

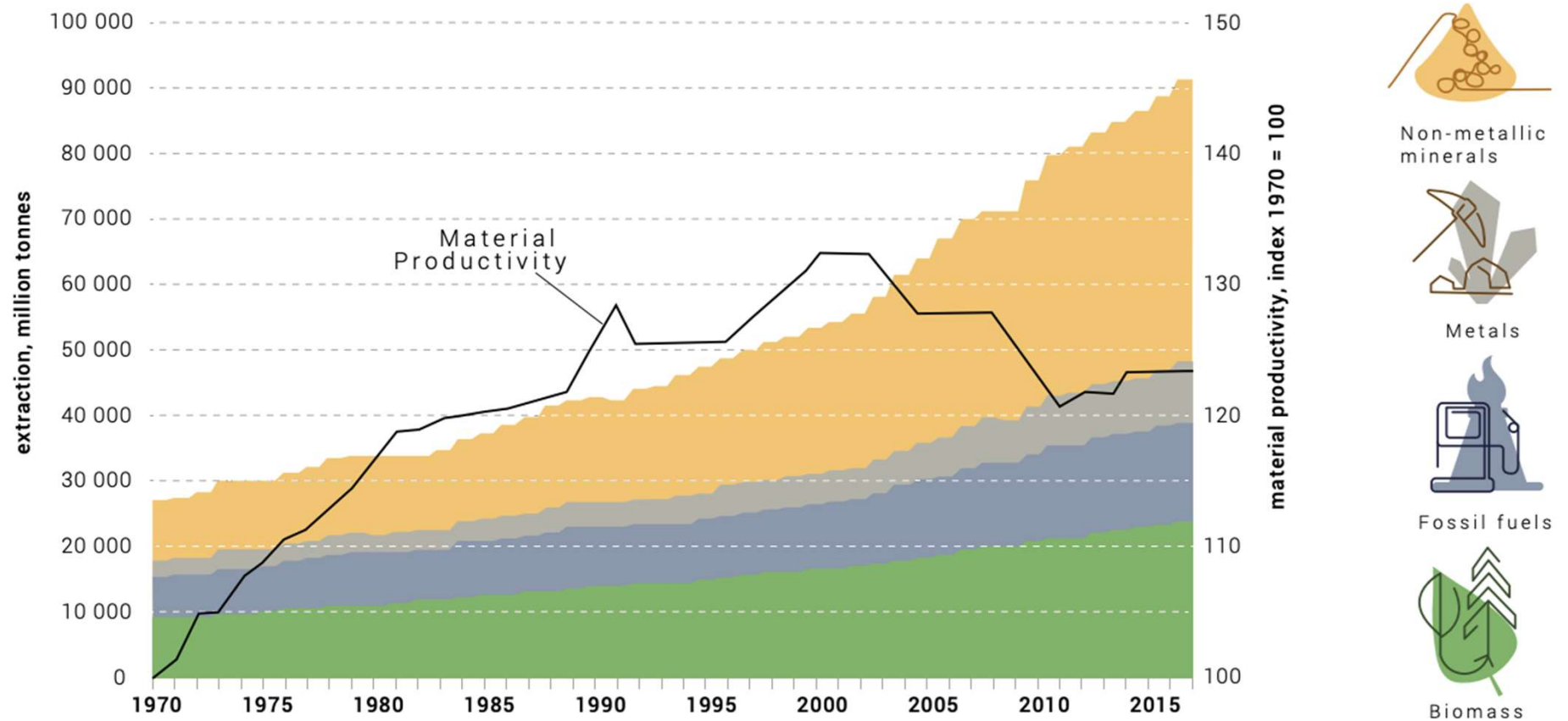
Resource crisis: Necessary decoupling of resource use and growth in a nexus approach to circular economy

13th German-Japanese environment and energy dialogue forum
25th January 2024
Kawasaki, Japan

*Franziska Erbe, Junior Researcher Circular Economy
Wuppertal Institute for Climate, Environment, Energy
Germany*

The growth of resource production and consumption patterns has led to an unsustainable present and a threat to our future

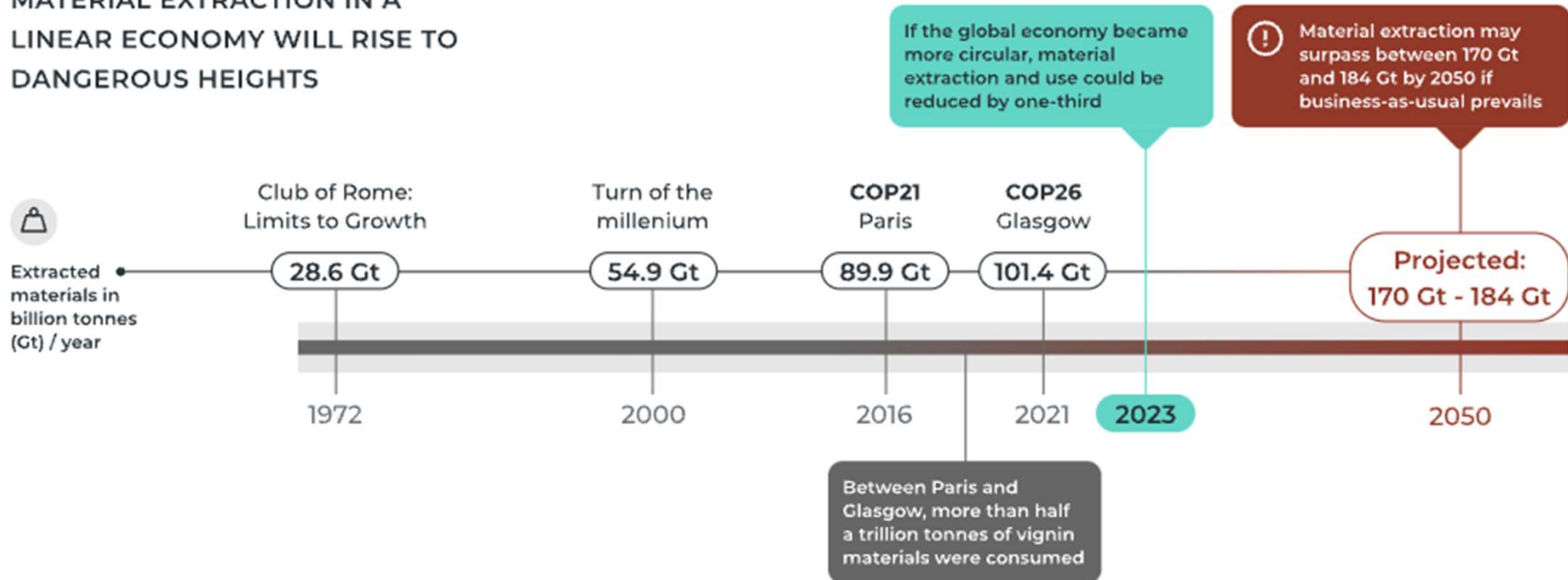
| Figure 2. Global material extraction, four main material categories, 1970 - 2017, million tons



Source: IRP Global Resources Outlook (2019)

Business-as-usual is no longer possible, and the circular economy has large potentials

MATERIAL EXTRACTION IN A LINEAR ECONOMY WILL RISE TO DANGEROUS HEIGHTS

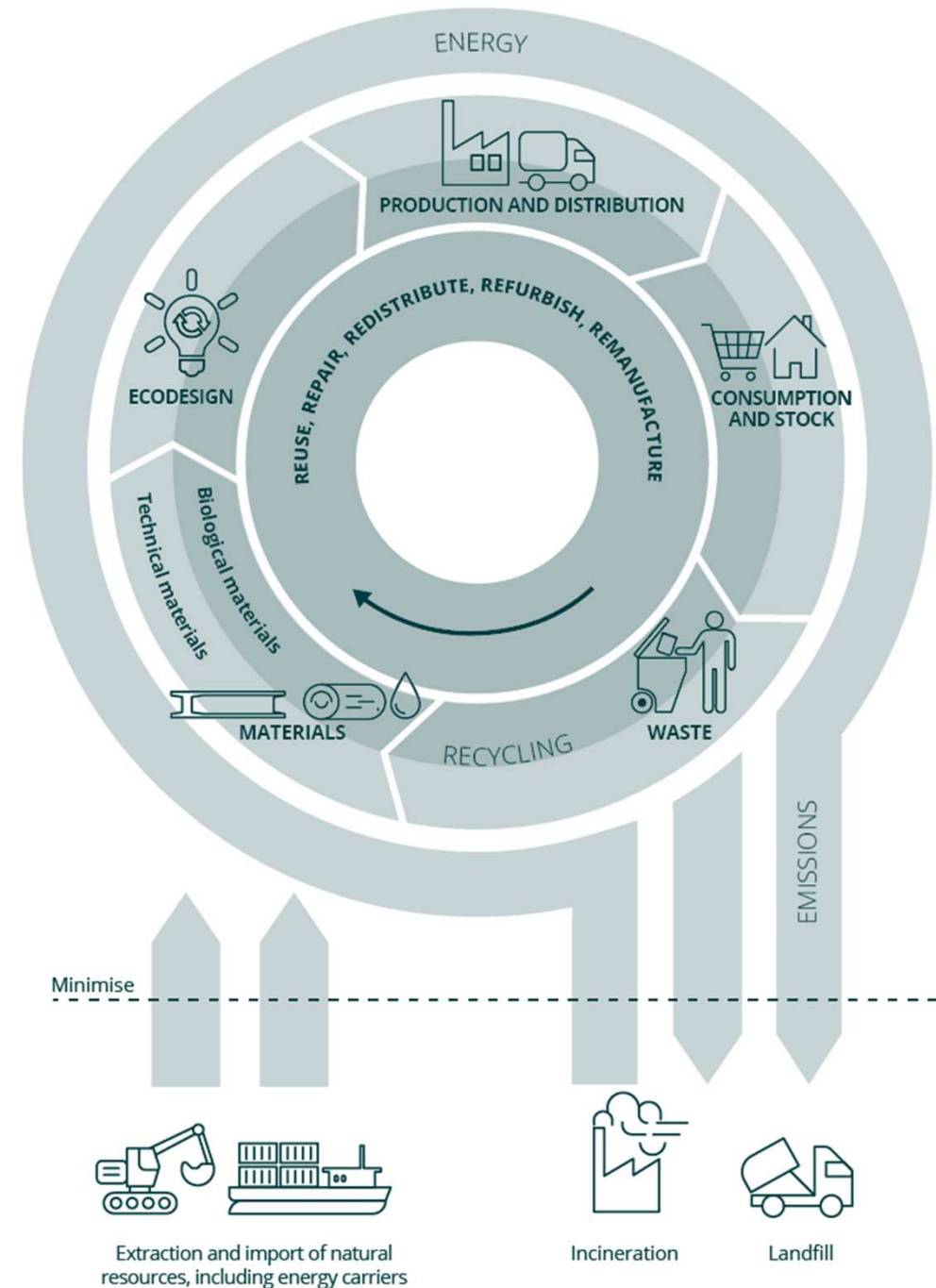


Source: Circle Economy (2023)

How can a circular economy change this path?

“A circular economy is a **system** where **materials never become waste** and **nature is regenerated**. Products and materials are **kept in circulation** through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting.”

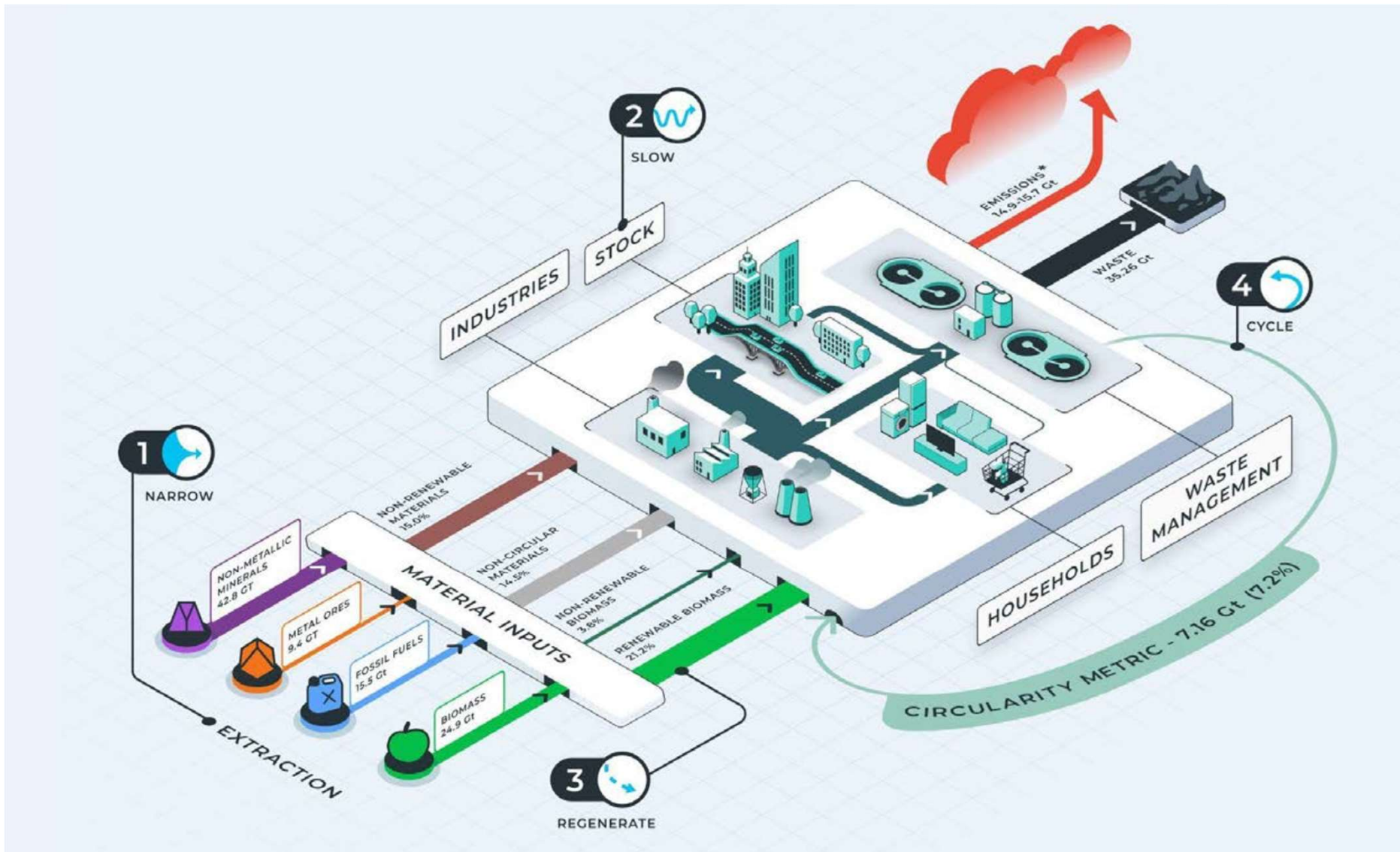
“A circular economy describes an **economic system** that is based on business models which **replace the ‘end-of-life’ concept** with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes.”



Source: EEA (2020),

Ellen MacArthur Foundation (2023), Kirchherr et al. (2017)

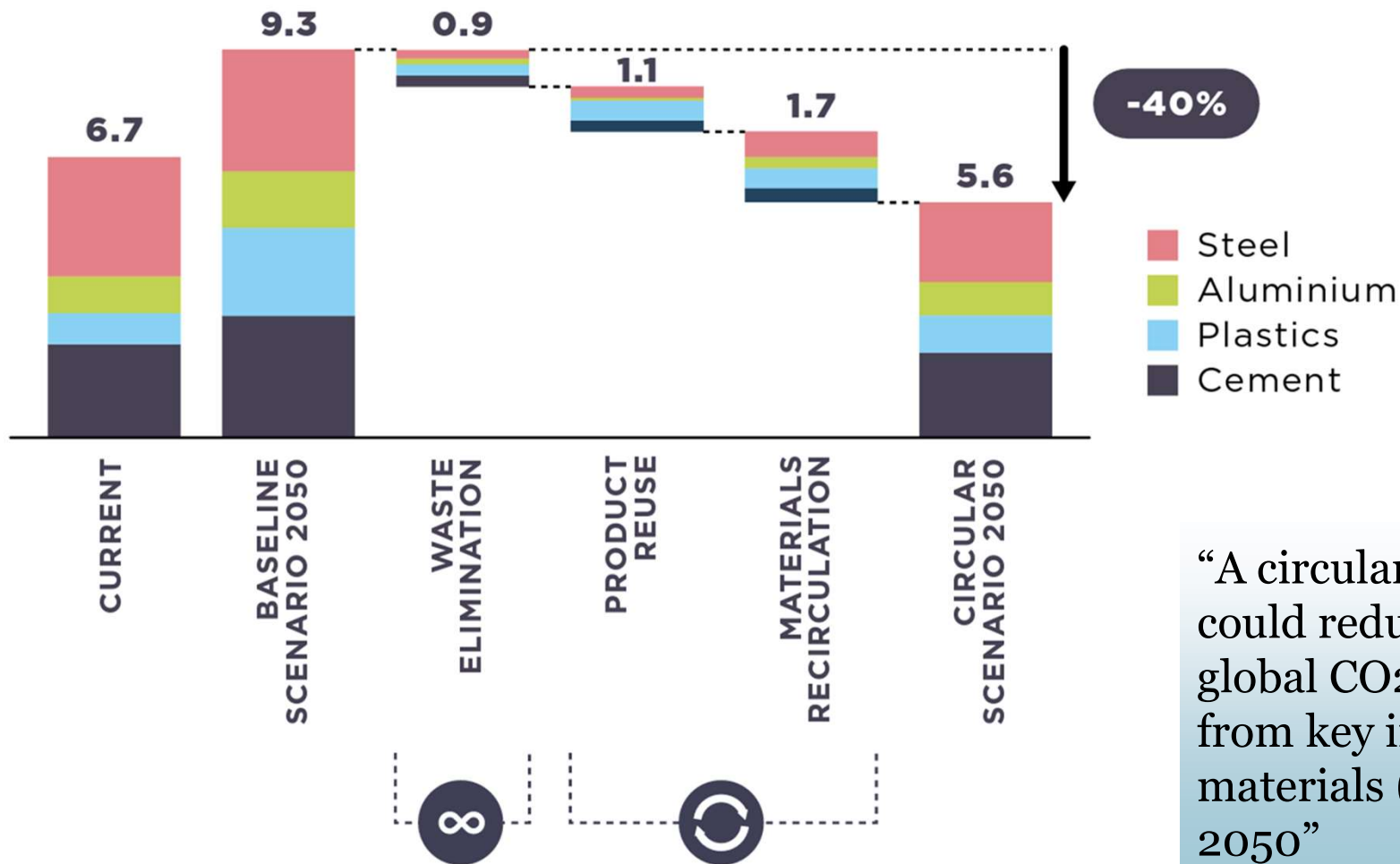
The current percentage of circular inputs is ONLY 7.2%



Source: Circle Economy (2023)

A circular economy can contribute significantly to climate mitigation targets

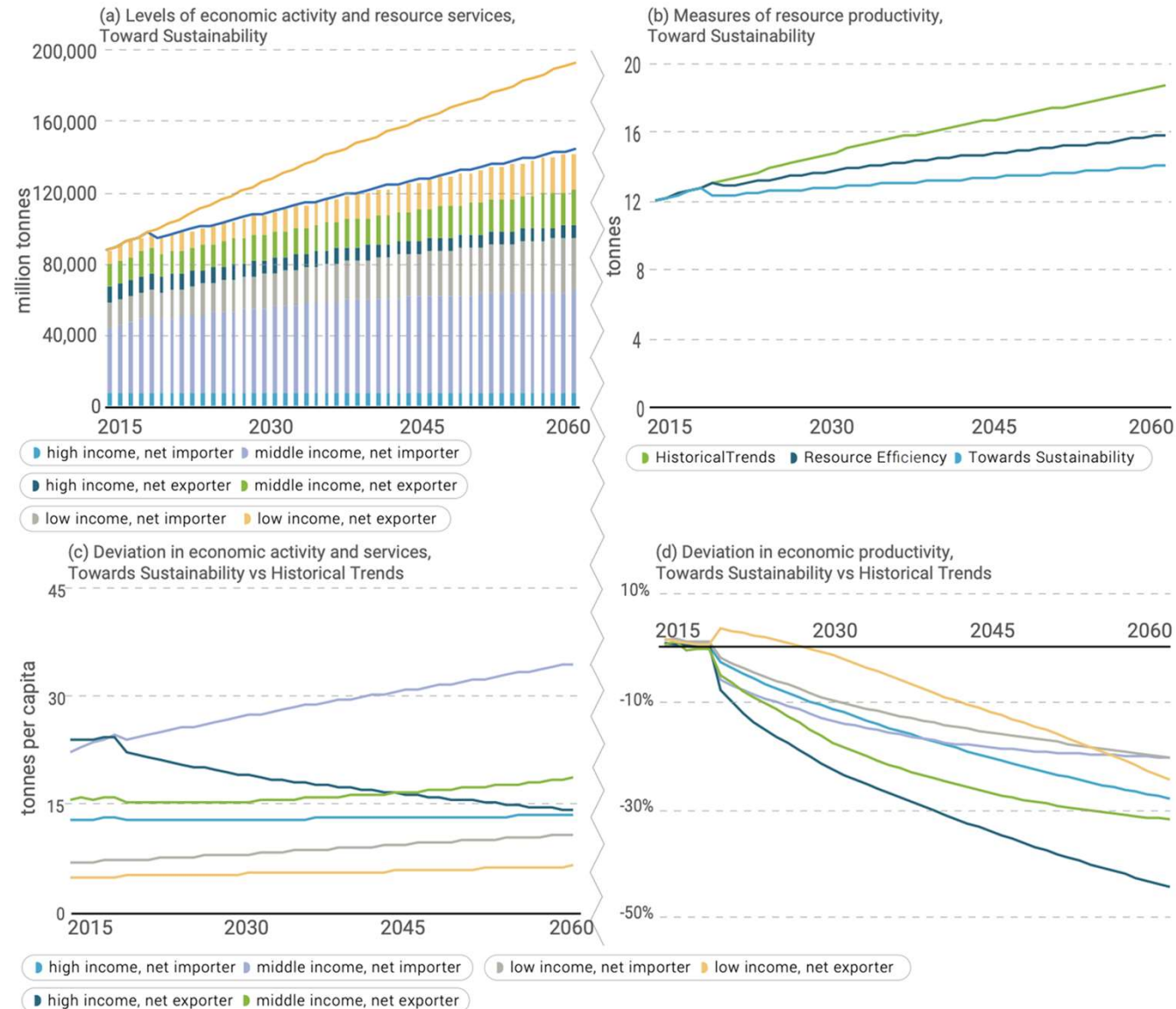
GLOBAL CO₂e EMISSIONS FROM FOUR KEY MATERIALS PRODUCTION
BILLION TONNES OF CO₂e PER YEAR



Source: EllenMacArthur Foundation (2021)

The decoupling of resource use and the environmental effects of industry are essential for a sustainable future

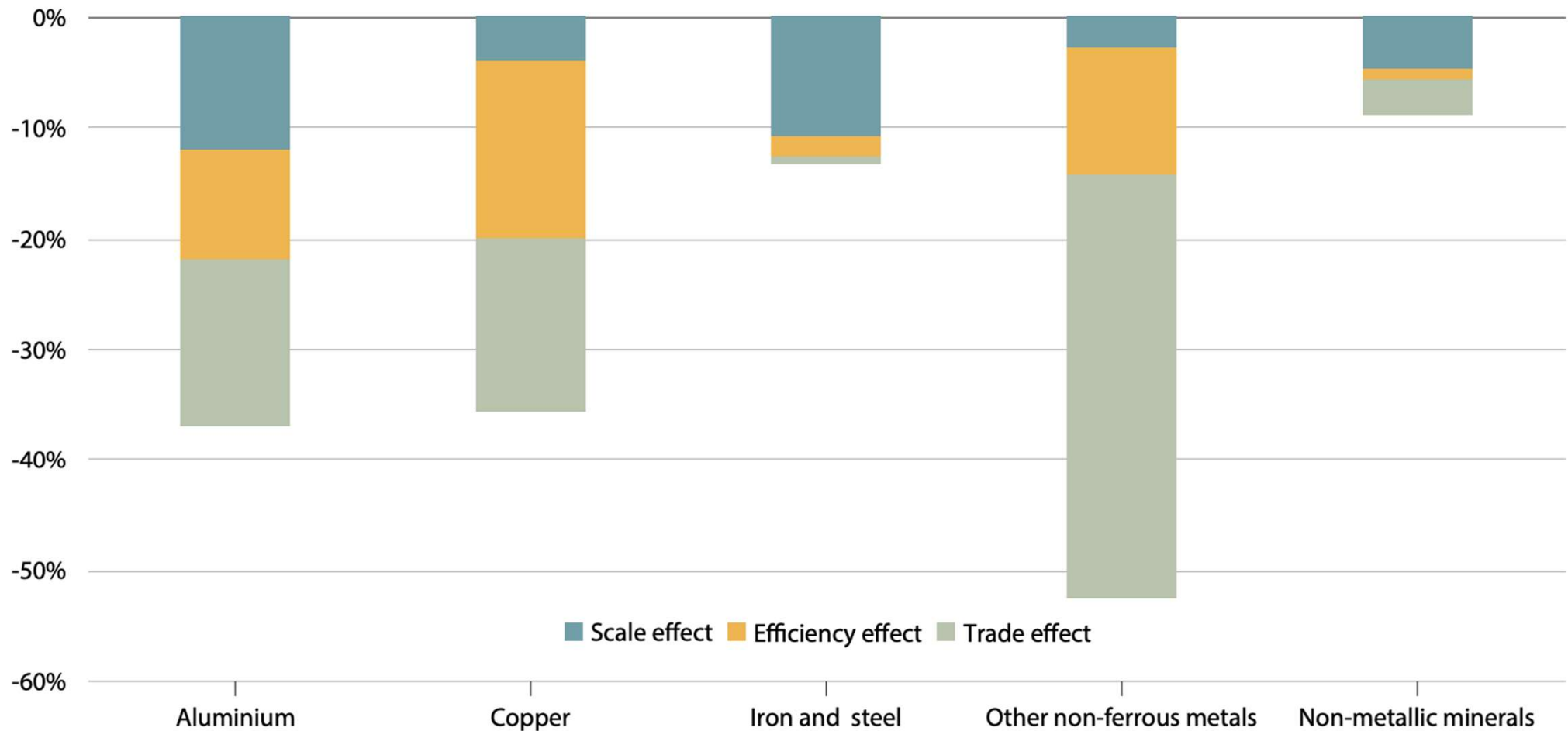
FIGURE 4.18 Global resource use (DMC), total and per capita for six country groups, Towards Sustainability and other scenarios, 2015-2060



Source: UNEP (2019)

A circularity-oriented policy mix can significantly reduce the material use rate until 2040

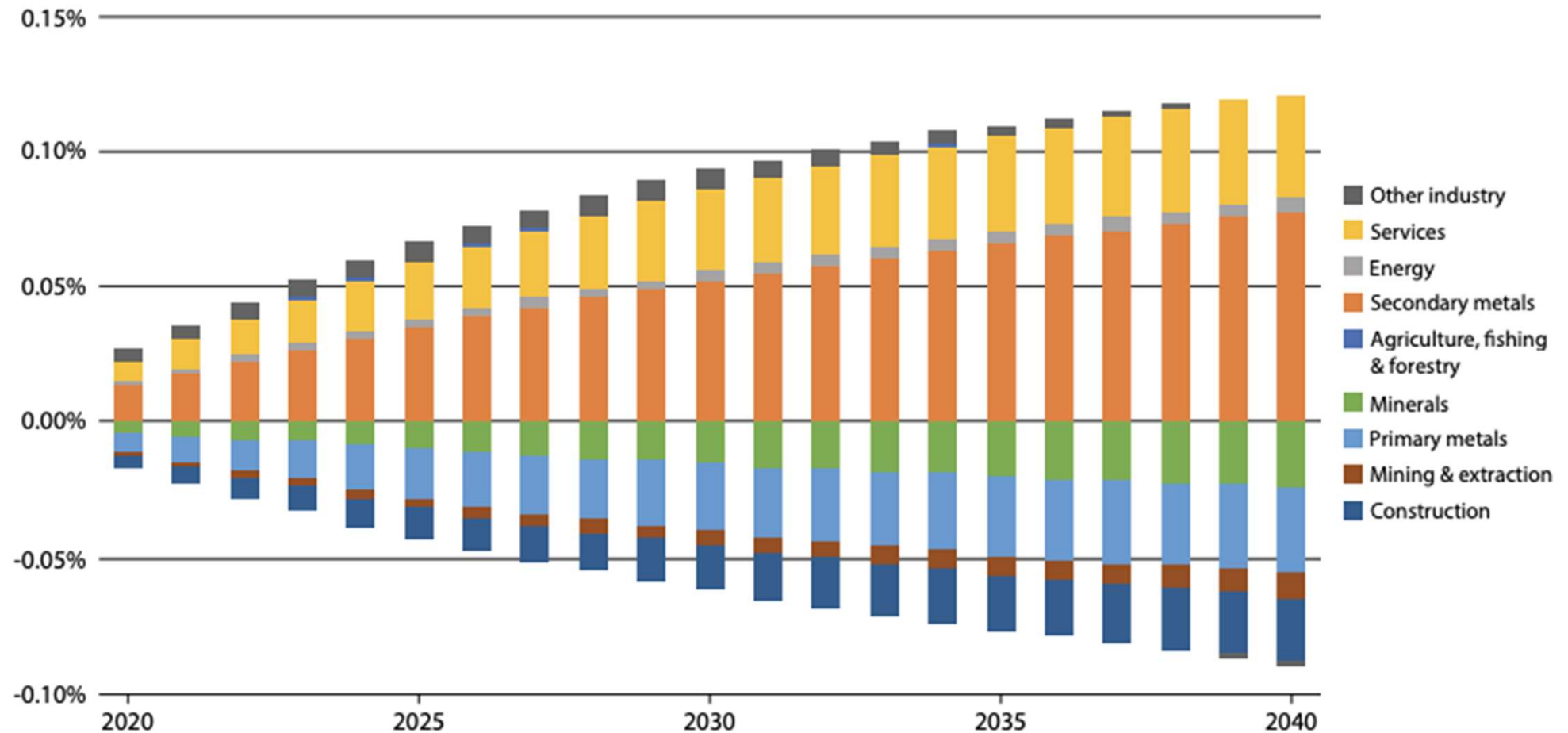
Figure 4: Materials use in 2040 declines through multiple channels in a material fiscal reform scenario (percentage change from baseline)



Source: OECD Recircle Project (2022)

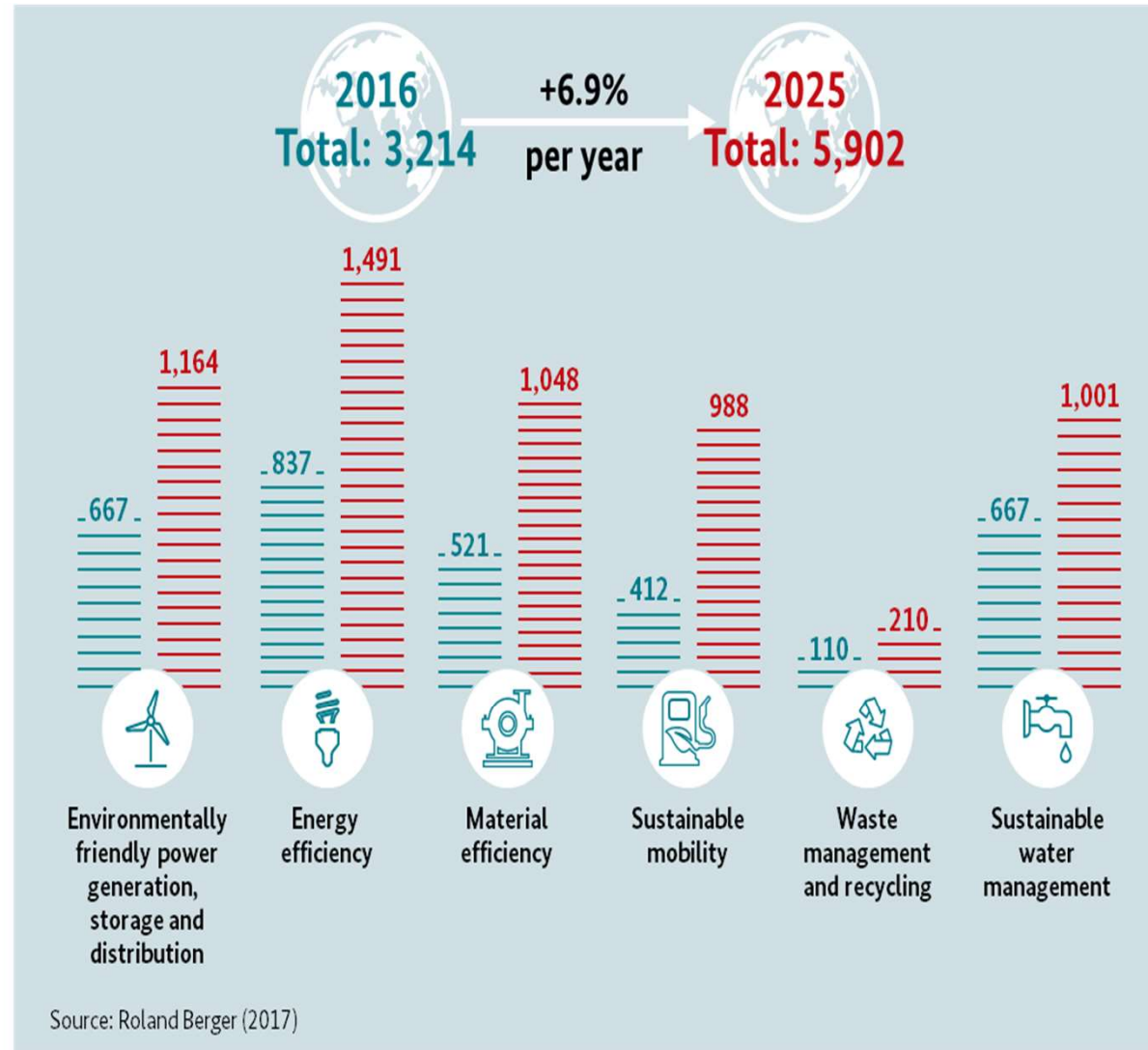
A circularity-oriented policy mix can create more job opportunities

Figure 3: Global job creations outweigh job destructions in the material fiscal reform scenario (percentage of total baseline employment)



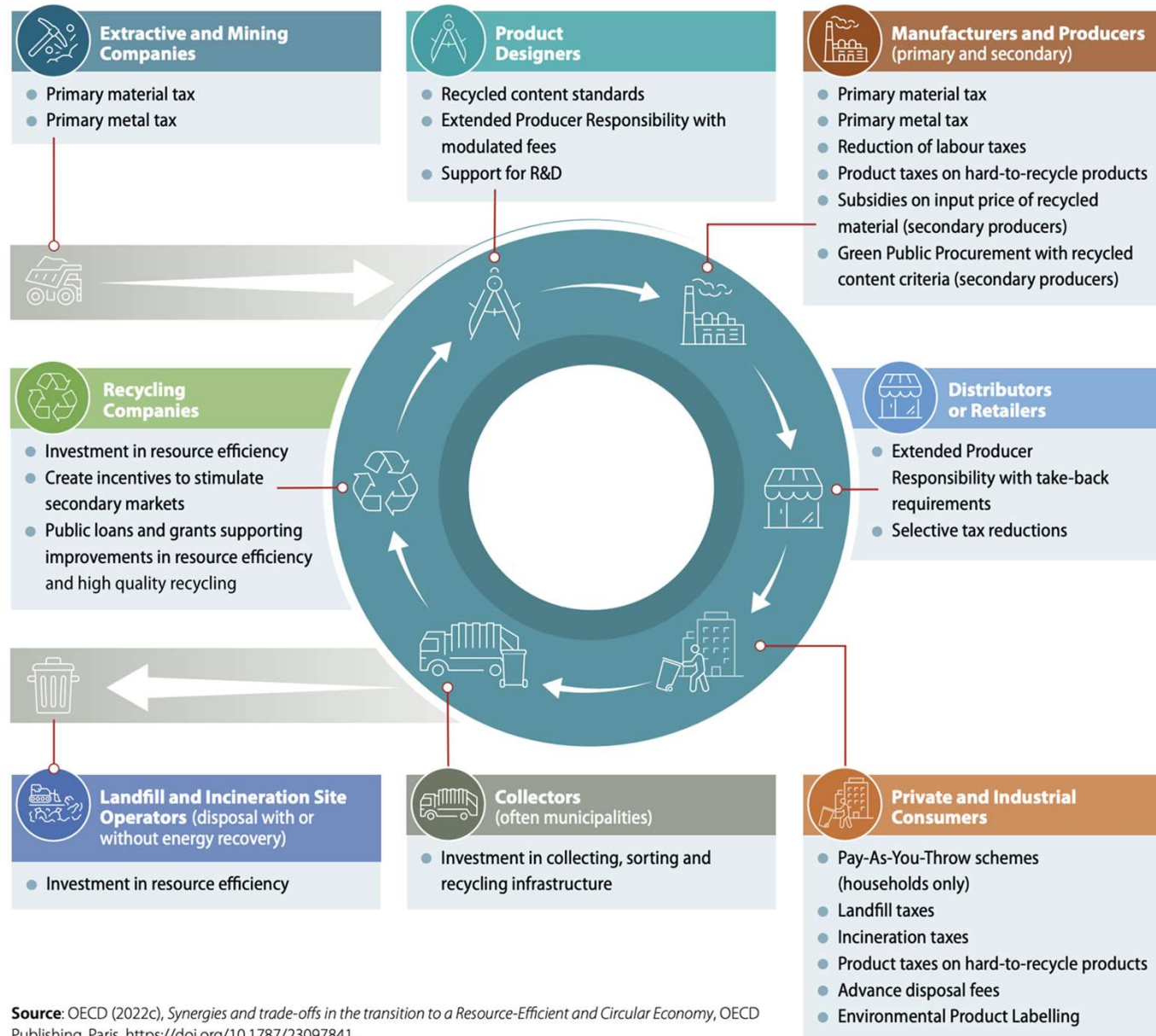
Source: OECD Recircle Project (2022)

Integrated resource- and climate strategies are beneficial for industry and competitiveness



Holistic policy integration along the value chain is needed to drive a circular future

Figure 7: A broad policy package can promote the transition to a resource-efficient, circular economy by targeting all economic agents



Source: OECD (2022c), *Synergies and trade-offs in the transition to a Resource-Efficient and Circular Economy*, OECD Publishing, Paris, <https://doi.org/10.1787/23097841>.

Thank you for your attention!

For questions and comments, feel free to reach out to me at:

franziska.erbe@wupperinst.org

or @Franziska Erbe on LinkedIn