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## **ACE Paper 16/2011**

***For discussion on 14 November 2011***

# **A New Producer Responsibility Scheme for Waste Electrical and Electronic Equipment**

## **INTRODUCTION**

We completed in 2010 a public consultation on introducing legislation to implement a mandatory producer responsibility scheme (PRS) for the proper management of waste electrical and electronic equipment (WEEE). Analysis of the feedback is completed and this paper briefs Members on our proposed way forward of the scheme.

## **BACKGROUND**

### **WEEE as an Environmental Concern**

2. In the past few years, more than 70 000 tonnes of WEEE were generated in Hong Kong annually<sup>1</sup>. At present, over 80% of locally generated WEEE is recycled and most of it is sold through second-hand dealers, usually to developing countries, for re-use and recovery of valuable materials. Notwithstanding the seemingly high recovery rate, this export strategy is unsustainable because in time, demand for second-hand products in developing countries is expected to decline as the living standard improves and controls on importing WEEE into these developing countries may be tightened. Many neighbouring jurisdictions, have implemented mandatory WEEE control. At the same time, WEEE generation in Hong Kong has been on the increase (by

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<sup>1</sup> Data source: Survey commissioned by the Environmental Protection Department and conducted by the Hong Kong Productivity Council.

about 2% annually in recent years). Given the emergence of more affordable products and improved technology, this rising trend of WEEE is expected to continue despite increasing public awareness of waste reduction and the need for proper management and treatment of WEEE. We therefore need to develop a local solution in the spirit of eco-responsibility to manage the WEEE problem as soon as practicable.

### The Public Consultation

3. We conducted a public consultation in 2010 to solicit the public's views on the WEEE Scheme and complementary legislative measures. During the public consultation, more than 2 700 submissions have been received, among which 779 are duplicated submissions signed or sent off by different individuals. We also reached out to over 60 organisations and stakeholder groups including District Councils, relevant trades, green groups, professional/academic institutions, non-governmental organizations and advisory bodies, and encouraged members of the public to express their views through various means. A telephone survey was conducted with 1 005 successfully completed the interview. In parallel with the public consultation, we also conducted a Business Impact Assessment (BIA) study to assess the implications of the scheme on relevant business stakeholder groups including importers, distributors, retailers, second-hand dealers and recyclers.

4. Our analysis of the feedback from the public consultation reveals that stakeholders and members of the public generally supported that we should introduce legislation to implement a mandatory PRS for the proper management of WEEE. There was also majority support for most of the mainstream proposals though views were more diverse on individual proposals namely retailers' mandatory take-back services and the fee charging mechanism. Having regard to the findings of the public consultation, we plan to take forward the mandatory PRS on WEEE on the basis of the mainstream proposals in the Consultation Document, as elaborated in the ensuing paragraphs.

## **THE PRODUCER RESPONSIBILITY SCHEME**

### The Statutory Framework

5. Under the new mandatory PRS which would be implemented through amendments to the Product Eco-responsibility Ordinance (Cap. 603) and other relevant legislation –

- (a) retailers would be required to provide mandatory and free take-back service so that used and waste electrical and electronic (E&E) products could be collected more efficiently to form a critical mass to be handled by the local treatment plant (cf. paragraphs 8 to 9 below);
- (b) there would be permit controls for the import and export of used and waste E&E products (irrespective of whether they contain hazardous materials) so as to guard against dumping of WEEE to Hong Kong from other jurisdictions and to ensure that these locally generated WEEE would remain in Hong Kong unless they are genuinely suitable for reuse or they have been properly treated (cf. paragraph 10 below);
- (c) there would be licencing requirements for the storage and treatment of used and waste E&E products of a certain quantity and above so as to ensure that the handling of these products is environmentally sound and the output of such handling is acceptable for local reuse or export to other jurisdictions (cf. paragraph 11 below); and
- (d) there would be a fee to be collected at retail level upon purchase of new E&E products (cf. paragraphs 18 to 20 below).

#### Coverage of the Scheme

6. The vast majority (80%) of views received in the consultation supported the coverage of five types of E&E products, i.e. television sets, washing machines, refrigerators, air conditioners and computer products viz. desktops, laptops, printers, scanners and monitors which account for over 80% of WEEE locally generated in Hong Kong. Our intention is to focus at products designed for the mass market only. As regards mobile phones, digital cameras and video game equipment, there exists an active second-hand market for these products, so we do not propose to include them under the mandatory

PRS.

### Managing the Movement of WEEE

7. The objective of creating a local solution is to enable our environmental problem of WEEE to be dealt with locally within Hong Kong. On environmental grounds, locally generated wastes should be treated locally as far as possible rather than exporting them to other jurisdictions. To achieve the policy objective it would require enhanced import and export control so that locally generated WEEE would primarily be retained in Hong Kong for local treatment. There should also be other measures, including mandatory take-back by retailers and a landfill disposal ban, to facilitate the channeling of used or waste E&E products from consumers to the local treatment plant. These measures would ensure a critical mass of WEEE remains in Hong Kong which might sustain the necessary local treatment facilities. This critical mass is now unachievable in Hong Kong because the majority of locally generated WEEE has been exported to other jurisdictions (usually developing countries) through second-hand dealers.

#### *Mandatory Take-back by Retailers*

8. Under the mainstream proposals set out in the Consultation Document, retailers would be required to take back from consumers the old equipment free of charge on a “new for old” basis and properly dispose of such old equipment. This take-back requirement is common across various WEEE schemes implemented in other jurisdictions. It is important to ensure that a proper and user-friendly disposal channel for the public is in place, and that a sufficient quantity of locally generated WEEE is retained in Hong Kong for treatment. Without the mandatory take-back services by retailers, the collection of used or waste E&E products from individual households to the treatment facilities would have to be left principally to an unorganised network of second-hand dealers, or a substantial part be disposed of improperly by fly-tipping.

9. The proposed mandatory take-back requirement is one of the few issues which we received diverse views in the public consultation. While the majority of views received in the consultation expressed reservation to such proposal, over 70% of telephone survey respondents considered that the lack of take-back service would hinder proper disposal of bulky home appliances and

computer products. Comments from members of the public, District Councils and the Advisory Committee on the Environment (ACE) generally supported this requirement so as to ensure that waste E&E products could be collected for proper disposal. On the other hand, a considerable number of views received in the consultation, in particular those from the retail trade, indicated concerns about compliance cost and possible logistical burden. In reaffirming our proposal in respect of the mandatory take-back services, we have considered relevant overseas experience, the local situation in Hong Kong and the implications on effectiveness of the PRS in achieving the objectives of ensuring proper management of WEEE. We are ready to consider appropriate facilitating measures as identified in the BIA study to mitigate the relevant business impact. One of the facilitating measures being planned is to require the future WEEE Management Contractor (WMC), which would be procured through open tender, to provide WEEE collection and recycling services for the purpose of the mandatory PRS, (see paragraph 16 below). To reduce the logistic costs for retailers arising from the mandatory take-back requirement, this WMC will be required to operate not less than four regional collection points.

#### *Import and Export Control*

10. At present, on the basis of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, certain import and export controls have been imposed under the Waste Disposal Ordinance (Cap. 354) for monitors and televisions with cathode ray tubes (CRTs) as well as batteries that contain hazardous materials. The existing controls are inadequate for the purpose of effective monitoring and control of the movements required under the WEEE Scheme as the Scheme involves other types of products that do *not* contain hazardous materials. Drawing reference from the practical experience in respect of hazardous waste, we would put in place a control regime under the Product Eco-responsibility Ordinance such that no used or waste E&E products could be exported unless they meet the screening criteria for reusable goods (rather than waste). Enhanced export control, supported by the vast majority (80% - 91%) of views received in the consultation and telephone survey, would also ensure that used or waste E&E products are adequately treated in Hong Kong before they are exported as recyclables for reuse or sent to facilities in other jurisdictions for further processing. We would also guard against dumping of WEEE to Hong

Kong from other jurisdictions with appropriate import control.

### Proper Treatment of WEEE

#### *Licencing Requirements and Treatment Standards*

11. The proper treatment and recycling of WEEE involves various dismantling, detoxification and recovery processes. More specifically, there should be manual disassembly to separate the toxic parts for detoxification and mechanical shredding and separation methods to recover the recyclable materials (such as plastic and metal). For example, CRTs should be dismantled and acid treatment should be applied to leaded glasses. Upon completion of these processes, materials such as plastic, glass, iron, aluminium, copper, etc. would be recovered for sale, reuse or further processing. An illustration of the treatment processes is attached at the Annex. In order to ensure proper handling of WEEE from collection all the way to treatment and with around 90% support received in the consultation, we would require that recyclers undertaking the aforementioned treatment processes and operators of storage sites for used or waste E&E products at a certain quantity should obtain a licence.

#### *Need of Local Treatment Facilities*

12. International experience has shown that WEEE schemes typically require local WEEE treatment facilities with adequate capacity and appropriate technology. Currently, there are a few recyclers in Hong Kong that provide WEEE recycling services, but their businesses mainly focus on computer products or off-specification equipment from commercial and industrial sources. They are thus subject to clear capacity limit and are unlikely able to cater for the need of the future mandatory WEEE Scheme covering the five types of E&E products on a territory-wide basis. There should be new treatment facilities. With the basic principle that locally generated wastes should be treated locally as far as possible, this would lead to a sizable expansion of the current scale of WEEE treatment and would facilitate a circular economy, promote technological upgrades in local WEEE recycling, and create job opportunities.

#### *Functions of the WMC*

13. A critical component of the PRS on WEEE is the timely provision of a WMC who can provide both collection and recycling services in strict compliance with the relevant standards. To provide for certainty in this aspect, we propose to acquire through open tender a competent WMC (please see paragraph 16 below on the procurement arrangements). In respect of the target of collection and treatment of WEEE, our target is to achieve a minimum of 30 000 tonnes per annum<sup>2</sup> in accordance with the contract terms. Prescribing such a collection and treatment target would oblige the WMC to provide the necessary services even at times recycling of certain E&E products becomes less profitable due to say fluctuations in commodity prices. We would also require the WMC to operate no less than four regional collection points to accept used or waste E&E products. We envisage that individual retailers would enter into collaboration with the WMC in discharging their liabilities relating to the mandatory take-back service though such collaboration would not be mandated under the contract.

14. Based on the WEEE schemes implemented in other jurisdictions, there should be recycling targets under which no more than a certain small fraction of WEEE (by weight) could be landfilled as residues after the treatment and recycling processes. Under the contract, the appointed WMC would be required to set up and operate appropriate treatment facilities that would meet a recycling target of no less than 75% with relevant treatment standards. Such facilities should provide the treatment services referred to in paragraph 11 and should be properly licenced for such operations. Available information shows that these required recycling technologies are mature and available internationally for procurement. Indicatively, we estimate that the capital cost for the WEEE treatment plant is about \$400 million.

### The Government's Role

15. During the public consultation, there were requests a clear definition of the Government's role in the PRS. In taking forward the PRS, the Government assumes a key role in facilitating and supporting the Scheme, by putting in place all the requisite conditions such as legislation, that there is

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<sup>2</sup> In the European Union, there is a collection target of 4kg per person per annum which could be translated into an aggregate target of 30 000 tonnes per annum in the context of Hong Kong where we have a 7-million population.

provision of upfront collection and recycling services at the commencement of the Scheme, and bringing the community around for the behavioral change through public education. We will prepare the legislative proposals for the mandatory PRS and continuous enforcement of the legislation upon enactment. Under the PRS, we would also procure a competent private contractor through open tender to undertake the WMC functions and determine an appropriate fee level for the purpose of sharing the costs of the PRS. In addition, we would assume a monitoring role ensuring the smooth operation of the scheme and the satisfactory performance of the appointed WMC. In conjunction with stakeholders, the Government would also stage appropriate publicity and public education to promote the public's awareness of the PRS and other associated green messages in general.

#### *Development of a WEEE Treatment Plant as a Public Works Project*

16. In view that adequate local treatment capacity is requisite to the implementation of the WEEE Scheme, there has been a strong call from the public for the Government to demonstrate a firm commitment in kick-starting the PRS through providing assistance in the development of a WEEE treatment plant. We see the importance of certainty in the timely provision of adequate, competent collection and treatment services locally for the successful implementation of the PRS. We would therefore support, under Public Works Programme, the development of a local WEEE treatment plant through a "Design, Build and Operate" (DBO) contractual arrangement at a reserved site of about three hectares at the EcoPark. Under the DBO contract, the successful bidder will take up the role as the WMC with responsibility not only for designing, building and operating the WEEE treatment plant but also for the collection of WEEE in accordance with the terms of the contract.

#### Sharing of Cost Among Stakeholders

17. Sharing of cost is a contentious issue as identified in the public consultation. While some 60% of views received in the consultation indicated reservation on introducing a fee to recover the costs of the WEEE Scheme, over 70% of telephone survey respondents supported the principle of "polluter pays", which means the WEEE Scheme should seek to recover the full costs for waste collection, recycling processes and other management and administrative matters. We estimate that the DBO contract would involve capital costs of



about \$400 million (at current price level) for the development of the WEEE treatment plant and net recurrent costs of about \$220 million per annum for subsequent operation of the WMC.

18. There are different options on how the fee is to be collected. Though the feedback from some trades show a preference for an end-of-life fee, over 70% of telephone survey respondents worried that an end-of-life fee could lead to a fly-tipping problem. District Councils shared similar views and the ACE also supported a pre-paid fee to be collected at the point of sale. This approach is more desirable than an end-of-life fee which presents enforcement issues and would possibly induce a fly-tipping problem. It also compares favourably to an alternative of collecting the fees at the point of import, which would involve much higher compliance costs (e.g. extra working capital) and administrative costs (e.g. a refund for re-exports). We would engage the retail sector in developing the relevant operational details.

19. As to the fee level, we have explained in the public consultation that the fee for a specific type of E&E products should be related more to its size and components of the WEEE rather than the retail price. We would determine the level of the fee after the tendering process subject to the following guiding principles –

- (a) adherence to “polluter pays”: the aggregate fees collected should in principle be able to cover the full costs of the WEEE Scheme<sup>3</sup>;
- (b) differential rates would apply: products requiring more complicated treatment processes or containing less valuable recyclables would be charged a higher fee; and
- (c) the charging system, including the fee collection mechanism, would be simple and easy to understand.

We have also given in the Consultation Document an indicative range of fees with reference made to the fees charged in some overseas jurisdictions, viz. around \$100 for small appliances (such as a small television) and around \$200 to \$250 for bulky ones (such as a large television, refrigerator and washing

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<sup>3</sup> In general, “full costs” include fees and charges to meet the sum of capital cost, net recurrent operating costs, rental forgone and other relevant departmental expenses).

machine). Fees for computer products are expected to be lower.

20. The above guiding principles remain relevant and should be reaffirmed in taking forward the WEEE Scheme. It is important to note that at this stage we are unable to translate such principles into specific fee level because the actual full costs could not be ascertained before the DBO contract is awarded. We would make a realistic assessment on the fee level and the payers' affordability in due course, when better information is available. At that stage, we would seek to prescribe actual fee level in legislation which would be subject to the Legislative Council's (LegCo) approval.

21. It was raised during the public consultation whether overseas visitors who purchased E&E products in Hong Kong for use outside Hong Kong could be entitled to refund of the recycling fee. This issue should be considered in the context that certain computer products might be popular among some overseas visitors but the PRS covers primarily bulky items which have not been the conventional targets for tourist spending. Establishing and maintaining a refund system could incur substantial administrative cost which should as a matter of principle be borne by the users of the system so as to avoid any cross-subsidization. The cost-effectiveness of a refund system is therefore questionable; at this stage, we have no plan to pursue such a system for the recycling fee under the PRS.

## **OTHER OPTIONS**

### Alternative PRS Approaches

22. Individual stakeholders suggested that we approach the issue of proper WEEE management through legislating on the restriction of hazardous substances (RoHS) and promoting energy efficiency. The suggestions however could not on their own provide a viable option in place of the PRS now being developed. That said, we are ready to look into RoHS separately with other relevant government departments while developing the WEEE Scheme.

### A Separate Scheme for Computer Products

23. One computer trade group suggested establishing on its own an

independent, self-financing scheme for computer products. That independent scheme, if implemented, would however frustrate the principle of having one set of statutory requirements applying to all E&E products covered under the PRS. Also given other practical considerations (including the feasibility of financial self-sufficiency), we would not pursue the WEEE Scheme in the way as suggested.

## **WAY FORWARD**

24. In the context of the Government's comprehensive waste management strategy, we reaffirmed in January 2011 that PRS continues to be a key policy tool to promote waste reduction and recovery. Amongst other things, we were committed to expediting legislative proposals to introduce the new mandatory PRS on WEEE. As part and parcel of such preparatory work, we would engage the relevant trades in a continued dialogue so as to finalize the detailed implementation plan. We aim to make available the legislative proposals for the LegCo's scrutiny at the earliest opportunity in its new term.

25. We would brief the LegCo Panel on Environmental Affairs on 28 November 2011. Subject to the view of this Council as well as those of the LegCo Panel, we would proceed with the preparatory work for the DBO contract such that the relevant funding application could be submitted to the LegCo for approval in good time to make available the requisite local treatment capacity to serve the PRS when it becomes ready for implementation. In the meantime, we will start preparing the legislative framework for the implementation of the Scheme.

**Environmental Protection Department**  
**November 2011**

## Illustration of Typical WEEE Treatment Process

