



IDENTIFICATION OF ALTERNATIVE EOL SCENARIOS FOR OBSOLETE MOBILE PHONES

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Abstract: Waste electrical and electronic equipment is currently considered to be one of the fastest growing waste streams in the EU. There are different ways of treatement of obsolete mobile phones in Europe. In the paper we identified 3 alternative EOL scenarios for treatement of obsolete mobile phones in Slovakia.

Keywords: mobile phones, EOL scenarios,

Introduction

Waste electrical and electronic equipment (WEEE) is currently considered to be one of the fastest growing waste streams in the EU, growing at 3-5 % per year. WEEE contains diverse substances that pose considerable environmental and health risks if treated inadequately. On the other hand, the recycling of WEEE offers substantial opportunities in terms of making secondary raw materials available on the market (Eurostat, 2018).

Current situation in European countries

Particularly in the European Union, legislation on waste management is moving in the direction of product take-back. The general idea is that manufacturers or suppliers of goods should be made responsible for their safe disposal after use. For many products, including mobile phones, the extended producer responsibility is to be brought about through take-back legislation, which requires the supplier to recover at least a specified minimum proportion of products at the end of their service life. The objective is to remove the electronic crap from waste stream, to prevent it from getting to incinerators or landfills. The potential of take-back lies not only in removing hazardous materials, but in reducing impact of processes earlier in the supply chain through re-use or recycling (Clift & Wright, 2000). Original Equipment Manufacturer (OEMs) and network service providers take back end-of-use handsets as a customer service, as part of their corporate environmental responsibility program or for compliance reasons. They usually outsource these operations to third-party enterprises. Collection methods range from drop-off bins to prepaid envelopes or boxes. There are essentially two end-of-use fates for collected handsets, regardless of the reverse logistics channel: reuse or recycling (Gayer, 2010).

In their study Cilft and Wright (2000) conducted two pilot take-back schemes in Sweden and UK. In Scenario 1 recovered telephones were granulated and smelted to recover precious metals. In Scenario 2 used telephones was disassembled manually, and the implications of recovering components and materials estimated. The environmental and economic implications of each scenario were compared against a base case in which there is no take-back and the waste telephones go to landfill. In the UK trials, two methods of collection were taken into account: through telecom operator outlets for transport by lorry, and through the postal returns system. In Sweden, the phones were collected through the "green transport"





system, which carries mixed loads of non-perishable goods to minimize the unused capacity of the trucks. The UK transport system was found to use, per unit, 60 times the energy required by the "green transport" transport system. This represents the principal difference between the results of the UK and Swedish trials. Reverse logistics and disassembly can present serious cost barriers to realising the environmental benefits which can result from recovering used goods for re-use or recycling (Clift & Wright, 2000).

Identification of alternative EOL scenarios for obsolete mobile phones in Slovakia

According to Slovak practice, we identified 3 currently used alternative EOL scenarios for obsolete mobile phones in Slovakia (Figure 1).



Figure 1 EOL scenarios for obsolete mobile phones in Slovakia (Source: own)

Conclusion

We identified 3 alternative EOL scenarios for treatment of obsolete mobile phones in Slovakia. First scenario is collection of mobile phones by telecom operator (T-com, Orange, O2,...) partial disassembly and further treatment by final processor. Second scenario is regular/standard system of collection and treatment of WEEE through municipal collection sites, form which shipping to final processing is conducted. Third scenario is incineration and landfilling. This scenario is conducted in the case when people through away mobile phone to the municipal garbage bin.

Acknowledgement

This contribution was supported by the research grant VEGA 1/0853/16 (New Project Technologies for Creating and Implementing Future Plants).





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