

By fully utilizing Dutch e-waste we can meet up to 30% of EU's current annual demand for specific Critical Raw Materials

Hotspots in Dutch e-waste include Magnets, Printed Circuit Boards, Copper and Aluminium

30% Potential recycling rate e-waste

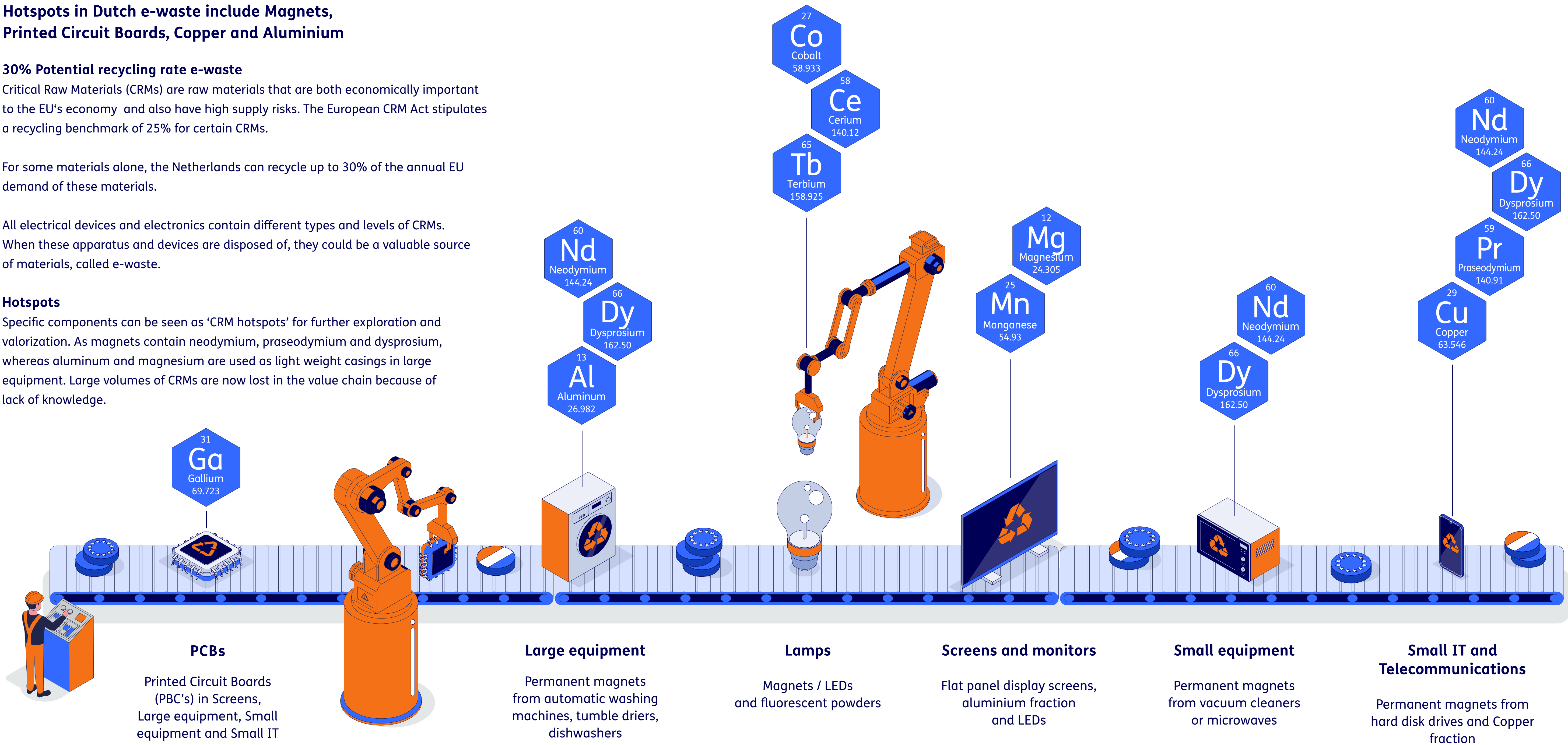
Critical Raw Materials (CRMs) are raw materials that are both economically important to the EU's economy and also have high supply risks. The European CRM Act stipulates a recycling benchmark of 25% for certain CRMs.

For some materials alone, the Netherlands can recycle up to 30% of the annual EU demand of these materials.

All electrical devices and electronics contain different types and levels of CRMs. When these apparatus and devices are disposed of, they could be a valuable source of materials, called e-waste.

Hotspots

Specific components can be seen as 'CRM hotspots' for further exploration and valorization. As magnets contain neodymium, praseodymium and dysprosium, whereas aluminum and magnesium are used as light weight casings in large equipment. Large volumes of CRMs are now lost in the value chain because of lack of knowledge.



Recommendations to unlock the potential for Critical Raw Materials

Strengthening the position of the EU via better policy, stakeholder collaboration and technological innovation

Strategical Autonomy

To support competitiveness, climate neutrality in 2050 and more geopolitical autonomy the EU strives to reduce its dependency on the supply for Critical Raw Materials (CRMs).

The EU's Critical Raw Material Act (CRMA) strives for greater material autonomy by setting benchmarks: the EU should extract **10%** of its annual needs, process **40%** of its needs, and cover **25%** of its needs through recycling. Furthermore, the EU should diversify its imports of SRMs and, for each SRM, should not depend on any single third country for more than **65%** of its supply.

25%
Recycling of:

Al, Bi, B, Co, Cu, Ga, Ge, Li, Mg, Mn, Ni, Si, Ti, W, platinum group metals, rare earth elements for permanent magnets and graphite.

EU CRMA benchmarks for 2030

10%
Extraction

40%
Processing capacity

≤65%
Sourcing from single third country

Recommendations

To increase the awareness of the presence of CRMs in Dutch e-waste and improve the recycling rate of CRMs, the following is needed:

- 1 Policymakers:** Provide better incentives for higher collection and targeted recycling.
- 2 Collaboration:** Increase transparency in the value chain and cooperation among stakeholders.
- 3 Technological Innovation:** Encourage the development of new technologies for material recovery, like advanced sorting techniques.

Benchmark:

At least 25% of the EU's annual demand should come from recycling.



E-waste collection rate

In the Netherlands, more than **750 tonnes** of electronics and electrical equipment is sold per year, corresponding to **432 kg** per person.

In 2020, only **44%** (against a target of **65%**) of e-waste was collected, which equates to **220 tonnes**. Over one billion devices now reside in households and businesses, of which 9% are unused or broken. This means a loss of valuable materials.

The potential of CRMs from Dutch e-waste shows great contrast for bulk metals and rare earth elements

Permanent magnets (containing neodymium and dysprosium) although small in quantity provide the largest contribution potential to current EU demand. Bulk base metals (copper and aluminum) are large volumes, but can provide a small (but still necessary) additional contribution.

The increased supply from recycling from e-waste to bulk metals seems negligible, only up to 1% of EU’s annual demand. However, as the EU’s annual demand is high, these percentages correspond to significant volumes. Recycled volumes of copper and aluminum in the EU already meet the requirements of the CRMA on supply from recycling. Yet, copper and aluminum that is currently lost in waste streams, can contribute up to an additional 0,5%.

