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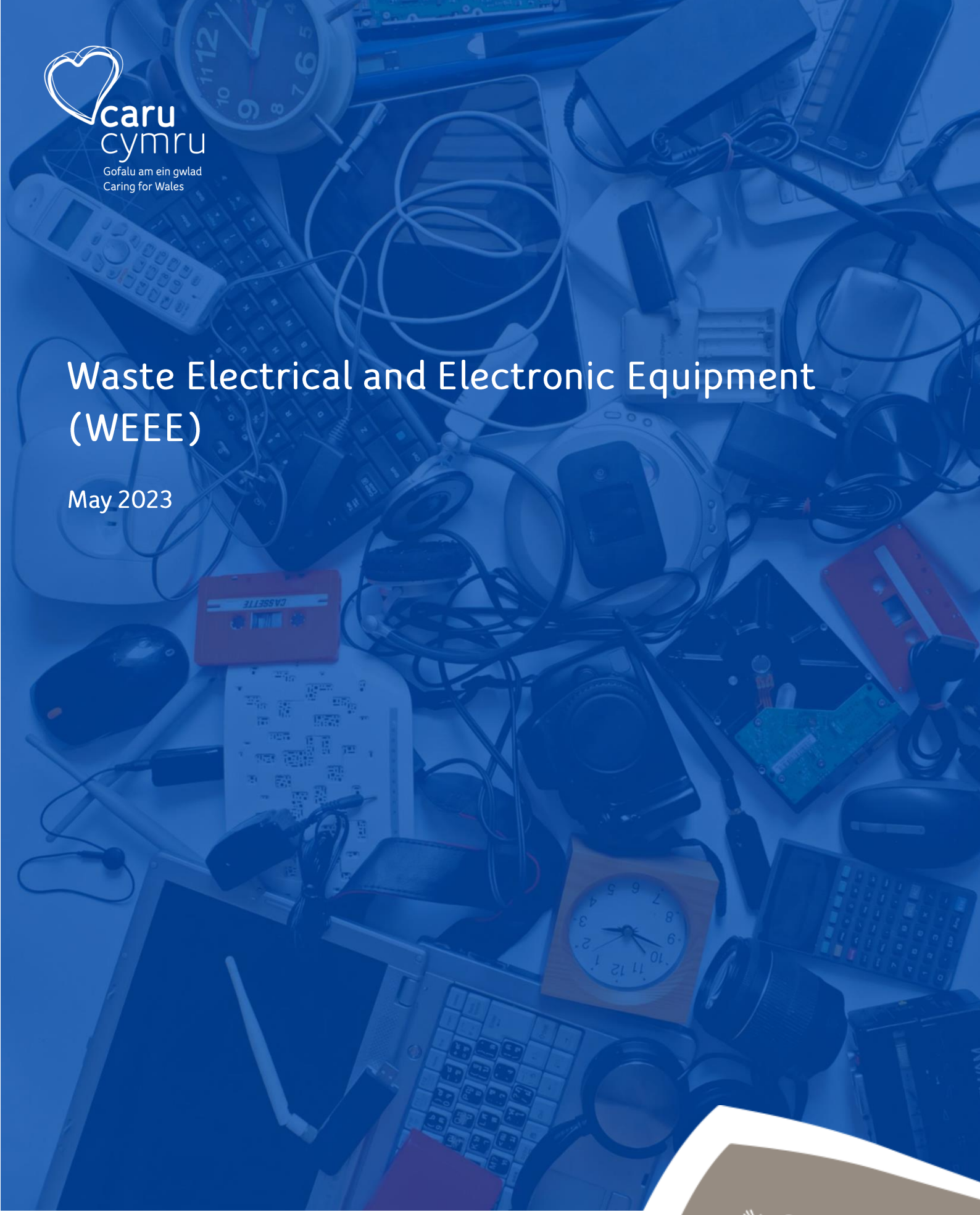
Caring for Wales

Waste Electrical and Electronic Equipment (WEEE)

May 2023



Cronfa Amaethyddol Ewrop ar gyfer Datblygu Gwledig:
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daclus tidy

Waste electrical and electronic equipment (WEEE) has been identified as the one of the largest and fastest growing waste streams globally[i] and the UK is the 2nd biggest producer of WEEE in the world. WEEE includes anything with a battery, plug or cable, ranging from large household appliances to lighting to toys and leisure equipment and more. The UK generates about 1.5 million tonnes of electrical waste each year (23.9kg per person), with over 35,000 tonnes generated by households[ii] and currently, over 25% of WEEE could be repaired or reused. Despite containing highly valuable critical raw materials (CRM), many old or unwanted electrical items are incorrectly disposed of, and the improper management of WEEE can cause economic losses and pose a risk to human health and the environment.

All electrical items must be recycled under the WEEE Regulations[iii,iv] but due to the diversity of electrical items on the market and the range of components that they are made up of, WEEE recycling can be extremely difficult. Between 2021-22, a total of **8,102 tonnes of WEEE was recycled in Wales**[v], but this requires a specialist process involving hand sorting, shredding, electro-magnets, shaking and water separation to isolate individual components and hazardous materials within an appliance[v]. The components of electrical items include rare and raw materials such as metals (ferrous, non-ferrous, heavy), plastic, fluids, glass and ceramics[v,vi].

Initiatives to adopt a **circular economy** in which we increase instances of reuse, prolong product lifespan and retain materials within the economy intend to address current and future resource concerns. As it stands, the reuse and repair of electrical items can be costly, time consuming and generally, it is deemed 'easier' to buy something new to avoid potential barriers[vii]. However, the new 'Right to Repair' Regulations require manufacturers to provide spare parts for certain categories of appliances, designing out obsolescence and advocating repair[viii].

Moreover, the disposal of WEEE can be challenging due to the lack of infrastructure for waste storage, inconsistencies across local authorities and recycling centres, and the lack of individual knowledge of what and where to recycle. Although many retailers offer free recycling or 'take back' schemes and some councils offer small WEEE collection kerbside[ix], the expansion and improvement of the recycling sector should be supported and prioritized. The Welsh Government (WG) are set to mandate non-domestic premises to separate small WEEE (unsold) for kerbside recycling this year, with proposals for used WEEE to come later, but no equivalent has yet been announced for households across Wales.

Overall consumption reduction, by repairing and reusing items that we can, should be the primary principles for consideration. Whilst some of this relies on a change in consumer behaviour, there is producer responsibility to build repairability into the design of products and for Governments to regulate against products that have built-in obsolescence. Recycling these products at the end of their life allows for the materials to be reused in other items and reduces the need for raw materials.

However, as noted above, recycling WEEE is not without complexities. The manufacture of one new desktop computer and monitor uses 240kg of fossil fuels, 21kg of chemicals or CRMs and 1.5 tonnes of fresh water[ix]. Therefore, increasing the recovery of raw materials from WEEE will save precious natural resources and energy while mitigating supply risks and regulating the growing global demand. The reuse, repair or recycling of electrical items would also decrease carbon emissions that contribute to climate change. It has been estimated that recycling all our old electricals would cut approximately 2.8 million tonnes of carbon dioxide (CO_2), which is the equivalent of taking 1.3 million cars off the road[x].

With the correct infrastructure, network and education, we can increase electrical item reuse, repair and recycling and reduce the amount of waste sent to landfill. It is also important to note that low carbon technologies account for 20% of global CRM consumption[i], and given that the demand for low carbon technologies is set to increase to meet global sustainability goals, it further highlights the absolute necessity to combine efforts for the repair, reuse and recycling of WEEE.

Policy opportunities going forward:

- Support the expansion and improvement of recycling networks (e.g. incorporating WEEE recycling into kerbside collections across all local authorities)
- Promote repair using a user-centric approach
- Further explore and study the barriers to reuse and repair to understand consumption and waste behaviours
- Expansion of the 'Right to Repair' Regulations (e.g. to cover everyday gadgets, like laptops and mobile phones) and allowing spare parts and fitting instructions to be available for consumers, not just professional repairers.
- Mandating companies that sell white goods to collect the old equipment when delivering new goods (Netherlands)
- The establishment of reuse centres as collection, repair and resale hubs (Swansea, Belgium)
- Building components exchange (Switzerland, Germany)
- Tax breaks on repairs (Sweden)

WEEE Recycling at Keep Wales Tidy

Keep Wales Tidy runs a collection scheme in partnership with A&LH Environmental Services for companies to responsibly recover, reuse and recycle any redundant electrical equipment. This scheme enables the disposal of unwanted equipment in one, all-encompassing collection and allows companies the knowledge that they are minimising their impact and maximizing their contribution to the environment. The scheme enhances sustainability and circular economy credentials as waste is diverted from landfill and reuse is prioritised wherever possible, payments are invested into environmental improvements and it supports the Welsh economy. For the 2022-23 financial year, the scheme recycled ~60 tonnes of materials and reused ~7 tonnes.

Keep Wales Tidy Position

Keep Wales Tidy supports all efforts towards the expansion and improvement for WEEE repair, reuse and recycling with a focus on reduction and prevention first.

References

i. Charles, R.G., Douglas, P., Dowling, M., Liversage, G. and Davies, M.L., 2020. Towards Increased Recovery of Critical Raw Materials from WEEE–evaluation of CRMs at a component level and pre-processing methods for interface optimisation with recovery processes. *Resources, Conservation and Recycling*, *161*, p.104923.

ii. Circular Online https://www.circularonline.co.uk/news/it-and-telecoms-e-waste-has-increased-in-the-uk-by-98-since-2008/; Accessed 23 February 2023.

iii. Recycle Your Electricals https://www.recycleyourelectricals.org.uk/about-material-focus/weee-regulations/; Accessed 21 February 2023.

iv. The Official Home of UK Legislation https://www.legislation.gov.uk/uksi/2013/3113/contents/made; Accessed 21 February 2023.

v. My Recycling Wales https://myrecyclingwales.org.uk/materials/waste-electrical-and-electronic-equipment; Accessed 21 February 2023.

vi. Health and Safety Executive https://www.hse.gov.uk/waste/waste-electrical.htm#:~:text=WEEE%20includes%20most%20products%20that,microwaves%2C%20washing%20machines%20and%20dishwashers; Accessed 21 February 2023.

vii. Cole, C., Gnanapragasam, A., Cooper, T. and Singh, J., 2019. Assessing barriers to reuse of electrical and electronic equipment, a UK perspective. *Resources, Conservation & Recycling: X*, *1*, p.100004.

viii. House of Commons Library https://researchbriefings.files.parliament.uk/documents/CBP-9302/CBP-9302.pdf; Accessed 23 February 2023.

ix. Wales Recycles https://www.walesrecycles.org.uk/how-to-recycle/how-are-electricals-recycled; Accessed 23 February 2023.

x. Recycle Your Electricals https://www.recycleyourelectricals.org.uk/problems-with-e-waste/; Accessed 21 February 2023.