producer.

Impact of guaranteed demand and trading

101. Trading of evidence ex-post, would no longer take place as evidence posted on to the settlement centre[9] would have no value from that point. However,

[9] Settlement centre is an online trading platform used to trade WEEE evidence in the existing system

bilateral contracts between schemes, in place before WEEE is treated would allow the transfer of WEEE from surplus PCSs to deficit PCSs. Allowing transfer agreements to occur before treatment will stop secondary trading that is apparent in the existing system e.g. PCS purchase evidence despite having already met obligation i.e. for the sole purpose of selling.

102. A portion of the Directive targets of 45% EEE pom (and later 65%, subject to Commission review) would be devolved down to PCSs (e.g. 5 WEEE streams). The targets would be adjusted to take account of substantiated estimates on non-obligated WEEE and LA opts out streams. Irrespective of targets there must be a guarantee that 100% of WEEE at DCFs will be collected and treated (if PCS has already met it's 45% EEE POM target it can share additional costs of having to clear a DCF with other PCSs through a take-back scheme, see para 96-98).

103. Where demand (driven by targets) is close to or greater than supply of WEEE, requiring all or nearly all WEEE to be cleared at DCFs – the guaranteed demand will still exist to some extent – given the compliance fee may be set a price which is higher than the market price, and by definition be less attractive. In this scenario, there is a risk that the level of the compliance fee will set price of all WEEE i.e. WEEE could be priced at a fraction below the expected compliance fee cost. However the removal of ex post trading increases the financial risk to the surplus PCS in entering contracts beyond their collection target.

104. Where supply is greater than demand i.e. the targets allow for slack in the system (not as ambitious as requiring all DCF WEEE to be treated) then for surplus WEEE there may not be a guaranteed buyer and there will be downward price pressures fostering competition.

105. Historical data on EEE pom and WEEE collection suggest the 45% EEE pom targets are ambitious relative to supply (without any adjustment for provisions made in para 88). Based on 2011 data the UK falls short of the target by 1%. In 2011, 45% EEE pom equated to 512k tonnes whilst all WEEE treated at AATFs (including B2B) equated to 505k tonnes[10].

106. To summarise, the guaranteed demand will exist to a lesser extent **if** there is slack in the system (supply> demand), this could occur if

a) targets are met without requiring all DCF WEEE to be collection i.e. low 'ambition' relative to collection rates. This means a PCS could meet its obligation relatively easily given availability of WEEE. This would increase competition between surplus PCSs who may need to lower prices to attract buyers.

107. In addition by offering an alternative option through the compliance fee, the risk of guaranteed demand is reduced.

[10] £485k tonnes of which are B2C.

b) PCS buyer does not agree with price and conditions of the PCS transfers available and opts for the compliance fee – the attractiveness of this option will depend on what the expected fee is.

108. In this scenario, where you don't have guaranteed demand, over collecting WEEE could be risky as
- Surplus PCSs will be liable for the financing of collection and treatment of excess WEEE. This would be over and above their obligation increasing costs for their producer members.
- Surplus PCSs currently rely on payments for evidence through the year from other PCSs in order to pay treatment facilities. For excess tonnage on sale, a PCS will have to incur the costs of treating WEEE if it can't find a buyer, at least temporarily. Even if a PCS requests the AATFs doesn't issue evidence for extra tonnage until the end of the year (in expectation that a deal could be done with another PCS) that AAFT will still require payment. In this scenario it would have to be financially viable for the PCS to hold a liability on its books for a period of time.

109. If the target meant demand was greater than (or close to) supply this could raise prices possibly towards the level set out by the compliance fee, depending on how it is implemented and the extent to which PCSs could reasonably calculate the charges that would be payable by PCSs who fell short of the target.

Impact on competition:

110. **This option could drive competition by** improving the bargaining position of deficit PCS by providing it with an alternative option which is to pay a compliance fee per tonne (at category or collection stream level) in to a fund. However, the extent to which it leads to price competition will depend on factors other than the compliance fee e.g. target and supply of WEEE.[11]

111. **Competition and lower cost of compliance is more likely.** Bargaining power of the surplus PCS is reduced but still potentially strong. If the 45% EEE pom targets are ambitious relative to WEEE collection rates, there is reduced incentive to limit over-collection, in fact there may be an advantage in doing so as an over-collector may still be able to transfer any surplus WEEE via contractual agreements to deficit PCS. The compliance fee could reduce risk of excessive pricing depending on how it's structured/agreed.

112. **Impact on price:** if the market it tight (e.g. where targets are ambitious relative to supply) – depending on how it is constructed the compliance fee could set the price for all WEEE that is subcontracted from one PCS to another, as a surplus PCS will be aware that the deficit PCS has a choice to pay a compliance fee if it doesn't buy evidence from them. If there was total transparency of the fee payable by a deficit PCS in each WEEE stream or category the surplus PCS would be able to charge up to a fraction below (at an extreme) the compliance fee price. This could lead to inflated costs of

[11] Currently 70% of WEEE within the system is sourced from DCFs

compliance. Given the volume of WEEE (including unobligated) is unlikely to vary much from year to year PCSs will develop a sense of how achievable targets are after year one. They may be able to develop estimations of demand and supply in the market at any point in time to assess bargaining power – where demand is greater than supply deficit PCSs will have less bargaining power and prices could be inflated (up to the compliance fee). Where supply is greater than demand there will be more price competition for WEEE. In both scenarios however, without a contractual arrangement with another PCS, a surplus PCS will not be assured a buyer for surplus WEEE when entering a contract with a collector and AAFT.

113. If the compliance fee is higher than existing costs this could nevertheless allow surplus PCSs to profiteer. In the long run, you might expect that those PCSs who do not have direct access to the WEEE and face higher costs as a consequence to leave the market as they will pass on higher costs to the producers. However, prices could tend towards the maximum, surplus PCSs being aware that producers are being charged a higher price elsewhere will raise their prices (to producers) to the level of deficit PCSs, as happens in the existing system. This would allow for further profiteering for those PCSs who are able to access WEEE directly.

114. Bargaining power of deficit PCS is higher as the existence of a 'compliance fee' provides an alternative option. The extent to which there is slack in the system will influence their bargaining power. Nevertheless, deficit PCSs may be forced to either contract with a PCS at a higher price (close to expected compliance fee) or to pay the compliance fee. This risk could be mitigated if over-collection was limited.

Are risks manageable?

115. Theoretically, one way to address issues of overpriced transfers of WEEE is to minimise under and over collection in order to limit the need for sub-contracting, for instance allowing over and under collection by 5-10% only. This would minimise the need to sub-contract. Some existing PCSs would be required to be released from existing LA contracts whilst others will be required to take over in order for level of access to WEEE to reflect PCS obligations. However, this would be difficult in practise, unless a mechanism is in place to allow for contractual arrangements between PCSs and LAs to shift as obligations increase/decrease. It would prevent producers from switching unless the PCS they wanted to move to was able to acquire new contracts to allow it. In effect it would require a central matching system that allowed flexibility in movement between LA's for PCSs to obtain access to the WEEE.

116. Rather than introducing a compliance fee with an explicit/implicit price PCSs could opt to enter arbitration arrangements, where it cannot come to an agreement with another PCS to sub-contract WEEE at a give price. A process that allows parties to submit evidence and an independent body to make a decision would need to be set up. In order to prevent blockages in the system this would need to occur possibly twice in one compliance period.

117. To reduce the risk of the compliance fee setting the price for all WEEE one option is that it is not announced until/unless the need for it was triggered by a scheme that was short of its target. It would need to be established in a way that reduced the risks of players in the market being able to reasonably establish the amount any deficit PCS would be required to pay in each of the collection streams. Much rests on how the compliance fee is set and the how surplus PCSs judges the financial risk of maintaining contracts to collect WEEE beyond their collection target.

Ensuring Directive requirements are met:

118. Development of a 'PCS take-back scheme' established to remove risk of individual PCS being's being asked by DCF operators to finance WEEE collections at a level in excess of PCSs own collection targets. This idea is based on the premise that some DCF collection points could be left unfinanced, if all PCS s could meet their target through accessing less than total tonnage from less than all DCF sites. However, this would remain unlikely, as direct access would remain the least expensive way of obtaining evidence (i.e. relative to accessing via other PCSs or the compliance fee). The take back scheme would provide a safety net to ensure all WEEE is dealt with. However, its construction would have to be carefully considered so as not to eliminate risks of holding surplus WEEE as all costs for surplus WEEE could be shared by members of the take back scheme.

Option 4: PCS-DCF Matching Process for Cost Streams

Detail

119. Key features of the existing producer compliance system that are retained

- PCSs free to appoint contractors to undertake collection treatment and recovery of WEEE in line with legislative requirements,
- Producers free join a compliance scheme of their choice and to remain with that scheme for a compliance period,
- B2B producer obligations remain unchanged,
- Existing methodology for calculating producer/PCS obligations to be retained in a modified form.

120. This option could not be based on the adoption of targets for PCSs. The risk would be that if allocations were less than targets PCSs would be required to find additional WEEE outside of the allocation system to meet their targets in which case there is a risks of excess charging etc. The allocation system would therefore require obligations based on proportion collected relative to market share.

121. New features to be applied to the WEEE Regulations:

- A mechanism to be established to match PCSs to DCFs, distributors and other economic operators choosing to return one or more WEEE streams to the PCS system.
- DCFs can choose to control for arranging collection and treatment of value streams without the need to engage with PCSs thereby ensuring all value is retained by the collector.
- Code of Practice to be strengthened to include guaranteed minimum service levels that PCSs must meet in servicing DCF, distributer and other economic operator needs

122. The method and cost of developing and running the matching system based on an matching algorithm would be funded and established by producers and agreed in advance of the proposed changes. See Annex A for detail on the Italian and German system in particular. The methodology would need to take account of the following variables:

- Volume of WEEE arising at each collection point split by WEEE stream,
- Transportation costs from DCF to treatment facilities,
- Number of DCF, Distributors and other economic operators,
- Number of PCSs with B2C obligations,
- Volume of EEE placed on the market split by category, producer and aggregated to PCS level.

123. OR an alternative matching process would need to be engineered. For example auctioning of sites. This could include:

- Submission of a schedule of collection sites with categories and tonnage expectations based on previous years. Possibly aggregated up to wider geographic area to simplify.
- A requirement for PCSs to submit bids at category level for sites/areas.
- A requirement for PCSs to bid up to obligation and no more/less.
  An appropriate auction design that discourages against collusive, entry-deterring and predatory behaviour would need to be developed. This would allow PCS and LA some degree of choice however, it could be complex depending on how you split sites and design auction. It could be designed such that there is a costs for bidders to access sites attractive sites only, allowing the remaining sites to be allocated for free. The costs to access attractive sites (may not be more/ less than now).

124. DCF operators, distributors and other economic operators would be required to declare ahead of the start of the compliance period which WEEE streams they wanted to enter into the matching process with tonnages from the preceding compliance year.

125. The financial obligations and subsequent matching of PCSs would be based on historical market share and WEEE data from collectors of WEEE. New entrants to the EEE market would be required to join a compliance scheme and provide estimated placed on the market data for the present year. Adjustments to the matching of collectors and PCS would be made at the start of each year to reflect movements in PCS membership, market share and WEEE arising.

126. An algorithm based allocation would be done ahead of the start of the compliance year in order for necessary arrangements to be put in place between PCS and collector. A potential timetable for compliance year 2015 therefore is:

- Producers would need to be committed i.e. signed up to a PCS for the 2015 period by the end of June 2014
- Producers would need to supply their data for the preceding 4 quarters Q3 and Q4 2013 and Q1 and Q2 2014 (i.e. a year from July 1st 2013 to June 30th 2014) to their PCSs by July 31st 2014
- Schemes would submit this to the Allocation centre by end August 2014 which would provide market shares back to PCSs by September 30th 2014
- Allocation process would allocate sites to PCSs by end October 2014
- Schemes and sites would firm up arrangements between Nov 1st and Dec 31st 2014 to begin collecting from Jan 1st 2015
- Repeat for 2016 etc.

127. An alternative would be to use data from the previous calendar year e.g. Use 2012 data for the 2014 compliance period. That would have the advantage of reducing the lead time by which producers had to commit to a PCS for the forthcoming year to say November and also potentially allow introduction of the system a year earlier.

Assessment

Addressing market failures resulting from regulatory failures:

128. **Moral hazard/principle agent problem** between PCS and producer could still exist to some extent as the PCS will be acting on behalf of the producer and contracting on transport and treatment of WEEE. However, competition in the PCS market through allowing for producer switching having a direct impact on access to WEEE for PCS should lead to price competition.

129. The algorithm could be based on matching of costs based on obligations or tonnage. The former would allow for an allocation of tonnage equivalent to those costs for discharging obligation but not necessarily reflecting the exact tonnage obligations at a category level. However, this would be difficult to implement as it would require making assumptions about costs. Matching by tonnage could lead to inefficiencies as a LA may be required to make a number of arrangements with different PCSs over the course of a compliance period to ensure evidence treated matched obligations for individual schemes. The methodology developed should take on board lessons learned from other MS where a similar system is in place (see Annex A) in addition further research may be conducted into methodologies on matching algorithms e.g. that devised by Al Roth and Lloyd Shapley.

Impact on switching, **price discrimination**, **guaranteed demand and trading:**

130. Switching in this model would become a real option. Switching will directly affect how much WEEE a PCS has access to. Therefore could lead to price competition.
131. Price discrimination is less likely as switching is easier for producers with material implications for PCS.
132. The problem of inflated costs as a result of the guaranteed demand and trading is eliminated as there is no trading and demand is matched to supply.
133. Any over or under allocation which may result from higher / lower collection than expected would be passed over to the following year as a credit or debit in obligation terms.

This option could drive competition by:

134. **Improving the bargaining power of buyers (producer and deficit PCS)** as producers can switch more easily between PCS as bidding for access to WEEE and trading is no longer a feature of the system. PCSs will have an incentive to offer competitive prices to increase producer membership.

135. **Information asymmetry** between PCSs and producers may be addressed as producers have more bargaining power, given their ability to switch between PCSs and that to have an impact on PCS business will become a reality. There will therefore be more pressure on PCSs for transparency and accountability.

136. **Reducing bargaining power of the supplier**: DCF will no longer be able to charge PCSs variable fees to access the WEEE. It can be argued that these additional services aren't as necessary as DCFs can opt to self treat, providing them with an inbuilt incentive for them to collect more, at least for those

streams. There will be a greater need to ensure PCS meet minimum requirements to ensure they are credible, reliable partners for DCFs so they are reassured that their containers will be emptied e.g. In Italy clearance house produces KPIs for PCSs.

Table 3: Matrix Evaluation of Current and Proposed UK WEEE Systems

137. The following table aims to consider each of the options against key criteria and adopt a traffic-light approach to indicate the extent to which each of the options would address the key criteria in the left hand column.

Criteria	Current System	One National Scheme[i]	PCS target and compliance fee	Allocation of cost streams
Costs better reflect the true cost of compliance for producers	Much of the evidence indicates that costs in the current system often bear little relation to the actual logistics and treatment costs (i.e. the costs producers should pay). The evidence price may frequently be based on what the holder believes they can extract rather than any direct link to true costs.	All producers joining the national scheme would be charged on the same basis, which would make the system fair. However, any one producer would have only very limited ability to influence the costs because they would have no choice to move to another scheme. Governance is key - governing body representative of those funding the system and agreed ToR would be required to reduce risk of x-inefficiencies. Allowing direct registration could lead to existence of "informal" PCSs acting on behalf of direct registrants competing for access to WEEE resulting in a market that closely resembles the existing system. Unless that WEEE was no available for DR access.	Producers can choose a PCS to join. PCS chooses transport, treatment and reuse partners. The introduction of a compliance fee set at the appropriate level would increase the likelihood of competition. PCS's more likely to compete for members on price, quality reputation etc Established without proper consideration could lead to: .price distortions in contracts between PCSs and between PCSs and collectors of WEEE and -dis-incentivising collection as the most competitive form of compliance.	Producers can choose a PCS to join. PCS chooses transport, treatment and reuse partners. PCS's would compete for members on quality, price, and reputation. As a consequence, costs to Producers more likely to reflect the true logistics and treatment cost. Unless carefully managed could lead to inefficiencies in logistical arrangements.

Criteria	Current System	One National Scheme[i]	PCS target and compliance fee	Allocation of cost streams
Minimise data collection and admin burden	The system is imposes a large admin burden on producers and PCSs – through reporting requirements and repetitive viable plan requirements which needs to show balance obligations to the nearest kilogram. It is also draining on Agency resources which could be better deployed elsewhere.	DCFs have freedom of choice to manage WEEE streams this may require new reporting requirements for DCFs or AATFs. Standardisation of administration may reduce the data burdens of some Producers and DCFs. Potential EOS from reporting by a single scheme instead of the current 37 PCSs. But could be offset by higher reporting of direct registrants. Reduced reporting/updating of viable plans and interdependencies on other PCSs to achieve compliance. De-minimis threshold reduce administrative burden on producers and EA.	DCFs have freedom of choice to manage WEEE streams this may require new reporting requirements for DCFs or AATFs. The ability for Producers to choose PCS means they can influence how data is collected. Reduced reporting/updating of viable plans and interdependencies on other PCSs to achieve compliance. De-minimis threshold reduce administrative burden on producers and EA.	DCFs have freedom of choice to manage WEEE streams this may require new reporting requirements for DCFs or AATFs. The ability for Producers to choose PCS means they can influence how data is collected. Reduced reporting/updating of viable plans and interdependencies on other PCSs to achieve compliance. De-minimis threshold reduce administrative burden on producers and EA.
Ensure regulations are enforceable	The complexity of the current system, and the inter-related nature of transactions make it difficult to enforce – particularly in relation to the need for PCSs to maintain Viable Plans	Imposition of sanctions (PCS disapproval) on PCS may cause significant disruption since there is only one PCS to discharge obligations. Enforcement is a devolved matter raising a question of which body would enforce a	Where there are multiple schemes, sanctions on an individual scheme are likely to have more impact/less disruption to the system A compliance fee and fixed tonnage target makes the system easier to enforce.	Where there are multiple schemes, sanctions on an individual scheme are likely to have more impact/ less disruption to the system A simpler free market system which is therefore easy to enforce.

Criteria	Current System	One National Scheme[i]	PCS target and compliance fee	Allocation of cost streams
		national PCS operating across the UK Direct registration option could increase enforcement costs depending on numbers	Without constant changes/interdependencies between scheme Viable Plans this aspect of monitoring and enforcement is significantly reduced	But taking action against PCSs that fail to meet service requirements at their allocated DCFs would be a challenge Without constant changes/interdependencies between scheme Viable Plans this aspect of monitoring and enforcement is significantly reduced
Ease of transition	Limited transition required, although some changes would be necessary.	Challenging to move from the current system to a single scheme in less than 18 months. But similar approaches do exist in some other member states	Transition would be relatively simple because the system is evolutionary. However, it will be necessary to establish a body to set a valid compliance fee level within the first 6 months of operation. Some of the features currently exist in current WEEE Regs or in Batteries Regulations. It does not force any changes to PCS contracts unlike the other options	6 months required for establishment and funding of a clearing house by producers. Achievable and done in other countries, notably Germany and Italy Some existing PCS contracts arrangements with AAFTS/LAs/Distributers would need substantial renegotiation or may be void as a consequence of the allocation of DCFs causing additional short term disruption.
COMPATIBILITY WITH THE WEEE RECAST				
Compatibility with achieving Member State collection target	The ability of PCSs/collectors of WEEE to profit from sale of evidence under the "must buy" system could increase	Inbuilt incentive for collectors to increase collections of WEEE where they retain material value.	Inbuilt incentive for collectors to increase collections of WEEE where they retain the value.	Inbuilt incentive for collectors/PCSs to increase collections of WEEE where they retain the value.

Criteria	Current System	One National Scheme[i]	PCS target and compliance fee	Allocation of cost streams
	collect rates and incentivise investment for higher collection rates since those costs can be recovered with profit via evidence pricing.	Could require stimulation to increase WEEE collections rather than just relying on that which arises Such stimulation could include e.g.; a coordinated awareness raising campaign or payment per tonne of WEEE handed over by collectors but only in return for achieving performance criteria e.g.; containers 90% full, low percentage contamination etc.	Inbuilt incentive for PCSs to ensure WEEE collections of all streams in line with target requirement. Each PCS would have its own target with sanctions for under/over achieving. PCSs would comply by paying a compliance fee if they get too little and by financing any surplus if they get too much since all WEEE counts. Compliance fee could be used as a regulatory lever to stimulate collection.	Without any target, no incentives for PCSs to increase collections of cost streams There may be incentives to discourage collections There may be a need to incentivise increased collection of WEEE streams where there's is a cost to treat, e.g. a coordinated awareness raising campaign or payment per tonne of WEEE handed over but only in return for achieving performance criteria e.g.; containers 90% full, low percentage contamination etc.
Ensure environmental objectives of Directive are met (other than collection target)	There is only limited ability for PCSs to audit and influence quality of WEEE treatment because the market is principally evidence trading. Creation of evidence at low cost is the driver hence WEEE treatment is likely to tend towards low cost not necessarily high quality, leading potentially to increased illegal export or poor treatment.	One PCS increases the likelihood of achieving higher quality treatment as it will determine where most of the obligated WEEE flows are treated and can be more explicit in its requirements around environmental standards. Less pressure for price to be the key determinant when awarding contracts. Large number of direct registrations could lead to	Each PCS has freedom to choose transport, treatment and reuse partners, and can therefore influence environmental objectives. Price competition is likely to remain the key determinant in winning contracts – which could be at the detriment of quality of treatment. PCSs will have variable commitments to wider environmental objectives and treatment standards	Each PCS has freedom to choose transport, treatment and reuse partners, and can therefore influence environmental objectives. Price competition is likely to remain the key determinant in winning contracts – which could be at the detriment of quality of treatment. PCSs will have variable commitments to wider environmental objectives and treatment standards

Criteria	Current System	One National Scheme[i]	PCS target and compliance fee	Allocation of cost streams
		plethora of treatment contracts at lowest cost to producer	PCSs could still appoint other PCSs as sub contractors but importantly could also refuse, therefore can indirectly exert influence over environmental objectives.	

Section 5: Policy Options Impact Assessment

138. This impact assessment considers

- **Option 1**: Do Nothing. This is the business as usual case of not amending the current WEEE Directive. This forms the baseline to which all other options are compared.
- **Option 2**: National Compliance Scheme
- **Option 3** : Target and Compliance fee option
- **Option 4**: Matching process option

139. An **alternative to regulation** is not viable because it is unlikely to meet the Directive's requirement for enforcement across the single market and will lead to an uneven playing field between manufacturers, whereby those who do not comply would 'free ride' and not incur cost of collecting and treating WEEE. In addition, it would limit the environmental and health benefits that would otherwise materialise through meeting targets. Failure to ensure appropriate enforcement of the Directive requirements could lead to infraction proceedings. Please see WEEE recast IA number 0382 for more detail on alternative to regulations.

SUMMARY

140. A summary of all impacts are noted in the below table. It should be noted that when looking at the costs and benefits seperately there will be an element of double counting. For instance costs to PCSs are passed on to producers, so it noted as a cost to PCS and a cost to producers – it has been necessary to include both to illustrate the distributional implications between agents as changes to the system affet the size of transfers and consequent end cost tor producers. Further, the extent to which gross costs are passed on isn't always clear. Including all cost and benfits along the supply chain means we avoid missing out final impacts where they may sit with agents other than those at the ends of the supply chain (e.g. producers and AATFs).

141. Producer costs constitute costs (or at least net costs) incurred by all agents along the supply chain. The impact on AATFs, PCSs, WMC, Distributors, LAs and Environment Agency are estimated to get a sense of distributional implications. The IA looks at costs and benefits incurred over 10 years from 2014 to 2023. It is assumed that impacts from changes take place from 2014 onwards. In practise this will depend on the length of the transitional period required to implement necessary changes. All price and costs assumptions made are simplifying assumptions which in practise will depend on contractual negotiations between agents.

Table 4: Summary of all total costs and benefits (pv prices), the NPV and business NPV.

	Option 1 - Do nothing	Option 2 - National Compliance Scheme	Option 3 - Target and Compliance Fee	Option 4 - Matching Process
	PV costs from 2014-2023 (£/m)	**PV costs for option relative to baseline from 2014-2023 (£/m)**		
Producers	936	-451	-274	-540
Agencies	24	-9	-9	-9
Government	1	0	-1	-1
PCS	712	-383	-123	-365
DCF	10	50	50	50
WMC	317	-193	0	-193
Distributors	50	-27	0	-12
AATF	726	0	0	0
Recast	7	0	0	0
Total	**2,784**	**-1,013**	**-356**	**-1,069**
	PV benefits from 2014-2023 (£/m)	**PV benefits for option relative to baseline from 2014-2023 (£/m)**		
Producers	8	40	0	0
Agencies	24	-9	-9	-9
Government	0	0	0	0
PCS	874	-519	-260	-523
DCF	18	47	148	47
WMC	559	-422	-110	-422
Distributors	67	-47	-8	-27
AATF	884	0	0	0
Recast	3	0	0	0
Society	158	0	0	0
Total	**2,595**	**-910**	**-238**	**-934**

NPV	-188	103	119	135
Business NPV	-352	106	20	137

* This shows the central baseline to which all 3 options are compared. The difference between PV costs and benefits are taken for any one option relative to the baseline, split by the agent – to show distributional impacts.

Table 5 : Summary of cost and benefit (pv) profile over 10 years considered and Net Present Values estimates.

Central (£/m)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Sum	NPV
Total cost PV												
National PCS	- 102	- 102	- 102	- 102	- 102	- 101	- 101	- 101	- 100	- 100	- 1,013	103
Target and Compliance fee	- 35	- 36	- 35	- 36	- 36	- 36	- 36	- 36	- 36	- 36	- 356	119
Matching Process	- 108	- 108	- 108	- 108	- 107	- 107	- 106	- 106	- 106	- 105	- 1,069	135
Total benefit PV												
National PCS	- 92	- 91	- 91	- 91	- 91	- 91	- 91	- 91	- 90	- 90	- 910	
Target and Compliance fee	- 23	- 23	- 23	- 23	- 24	- 24	- 24	- 24	- 25	- 25	- 238	
Matching Process	- 94	- 94	- 94	- 94	- 94	- 93	- 93	- 93	- 93	- 93	- 934	

142. Table 4 shows the estimated NPV for the baseline and for the 3 options the difference between NPV for any one option and the baseline, split by individual actor. Table 5 shows the projected change in costs and benefits relative to the baseline over the 10 years considered in this IA. The costings are based on estimates and assumptions derived from the call for evidence and subsequent discussions with industry. However, as much of the data is commercially sensitive and was provided on a confidential basis, the totals are included without detail on the underlying data.

143. All changes to be made as a result of the recast are included in the baseline and are not expected to change as a result of any of the given options. For instance, the use of a protocol to arrive at substantiated estimates of unobligated WEEE to meet higher targets would remain the same. The costs and benefits of the recast are therefore the same for all options. See WEEE recast IA 0382 for more details.

144. All data is based on 2011 prices up-rated by HMT GDP deflator. Forecasts for EEE pom and WEEE arising are based on projections provided by Axion Consulting. See annex B for detail on methodology.

Option 1: Do Nothing

Impact on Environment Agencies and Government

145. Environment agencies (EA) registering and monitoring costs are incurred on a cost recovery basis through the fees they charge PCSs, AATFs and producers.

146. Free rider enforcement and prosecution costs are funded by the Government at £250k for 4 years (this doesn't include arrangements with SEPA and DONI). An additional cost incurred by the government to the EA is for the maintenance of the settlement centre at 100k per annum (2011 price). It's assumed that the same charges are levied by enforcement agencies SEPA in Scotland and DONI in Northern Ireland.

Table 6: Environment Agency fees and assumed splits (2011)

EA registration fees, per producer	£/ producer	% of producers in each bracket
small (< under vat)	30	4%
medium (vat-£1m)	210	26%
large (>£1m)	445	70%

EA registration fees, per AATF	£/AATF	% of AATFs in each bracket
Small(under 400 tonnes)	500	59%
large (over 400 tonnes)	2,570.00	42%

147. PCSs incur a one off fee of £12,150 on application – it's assumed the number of PCSs does not increase for options 3 and 4, so there are no additional costs. Due to underlying assumptions on producer/AATF numbers and fees per annum –these are projected estimates rather than actual costs and benefits.

148. The total costs / benefits over 10 years (present value prices) to EA are estimated at £24m - that includes £3m to AATFs and £21m to producers. Total costs for government are estimated at £1.5m. See table 4 for breakdown of all costs.

Impact on Approved Authorised Treatment Facilities (AATFs)

Costs to AATFs include

149. EA fees as noted in table 6 above.

150. Administrative costs which include cost of independent audit of data, cost of EA audit visit and uploading "evidence" to Settlement Centre are estimated at 5p per tonne (2011 prices). This is derived from a cost estimate provided by an AATF.

151. The gate fee's AATFs pay to PCSs, WMC, distributors and producers that supply them with value streams (assumed to be LDA and Mixed WEEE) for treatment will vary by AATF. For the purposes of this IA it's assumed that gate-fees are £100 per tonne of LDA and £80 per tonne of Mixed WEEE (2011 prices), this is based on (limited) data provided by industry – in practice prices would vary by site and volume of WEEE received. Furthermore, changes in material values and technological advancement are not reflected in prices.

152. AATFs gross treatment costs of WEEE are split by 5 WEEE streams, for the purposes of the IA– these costs are based on estimates of direct costs - labour, power, maintenance, rent etc for treatment site, provided by Axion Consulting based on their knowledge of processes taking place[12].

Table 7: Treatment Costs per tonne (2011 prices)

	£/tonne
LDA	50
Mixed	75
Display	100
Cooling	150
GDL	900

153. The total costs over 10 years to AATFs are estimated at £726m (PV prices); this includes administration costs (£0.3m), gate fees (£262m) and treatment costs (£460m). See table 4 for breakdown of all costs/benefits.

Benefits to AATFs include:

154. Gate fees are paid to AATFs by PCS, WMC, producers and retailers, for some streams to incentivise treatment where treatment costs are high or material revenues after treatment are low. It's assumed that gate-fees are received for cooling and GDL–in practise this will vary by AATF, volume received, over time depending on material value fluctuations and technological advancement in treatment process. Assumptions used are from Axion Consulting – gate-fees are assumed to be £30 per tonne for cooling and £500 per tonne for GDL. For the IA it's assumed these revenues are flat in real terms over time.

155. Revenues from the material after treatment of WEEE were provided by Axion Consulting, constructed based on historical data from quoted and measured mass balances for common WEEE items and average commodity prices paid for raw materials post treatment, except GDL, where estimates were not available - but industry have indicated some revenues may exist for materials from treated GDL as technologies in Europe have developed to remove the rare earths from lamp powder, the de-mercurised lamp powder has some value to specialist treatment facilities. Due to data limitations this is not included.

[12] Axion Consulting, AMEC and 360 Environmental provided some technical support for this Impact Assessment.

Table 8: Revenues from materials after treatment.

	£/tonne
LDA	150
Mixed	180
Display	125
Cooling	253
GDL	0

156. The total benefits over 10 years to AATFs are estimated at £884m (PV prices). See table 4 for breakdown of all costs and benefits.

Impact on Producer Compliance Schemes (PCSs)

Costs to PCSs include

157. Based on data provided by a PCS, it's assumed that administrative/reporting costs which include overheads, staff and reporting costs for PCSs amount to £6.8 per tonne of WEEE managed (2011 prices). In practice this would vary depending on the PCS in question, given the differing scale economies and levels of service provided.

158. The cost a PCS pays to discharge its obligation (this is referred to as 'evidence cost' from this point on) will vary depending on who the WEEE evidence is accessed through. This includes costs to collect and treat WEEE (including gate-fees to AATFs). The WEEE tonnages, by category have been split by 5 operating models which differentiate between the source of the WEEE of the PCS:

    1. PCS has full or partial involvement

    PCS has direct access to WEEE from DCF and makes own arrangements / arrangements through AATF for the transport and treatment of WEEE

    2. Acquiring evidence from waste management company acting on behalf of DCF where treatment arrangements are determined

    WMC manages DCF sites on their behalf and makes all necessary arrangements to get WEEE treated – after which evidence is sold to PCSs.

    3. Acquiring evidence through transfers from other PCSs (trading)

PCS that has more WEEE than in requires as per obligation transfers WEEE to PCS that has less than its obligation

4. Other (e.g. kerb-side, other Reg 39, 40A and 32 collection routes)

The existing WEEE Regulations (Regulations 39) provide for PCSs to establish their own take-back system for WEEE from private households other than via DCFs provided it is consistent with the WEEE Directive. These might include for example doorstep collections or use of "bring banks". PCSs will also have their own take back systems in place for the return of WEEE arising from distributors (Regulation 31) and other final holders of household WEEE (Regulation 40A).

5. Producer own take back

Producer own take-back refers to systems set up directly by producers to take back WEEE from private households (for example on delivery of a new product). Producers reporting this tonnage are able to use this to offset their tonnage obligation charged to them by their PCS

159. The split of WEEE tonnes assigned to the above operating models has been derived from PCS joint response to the call for evidence as per table 9. It's important to note that the splits effectively reflect an illustrative case for a PCS – in practice the impacts for any one PCS will differ dramatically depending on how they acquire the bulk of their WEEE. The IA doesn't account for distributional implications within groups of actors - for instance the high cost of acquiring evidence from another PCS will be a cost for the PCS having to purchase the WEEE and a benefit for those PCSs receiving the revenue.

Table 9: WEEE tonnes split by operating model and WEEE stream for the baseline

	PCS has full or partial involvement	Acquiring evidence from WMC	Acquiring evidence through transfers from other PCSs	Other (e.g. kerb-side, other Reg 39, 40A and 32 collection routes)	Producer own take back
LDA	12%	4%	53%	28%	4%
Mixed	54%	9%	33%	1%	2%
Display	29%	11%	58%	1%	0%
Cooling	26%	1%	55%	16%	3%
GDL	12%	0%	88%	0%	0%

* Numbers may not add to 100% due to rounding.

160. The splits are based on the final transaction - e.g. evidence may be from a WMC and sold to PCS A but if PCS A sells to PCS B the evidence is noted as a transfer between PCSs in the IA, as per the tonnage splits in table 9- this is to avoid double counting the same WEEE. However, to understand the distributional implications between agents, the IA has accounted for WEEE at its original source when calculating the impact on individual players, for example, in the case of WMCs all tonnage which WMC manage on behalf of local authorities is accounted for irrespective of what shape the final transaction

for that WEEE takes. This means the percentage splits are different when looking at individual players, as opposed to the cost of evidence to PCS.

161. Stakeholder consultations and responses from the call for evidence have suggested the cost of evidence varies depending on the source of the WEEE. The PCS joint response from the call for evidence suggests that the evidence cost per tonne on average is twice the price when it's acquired from WMC or other PCSs compared to when a PCS has direct / partial involvement through direct access to DCF WEEE. Any cost data provided are commercially sensitive and therefore not explicitly reported here.

162. PCSs bid for LA contracts within which they may offer financial support to LA's (e.g. PR activities, consulting etc). These £/tonne costs are inferred from indexed data that was provided by the PCS joint response to the call for evidence. This is not reported as it's commercially sensitive.

163. Total costs to PCS over 10 years considered is estimated at £712m. This consists of admin costs (£36m) + evidence costs (£665m) + LA financial support costs (£10m). These are transfer costs (passed on to producers). See table 4 for breakdown of all costs.

Benefits to PCSs

164. PCS membership fees are charged to producers and vary depending on the PCS (and possibly the producer member) in question. A simplifying assumption is made that membership fees vary by size of producer; this is based on data from 2 PCSs.

Table 10: PCS membership Fees

PCS membership fees	£/member
small (< under vat)	200
medium (vat-£1m)	325
large (>£1m)	675

165. PCS revenues from evidence reflect what is charged to producers, this is higher than the costs incurred, reflecting a mark up on costs (see table 12). The estimate of evidence price charged to producers is based on producer responses from the call for evidence.

166. It's assumed that gate fees for LDA and mixed WEEE (paid by AATF) are received by the PCS who has direct access to WEEE via DCFs. It's assumed that material values stay constant and AATFs offer the same rate per tonne over 10 years (adjusted for inflation).

167. Total revenues to PCS over 10 years considered is estimated at £874m (PV prices). This consists of membership fees (£32m) + evidence (£716m) + gate fees (£125m). See table 4 for breakdown of all benefits.

Impact on DCFs

Costs to DCFs

168. Through consultation with a LA DCF it's estimated that operational cost to LAs equate to approximately £8.95/tonne of WEEE. This includes:

- Administration costs (procurement and managing contract with PCS)
- On site running costs (staff, training staff, signage)
- Proportion of site overhead costs relative to collection of WEEE streams (provision and maintenance of space).

169. Based on EA data the following splits are assumed with respect to self run DCFs and WMC run DCFs. The administration costs at £8.95/tonne apply to DCF run sites. Container costs are covered by PCSs, as per Directive requirements and are reflected in their charges to producers.

Table 11: percentage of WEEE arising at DCFs which is managed by WMC / self-managed.

	% of WEEE that comes from DCF	% of DCF WEEE managed by DCF	% of DCF WEEE managed by WMC
LDA	68%	18%	50%
Mixed	80%	25%	55%
Display	86%	21%	65%
Cooling	67%	17%	50%
GDL	80%	23%	57%

* based on 2011 internal EA data sources

170. Total costs over 10 years are estimated at £10m (PV prices). See table 4 for breakdown of all costs.

Benefits to DCFs

171. Financial support is provided to DCFs from PCSs (see para 162) in order for PCSs to win contracts, this could include supporting local recycling campaigns or material value derived from WEEE streams that are net income streams; the terms will differ across contracts. It's assumed the financial support, estimated on a £/tonne basis, goes to DCF operator, irrespective of whether a WMC manages the site.

172. Distributors have the choice to meet their obligations either by joining the distributer take back scheme (DTS)[13] and pay a fee which is passed onto LA's *or* to offer in store take back. Based on negotiated settlement from Jan 2010 to Dec 2012, i.e. 3 years total cost to distributors under the DTS and consequent revenue to LAs has been extrapolated forwards.

173. Total benefits to DCFs over 10 years are estimated at £18m (PV prices). See table 4 for breakdown of all costs/benefits.

Impact on Waste Management Companies (WMCs)

Costs to WMCs

174. Administrative and reporting costs – it is assumed this is approximately a half of DCF administrative costs as it excludes cost of land (rent or equivalent) - this assumption is derived from estimates provided by a LA site. The £/tonne for administrative and reporting costs is estimated at £4.2/tonne.

175. The cost of collection and treatment of evidence for a WMC is assumed to be equivalent to the cost of collection and treatment when a PCS has full or partial involvement. The proportion of tonnage managed by a WMC is assumed to stay constant over the 10 years (see table 9).

176. Total costs for WMC over 10 years including the above are estimated at £317m (PV prices). This includes administrative and reporting costs (£9m) and the cost of collecting and treating evidence (£308m). See table 4 for breakdown of all costs/benefits.

Benefits to WMCs

177. It is assumed WMC retain 100% of the gate fees for LDA and Mixed WEEE (paid by AATF) from DCF sites which they manage. In practise this may depend on contractual negotiations between the DCF and WMC. The WMC will typically retain control of selection of treatment and logistics providers and negotiate associated gate fees (charged or paid by AATF). The revenue per tonne offered by AATFs is assumed to be the same for all agents.

178. WMC also receive revenues from evidence sold to PCSs, this is assumed to be the most costly way for a PCS to acquire evidence.

179. Total benefits for WMC over 10 years including the above are estimated at £559m (PV prices). This includes revenues from gate-fees (£137m) and revenues from evidence (£422m). See table 4 for breakdown of all costs/benefits.

[13] The DTS income is dispersed to local authorities to support the costs of establishing new DCFs and for activity to increase recycling and re-use levels. The justification is that if a store is not offering in-store take back it will be advising customers to dispose of items at a local authority DCF.

Impact on Distributors

Cost to Distributors

180. DTS Fees Paid. See para 172 (transfer cost).

181. In store take-back costs - given limited data available on the cost of in-store take back, it is estimated that the cost incurred by distributers per tonne of WEEE by category is equivalent to the cost incurred by a PCS where they have direct access to the WEEE. The percentage of WEEE apportioned to in-store take back is noted in table 9('other'). Based on this it is assumed that most of the tonnage accounted for via take back is for LDA and cooling, this is in line with industry views.

182. Total costs to distributors over 10 years including the above are estimated at £50m, PV prices. This includes DTS fees (£8m) and take-back scheme costs (£42m). See table 4 for breakdown of all costs/benefits.

Benefits to Distributors

183. Gate-fees for LDA and Mixed WEEE (paid by AATF) are assumed to be received by distributors who choose to offer a 'take back' service. The proportion of tonnage from mixed and LDA WEEE, assumed to be received by distributors are noted in table 9.

184. Large distributors who offer in store take back also receive revenues from selling 'evidence' to PCSs. It is assumed that distributors charge the same amount for evidence as WMCs which is sold to PCSs. Distributors doing in store take back who are also classified as producers can use the collection of WEEE in-store to offset their financial obligations as a producer, this is categorised as producer take back in the impact on producers section.

185. Total benefits to distributors over 10 years are estimated at £67m. This includes gate-fees (£40m) and revenues from selling evidence to PCSs (£27m). See table 4 for breakdown of all costs/benefits.

Impact on Producers

Cost to Producers

186. EA registration fees (table 6) and PCS fees (table 10)

187. Producer administrative costs – this includes collecting and collating data on EEE sales, submission of data to PCS, invoicing, time taken if PCS audit them, attending meetings and dealing with queries on scope etc. Based on a small sample of industry responses, costs are assumed to be £4000 for small, £6000

for medium and £1500 for large B2C producers.[14] For B2B producer costs are assumed to be half of the B2C costs, as annual reporting rather than quarterly required. This is based on an estimate provided by a B2B producer.

188. Based on data from the EA on producers (2011), the following definitions are used to split producers by size:

- Small producers (less than 100 tonnes pom) – 87% of producers
- Medium sized producers (between 100-1000 tonnes pom) – 10% of producers
- Large producers (over 1000 tonnes pom) – 3% of producers

189. The proportion of producers that are B2B only equate to 66% of producers whilst B2C is 32% of producers and both B2B and B2C are 3% of producers (doesn't add to 100 due to rounding).

190. Based on producer responses from the call for evidence a multiplier is calculated to estimate the uplift from the costs incurred by PCSs to arrive at the charges made to producers. A weighted average of the costs to PCSs, depending on operating model, as per table 12 is estimated and a multiplier is applied to this to arrive at the 2011 price charged to producers (commercially confidential information). This is extrapolated to 2023.

Table 12:

Uplift applied to PCS costs	**£/tonne**
LDA	7.60
Mixed	1.73
Display	1.05
Cooling	1.28
GDL	1.19

191. Total costs to producers over the 10 year period being considered amount to £936m (PV prices). This includes EA fees (£21m), PCS fees (£32m), administrative costs (£166m) and cost of evidence to discharge obligations (£716m). See table 4 for breakdown of all costs/benefits.

Benefits to Producers

192. Producer own take back allows producers to receive gate fees from AATFs for LDAs and Mixed WEEE. The amount of producer own take back undertaken to offset against obligations is noted in table 9.

193. Total benefits to producers over the 10 year period being considered amount to £8m (PV prices). This includes gate-fees from AATFs. See table 4 for breakdown of all costs/benefits.

[14] This sampling was undertaken by Axion Consulting as a gap filling exercise after the call for evidence.

Social Benefits

194. The environmental benefits include carbon emissions reductions through diversion of WEEE from landfill. It's assumed that 50% of WEEE is diverted from landfill as a result of the directive, given LDA and mixed WEEE make up about half of all WEEE collected, and being net revenue streams are likely to be treated in the absence of regulations. Carbon values are based on DECC projections and it's assumed that for every tonne of WEEE treated 1.3 tonnes of carbon are avoided.[15]The total savings made as a result of avoided carbon over 10 years are estimated at £146m.

195. The costs savings to UK producers from use of recovered materials in production processes are also estimated for WEEE which is diverted from landfill. This is based on estimates of the material composition of WEEE by category (ferrous, plastic, copper, aluminium) and the 2011 values of these materials – it is assumed recycled material amounts to 73% of the value of virgin material (based on industry estimates) to arrive at an estimate of material revenues captured as a result of the regulations. Based on an Axion Consulting estimate it is assumed that 3% of the value stays within the UK and is re-used by UK manufacturers. However, there is no data on how much stays within the UK.

196. The total benefits due to material cost savings from recylates (£38m) and carbon savings (£120m) over the 10 years considered in the IA equates to £158m.

Recast WEEE IA

197. The baseline includes costs and benefits from changes required to meet recast requirements (see IA 0382). The costs and benefits associated with the recast IA are not expected to change for any of the options. The total costs and benefits (PV) over 10 years is estimated at £7m and £3m, respectively.

Non-Monetised Costs

198. Transport emissions from moving WEEE from DCF to AATF are not monetised. The cost of repairing and maintence of AATF sites are not included, although these would not necessarily be expected to change with any of the options.
199. Material revenues from GDL

Non-Monetised Benefits

[15] The UNU WEEE report estimates that of *"...the estimated 36 million tonnes of avoided CO2 emissions, 34 million tonnes results from removing CFC based cooling agents."* (Page vii, the UNU Report). It estimates that 2.3 million tonnes of CO2 savings result from an additional estimated 3.1 million tonnes of WEEE being separately collected. Of this total WEEE it is estimated that 45 per cent is cooling equipment and large household appliances. Subtracting this from the 3.1 million tonnes gives 1.7 million tonnes of WEEE accounting for 2.3 million tonnes of CO2 savings. This implies that the separate collection of one tonne of WEEE (excluding cooling appliances and large household appliances), and its subsequent treatment, re-use, recycling and recovery produces CO2 benefits in the region of 1.3 tonnes of CO2. This estimate is broadly consistent with those given in *The Waste Strategy for England 2007*, which provides estimates of CO2 benefits from recycling plastics, ferrous metals, and glass (the major materials of EEE) of 1 tonne of CO2, 1.4 tonnes of CO2, and 0.7 tonnes of CO2 respectively for each tonne of material. (Waste Strategy 2007, Page 54).

200. The benefits are principally direct environmental benefits and benefits to human health and animal health, and benefits in terms of contributions to sustainable development and resource productivity in the UK more generally. The potential for hazardous substances to leach from landfill and contaminate soil and groundwater with consequent negative impacts on the environment and human health and animal health is one of the main causes of the European Commission's concerns about the historic means of disposal of WEEE outlined in its EM to the WEEE Directive. In addition, there may be 'knock-on' benefits in terms of raising awareness of other forms of waste amongst consumers and other stakeholders in the UK, and in raising awareness of environmental issues more widely amongst a range of UK stakeholders. Furthermore, there is the avoided cost of landfill of WEEE from the gate-fee (assumed to be equal to negative externalities from land-filling WEEE).

201. The reuse, recycling and recovery of materials from WEEE will contribute towards sustainable development and resource productivity goals. There is a greater level of recyclates available for use as they are not land-filled and there will be less need to mine/produce primary/virgin materials – which will also necessitate a reduction in energy use from production processes.

Option 2: National Compliance Scheme

Impact on Environment Agencies and Government

202. The EA have suggested that with a single scheme the costs of scheme monitoring could fall. However this would not be a simple proportionate reduction of current costs i.e. the costs would not reduce to 1/37th of the current costs (There are 37 schemes registered via the EA in 2012). A single scheme delivering compliance on behalf of all producers would require a higher level of scrutiny compared to the existing arrangements for schemes. Enforcement requirements would need to include assurances that the single scheme was able to deliver compliance on behalf of all its members and avoid putting the UK at risk of failing to comply with the Directive. In practice, as there are a number of variables in play (e.g. direct registration) it's not clear how much if any net reduction in costs there would be, therefore no changes in fees, imposed on a cost recovery basis, are assumed as a result of having one PCS.

203. It's assumed that a franchise model is implemented with the national compliance scheme and costs to government to follow necessary due diligence in line with putting a franchise in place equates to £100k per annum (2011 prices) – this replaces costs of operating a settlement centre.

204. This option allows producers to directly register. This could result in a significant increase in administrative and compliance monitoring costs as a result of the additional work of processing individual registrations and the subsequent compliance monitoring of the directly registered producers. It's assumed that 5 larger producers opt to directly register in the central scenario. In practise the number of producers who opt to directly register will depend on a range of variables including the relative cost effectiveness of joining the Scheme.

205. For all options it's assumed there is an exemption for small producers defined by tonnage pom and there is a DCF 'opt out' (for net revenue streams) – this would also impact on compliance costs.

206. *Imposition of a 'de minimums' threshold* whereby companies below a certain threshold (in terms of EEE pom) are not required to register as producers of EEE, could have impacts on the costs of regulating the system. Currently companies placing *any* amount of EEE on the market must register.

207. Two options for the implementation of a de minimums arrangement are a) total exclusion from any need to register and b) annual registration with data provision, but no financing obligations for recovery and recycling. The latter approach is assumed in this IA which is in line with the batteries regulation. A charge of £30 per annum per exempt producer is assumed to cover cost of registration – this is the cost charged under the alternative registration route for batteries.

208. *DCF's will be given the choice to self manage the treatment and disposal* of any of the WEEE collected at their HWRCs but would not be able to pass any of the treatment costs of this waste back to producers. Currently DCF's must give

complete control for the treatment of all WEEE collected at HWRCs to the PCS responsible for clearing the site.

209. Further work would be required to determine additional regulatory activity requirements linked to the process of Local Authorities managing high value WEEE waste streams. Any regulatory role around the collection or validation of any data coming from Local Authorities or AATFs and/or any enforcement role could lead to additional enforcement/compliance costs.

210. The total change in costs/benefits to EA's over 10 years, relative to the baseline is -£9m (PV prices), as a result of the de-minimis threshold.

Impact on Approved Authorised Treatment Facilities (AATFs)

211. For the purpose of the IA it's assumed that the number of AATFs involved in the treatment and recycling of WEEE will remain the same as in the current system. The adoption of a single compliance scheme is likely to have some impacts on the treatment sector and the number of operators who seek to be approved, as the tenders for treatment of WEEE will come from one PCS rather than 37 PCSs. At this stage it's not possible to predict what changes may occur, we have therefore assumed there would be no changes to costs to approved treatment operators. As all obligated tonnage must go through an AATF it's assumed the total tonnage remains the same as does competition/prices within the AATF sector - no impacts on AATFs are monetised. The same would be true for AE's.

Impact on Producer Compliance Schemes (PCSs)

Costs to PCSs include

212. The PCS administrative costs on a pound per tonne basis are assumed to be 10% higher than the baseline to take account of potential inefficiencies that could arise with one PCS. There is mixed evidence on the extent to which once compliance scheme leads to higher / lower costs. However, total administrative costs are lower than the baseline as it's assumed that LDA and mixed WEEE are no longer managed by PCSs.

213. As discussed in para 158 (baseline) evidence costs will vary depending on where the WEEE has come from. The tonnages, by category are now split by 4 operating models – which differ from the baseline (see table 13). It's assumed that the national PCS organises for the treatment of WEEE via competitive tendering – as would be the case with some existing PCSs. The PCS will be required to make logistical arrangements for collection and treatment, directly. This eliminates the need to acquire evidence from WMC or through transfers. In addition distributors will be required to offer net cost streams to the allocation mechanism on a free of charge basis. As these are the most expensive sources of evidence overall evidence costs.

214. Furthermore (as with other options), it's assumed that DCF's manage all their LDA and Mixed WEEE streams. Based on data from the EA this accounts for

68% and 80% of all LDA and mixed WEEE. The streams which LAs opt to self treat are no longer financed by producers, and will need to be captured in the data through reporting to EA by the DCF/ AATF receiving the WEEE. Where WMC manage DCF sites they are assumed to only manage streams opted out (LDA and mixed WEEE).

215. There is no longer any financial support to LA's (e.g. PR activities, consulting etc) from PCSs as there will only be one PCS and no opportunity for competing bids to access the WEEE.

Table 13: WEEE tonnes split by operating model and WEEE stream for option 2

WEEE stream	PCS has full or partial involvement	Acquiring evidence from WMC	Acquiring evidence through transfers with PCSs	Other (e.g. kerb-side, other Reg 39, 40A and 32 collection routes)	Producer own take back	DCF / WMC self management
LDA	0%	0%	0%	14%	18%	68%
Mixed	0%	0%	0%	1%	19%	80%
Display	92%	0%	0%	1%	7%	0%
Cooling	75%	0%	0%	8%	17%	0%
GDL	100%	0%	0%	0%	0%	0%

* Numbers may not add to 100% due to rounding. For mixed, display and cooling the totals add to ~110% due to assumptions that 10% is purchased via the compliance fee.

216. In the absence of industry estimates on costs to set up a national compliance scheme, it's assumed the same transitional costs and implementation cost are incurred as for the matching process, excluding pilot phase (see table 17)

217. Total fall in costs to PCS over 10 years, relative to the baseline, is estimated at -£383m (PV prices). This consists of admin costs (-£19) + evidence costs (-£359m). Additional costs include transitional costs to establish a national scheme and implementation (£4.5m). These are transfer costs, passed on to producers. Further, there is no longer any 'support' payments to LAs from PCSs.

Benefits to PCSs

218. Membership fees – same as baseline.

219. PCS revenues from evidence paid by producers are assumed to be based on a cost uplift of 10% for all categories - this is 1.6% lower than the average uplift across categories assumed for the baseline (table 12). The lower uplift is a result of a national PCS being governed under transparent and agreed code of practise. A cost uplift greater than 0% is imposed as it's assumed that the some

level of revenue could work as a tool to engender competition for the management of the national PCS.

220. The evidence revenues received from producers are about half that in the baseline. This is driven by a lower cost base as the more expensive sources of WEEE for a PCS are eliminated (e.g. from transfers with other PCSs) and LDA and mixed WEEE (value streams) are no longer financed by the producers/PCS as they are assumed to be dealt with via distributors, direct registration and LA opt out. The gate fees for net revenue WEEE streams (paid by AATF) are no longer received by the PCS.

221. Total fall in benefits to PCS over 10 years relative to the baseline, is estimated at -£519m (PV prices). This consists of membership fees (-£15m) + evidence (-£379m). See table 4 for breakdown of all costs.

Impact on DCFs
Costs to DCFs

222. It's assumed the administrative costs £/tonnes remain the same as the baseline (para 168). Additional cost from DCFs opting to self treat net revenue streams are estimated by assuming the DCF incurs the same costs as a PCS when it has direct access to WEEE.

223. Total change in costs based over 10 years relative to the baseline is estimated at £50m (PV prices). This is as a result of LAs self managing value streams of WEEE .See table 4 for breakdown of all costs.

Benefits to DCFs

224. Revenue from DTS paid by distributors are assumed to be the same as the baseline. In practise this could change given the variation in terms of DCFs offering 'take back'.

225. There are no longer any 'financial support payments' to LAs as there is only one PCS and no bidding for access to sites.

226. It's assumed that all DCFs opt to self manage LDA and Mixed WEEE streams for which they receive gate fees from AATFs. Where WMC manage sites, it's assumed that 100% of revenue from gate-fees is retained by WMC.

227. Total change in benefits to DCFs over 10 years relative to the baseline is estimated at £47m (PV prices). This is as a result of DCFs retaining revenues from materials in value streams and no longer receiving financial support payments from PCSs. See table 4 for breakdown of all benefits.

Impact on Waste Management Companies (WMCs)

Costs to WMCs

228. Administrative and reporting costs – it is assumed this is approximately a half of DCF administrative costs as it excludes cost of land (rent or equivalent) - this assumption is derived from estimates provided by a LA site. The £/tonne for administrative and reporting costs is estimated at £4.2/tonne.

229. Cost of collection and treatment of evidence. This is assumed to be equivalent to the cost of collection and treatment when a PCS has full or partial involvement. It's assumed WMC no longer manage WEEE streams other than value streams for which the DCF have opted out as the PCS now makes direct arrangements to manage all other WEEE streams.

230. Total change in costs for WMC over 10 years, relative to the baseline, is estimated at -£193m (PV prices). This includes a fall in administrative costs (-£4m) and managing WEEE (-£188m) from no longer having to manage all WEEE streams a. See table 4 for breakdown of all costs/benefits.

Benefits to WMCs

231. It is assumed all gate fees for materials (paid by AATF) remain with the WMC that services the site on behalf of the LA. These assumptions are hypothetical and would depend on individual contractual agreements between DCF's and WMC.

232. WMC's no longer receive revenues from 'selling' evidence to PCSs as the PCS will be granted direct access to WEEE.

233. Total change in benefits for WMC over 10 years including the above is estimated at -£422m (PV prices), as a result of no longer receiving revenues from selling evidence. See table4 for breakdown of all costs/benefits.

Impact on Distributors

Cost to Distributors

234. For distributors that choose to pay the DTS fee the costs remain the same, it's assumed this remains the same as the baseline.

235. For distributors that opt to offer retail take back it's assumed that they will self treat streams that do not have a net cost. It's assumed that LDA and mixed WEEE are treated directly by distributors – the costs of doing so are assumed to be the same as costs for PCS collecting, transporting and treating WEEE for those streams. Distributors/AATFs would be required to report data on tonnes directly treated.

236. Total change in costs to distributors over 10 years, relative to the baseline, is estimated at -£27m (PV prices), and as a result of no longer managing cost streams of WEEE. See table 4 for breakdown of all costs/benefits.

Benefits to Distributors

237. It's assumed that LDA and Mixed WEEE are dealt with directly by distributors who receive gate-fees from AATFs. As a greater proportion of LDA is attributed to direct registration it's assumed that only half of the tonnage is received through retail take back, relative to the baseline, halving overall benefits (gate-fees) to distributors. Unless the distributors/AATFs are required to report data on WEEE directly dealt with to the EA this tonnage would no longer be counted within the obligated WEEE estimates.

238. All net cost streams will be accessed by the national compliance scheme on a free of charge basis therefore, distributors no longer receive revenues from selling evidence to PCSs.

239. Total change in benefits to distributors over 10 years, relative to the baseline is estimated at -£47m (PV prices). This is as a result of a reduction in revenues received in gate-fees and no longer receiving revenues from selling evidence to PCSs. See table 4 for breakdown of all costs/benefits.

Impact on Producers

Cost to Producers

240. EA registration fees (table 6) and PCS fees (table 10) and admin costs (para 187) are as they are in the baseline. This option gives producers a choice to directly register to offset their obligations through producer take back. It's assumed no producer manages to meet full obligation through direct registration and they consequently need to pay a PCS membership fee. Direct registration is reflected in the IA model through a greater proportion of obligated WEEE being accounted for through producer take back (table 13). The costs of collection and treatment of WEEE associated with producer take back are assumed to be the same as costs incurred by PCSs where they are fully or partially involved the collection and treatment of WEEE (as per the baseline). The administrative costs for producers opting to directly register are assumed to be two times greater than administrative costs for large produces (£30,000 – equivalent to 1 FTE) –the same mix of B2C versus B2B producers are assumed (see para 189).

241. It's assumed that the PCS fees would cover the cost of setting up and implementation. The category level multipliers assumed in the baseline are replaced with a 10% fee on top of costs for all categories. This may go toward incentivising commercial agents to participate in a franchise or towards covering costs which may not be fully accounted for through membership fees.

242. Total change in costs to producers over the 10 year period relative to the baseline is -£451m (PV prices). This include changes in EA fees as a result of the de-minimis threshold (-£9m), PCS fees as a result of the de-minimis

threshold (-£15m), administrative costs as a result of the de-minimis threshold and DR administrative costs (-£73m), evidence costs from a greater degree of direct involvement from PCS (-£379m), evidence cost from DR (£26m). See table 4 for breakdown of all costs/benefits.

Benefits to Producers

243. There is a greater proportion of producer own take back as direct registration is an option – this allows producers to receive more in gate fees from AATFs for LDA and mixed WEEE as noted in table 13.

244. Total change in benefits to producers over the 10 years, relative to the baseline, amount to £40m. See table 4 for breakdown of all costs/benefits.

Social Benefits

Non-Monetised Costs

245. Closure of existing PCSs and the number of jobs affected. Short term dispution from changing of existing contracts. Distribution of costs within sectors e.g. AATFs may be affected as tenders are issued from one scheme only. If long term contracts no longer guaranteed may adversely affect levels of long term investment e.g. innovative technologies. Agencies re-priortisation of regulatory activiity/costs e.g. opt out for DCF and consequential requirement to monitor and collect data from DCF/AATF (could also increase AATF data requirement). Cost of direct registration for producers could be higher depending on collection network. Potential losses from penelty where there is non-compliance.

Non-Monetised Benefits

246. Agencies re-prioritisation of regulatory activity e.g. due to reduced resources necessary for PCS monitoring for one scheme. The standard of treatment is more likely to improve with this model as price will no longer be the key determinant of choosing between suppliers. Potential administrative economies of scale from reporting by a single scheme instead of the current 37 PCSs.

Option 3: Compliance fee and target option

Impact on Environment Agencies and Government

247. This option imposes an annual WEEE collection target on PCSs at the start of the compliance period. The target will be set to achieve the member state target in the recast Directive after taking into account substantiated estimates of unobligated WEEE and any WEEE collection which is now managed by the collector. The unobligated estimates will be derived from establishing a protocol (see recast IA for more details). The cost of establishing the targets are assumed to fall within existing EA costs. In practise this would depend on the level of complexity and validation required.

248. There would be a reduction in regulatory effort required to monitor each schemes arrangements as there would no longer be a requirement for PCSs to submit balanced viable plans, as with all options presented. It would provide the option for schemes to meet compliance through a mechanism other than the collection of WEEE. All other compliance monitoring of schemes would remain the same. A reduction in agency fees / costs is not measured in the IA as there it's assumed potential savings could fund greater compliance/monitoring activity.

249. It's assumed the compliance fee and fund would be administered by an administrator and would not be centrally regulated.

250. The same assumptions are applied with respect to small producer exemptions and LA opts out, as in option 2.

251. The change in total costs/benefits to the EA over 10 years, relative to the baseline are estimated at -£9m (pv prices), as a result of the de-minimis threshold. For the Government it's estimated at -£1m as settlement costs are no longer accounted for.

Impact on Approved Authorised Treatment Facilities (AATFs)

252. Same as baseline

Impact on Producer Compliance Schemes (PCSs)

Costs to PCSs include

253. Based on data provided by a PCS, it's assumed that administrative/reporting costs which include overheads, staff and reporting costs for PCSs amount to £6.8 per tonne of WEEE managed (2011 prices) – same as the baseline. In practice this would vary depending on the PCS in question. However, as the total tonnage of WEEE being managed by a PCS is lower as a result of LA's opting out –overall administrative/reporting costs are lower than the baseline.

254. As discussed in para 158 (baseline) evidence costs will vary depending on the where the WEEE has come from. The tonnages, by category are now split by the 5 operating models as presented in the baseline as well as via the

compliance fee and the DCF opt out, the latter no longer being funded by producers. See table 14 below for the splits of tonnage assumed.

255. It's assumed that DCF's opt to manage LDA and mixed WEEE streams as they are value streams. Based on data from the EA this accounts for 68% and 80% of all LDA and mixed WEEE. The streams which LAs opt to self treat are no longer financed by producers, and are captured in the data through reporting to EA by the DCF/ AATF receiving the WEEE that is self managed.

256. The total amount of WEEE funded for by producers is greater than all household WEEE tonnage (less the amount now managed by collectors directly), as it's assumed that 10% of display, cooling and GDL is funded via the compliance fee option. The compliance fee is set at a level which is double the cost of evidence when a PCS is fully or partially involved. These assumptions are hypothetical as the construction, methodology and use of the compliance fee has not been agreed and the extent to which this route of compliance would be adopted by PCSs is unknown.

257. In this option evidence has no value and cannot be passed on at a cost once it is accredited to a PCS via an AATF (ex-post). WEEE can however, be 'subcontracted' between PCSs ex-ante i.e. before it is treated. It's assumed that the price of WEEE when received via 'sub-contracting' ex-ante is the same price as it was when it was transferred between PCSs, ex-post (in the baseline). However, in practice prices from sub-contracting between PCSs may be lower as a consequence of the changing incentives within the system brought about by the removal of a guaranteed customer for all surplus WEEE held by a PCS and removal of the "must buy" requirement placed on a deficit PCS, as a result of the target imposed on PCSs and compliance fee route. As LDA and mixed WEEE are primarily treated directly by LAs there is less tonnage sub-contracted than there was transferred between PCSs, ex ante, in the baseline.

Table 14: WEEE tonnes split by operating model and WEEE stream for option 3

WEEE stream	PCS has full or partial involvement	Acquiring evidence from WMC	Acquiring evidence through sub contracting from other PCSs, ex ante	Other (e.g. kerb-side, other Reg 39, 40A & 32 collection routes)	Producer own take back	Compliance Fee	DCF / WMC self management
LDA	0%	0%	0%	28%	4%	0%	68%
Mixed	16%	0%	0%	1%	2%	0%	80%
Display	29%	11%	58%	1%	0%	10%	0%
Cooling	26%	1%	55%	16%	3%	10%	0%
GDL	12%	0%	88%	0%	0%	10%	0%

* Numbers may not add to 100% due to rounding. For mixed, display and cooling the totals add to 110% due to assumptions on 10% being purchased via the compliance fee.

258. As in the baseline, PCSs bid for LA contracts within which they may offer financial support to LA's (e.g. PR activities, consulting, return on material values etc). These £/tonne costs are inferred from indexed data that was provided by the PCS joint response to the call for evidence (same as the baseline). It's assumed financial support is retained for all DCF sites.

259. Total change in costs to PCS over 10 years relative to the baseline, is estimated at -£123m (PV prices). This consists of lower administrative costs (-£20m) and evidence costs (-£194m) from no longer managing value streams and a less financial support to LAs as value streams are no longer bid for (-£9m). There is an increase in costs from the compliance fee (£101m). See table 4 for breakdown of all costs.

Benefits to PCSs

260. It's assumed that PCS membership fees are charged to producers at the same rate as the baseline (despite a fall in administrative costs from not having to manage LDA and mixed WEEE from DCFs). See table 10.

261. PCS charges to producers for evidence are derived using the same multipliers on the cost base as the baseline (see table 12). The gate-fee's received from AATFs are restricted to LDA and mixed WEEE the PCS may have been able to access outside of the DCF network. It's assumed this amounts to 16% of mixed WEEE (see table 14 for WEEE tonnage split assumptions derived from PCS joint response to the call for evidence). In addition the compliance fee paid is passed on to producers and on top of the evidence cost. It's assumed the compliance fee costs are passed on to producers without uplift on costs paid.

262. Total change in benefits to PCS over 10 years, relative to the baseline, is estimated at -£260m (PV prices). This is a result of reduced membership fees (-£15m) as a result of the de-minimis threshold, lower revenues from evidence as savings are assumed to be passed on to producers (-£241m), less gate-fee revenues as a result of DCF self managing value streams (-£105) + compliance fee costs passed on to producers (£101m). See table 4 for breakdown of all benefits.

Impact on DCFs

Costs to DCF's

263. It's assumed the administrative costs £/tonnes remain the same as the baseline. Additional cost from DCFs opting to self treat net revenue streams are estimated by assuming the DCF incurs the same costs as a PCS when it has direct access to WEEE.

264. Total change in costs, over 10 years, relative to the baseline, is estimated at £50m (PV prices). This is a result of managing value streams. See table 4 for breakdown of all costs.

Benefits to DCFs

265. Revenue from DTS paid by distributors is assumed to be the same as the baseline. The financial support to DCFs from PCSs are assumed to remain the same on a £/tonne basis, however, the tonnage having fallen as a result of LA opt out for LDA and mixed WEEE means the total amount of financial support offered has declined. In practise the LA's may/may not choose to opt for self treatment depending on whether the financial support for these streams are greater than the revenue they are able to receive from self treatment. Given the assumed £/tonne received through 'financial support payments' is less than that received from treating the WEEE it's assumed LAs opt to self treat over handing all streams to PCSs. The cost assumptions used here are derived from call for evidence response, but are considered commercially confidential so not explicitly noted.

266. Revenues from LDA and mixed WEEE where DCFs have opted to self-treat are received from AATFs as gate fees. In practise DCFs may also receive revenues from the WMC who are servicing their sites for the streams they have opted to self treat. However this would depend on contractual negotiations between LAs and WMC. For ease it's assumed DCFs do not receive any of the material revenues from these streams where a WMC is managing the site.

267. For simplicity the IA has assumed that revenue from the compliance fee (paid by PCS/producers) are distributed back to LAs – however, this is a result of the detail of the policy having not been worked up, pre-consultation - it could equally go towards investment in improving standards of treatment, enforcement activity etc.

268. Total change in benefits to DCFs over 10 years relative to the baseline is estimated at £148m (PV prices). This is a result of revenues from WEEE materials from self run sites (£57m), financial support payments from PCS (-£9m) and the compliance fee transfers (£101m) – simplifying assumption. See table 4 for breakdown of all benefits.

Impact on Waste Management Companies (WMCs)

Costs to WMCs

269. No change from baseline measured.

Benefits to WMCs

270. Its assumed gate fees from LDA and mixed WEEE remain with the WMC, in practise this will depend on contractual agreements between the WMC and LA. The revenue per tonne offered by AATFs is assumed to be the same for all agents.

271. It's assumed that WMC can't 'sell' evidence to PCS if it is a net revenue/zero cost stream as it is assumed the compliance fee is set at zero for these streams (i.e. LDA and mixed WEEE). The same rates are charged for all other WEEE streams (compared to the baseline). However in practise prices for WEEE may be lower as a consequence of the changing incentives within the system brought about by the removal of a guaranteed customer for all surplus WEEE held by a PCS and removal of the "must buy" requirement placed on a deficit PCS.

272. Total change in benefits for WMC over 10 years, relative to the baseline is estimated at -£110m (PV prices) as a result of no longer being able to sell evidence for value streams. See table 4 for breakdown of all costs/benefits.

Impact on Distributors

Cost to Distributors

273. No change from baseline measured.

Benefits to Distributors

274. Where distributors choose 'take back' it's assumed they will receive a gate fee for revenue streams from AATFs. This is mainly as a result LDA. The proportions of WEEE tonnage from in-store take back are noted in table 14.

275. It is assumed that distributors charge the same amount for evidence as WMCs, however as the compliance fee is assumed to be set at zero for LDA and mixed WEEE – this is no longer additional revenue.

276. Total change in benefits to distributors over 10 years, relative to the baseline, is estimated at -£8m, from no longer being able to se11 evidence where the WEEE is a value stream. See table 4 for breakdown of all costs/benefits.

Impact on Producers

Cost to Producers

277. EA registration fees and PCS fees and admin costs are as they are in the baseline. The same category level multiplier is used to estimate cost uplift on evidence (table 12).

278. Additional costs include the cost of the compliance fee, which is originally borne by the PCS and passed through to producers.

279. The 'evidence' price charged to producers is 1.5 times lower than the baseline due to lower costs from evidence borne by PCSs which is reflected in the transfer of costs to their members. This is primarily because it's assumed that

LDA and mixed WEEE evidence can no longer be sold to PCSs, given they are taken as value streams which would lead to a compliance fee set at zero.

280. Indicative estimates of the cost to set up and implement a compliance fee and a take back scheme (described in para 96-98) have been provided by a producer trade association.

Table 15: Transition costs (in year one only)

Initial development (£/000s)	Producer take back scheme	Compliance Fee
Project management	10	10
Research costs	25	25
IT system development costs including modelling	25	5
Expenses	2	2
Pilot phase	5	5
	67	**47**

Implementation costs include (over 9 years)

	Producer take back scheme	Compliance fee
Implementation	average annual cost (£/000s)	
Staff and associated overheads	27	27
Services, consumables and expenses	6	
Research costs	10	

281. It's assumed that the compliance fee will be operated by subcontract to a third party and an annual research project will be conducted to verify/amend compliance fee level. Staff cost is a contribution towards 0.25FTE at £40K for enforcement (pension, NI, benefits etc are max 30% of base salary).

282. The Initial development will require project management - managing the research and IT tenders and contracts etc - 20 days at £500/day. Research costs - consulting with stakeholders, collating and reviewing WEEE recycling data, proposing methodology, preparing IT system requirements etc - 50 days at £500/day (from year 2) with research costs falling by 25% per annum after year one.

283. For the producer take back scheme its assumed implementation will require 0.25FTE at £40K. The initial development will require Project Management - managing the research and IT tenders and contracts etc - 20 days at £500/day
284. Research costs - consulting with stakeholders, collating and reviewing WEEE recycling data, proposing methodology, preparing IT system requirements etc - 50 days at £500/day. Pilot phase - loading sample DCF data and PCS data, and verifying system performance

285. Total change in costs to producers over the 10 years, relative to the baseline, amount to -£274m. This is a result of lower EA fees (-£9m), lower PCS fees (-

£15m), and lower administrative costs (-£111m) as a result of the de-minimis threshold, evidence costs from no longer having to finance value streams (-£240m), compliance fee costs (£101m), transitional and implementation costs (£1m). May not add to total due to rounding. See table 4 for breakdown of all costs/benefits.

Benefits to Producers

286. No change from baseline measured.

Non-Monetised Costs

287. Risks outlined in table 3. Agencies re-prioritisation of regulatory activity. Reduction in price charged for evidence as a result of more competitive dynamic engendered through the introduction of a compliance fee.

Non-Monetised Benefits

288. Agencies re-prioritisation of regulatory activity. Removal of must buy requirement placed on PCSs that fall short of target/financial obligation.

Option 4: Matching process option

Impact on Environment Agencies and Government
289. Same as baseline

Impact on Approved Authorised Treatment Facilities (AATFs)

Costs to AATFs include
290. Same as baseline

Benefits to AATFs include:
291. Same as baseline

Impact on Producer Compliance Schemes (PCSs)

Costs to PCSs include

292. Administrative costs on a £/tonne basis are assumed to remain the same as the baseline however, there are lower costs overall as tonnage managed by PCS has reduced as a result of DCF opt out for mixed WEEE and LDA.

293. As discussed in the baseline, evidence costs will vary depending on where the WEEE has come from (para 158). The tonnages, by category are now split by 4 operating models – which differ from the baseline (see table 16). It's assumed PCSs are matched to DCFs as per obligations via a matching algorithm. PCSs will be required to make logistical arrangements for collection and treatment. This eliminates the need to acquire evidence from WMC or through transfers. In addition distributors will be required to offer net cost streams to the allocation mechanism on a free of charge basis. As these are the most expensive sources of evidence overall evidence costs are two times lower.

294. Furthermore (as with other options), it's assumed that DCF's manage LDA and Mixed WEEE streams. Based on data from the EA this accounts for 68% and 80% of all LDA and mixed WEEE. WEEE collectors or AATFs will be required to report on tonnage which is directly treated. WMC are assumed to manage the same level of tonnage for LDA and mixed WEEE, only.

Table 16: WEEE tonnes split by operating model and WEEE stream for option 4

WEEE stream	PCS has full or partial involvement	Acquiring evidence from WMC	Acquiring evidence through transfers from other PCSs	Other (e.g. kerb-side, other Reg 39, 40A and 32 collection routes)	Producer own take back	DCF / WMC self management
LDA	0%	0%	0%	28%	4%	68%
Mixed	16%	0%	0%	1%	2%	80%
Display	99%	0%	0%	1%	0%	0%
Cooling	81%	0%	0%	16%	3%	0%

WEEE stream	PCS has full or partial involvement	Acquiring evidence from WMC	Acquiring evidence through transfers from other PCSs	Other (e.g. kerb-side, other Reg 39, 40A and 32 collection routes)	Producer own take back	DCF / WMC self management
GDL	100%	0%	0%	0%	0%	0%

* Numbers may not add to 100% due to rounding errors.

295. There is no longer any financial support to LA's from PCSs (e.g. PR activities, consulting etc) as PCSs are matched and don't need to bid for sites.

296. Total change in costs to PCS over 10 years, relative to baseline, is estimated at -£365m (PV prices). This consists of changes to admin costs (-£19m) + evidence costs (-£336m), no financial support to LAs (-£10m). These are transfer costs, passed on to producers. See table 4 for breakdown of all costs.

Benefits to PCSs

297. Membership fees – same as baseline.

298. PCS revenues from evidence paid by producers is higher than the costs they incur to obtain that evidence, reflecting a mark up on costs (table 12). The evidence price charged to producers was based on producer responses from the call for evidence. Although the same category level cost uplifts/multipliers are used, the cost base is lower given the most expensive WEEE sources are eliminated (e.g. transfers from other PCSs)

299. The gate fees for WEEE streams (paid by AATF) include mixed WEEE (16%, see table 16), these are received by the PCS. Revenues received from gate fees have fallen relative to the baseline reflecting DCF opting to self manage LDA and mixed WEEE directly.

300. Total changes in benefits to PCS over 10 years relative to the baseline, are estimated at -£523m (PV prices). This consists of membership fees (-£15m) + evidence (-£404m) + gate fees (-£105m). See table 4 for breakdown of all costs.

Impact on DCFs

Costs to DCFs

301. Same as option 2 and 3.

302. Total change in costs based over 10 years, relative to the baseline, is estimated at £50m (PV prices). See table 4 for breakdown of all costs.

Benefits to DCFs

303. Revenue from DTS paid by distributors are assumed to be the same as the baseline.

304. There are no longer any financial support payments from PCSs to DCFs as DCFs are allocated to a PCS rather than contracts being acquired via bidding.

305. It's assumed that all DCFs opt to self manage LDA and Mixed WEEE streams for which they receive gate fees from AATFs.

306. Total change in benefits to DCFs over 10 years relative to the baseline, is estimated at £47m (PV prices) as a result of revenues from WEEE materials from self run sites. See table 4 for breakdown of all benefits.

Impact on Waste Management Companies (WMCs)

Costs to WMCs

307. Administrative and reporting costs on a £/tonne remain the same as in the baseline, £4.2/tonne. Total costs are lower as WMC no longer have to manage net cost streams.

308. Cost of collection and treatment of evidence. This is assumed to be equivalent to the cost of collection and treatment when a PCS has full or partial involvement. WMC only manage value streams (LDA and mixed WEEE) for sites they run.

309. Total change in costs for WMC over 10 years, relative to the baseline, is estimated at -£193m (PV prices). This include administrative costs (-£4m), no longer managing net cost streams (-£188m). See table 4 for breakdown of all costs/benefits.

Benefits to WMCs

310. It is assumed all gate-fee's for materials (paid by AATF) remain with the WMC that services the site on behalf of the LA. In practice this would depend on individual contractual agreements between DCF's and WMC.

311. WMC's no longer receive revenues from 'selling' evidence to PCSs as the PCS will be granted direct access through the matching process.

312. Total change in benefits for WMC over 10 years, relative to the baseline, the above is estimated at -£422m, as a result of no longer receiving revenues from selling evidence to PCSs. See table 4 for breakdown of all costs/benefits.

Impact on Distributors

Cost to Distributors

313. For distributors that choose to pay the DTS fee the costs remain the same as the baseline.

314. For distributors that opt to offer retail take back it's assumed that they will directly treat value streams (assumed to be LDA and mixed WEEE). The costs of doing so are assumed to be the same as costs incurred by PCS with direct access, when managing these streams. Collectors of WEEE or AATFs would be required to report on data directly treated.

315. Total change in cost for distributors over 10 years, relative to the baseline, is estimated at -£12m (PV prices) from no longer having to treat non value streams. See table 4 for breakdown of all costs/benefits.

Benefits to Distributors

316. All net cost streams will be accounted for through allocation and offered on a free of charge basis. Therefore, distributors no longer receive revenues from selling evidence to PCSs.

317. Total change in benefits to distributors over 10 years, relative to the baseline is estimated at -£27m (PV prices) as a result of no longer receiving revenues from selling evidence to PCSs. See table 4 for breakdown of all costs/benefits.

Impact on Producers
Cost to Producers

318. EA registration fees and PCS fees and admin costs are as they are in the baseline. The same category level multiplier is used to estimate cost uplift on evidence (table 12).

319. Indicative estimates of the cost to set up and implement a matching system have been provided by producer trade associations, as below:

Table 17: Transition costs (in year one only)

Initial development	**£/000s**
Project management	27
Research costs	53
IT system development costs including modelling	266
Expenses	27
Pilot phase	53
recruitment costs, and other non-recurring expenditure	53
	479

Implementation Costs (re-occurring)

Implementation	average annual

Initial development	£/000s
Staff and associated overheads	269
Occupancy	50
Services, consumables and expenses	25
Miscellaneous and contingency	50

Implementation

320. It's assumed that implementation will require six staff - one General Manager (£60K), one IT Manager (£50K), one Finance Manager (£40K), three DCF support staff (3 X £25K). The general manager joins 6 months before the system go live, IT Manager 3 months before go live. Pension, NI, benefits etc are max 30% of base salary
321. A separate organisation is established. Start-up costs include recruitment costs, and other non-recurring expenditure. Finance Manager role includes compliance and governance. The general manager would report to management board consisting of stakeholder representatives

Initial development

322. Project Management - managing the research and IT tenders and contracts, producing a documented proposal for the new organisation etc - 50 days at £500/day
323. Research costs - consulting with stakeholders, reviewing systems in other EU member states, creating an IT requirements document, job descriptions for employees etc - 100 days at £500/day. IT systems and modelling - development of an IT system that will match DCF collections with PCSs. The pilot phase will entail loading sample DCF data and PCS data, and verifying system performance.

324. Total change in costs to producers over the 10 year relative to the baseline is -£540m. This is as a result of lower EA fees (-£9m) PCS fees (-£15m), administrative costs (-£166m), evidence costs (£404), transitional costs and, implementation costs (£4m). See table 4 for breakdown of all costs/benefits.

Benefits to Producers

325. No change from baseline measured.

Non Monetised Costs and Benefits

326. Penalty to PCSs/producers fee for not meeting targets – assumed that all PCSs meet their given targets. Short term disruption from changing of existing contractual obligations. Agencies re-prioritisation of regulatory activity

Non Monetised Benefits

327. Agencies re-priortisation of regulatory activity e.g no longer having the viable plan.

Sensitivity Analysis

Baseline

328. For simplicity only the central baseline case is presented which estimates costs of the existing system. However, all costs and prices incurred are estimates based on simplifying assumptions given the variation that exists in costs and prices across contractual agreements between agents and the differences in operating models pursued by individual businesses.

Option 1

329. For the low scenario it's assumed 20 companies opt to directly register (DR), up from 5 in the baseline – this increases costs to producers for administration as it is assumed that DR requires 2 FTE's at £60k (BL assumes 30k) to manage the process.

330. This could also lead to greater revenues from producer take-back as more producers opt to offset their obligations in this way, however for the purposes of the IA it is assumed the same tonnage is received via producer take-back as the baseline – so no additional benefits from LDA/mixed WEEE gate-fees and costs from collection and transport of producer take back aren't included.

331. In practise DR would also increase EA fees / costs however it's not included here as its assumed additional costs are covered by savings from EA only having one PCS to enforce – even with 20 DR. It's also assumed all DR still pay a PCS membership fee as they do not access enough WEEE to cover their full obligation.

332. The high scenario assumes there are no producers opt to directly register, producers therefore do not incur higher administrative costs at £30k.

333. For all options in the low scenario, the *de-minimis threshold* is set at 1 tonne rather than 5 i.e. all producers who place less than 1 tonne of EEE on the market are exempt from certain requirements. This equates to 31% of producers and 0.04% of total tonnage which will be financed through all other producers. The high scenario set the threshold at 10 tonnes which exempts 58% of producers and 0.4% of total tonnage (see table 20). These producers no longer incur costs associated with PCS compliance fee, and reduced costs for agency fee or administration costs, but pay a £30 registration fee.

334. In the low scenario the uplift on costs incurred by the PCS is now set at +30% rather than 10% this increases costs by 18% over 10 years (PV prices). The high scenario assumes an uplift of +5% which reduces costs by 5%. However, as the uplift is a transfer - increasing costs to producers but equally increasing revenues to PCSs – therefore the impact is distributional.

Option 2

335. For the low scenario it's assumed the compliance fee price is 4 times the underlying estimated costs for managing WEEE, in addition 20% of WEEE is financed via the compliance fee. This however is a transfer cost from PCSs to producers – therefore impact is distributional. The high scenario assumes the compliance fee route is not used (i.e. zero tonnage goes through the fee).

336. See para 333 above on the de-minimis threshold.

Option 3

337. For the low scenario the reoccurring and transitional costs from establishing and maintaining a clearing house are double what they are in the baseline at £896m p.a on average for the reoccurring costs and £1m for the transitional costs. For the high scenario these costs are half that in the baseline.

338. See para 333 on the de-minimis threshold.

Table 18: Low Scenario NPVs

LOW scenario	Option 1 - Do nothing	Option 2 - National Compliance Scheme	Option 3 - Target and Compliance Fee	Option 4 - Matching Process
	PV costs from 2014-2023 (£/m)	PV costs for option relative to baseline from 2014-2023 (£/m)		
Producers	936	-374	139	-525
EA	24	-5	-5	-5
Government	1	0	-1	-1
PCS	712	-379	280	-365
DCF	10	50	50	50
WMC	317	-193	0	-193
Retailers	50	-27	0	-12
AATF	726	0	0	0
Recast	7	0	0	0
Total	2,784	-928	464	-1,050
	PV benefits from 2014-2023 (£/m)	PV benefits for option relative to baseline from 2014-2023 (£/m)		
Producers	8	40	0	0
EA	24	-5	-5	-5
Government	0	0	0	0
PCS	874	-452	149	-517
DCF	18	47	551	47
WMC	559	-422	-110	-422
Retailers	67	-47	-8	-27
AATF	884	0	0	0
Recast	3	0	0	0
Social	158	0	0	0
Total	2,595	-838	578	-924
NPV	-188	90	115	126

Table 19: High Scenario NPVs

High scenario	Option 1 - Do nothing	Option 2 - National Compliance Scheme	Option 3 - Target and Compliance Fee	Option 4 - Matching Process
	PV costs from 2014-2023 (£/m)	PV costs for option relative to baseline from 2014-2023 (£/m)		
Producers	936	-471	-379	-546
EA	24	-11	-11	-11
Government	1	0	-1	-1
PCS	712	-385	-224	-365
DCF	10	50	50	50
WMC	317	-193	0	-193
Retailers	50	-27	0	-12
AATF	726	0	0	0
Recast	7	0	0	0
Total	2,784	-1,037	-564	-1,077
	PV benefits from 2014-2023 (£/m)	PV benefits for option relative to baseline from 2014-2023 (£/m)		
Producers	8	40	0	0
EA	24	-11	-11	-11
Government	0	0	0	0
PCS	874	-537	-363	-526
DCF	18	47	48	47
WMC	559	-422	-110	-422
Retailers	67	-47	-8	-27
AATF	884	0	0	0
Recast	3	0	0	0
Social	158	0	0	0
Total	2,595	-930	-443	-939
NPV	-188	107	120	138

* these tables show the central baseline to which all 3 options are compared and the difference between PV costs and benefits are taken for any one option relative to the baseline, split by the agent – to show distributional impacts.

Impact assessment tests

Small Firms Impact Test

339. All manufacturers irrespective of size are expected to comply with the WEEE Directive. The changes to the Regulations are not expected to have a disproportionate impact on SME's.

340. Microbusiness Exemption Rule: Under the microbusiness exemption rule whereby regulation exempts organisations of 10 or fewer employees and start-ups, this measure is out of scope because it relates to the EU.

341. The de-minimis threshold based on EEE pom will exclude both small and large business in terms of revenue.

Impact on small volume producers (defined as producers who put a low tonnage of EEE pom, rather than low turnover)

Proposal to reduce burdens for smaller producers of EEE

342. Despite pressing hard for a de minimums clause in the Recast Directive, this was not widely supported by other member states and was not incorporated into the final text.

343. The revision of the WEEE Regulations nevertheless presents an opportunity to consider ways in which we may be able to reduce the burdens placed on small volume producers of electrical and electronic equipment. Small volume producers have made representations through the Red Tape Challenge, the Call for Evidence and ministerial correspondence that the cost and administrative burden imposed by the WEEE Regulations is disproportional to the actual costs of ensuring their products are properly treated when they become waste. The Government is therefore committed to exploring if and how these concerns can be addressed.

344. Key obligations imposed on individual producers by the recast Directive are:
- Mark products with the crossed out wheeled bin symbol (Article 14(4)),
- Make technical information available to treatment facilities (Article 15),
- Meet requirements necessary to fulfil obligations to take back WEEE from users other an private households (i.e. B2B WEEE) (Article 13),
- Provide necessary information to enable a national register of producers to be established (Article 16),
- Provide necessary data to enable Member State reporting requirements to be fulfilled. (Article 16).

Table 20 table showing the tonnage of WEEE accounted for by producers that will be exempt under various thresholds (<1 tonne, < 5 tonnes, <10 tonnes and < 20 tonnes)

De minimus threshold of 1 tonne placed on the market	Producers	Tonnage	Total	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Cat 6	Cat 7	Cat 8	Cat 9	Cat 10	Cat 11	Cat 12	Cat 13
Household deminus tonnage/producers	375	123	123	1	26	20	24	4	3	20	8	11	0	0	0	6
Total Household EEE placed on the market			1,137,256	462,795	137,710	88,982	65,062	368	56,489	44,783	2,772	3,754	9	98,435	171,101	4,996
% of total household EEE below deminus threshold			0.01%	0.00%	0.02%	0.02%	0.04%	1.05%	0.01%	0.04%	0.28%	0.30%	0.05%	0.00%	0.00%	0.11%
Non Household deminimus tonnage/producers	1,329	394	394	6	4	108	13	28	36	2	45	135	5	3	4	6
Total Non Household EEE placed on the market			365,493	17,727	7,694	102,913	6,726	72,595	22,471	6,447	9,896	55,986	7,809	12,200	32,450	10,580
% of total non household EEE below deminimus threshold			0.11%	0.03%	0.05%	0.10%	0.19%	0.04%	0.16%	0.03%	0.45%	0.24%	0.06%	0.03%	0.01%	0.05%
Registered as household and non household	137	51	51	0	2	24	6	2	2	3	5	6	0	0	0	1
No Return	423	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total B2B and B2C EEE placed on the market			1,502,749	480,523	145,404	191,895	71,788	72,962	78,960	51,230	12,667	59,739	7,819	110,635	203,551	15,576
Total EEE declared below deminimus threshold	2,264	568	568	7	31	151	42	35	41	25	57	152	5	4	4	13
% of total EEE declared below the deminus threshold			**0.04%**	0.00%	0.02%	0.08%	0.06%	0.05%	0.05%	0.05%	0.45%	0.25%	0.06%	0.00%	0.00%	0.08%
De minimus threshold of 5 tonnes placed on the market																
Household deminus tonnage/producers	629	758	758	37	195	76	175	16	41	122	22	34	0	9	11	19
Total Household EEE placed on the market			1,137,256	462,795	137,710	88,982	65,062	368	56,489	44,783	2,772	3,754	9	98,435	171,101	4,996
% of total household EEE below deminus threshold			0.07%	0.01%	0.14%	0.09%	0.27%	4.22%	0.07%	0.27%	0.80%	0.91%	0.05%	0.01%	0.01%	0.37%
Non Household deminimus tonnage/producers	2,142	2,419	2,419	55	65	572	89	206	258	20	228	739	39	45	54	49
Total Non Household EEE placed on the market			365,493	17,727	7,694	102,913	6,726	72,595	22,471	6,447	9,896	55,986	7,809	12,200	32,450	10,580
% of total non household EEE below deminimus threshold			0.66%	0.31%	0.85%	0.56%	1.32%	0.28%	1.15%	0.31%	2.31%	1.32%	0.50%	0.37%	0.17%	0.47%
Registered as household and non household	226	261	261	12	15	82	27	15	10	24	29	35	0	7	2	3
No Return	423	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total B2B and B2C EEE placed on the market			1,502,749	480,523	145,404	191,895	71,788	72,962	78,960	51,230	12,667	59,739	7,819	110,635	203,551	15,576
Total EEE declared below deminimus threshold	3,420	3,438	3,438	105	276	730	291	237	308	166	280	808	39	61	66	72
% of total EEE declared below the deminus threshold			**0.2%**	0.0%	0.2%	0.4%	0.4%	0.3%	0.4%	0.3%	2.2%	1.4%	0.5%	0.1%	0.0%	0.5%
De minimus threshold of 10 tonnes placed on the market																
Household deminus tonnage/producers	753	1,654	1,654	68	547	197	275	36	122	222	40	62	9	12	34	30
Total Household EEE placed on the market			1,137,256	462,795	137,710	88,982	65,062	368	56,489	44,783	2,772	3,754	9	98,435	171,101	4,996
% of total household EEE below deminus threshold			0.15%	0.01%	0.40%	0.22%	0.42%	9.66%	0.22%	0.50%	1.46%	1.65%	100.00%	0.01%	0.02%	0.60%
Non Household deminimus tonnage/producers	2,439	4,538	4,538	120	119	1,027	184	465	503	35	424	1,243	114	99	105	99
Total Non Household EEE placed on the market			365,493	17,727	7,694	102,913	6,726	72,595	22,471	6,447	9,896	55,986	7,809	12,200	32,450	10,580
% of total non household EEE below deminimus threshold			1.24%	0.68%	1.55%	1.00%	2.73%	0.64%	2.24%	0.55%	4.29%	2.22%	1.46%	0.81%	0.32%	0.94%
Registered as household and non household	254	462	462	12	48	161	74	23	10	34	43	38	0	11	4	3
No Return	423	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total B2B and B2C EEE placed on the market			1,502,749	480,523	145,404	191,895	71,788	72,962	78,960	51,230	12,667	59,739	7,819	110,635	203,551	15,576
Total EEE declared below deminimus threshold	3,869	6,654	6,654	200	715	1,384	532	523	635	292	508	1,343	124	122	143	133
% of total EEE declared below the deminus threshold			**0.4%**	0.0%	0.5%	0.7%	0.7%	0.7%	0.8%	0.6%	4.0%	2.2%	1.6%	0.1%	0.1%	0.9%
De minimus threshold of 20 tonnes placed on the market																
Household deminus tonnage/producers	873	3,370	3,370	283	956	419	599	36	218	535	42	133	9	33	44	61
Total Household EEE placed on the market			1,137,256	462,795	137,710	88,982	65,062	368	56,489	44,783	2,772	3,754	9	98,435	171,101	4,996
% of total household EEE below deminus threshold			0.30%	0.06%	0.69%	0.47%	0.92%	9.74%	0.39%	1.19%	1.52%	3.55%	100.00%	0.03%	0.03%	1.23%
Non Household deminimus tonnage/producers	2,708	8,422	8,422	336	229	1,844	332	954	965	93	788	2,093	203	191	226	170
Total Non Household EEE placed on the market			365,493	17,727	7,694	102,913	6,726	72,595	22,471	6,447	9,896	55,986	7,809	12,200	32,450	10,580
% of total non household EEE below deminimus threshold			2.30%	1.90%	2.97%	1.79%	4.93%	1.31%	4.29%	1.44%	7.96%	3.74%	2.60%	1.56%	0.70%	1.60%
Registered as household and non household	298	1,093	1,093	38	147	280	167	78	64	59	77	102	0	15	15	52
No Return	423	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total B2B and B2C EEE placed on the market			1,502,749	480,523	145,404	191,895	71,788	72,962	78,960	51,230	12,667	59,739	7,819	110,635	203,551	15,576
Total EEE declared below deminimus threshold	4,302	12,884	12,884	657	1,331	2,544	1,097	1,067	1,247	686	907	2,327	212	239	285	283
% of total EEE declared below the deminus threshold			**0.9%**	0.1%	0.9%	1.3%	1.5%	1.5%	1.6%	1.3%	7.2%	3.9%	2.7%	0.2%	0.1%	1.8%
Note: Data is based on the 2011 compliance year.																

345. Additionally member states are required to ensure obligations to finance WEEE arising from private households are fulfilled by producers. The revised WEEE Regulations envisage that financial obligation being based on producer market share via their membership of a producer compliance scheme (or via direct registration under option 1 for large producers).

346. It is proposed to set a de minims threshold below which establishes a simplified, low cost registration process is established for producers. Those companies falling below the threshold would not be required to finance a share of household WEEE arising in the system and would not be required to join a PCS.

347. Those producers below the threshold and supplying EEE to non household end users would continue to be required to finance the collection treatment recovery and environmentally sound disposal of their own products when discarded and those products placed on the market before 13 August 2005 if they are being replaced by their own products. However producers will continue to retain the option of making their own contractual arrangements for collection, treatment and recovery which could for example result in those responsibilities passing to the business end user. B2B producers may choose to join a PCS in order to carry out their obligations.

348. The registration process would follow the model currently used in the UK Batteries Regulations. De minimums producers would be required to follow an online registration process with the relevant environment agency providing:
- Company information,
- Annual EEE placed on the market data split by category,
- Annual WEEE tonnage collected split by product category (currently £30 under the Batteries Regulations).

349. Should a producer place an amount of EEE on the market during a compliance year in excess of the de minimums threshold they would be required to join a compliance scheme within 28 days and fund the cost of household WEEE obligations in line with their market share.

350. Table 20, based on 2011 data, illustrates the number of producers and tonnage that would fall below the de minimums requirements, split by collection category. A threshold of 5 tonnes for example would bring 3,420 producers within the de minimums threshold who account for 3,438 tonnes (0.23%) of EEE placed on the market.

Competition assessment

351. See section 4.

352. For UK manufacturers selling to non-EU countries where competitors don't sell in the EU e.g. US and Asian companies not exporting to Europe – their

competitors will not incur costs for collection, recycling and treatment of WEEE as UK companies will. The options in this IA reduce costs of compliance which could reduce any competitive disadvantage placed upon EU producers operating in US and Asian markets as a result of a lower cost base. However, other countries outside of Europe will have own legislation on environmental and human protection from waste disposal.

353. **Impact on consumers:** There is no evidence on the extent to which producers pass on costs of compliance with the WEEE regulations in the UK on to consumers. Where there is a great deal of price competition for products, including from outside of the EU, it is less likely for these costs to be passed on to consumers and there will be/ there is more pressure on producers to absorb these costs so that they are able to maintain their price point.

Greenhouse Gas Assessment

354. This IA assumes that the same amount of obligated tonnage is received by AATFs as that which would be within the existing system. Therefore the CO2 savings remain the same as in the baseline for all options.

Wider Environmental Issues

355. This IA assumes any system adopted to transpose the recast WEEE Directive will continue to have the same level of environmental benefits as the existing system.

Equality Impact Assessments

356. The proposed system will not have an adverse or disproportionate effect on any person as a consequence of race, ethnic origin, religion, gender, sexual orientation, age, transgender / transsexual or disability.

Direct costs and benefits to business calculations (OITO)

357. Under the One In, Two Out rule any new burden placed on business through domestic regulation needs to be compensated by deregulation of twice the value.

358. The proposed legislation addressed in this IA is out of scope of OITO. This is because the WEEE Directive is a directly applicable EU measure and the transposition does not gold plate the regulation, i.e. it does not go over the minimum EU requirements.

Costs to Public Sector – Monitoring and Enforcement

359. The system changes will have an impact on compliance and monitoring requirements costs. Fees are imposed on a cost recovery basis and assumed for simplicity that they remain the same as the baseline for all options. The impact of the introduction of a de-minimis threshold is monetised. See section 5 for more detail.

Post Implementation Review (PIR) Plan

360. This proposal puts forward options for amendments to the UK WEEE regulations directive. The regulations are to be reviewed by January 2019 on the basis of a non-statutory commitment to review (PIR). The objective of the review will be to ensure that the legislation is achieving its aims without undue burden to those obligated by it. If this is not being achieved, careful consideration would be given to modifying the regulation or providing improved guidance. The approach taken will include canvassing stakeholder views through their representative organisations. This should include a mix of qualitative and quantitative evidence. BIS already have good communications with the representative organisations and will continue to work with them to ensure that the objectives are being met and we are informed of any problems.

Section 6: Annexes

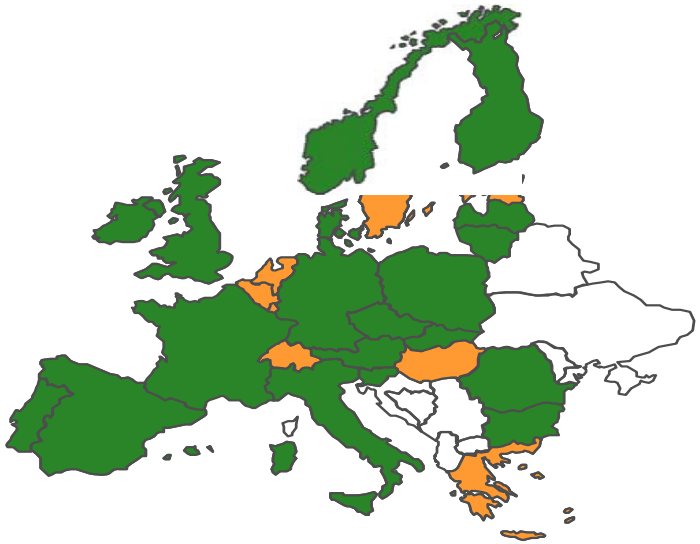
Annex A: International examples

National compliance scheme

The national compliance scheme model is used in a number of European countries, the evidence on the impact on producer costs are mixed.

Fig 11: WEEE systems in EU MS

Single compliance system (model A1)	Competitive compliance system (model A2)
Belgium	Austria
Cyprus	Bulgaria
Estonia	Czech Republic
Greece	Denmark
Hungary	Finland
Luxembourg	France
Malta	Germany
Netherlands	Ireland
Sweden	Italy
Switzerland	Latvia
	Lithuania
	Norway
	Poland
	Portugal
	Romania
	Slovakia
	Slovenia
	Spain
	UK



Source; Hewlett Packard

EU Member State examples of the Matching Processes

Table 21: Summary of the Italian and German WEEE system

	Germany	Italy
Name of Clearing House	EAR	Centro di Coordinamento RAEE
Time needed for establishment	12 month	1 year
Government involvement?	Yes	Very limited, not direct involvement (just Statute approval)

	Germany	Italy
Legal entity of the Clearing House	Trust empowered with public authority on behalf of the Federal Environment Agency	Private Consortium owned by Producers' Collective Schemes
Governance of the Clearing House (please include explanations of board composition and representation of producer, municipalities, compliance schemes)	- Board of directors (4 people) - Board of trustees (Representatives of producer coming from each WEEE Category) - Advisory board (Representatives from authorities, recycling companies, federal states, NGO, Distributer and producer)	Executive Committee of 5 Members (according to a Ministry of the Environment Subdecree), nominated by the General Assembly
Duties of the Clearing House	- Register producers, importers and (maybe also) resellers and their equipment, - Examine and certify the financial guarantees for equipment which can also be used by consumers, - Coordinate the provision of suitable containers and collection of WEEE, - Control and enforce the implementation of the law, - Raise fees and fines.	- To assure homogeneous and fair operative conditions to all members (collective schemes) – level playing field principle - To assign collection points to collective schemes according to their market share - To provide a single point of contact to operators of collection points for take back requests and information - To monitor collective schemes' performances and to apply sanctions and fines for not complying to the rules - To report to the Governmental Control Committee - To sign framework agreements with major stakeholders
Cost of establishment	In 2005, a "pilot project company" (later converted into a trust) coordinated by 2 trade associations was founded with a starting capital of €1m (paid by producers). The starting capital of the trust was €150K with 30 trustees paying €5K each. This sum has been repaid to the trustees in 2009 without interests.	500 K Euro
Current annual budget	EAR is funded only by the levy of 45€ charged per pick up order. In 2011 there were 86417 pick ups	1.000 KEuro

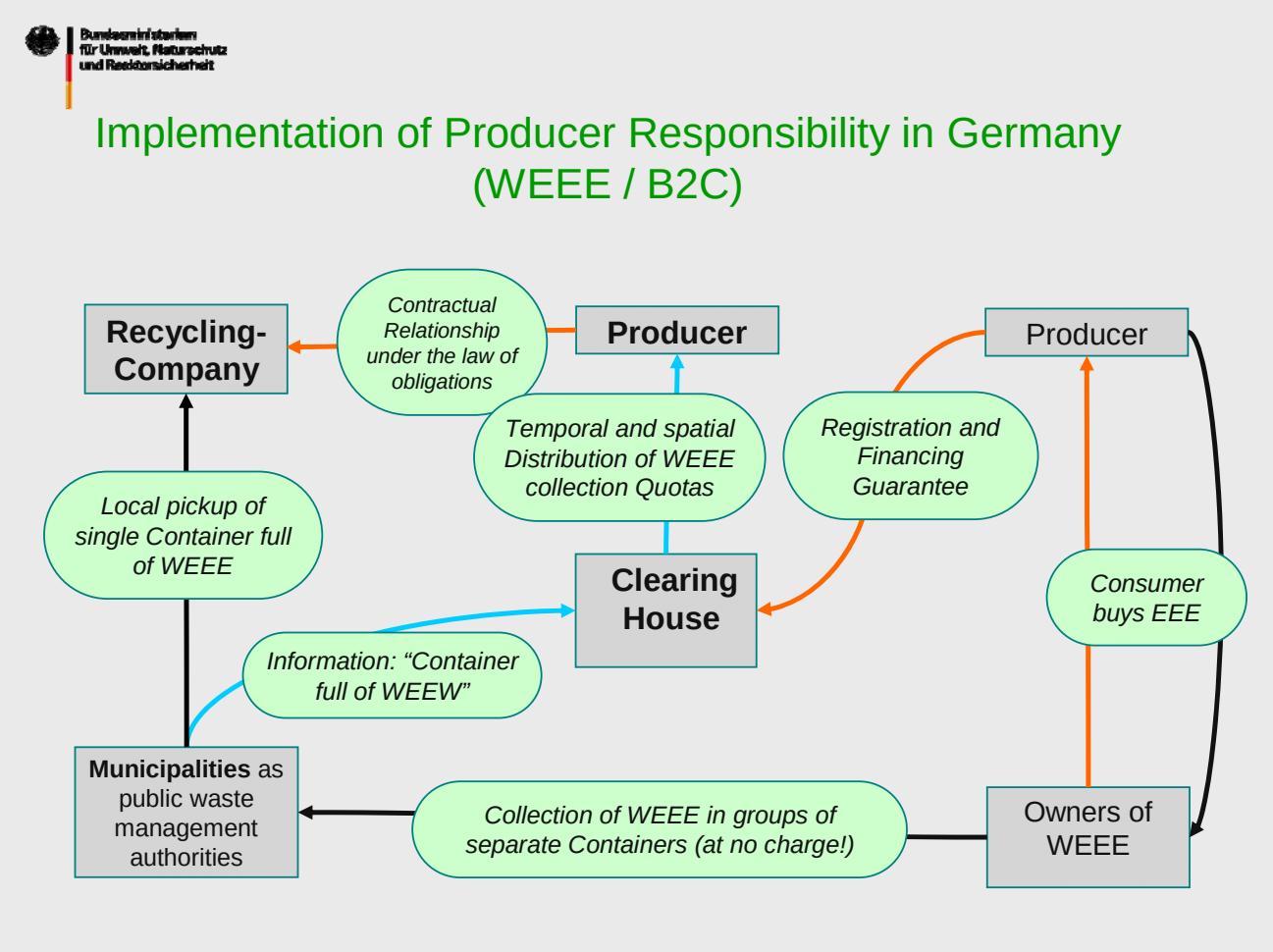
	Germany	Italy
	* 45€ = 3,888 K Euro budget	
Financing method	Charge of 45€ per pick up order	The majority of costs are divided according to collective schemes' market share
% of total budget for operations financed by the Clearing House (e.g. staff, public awareness, research, IT infrastructure)	Not available, but no additional payment liability by producers, nor tax payer or other stakeholders on top of admin fee. .	The clearing house covers 100% of its own costs and the funding is collected from Collective Schemes
Number of employees	23	5
Contractual relationship with Municipalities, Schemes , Manufacturer, Treatment operators, Distributers?	none	The Clearing House is responsible for all the major framework agreements: Municipalities Association, Recyclers, and Distributers.
Contractual duties of Municipalities	Only to recycling company, if they opt the treatment of WEEE by its own.	General framework conditions and SLA. Each Collective Scheme is then individually responsible for performing the take back service
Contractual duties of the Compliance Schemes	Only to producer	They are obliged by accepting the statue of the Clearing House to provide the service according to the agreed rules
Contractual duties of Manufacturers	Only to compliance scheme	No specific duties related to the Clearing House. Their contractual relationship lies with the Collective Schemes
Contractual duties of Treatment Operators	Only to producer	They have to comply to the standards agreed in a specific agreement with the Clearing House
Contractual duties of Distributers	Only to recycling company	They can get a voluntary take back service through an agreement with the Clearing House
Allocation method	Live allocation based on market share and pick up requests operated by municipalities	Annual allocation of municipalities collection points per WEEE grouping based on previous year market input – distributed all over the country
Frequency of the allocation review	Daily allocation of pick up orders at random municipalities based on pick up requests	Yearly
Calculation algorithm	Based on monthly in-put report of producer, Clearing House is calculation of the producer obligation for collecting and recycling of WEEE. Positive or negative performance of duties will take over in the next calendar year. No cut off.	Operation Research algorithm – own development . Not made public Several optimization criteria to assure that the allocation is fair and does not give advantages or disadvantages to any

	Germany	Italy
	Not made public	collective scheme
Is a national collection target set every year?	No	No, as far as the Clearing House is concerned
Is a balancing among compliance schemes carried? If yes, with which frequency and how does this operate.	No	Yearly compensation. Not economic but through a correction based on the allocation de-allocation of collection points for the next year
Power to impose penalties	Yes, on producer. If collection order is not fulfilled with 48 hours after order has been received	Yes, mainly though on compliance scheme
Nature of the penalties (contractual, administrative)	Administrative, in accordance with the German administrative law code	Fees, administrative
Amount of the penalties	It depends on the frequency of violation from 5 - 50 K Euro per infringement.	Approx 200.000 Euro/ year
Data collection obligations of the Clearing House	From producer	The clearing house is currently the information hub of the whole system
Amount of gate fees allocated to municipalities in order access the WEEE (please include official and un-official arrangements)	No gate fees, however municipalities have the option of treating (valuable) streams with an own operator of their choice for the period of 1 year.	We consider it a contribution for efficiency at the collection point, paid only if collective schemes take back a minimum quantity for each take back service. The average amount is 65 Euro/ton

Source: JTA, Clearing house questionnaire for BIS 2012

The German WEEE system overview[16]

Fig 12: illustration of the German WEEE system



Source: German Federal Ministry for the Environment Nature Conservation and Nuclear Safety

In the German system all producers of EEE must register with the Clearing house before placing any equipment on the market. Producers must also provide an annual guarantee that will cover the financing of the return and disposal of equipment placed on the market after 2005 for B2C equipment in the event of insolvency. If this guarantee is not provided, the Clearing house can withdraw the producer's registration.

The Clearing house collates the register of the producers noting their type of equipment and issuing a registration number. It is the clearing house responsibility to calculate the quantities of WEEE that each producer on the register must collect.

For equipment that was placed on the market before August 2005 the clearing house bases the producers obligations on the share of total quantity of EEE, by category, that the producer pom annually. For equipment placed on the market after August 2005 producers may opt for their obligation to be based on either

[16] The German WEEE system overview has been informed by the electrical and electronic act, or ElektroG of March 2005

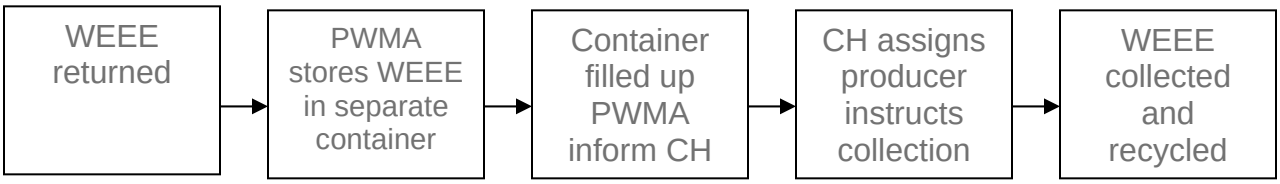
their share of WEEE arrived at through sorting or an algorithm by category or their share of total EEE by category pom in previous years.

The algorithm accounts for temporal and spatial distribution of WEEE collection quotas among producers. The algorithm considers the input weight of producers for each of the 19 sub categories on a monthly basis, the output weight of each container pick up and statistic data from sorting mixed WEEE container by sub-category. The sorting allows a fair allocation of containers by determining the real WEEE amount arising in a mixed container. (Source: Stiftung EAR)

The algorithm ensures a fair distribution of costs as it allocates containers with respect of the input-weight of each producer. Producer's sum of all input provisions at a category level equals an individual market share per producer. Source: Stifung EAR.

The public Waste Management Authority (PWMA) are required to collect WEEE from private households by setting up sufficient collection points free of charge. The clearing house uses the algorithm and issues instructions to producers to provide the PWMA with containers free of charge. The clearing house on receiving these instructions uses the algorithm to assign the full container to a producer and issues instructions for the collection of the container. The producer must collect it in a timely fashion otherwise they can be fined.

Figure 13: The journey of WEEE



Producers are also allowed to have its own individual or collective take back systems for B2C WEEE. For B2B producers must provide a reasonable option for return and disposal of WEEE.

How do producers pay?

Fees don't vary by size of producers and are taken for each registration and guarantee proofed and accepted. The fees for the administrative act of a container pick-up or to place an empty container are the same for all producers. However the more input weight the more containers will be assigned to the producer and therefore with more containers to pick up the higher the fees to pay to the national register. (Source: Stiftung EAR)

A levy of 45€ is charged per pick up order and in 2011 there was 86417 pick ups. Therefore the clearing house total budget in 2011 was 3,888 K Euros (45€ *86417 pick ups) (Source: Samsung 2012)

Data Requirements

In the German system there are data requirements feed into the algorithm and to ensure treatment targets are being met:

- types and quantities of EEE placed on market (monthly)
- Volume of WEEE collected by category from PWMA p.a
- Types and quantities of WEEE the producer collects p.a if it chooses individual take back scheme
- Quantities per category of WEEE the producer reuses p.a
- Quantities per category of WEEE the producer recycles p.a
- Quantities per category of WEEE the producer recovers p.a
- Quantities per category of WEEE the producer exports p.a
- Annual report containing data for previous year for total quantities from primary treatment facilities

Annually the clearing house has to report to the UBA on:

- List of registered producers
- Quantities per category of EEE placed on market by all producers
- Quantities per category WEEE from producers collected and held by PWMA
- Quantities per category of WEEE from producers that is reused
- Quantities per category of WEEE from producers that is recycled
- Quantities per category of WEEE from producers that is recovered
- Quantities of WEEE from all producers that is recovered and exported
- quantities reported by the producers in their annual report on the total quantities from primary treatment facilities

What incentives are in place to ensure there is compliance/collection/treatment :

Regulatory offences that are subject to two levels of fines include those who:

- Place EEE on market which contain prohibited substances
- Fail to register
- Not stating registration number in business transactions
- Place EEE on market without registering
- Indicate disposal costs
- Fails to display records, displaying incorrect or incomplete records or failing to display them in a timely manner

Are subject to a fine of up to €50,000.

Those who:

- fail to remove liquid or fail to comply with treatment standards
- fail to collect containers provided by them or fail to collect in a timely manner
- fail to submit a report, by submitting an incorrect or incomplete report, or by failing to report in a timely manner

Are subject to a fine of up to €10,000.

Public waste management authorities are obligated under state law to dispose of WEEE. They must also provide information on WEEE to private households.

The Clearing House IT system means that the performance of all actors in the WEEE supply chain is transparent and traceable with full documentation. This could be thought to incentivise environmentally sound treatment of WEEE as there may be downwards pressure from producers in order to avoid reputational damage.

Treatment facilities receive annual audits and must be annually certified. Additionally there are extra controls on the treatment of hazardous substances.

WEEE may be collected directly by producers. A 2012 report (Bio IS) suggests that due to the increase of quantities of WEEE returned via this method, this has incentivised greater considerations of reuse/recycling implications in the design process as they are specifically treating their own WEEE.

Obligation can be calculated according to WEEE arising in waste stream (not much evidence of this approach being used) which incentivises reducing the quantities of a producers' WEEE arising as waste. However, to some extent this is dependent on the detail of the methodology with which the obligation is calculated.

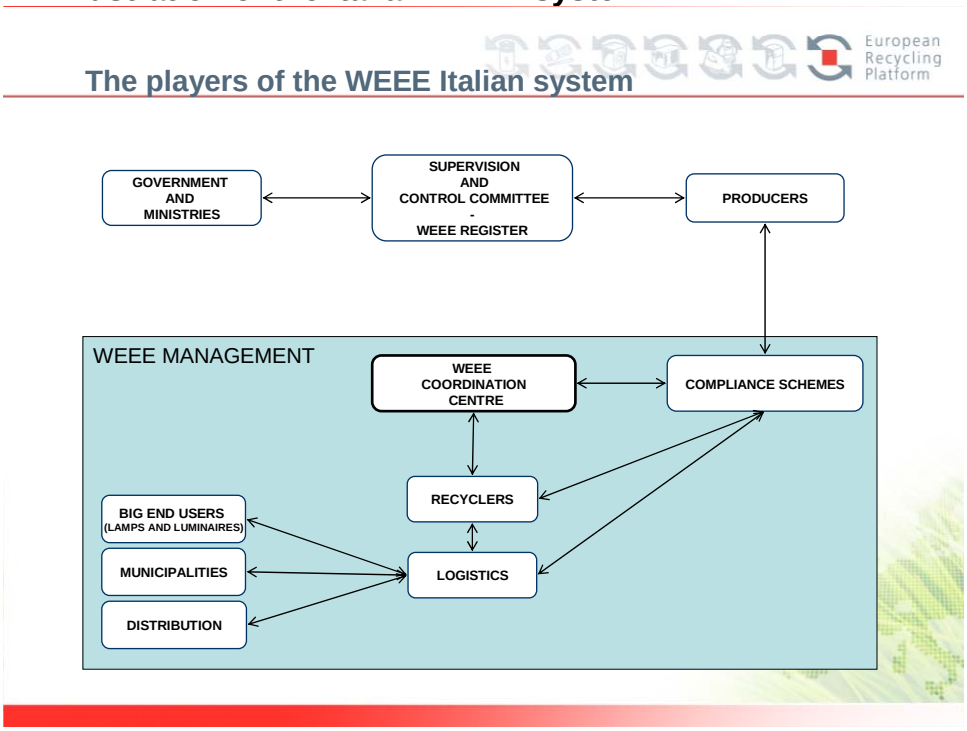
Comparison with the UK

The German system appears to place producers slightly closer to the treatment of WEEE (although they can discharge their obligation by joining a scheme) by linking them directly and transparently to specific consignments of WEEE when they need to be treated. Furthermore, German producers have the option to discharge their obligations by collecting WEEE using their own collection points which can have various implications, one being that if producers choose to only treat and process their own WEEE, it can incentivise consideration of end of life treatment in the design process. This differs from the UK system which requires producers to be a member of a scheme.

Although the clearing house system appears transparent with respect to data, there are several elements of the system that rely on potentially complex calculations/ methodologies. These are published but could introduce a minor barrier with regards to producers/schemes establishing ex-ante what their obligations will be. Although the UK system also features some uncertainty when it comes to determining financial obligations for the coming year, it appears that in the German system this is not a factor that prevents the system from working efficiently. Evidence of this is the fact that producers receive rebates for certain WEEE streams meaning that what they pay reflects in some way the true cost of treatment. This is not deemed to be the case in the UK.

The Italian WEEE system overview[17]

Fig 14: illustration of the Italian WEEE system



Source: European Recycling platform

All producers of EEE must first register with the Chamber of Commerce before it is allowed to place any EEE on the market. The national register is controlled by the WEEE Management Committee at the Ministry of Environment and chambers of commerce communicate any updates of registered producers. Producers must provide a financial guarantee.

Producers must inform the national register on an annual basis the quantities and categories of EEE placed on market and collected, reused, recycled or recovered. This data is used to calculate the producer's market shares.

Local councils ensure that there is separate collection of WEEE from private households in their territory free of charge. If wastes arises from another territory it will be conveyed only subject to specific written agreement with the destination local council.

There is a requirement for distributors to provide a 'one to one return' – take back scheme. Producers or their collective take-back systems are able to set up and operate individual and or collective take-back systems for WEEE from private households.

[17] The Italian WEEE system overview has been informed by an English translation of legislative decree 25th July 2005- no 151 from ecoR'it, http://www.b2bweee.com/files/legislation/italyWEEEDecree_EN.pdf

Collective schemes own and manage a Clearing house which optimises the activities of the collective systems to guarantee their common, homogenous and uniform operative conditions with the aim of maximising recovery and recycling of WEEE.

The clearing house is focused on the coordination of the system from an operational point of view. Responsibilities for clearing house:

a) To define with the Municipalities Association, through a framework agreement, the general conditions for WEEE take-back from municipalities' collection points
b) To define with the Distributers' association, thorough a framework agreement, the general conditions for WEEE take-back form Distributers
c) To subscribe specific agreements with recyclers' associations concerning the proper treatment and the qualification of the operators
d) To assure the necessary cooperation between different Collective Schemes
e) To optimize the organization of the collection system and to dispatch the take back requirements to each Collective Scheme.
f) To assure a prompt service to fulfil the request of the collection points, also using information and communication technologies
g) To assure the monitoring of WEEE flow for each Category
h) To prepare a prevention program for WEEE management, to be available to the Control Committee
(Source: Centro di Coordinamento)

The Clearing House in controlled by the WEEE Management Committee. The WEEE management committee has members from Government Departments. The Committee is a Governmental body responsible for the right application of the law. The committee owns the Register, they assign quotas to producers/collective schemes, and they check the clearing house and make decision concerning the interpretation of the law. (source: Centro di coordinamento)

Each collection centre has to separate WEEE in 5 streams: cold and air conditioning, LDA, TV and monitor, SDA, ICT, Luminaries, Other and Lamps. Collection centres register with the coordination centre for all of the individual streams of WEEE they collect. Each of the streams registered for all collection points is defined as a Pick-up point. (source European Recycling Platform)

The coordination centre annually assigns pick-up points to compliance schemes by using an algorithm. The algorithm variables are:

- Number of compliance schemes
- Number of collection centres
- Territory and logistics difficulties of each Collection Centre
- WEEE potentially collectable from each stream
- Compliance schemes national obligation per each stream.

(source European Recycling Platform)

The compliance schemes collect from collection centre the assigned PDPs, hence a collection centre could potentially be serviced by 5 different compliance schemes. However it is an aim of the clearing house to minimise the number of compliance scheme collecting from each clearing house. New collection centres that register during the year and hence are not included in the annual allocation are assigned with a weekly incremental allocation. (source European Recycling Platform)

When the containers are full Collection centres can contact the coordination centre by phone, the web or via email and lodge a pick-up request. Compliance schemes have to timely activate each PdP and constantly report the WEEE collected and treated to the coordination centre. Over or under collection at the end of the operative period are fixed during the following operative period adjusting the Compliance schemes obligations. (source European Recycling Platform)

The algorithm aims to allocate a PdP to only one compliance scheme so that:

- WEEE collected from PdPs assigned to a specific compliance scheme are close to its yearly obligation;
- Minimise the number of compliance scheme collecting from each Collection Centre
- The territory and logistic difficulties are equally distributed among compliance schemes
- Since the territory will be divided in macro-areas, the presence of the compliance scheme in each area is uniform
- Maximise the geographical continuity
- Minimise the changing year to year.

(source European Recycling Platform)

Producers or their collective compliance schemes are responsible for collecting the WEEE allocated to them and transporting it to the treatment facilities unless it is being reused. They must guarantee that the WEEE is being treated appropriately using the best available recover, recycling and treatment techniques.

Producers must finance the collection, treatment, recover and environmentally sound disposal of WEEE collected for WEEE place on the market after august 2005. Old waste and new waste is dealt with in the same way. Producers check their costs in proportion of market share for that year calculated on the basis of number of pieces or weight. Producers meet this obligation by setting up collective WEEE management schemes.

How do producers pay?

The coordination centre and the supervision and control committee are both financed by the producers. The costs of the committee and the majority of the costs of the clearing house faced by the producers are based on the producer's market share.

Data Requirements

Treatment facilities must record the mass of WEEE, their components, materials or substances when entering and leaving the facility and when entering the recovery or recycling facility. Owners of recovery must record the relevant components, materials or substances entering and the quantities actually recovered. This is reported on an annual basis.

Producers must provide the national register with the quantities and categories and EEE pom, collected through all channels, reused, recycled or recovered as well as the financial guarantee on an annual basis.

What are the incentives in place to ensure that compliance/collection/treatment takes place?

There are a number of regulatory offences with different level of fines. For example a distributor who does not withdraw free of charge EEE will be fined €150-€400. The largest fine is between €30,000 and €100,000 which is for either unregistered producers placing EEE on the market or for placing EEE on the market which contains prohibited substances.

Producer schemes contribute towards funds (run by the Clearing house) that will then go towards financing projects that will improve collection facilities/efficiency of treatment. Prizes are also awarded to municipalities for high levels of WEEE collection.

Audits of treatment facilities are undertaken to ensure that environmental standards are met. The results of successful audits are presented on the clearing house data centre. There is a lack of incentives driving appropriate treatment of WEEE collected via distributer take-back as one report suggests that illegal dumping is high due to low enforcement.

Conclusion

Producers pay as they put products on the market, their obligations is essentially always fulfilled. Although this charge will most probably be based on the current cost of treating a similar item of WEEE rather than the actual cost of treatment of that specific item when it becomes WEEE in the future (dynamic disconnect), the fact that producer obligations are known and transparent will give some certainty to producers. The real-time data system provided by the Coordination Centre will also contribute towards producers and the other actors in the system having a more accurate view of how the system is operating, where the WEEE is arising and how much of it is arising.

A factor that should be considered is whether the central system leads to an efficient price of collection and treatment paid by producers. We have not found any evidence that outlines exactly how the size of producers' financial obligations is calculated per item/tonne so it is difficult to assess whether the fees that they pay (directly or indirectly) to the Coordination Centre are strongly linked to the true cost of treatment or whether they are more closely aligned to the

coordination centres overall operating costs which could include operating inefficiencies etc.

Table 22: Summary of Matching Process in Spain and France:

	France	Spain
Name of Clearing House	OCAD3E	OFIRAEE
Time needed for establishment	6 months	1/2 year approx to create the main structure and the software, although only half of the Spanish territory has 100% of collection points in the Ofiraee system. The network of collection points is still developing.
Government involvement?	The Ministry of the Environment delivered in 2006 an accreditation for a period until the end of 2009. This accreditation has been renewed until 2014.	No. Ofiraee is a private initiative financed by Compliance Schemes. One of the obligations imposed by the administration when authorizing the Schemes was to create a coordinating entity.
Legal entity of the Clearing House	Simplified Stock Company Capital: 39 000€	There is no legal entity; Ofiraee is a common and voluntary agreement among Schemes. A private enterprise (IDOM) appointed by the Compliance Schemes manages the internet platform and deals with the service of technical assistance to users and Collective Schemes.
Governance of the Clearing House (please include explanations of board composition and representation of producer, municipalities, compliance schemes)	The 4 accredited compliance schemes (Eco-systèmes, Ecologic, ERP, Recylum) are founder-members of OCAD3E, each of them owning 25% of the clearing house. They constitute the board with a rotating presidency for a one-year period and each one owns one vote. A censor representing the government is present at each board meeting. His responsibility is to check the compliance of the clearing house on financial aspects.	The Spanish Collective Schemes finance Ofiraee. All of them attend update meetings. There is a coordinator belonging to a Scheme. Regional governments: those regions that have an agreement with the schemes, organize updating meetings to check the compliance of the agreement. 3 representatives of 3 different schemes attend these meetings.
Duties of the Clearing House	OCAD3E is a non-profit organization in charge of : • Establishing contracts with municipalities. • Balancing the compliance schemescollection obligations according to their different put-on-the-market market share. • Payment of financial support for collection to	- Manage the e-platform dealing with collection requests of WEEE in municipalities. - Data collection and analysis to allocate collection requests and promote balancing of weee collected among schemes. - Information service for users (management of call

	municipalities. • Coordinating some technical studies regarding household WEEE. • Coordinating the joint communication initiatives. The compliance schemes finance OCAD3E which pays the financial support to municipalities. OCAD3E does not participate to logistic operations which are directly conducted by the compliance schemes. OCAD3E perceives from its members the amounts allowing : • to ensure its missions of coordination of the French WEEE systems, • to guarantee the financial support to municipalities. Provisions : Cash surplus must be invested in reliable financial institutions.	center). - Calculates contribution to municipalities according to amounts collected (pro forma invoice issuing) - Quarterly reporting to the administration. The ministry of Industry is in charge of registration, and calculation market share of each producer, and it is a tax-free service.
Cost of establishment		154.000 €
Current annual budget	2012 : • Organization and management : 1 420 000€. • Payment of financial support for collection to municipalities: 19 000 000 €.	333.200 €
Financing method	2 main allocation keys to the compliance schemes for organization and management : • Number of contracts managed by each system. • Share of the put on the market. Payment of financial support for collection to municipalities : direct allocation costs of each municipality to compliance schemes.	Cost split in equal amounts among the 7 Schemes.

Please provide a % of total budget for operations financed by the Clearing House (e.g. headcount, public awareness, research, IT infrastructure)	Budget dedicated to organization and management : 1 420 000€, of which : • Running costs (including outsourced activities) : 550 000€ (39%) • IT costs : 100 000€ (7%) • Communication initiatives : 610 000€ (43%) • Projects : 160 000€ (11%)	Technical assistance: 84.000 €/year Legal assistance: 42.000 €/year IT infrastructure and call centre: 207.200 €/year
Number of employees	• 1.5 FTE internal employees (general management, controling, obligation balancing management). • 3.5 FTE for the outsourced call centre and administrative management of contracts with municipalities (1200 contracts for 4000 waste municipal collection points) + calculation of the financial support to municipalities. • 2 FTEfor the outsourced accountancy and payment of compensation to municipalities (1200 payments each quarter).	1 person technical assistance 2 person call centre
Contractual relationship with Municipalities, Compliance Schemes or Manufacturer, Treatment operators, Distributers?	2 kinds of contracts: • Contracts with municipalities. • Contracts with the compliance schemes.	Distributers: not in the scope of the e-platform, the amounts collected are taken into account when balancing among schemes (the information is reported by the schemes to Ofiraee). Compliance Schemes: the schemes hire a private entity (Idom) to provide the service. Treatment operator: no contractual relationship with Ofiraee. Collection requests are forwarded to the schemes from Ofiraee and Schemes select the treatment operator. Manufacturers: represented by schemes (no contractual relationship with Ofiraee). Region governments (there are 17 regions): some of them have agreements with schemes. Regional

		governments agree in promoting the collaboration of municipalities in Ofiraee. <u>Municipalities:</u> No direct contractual relationship with Ofiraee. Municipalities : can either join the regional agreement, not join it, or join a different agreement with a scheme(bilateral agreement: municipality-scheme) in which case, they request directly to the scheme for collection, and do not use the Ofiraee platform, but the amounts collected are taken into account when balancing among schemes (the information is reported by the schemes to Ofiraee).
Contractual duties of Municipalities	• Obligation of selective sorting of WEEE in 5 streams. • Obligation of giving back all WEEE to an accredited compliance scheme, member of OCAD3E. • Annual information to the inhabitants of the amount of collected WEEE. • Quarterly invoice to OCAD3E of the amount of the financial support.	Manage collection points. Request for collection of WEEE to the e-platform of Ofiraee. Classification of the WEEE into the categories agreed by contract in the collection points.
Contractual duties of the Compliance Schemes	• Quarterly reporting on the amounts of collected WEEE on each municipal collection point (calculation of financial support and obligation fulfillment). • 2-year forecast collection levels for municipalities, Distributers and social economy (anticipating collection obligations). • Payment 3 months in advance of the financial support to municipalities.	It is agreed that Schemes will provide information about amounts put on the market by their manufacturers and the amounts of WEEE collected. Schemes will manage the collection and treatment of the requests assigned by the Ofiraee platform.
Contractual duties of Manufacturers	None	
Contractual duties of	None	

Treatment Operators		
Contractual duties of Distributers	None	
Allocation method	Allocation of municipal collection points to the compliance schemes based on market share.	Live allocation based on Collective Scheme market share and pick up requests operated by municipalities
Frequency of the allocation review	Quarterly meeting of the compliance schemes which propose an allocation modification if requested, this proposal being validated in a meeting with representatives from municipal associations.	Daily allocation of pick up orders based on pick up requests
Calculation algorithm	Each year, the collection obligation for each scheme is determined by the national register (ADEME, French Agency for the Environment). OCAD3E is in charge of putting in place the appropriate allocation of municipalities to each compliance scheme. In order to facilitate the process, each system has to identify and get the approval of a pool of municipalities representing 1.5% of the global collection level. Those municipalities are the ones being allocated alternatively to each scheme in order to fulfill its collection obligation. If the deviation of one under-collecting scheme is higher than 1.5% and that the 2-year collection forecast shows this deviation will remain, a permanent transfer of municipalities from one scheme to another will be operated.	
Explanation of the algorithm		Collection requests are assigned according to the scheme's market share and the amounts it has collected so far. Therefore, the scheme with a highest market share and lowest Kg collected will get most of the collection requests. The requests are assigned immediately and market shares are updated quarterly (provided by the systems). Schemes are to report that the collection allocated is

Data collection obligations of the Clearing House - from producer - from municipalities - from compliance schemes - from treatment operators	From producers : none From municipalities: invoice for the financial support for collection. From compliance schemes : - Amounts of collected WEEE per each municipal collection point. - 2-year forecast of collection amounts from municipalities, Distributers and social economy. From treatment operators: none. From national register: official yearly put on the market and collection obligation for each scheme.	Municipalities provide info to Ofiraee about: - New collection points: location, classification of WEEE, contact person, opening hours, etc. - Collection requests: location, amount and type of WEEE. Schemes provide info to Ofiraee about: - Amounts POM of EEE - Amounts of WEEE collected in municipalities - Amounts of WEEE collected in municipalities outside framework agreement. - Amounts collected by Distributers. Volume and the real amount of kg collected (treatment plant weight), in the meantime, the Ofiraee system presumes an average amount has been collected, and uses this amount to calculate the allocation of the next collection request.
Is a national collection target set every year?	National target set every year : • 2010: 6 kg/hh. • 2011: 7 kg/hh. • 2012: 8 kg/hh.	No, the collection target is 4kg/inh/year.
Is a balancing among compliance schemes		Ofiraee collects the data of EEE POM by every Scheme. They calculate the target of WEEE amounts
Amount of gate fees allocated to municipalities in order access the WEEE (please include official and un-official arrangements)	€ / tonne payment (please provide exact amounts) - Fixed amount for each collection point: 1500 € (yearly) - 55€/tonne, based on the amount of WEEE collected - Protection of WEEE flows: 10 €/tonne, based on a minimum level of LHA share of the total WEEE collected (in 2012: 28%) - Communication : up to 0.5 €/inhabitant, paid if evidence of communication provided (copy of the invoice of the supplier)	€ / tonne payment Contribution to municipalities depends on the agreements signed and the type of classification of WEEE at collection points: the more are the streams, the higher is the contribution: 5 streams: 80-90 €/ton 3 streams: 40-60 €/ton
	every 2/3 years.	
Nature of the penalties (contractual, administrative)	Administrative in both cases.	No
Amount of the penalties	• Producers not contracting with a complying scheme or not having an approved individual system : up to 7 500 €/ unit sale • Compliance schemes or approved individual systems not complying with requirements : 30 000€	-

Source: JTA, Clearing house questionnaire for BIS 2012

Annex B: Assumptions

Methodology

Estimating Electrical and Electronic Equipment (EEE) Placed on Market

The Environment Agency collects data from Producers regarding the quantity of household and non-household EEE placed on the market. Data for household EEE (B2C) is reported to the Environment Agency quarterly, and data for non-household EEE (B2B) is reported annually.

The latest published data was used in the development of the impact assessment model and is available on the Environment Agency website[1].

Estimating Waste Electrical and Electronic Equipment (WEEE) Arising

In 2009, Axion Consulting developed a model for estimating the quantity of WEEE arising in the UK on behalf of the government's Waste & Resources Action Programme (WRAP). Data for the model was sourced from a review of published literature and data, and direct liaison with the sector.

Two key research papers were identified that examine the prediction of EEE lifetimes[2,3]. Both papers use variations of the Weibull distribution, which is a probability distribution used in engineering to estimate the time-to-failure of components[4]. In this case, the time-to-failure can be interpreted as the time between an item of EEE being purchased and that item failing and reaching end of life (becoming WEEE). Although the papers studied only considered the time-to-failure of individual items of EEE, it was recognised that this idea could be applied to historic EEE sales to predict current and future WEEE arisings.

In order to predict current and future WEEE arisings, historical data relating to the quantity of EEE placed on market was required. Data from the Environment Agency regarding EEE placed on market is only available from mid-2007 onwards; this was not sufficient data to predict WEEE arisings, as most WEEE categories had scale parameters (maximum lifetime) of greater than two years (up to fifteen years in some cases). As a result, data for EEE items sold in previous years was sourced from Euromonitor[5]. This information was in the form of sales volumes, rather than tonnages of EEE; to convert data to tonnes, a list of 2009 EEE item weights was obtained from the Furniture Re-use Network (FRN) and applied to the sales volumes. This allowed an estimate of the total EEE sales tonnages to be calculated.

A data extrapolation exercise was conducted to account for years where historic sales data was unavailable.

EEE and WEEE Data Update, 2012

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[1] Environment Agency (2012), Electrical and Electronic Equipment Placed on Market, http://www.environment-agency.gov.uk/business/topics/waste/111016.aspx

[2] M OGUCHI et al (2008), Product flow analysis of various consumer durables in Japan, Resources, Conservation and Recycling 52, 463-480

[3] NORDEN (2009), Method to measure the amount of WEEE generated: Report to Nordic council's subgroup on EEE waste, http://www.norden.org/en/publications/publications/2009-548

[4] The Weibull distribution is based upon two parameters; the shape parameter and the scale parameter. In simple terms, the shape parameter determines the average lifetime of the item, while the scale parameter determines the maximum lifetime. It was assumed that each WEEE category had its own pair of parameters; some of these were taken from existing, publicly available data and research, whilst others were estimates based on Axion's experience of the recycling industry.

[5] EUROMONITOR (2009), Global Market Research and Analysis for Industries, Countries and Consumers, http://www.euromonitor.com/

development of a new model, which would be used to assess the commercial and environmental impacts of changes to the existing WEEE compliance scheme.

This update involved:

- inputting the latest data available from the Environment Agency relating to EEE placed on market;
- inputting the latest data available from the Environment Agency relating to WEEE collected; and
- assessing the impact on estimated total WEEE arisings and associated forecasts (B2B and B2C WEEE collected).

For each category of WEEE, the actual quantities of WEEE collected during 2009 - 2012 were compared against the 2009 model forecasts for collected WEEE from 2009 - 2012. Where the figures did not align, the WEEE forecast data (from 2012 onwards) was updated to reflect new trends and observations. These were discussed with the project team to ensure that industry experience and an understanding of the current WEEE sector could be used to inform the forecasting update process.

Annex C: Abbreviations

AATF	Approved Authorised Treatment Facility
AE	Approved exporter
ATF	Authorised Treatment Facility
DCF	Designated Collection Facility
FOC	Free of charge
EEE	Electronic and Electrical Equipment
GDL	Gas discharge lamps
LA	Local Authority
LDA	Large domestic appliances
NPWD	National Packaging Waste Data
PCS	Producer Compliance Scheme
PoM	Placed on market
SDA	Small domestic appliances
SMW	Small mixed WEEE
WEEELABEX	WEEE Label of Excellence
WMC	Waste management company
WMP8	Environment Agency guidance on operational plans for WEEE compliance schemes
B2B	Business to Business
B2C	Business to Consumer
EA	Environment Agencies (including EA, SEPA and NIEA)