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New report on recycling critical raw materials from waste electronic equipment

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Electronic equipment contains a number of valuable and scarce metals such as gold, tantalum, rare earths and indium. Many of these metals are needed in future technologies such as wind power, photovoltaics and electric mobility.

In a new study Oeko-Institut has analysed the quantities of critical raw materials found in notebooks, flat screens, smartphones and LED lights per device and the resulting critical raw material potentials in Germany. In addition the study considers the current collection and recycling schemes in Germany and outlines existing barriers and potentials for improvement.

Identifying the raw material potentials of waste equipment

In the project conducted for North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection (LANUV) Oeko-Institut has conducted a detailed inventory analysis of critical raw materials in notebooks, flat screens, smartphones and LED lights, drawing upon a multitude of data from manufacturers and recyclers, some of which was unpublished before. In contrast to other projects, the Oeko-Institut study takes a bottom-up approach, which has the benefit of data collection occurring on the component level, enabling far better conclusions to be drawn on possible recycling solutions than generic data on the product level would allow.

The analysis also shows that many of the critical raw materials in electronic devices have been completely lost for the industrial cycle up to now. Problems are above all caused by moderate collection rates, insufficient pre-treatment of complex electronic products, and in many cases the fact that there are still no appropriate refining processes for critical metals.

Improving the recycling of electronic devices

To overcome these problems, Oeko-Institut is proposing a number of measures for improving the collection and recycling of electronic devices. These measures include immediate technical and organisational improvements as well as measures for the temporary storage of raw material fractions until the relevant refining processes have been developed. Improvements can also be supported by appropriate manufacture and design of the devices. Particularly in the case of smartphones, for example, the trend for non-exchangeable lithium-ion batteries is resulting in a less efficient recycling process.

Please find the report here:

<http://www.resourcefever.com/publications/reports/Recycling%20critical%20raw%20materials%20from%20waste%20electronic%20equipment.pdf>

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