Consumer electronics Knowledge on consumption, circularity and lifetime of electronics from a European perspective

EU circular talks, 25 May 2021



European Environment Agency







Where are we with electronics?



A Global, complex and highly linear supply chain



Source: EEA, 2014. Environmental Indicator Report



Current shape of the electronics supply chain

Sub-optimal environmental

Glued parts, composites, other complex materials Hazardous substances present Integrated designs

Insufficient consideration of ethical or environmental aspects Mainly virgin materials, often critical



Short lived products Ownership models Repair is not a credible option Prices do not account for real cost Very deficient collection Downcycling prevails Trading resources out as waste

Significant imports, solid production within EU



2017 Eurostat Comext trade data

2017 Eurostat waste electrical and electronic equipment data

ETC WMGE own calculation

European



The most sustainable electronic is the one that you already

- Complex products: contain up to 60 different elements
- Production can present from <25 % up to >90 % of total GHG emissions
- In 2017, EU generated 10.4 million tonnes of WEEE



The issue of short lifetimes



Desired shape of the electronics supply chain

Actual lifetime







Lifespans are dependent on multiple factors





strategies







e

issue



...and much more



Lifespans are currently very short





Influencing lifespans is key



A closer look to some product categories



Electronics are resource rich





E-waste contains precious metals and several critical raw materials such as gold, silver, antimony, beryllium, cobalt, neodymium and indium. A higher recycling rate of these materials would reduce their supply risk.



E-waste also contains several hazardous materials and chemicals such as halogenated compounds, radioactive substances, heavy metals and other metals that pose environmental and health risks if not managed adequately.

Source: EEA/ETC-WMGE



Smartphone

- Annually over 1.5 billion sold globally
- On average, used less than 2 years
- One year lifetime extension would save 2.1 million tons Mt of CO₂ per year by 2030







- In 2018, 70 million televisions sold in Europe
- Average lifetime of 7.3 years
- Production account around half of total GHG

LCD television



Washing machine



- 92 % of households in Europe owns a washing machine
- Used roughly 3.8 times per week
- Average lifetime of around 8 years
- Use phase account 40-60 % of total GHG

Washing machine







- In 2018, around 48 million units sold in Europe
- Average lifetime around 8 years
- Use phase account 47-67
 % of total GHG

Vacuum cleaner



Reflections around policy options



Desired shape of the electronics supply chain

Climate neutral, zero pollution

Design for recycling Hazardous substances not

present Modular designs

> Sustainable sourcing of virgin materials

> > High quantity of secondary materials



Service models

Spare parts accessible and well priced

Repair services available and credible

Externalities recognised by prices

Take-back, efficient

High-value recycling

Digital and robot assisted waste management



- Eco-design requirements and labelling
- Green public procurement
- Right to repair
- Extended producer responsibility
- Lowered VAT for refurbished electronics
- Take-back schemes
- Enabling a legal framework for emerging business models

Concluding remarks



- Consumption trends, shorter product lifetimes and obsolescence have increased the amount of electronics put on market and discarded soon after
- Resource intensive electronics production and consumption generate extensive environmental impacts
- Increasing product lifetimes with e.g. new business models is essential in the move towards circular economy



Thank you







To know more



On the issue of obsolescence

Technical report



TEC/MARG consuming partners: Remain testidate for Factorizing Insuremb (NPTG), CDBA, Collaborera, Construe on Statistical Consumptions and Parkatistum (ECC), Research Institute on Subarcalide Economic Grawth of National Research Council (IRCS), The Dable: Wank Agency of Finderics (DVAR), Subarahaldhy, Enhormeniate Economics and Dynamics Studies (ECD), VTT Extension Research Control of Research Communications studies (IRC), The Vignaturel Institute for Context, Research Communications, studies (IRC), The Vignaturel Institute for Context, Development Communications, studies (IRC), The Vignaturel Institute for Context, Development Communications, studies (IRC), The Vignaturel Institute for Context, Development Communications, studies (IRC), The Vignature Institute for Context, Development Communications, Studies (IRC), The Vignature Institute for Context, Development Communications, Studies (IRC), The Vignature Institute for Context, Development Communications, Studies (IRC), The Vignature Institute for Context, Development Communications, Studies (IRC), The Vignature Institute for Context, Development Communications, Studies (IRC), The Vignature Institute for Context, Development Communications, Studies (IRC), The Vignature Institute for Context, Development Communications, Studies (IRC), The Vignature Institute for Context, Development Context, Devel



EEA briefing



of longer-lasting electronics Europe's consumption in a circular economy: the



electronics

The electrical and electronics industry has been contributing to Europe socially and economically for almost 100 years. However, the production, use and disposal of electronics are resource intensive activities that result in significant environmential and climate impacts. The magnitude of these impacts depends very much on consumption patterns and how long products are used for. This briefing describes how increasing product lifetime and improving 'circularity' are essential steps towards reducing impacts from electronics.

Key messages

Over 20 kg of electrical and electronic products are put on the market on average per person in the EU every year, including large household appliances such as washing machines, vacuum cleaners, refrigerators and freezers, as well as electronics and gadgets such as computers, TVs and mobile phones. (Eurostat, 2019a)

Ses studies of four different electronic product groups show all have average actual lifetimes that are at least 2.3 years shorter than either their designed or desired lifetimes. There is potential for significant increases in actual lifetime use of these products.

Enerding the lifetime and delaying obsolescence of electronics can significantly reduce impacts and control table to meeting EU environment, climate and circularly objectives. The enabling and scaling-up of circular business models supported by the development and implementation of effective messures — eco-design, energy labeling, green public procurement ((PP) and extended producer responsibility (EPR) — can support this.

Publications > Europe's consumption in a circular economy: the benefits of longer-lasting electronics > Europe's consump circular economy: the benefits of longer-lasting electronics



Resource losses in waste

Technical report

Eionet Report - ETC/WMGE 2019/3

ETC Report: Are we losing resources when managing Europe's waste?



ETC/WMGE consistions partners. Hennih Intelluk in trahnokagipa Research (MTO), CHAN, Caliboloura (Barte on Sudarkalia Consumption and Production (SCCP), Beararch Institute on Sudarkalia Scionario, Bowh of National Research Council (MCCE), The Deparet Mallen (SCC). VTI Residual Intelluctor Council (MCCE), and Deparet Mallen (SCC). VTI Residual Intelluctor Council (MCCE) and Communications Incline). (How Wapperial Institute for Climate, Environment, Environ (MC), Bawk Environment Agency (SGC).



EEA briefing

Publications



Reducing loss of reduces from woote management is here to strengthering the checkle accretory in Europe Reducing loss of resources from waste management is key to strengthening the circular economy in Europe



Europe relies heavily on material resources for almost all of sociary's activities. Its estraction and production of material resources have algorithmat inspects on the environment and human heath, as well as on the economy. It is essential to result resources in European economies, keeping their value high, delivering value for image painds and inducing the need to use vigon materials. While progress is being material to Europe, by implementing an ambitroux waste polyand the Circular Economy Framework, significant immunts of valuation ensures are still loost through inefficient waste management practices. This briefing describes material losses in Europe for some key waste steams, namely waste electrical and electronic equipment (WEEE), and ol-

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