

# Towards the urgently needed raw materials transition

## The high metal consumption in Europe entails serious consequences in resource-rich countries

Whether heavy metal poisoning of water and soil, air pollution or massive deforestation: Mining often goes hand in hand with environmental destruction and the impairment of livelihoods. Well-documented human and labour rights violations also include child labour and exploitative working conditions, illegal conversion of fertile agricultural land and the endangerment of indigenous peoples. The raw materials that are extracted this way often end up in the supply chains of European companies. Although the *Conflict Minerals and Batteries Regulation* and the *Corporate Sustainability Due Diligence Directive* have raised awareness, the high level of consumption in Europe continues to drive overexploitation.

More than **2.8 billion tonnes of metal** produced worldwide in 2022.

More than **1900 environmental activists** killed since 2012.

**631 recorded allegations** from 2010 to 2023 regarding bauxite, copper, nickel, cobalt, lithium, manganese, and zinc.

**10 to 14 % of global CO<sub>2</sub> emissions** are generated by the mining and processing of primary metal raw materials.

Sources: Visual Capitalist (2023), Global Witness (2023), Business & Human Rights Resource Centre (2024), PowerShift (2022)

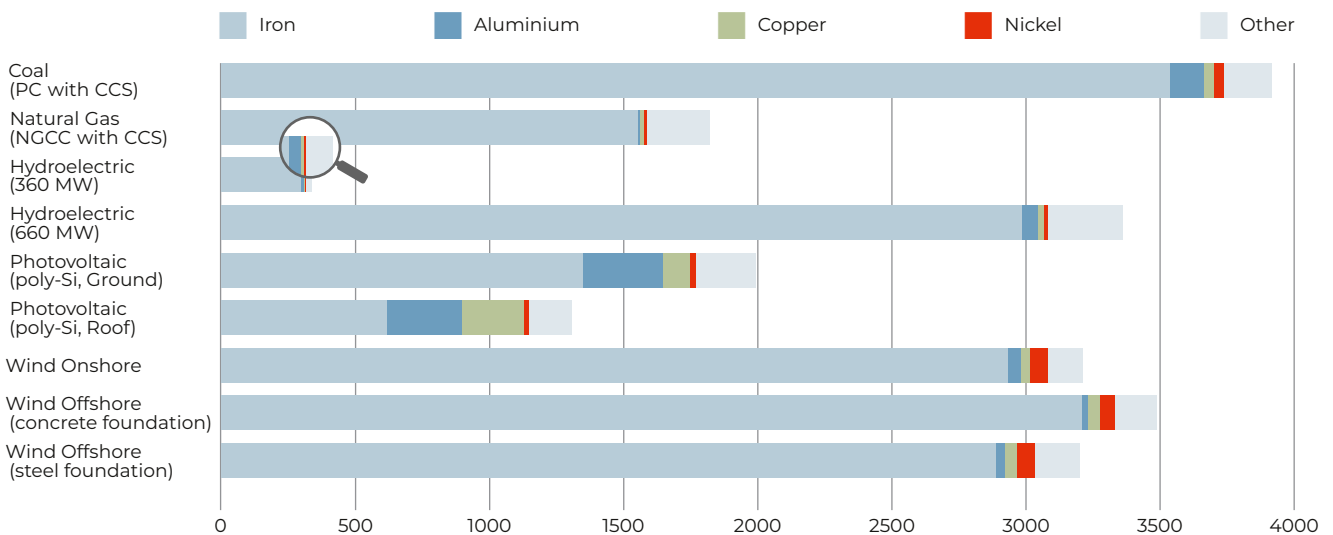
### The transition to renewables is not a driver of rising metal consumption

The fact that mining and the processing of extracted raw materials is responsible for more than 10% of global CO<sub>2</sub> emissions seems rather contradictory considering that the energy transition, in particular, is cited as the driver of a sharp rise in metal demand.

A significant proportion of the predicted increase in metal demand can be attributed to the automotive sector. The gradual phasing out of cars with combustion engines is necessary, but a mere switch to electric cars would lead to a metal rush. Instead, a comprehensive and socially just mobility transition is needed.

Studies show that the amount of metal required for energy technologies like wind-, solar- or hydropower does not exceed that of coal-fired powerplants.

Figure 1: Metal demand for selected energy technologies in g per MWh



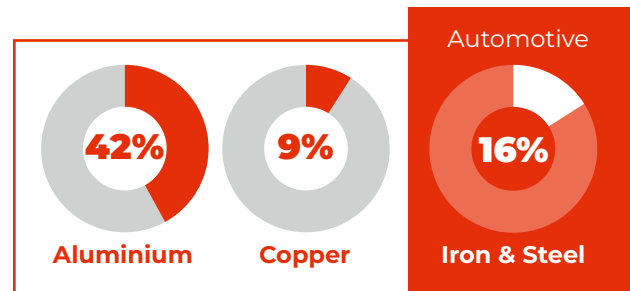
Sources: Luxembourg Institute of Science and Technology (LIST) in PowerShift's "Metals for the Energy Transition" (2023)

## A large quantity of metals is used in the production of cars

The four metals iron, copper, aluminium and nickel together currently account for 89% of the EU's total consumption of metallic raw materials. Significant quantities of these are used in the transport sector throughout the EU. It is also expected that the demand for aluminium, copper, nickel and other metals in the automotive sector will increase in the future.

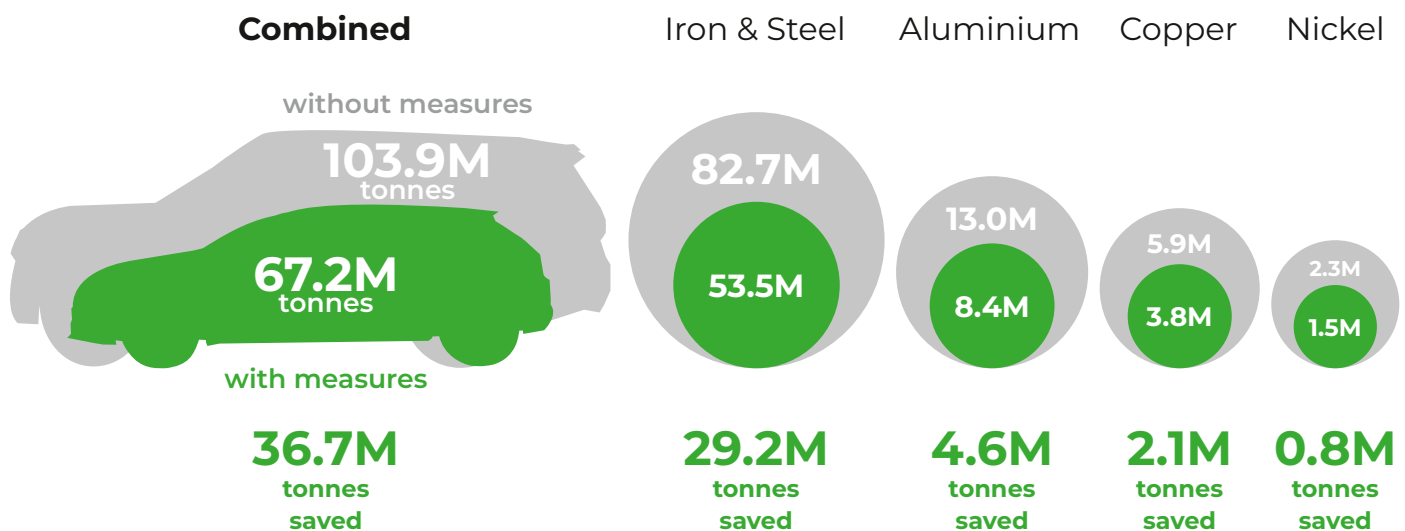
However, a new study shows that metal consumption can be significantly reduced if measures are taken in the transport sector to lower the size and number of newly registered vehicles. For Germany, this could result in savings of 35% of metallic raw materials. Similarly high savings potentials can also be expected for the EU.

**Figure 2:** Share of the transport sector in total EU use of the respective raw material (in 2019/2020)



Source: Dittrich et al. (2024)

**Figure 3:** Possible metal savings through analysed measures in the automotive sector (in tonnes)<sup>1</sup>



<sup>1</sup> Quantity of the metals iron and steel, aluminium, copper and nickel that could be saved in Germany in the period from 2025 to 2050 (compared to the forecast total demand of 103.9 million tonnes in the same period) assuming the following measures are taken:

- Of the new registrations of medium and large vehicles, 30% are shifted to the small vehicle segment each year.
- New registrations decrease by 30% per year.

## In order to reduce risks, measures must be taken in the raw materials and transportation sector.

### The EU should:

- address the consumption of raw materials and adopt ambitious resource protection targets;
- prioritise the circular economy and increase the circular economy targets of the *Critical Raw Materials Act* (CRMA);
- use the instrument of Strategic Projects (introduced in the CRMA) to support projects aimed at recycling;
- promote smaller and lighter vehicles, as well as the durability and reusability of vehicle parts;
- reduce the total number of newly registered cars across the EU and invest in public transport.

Find further information here: <https://power-shift.de/suggestions-for-the-raw-materials-transition/>