

Slides GJETC Webinar: Nexus Circular Economy, Resource Efficiency and Climate Protection

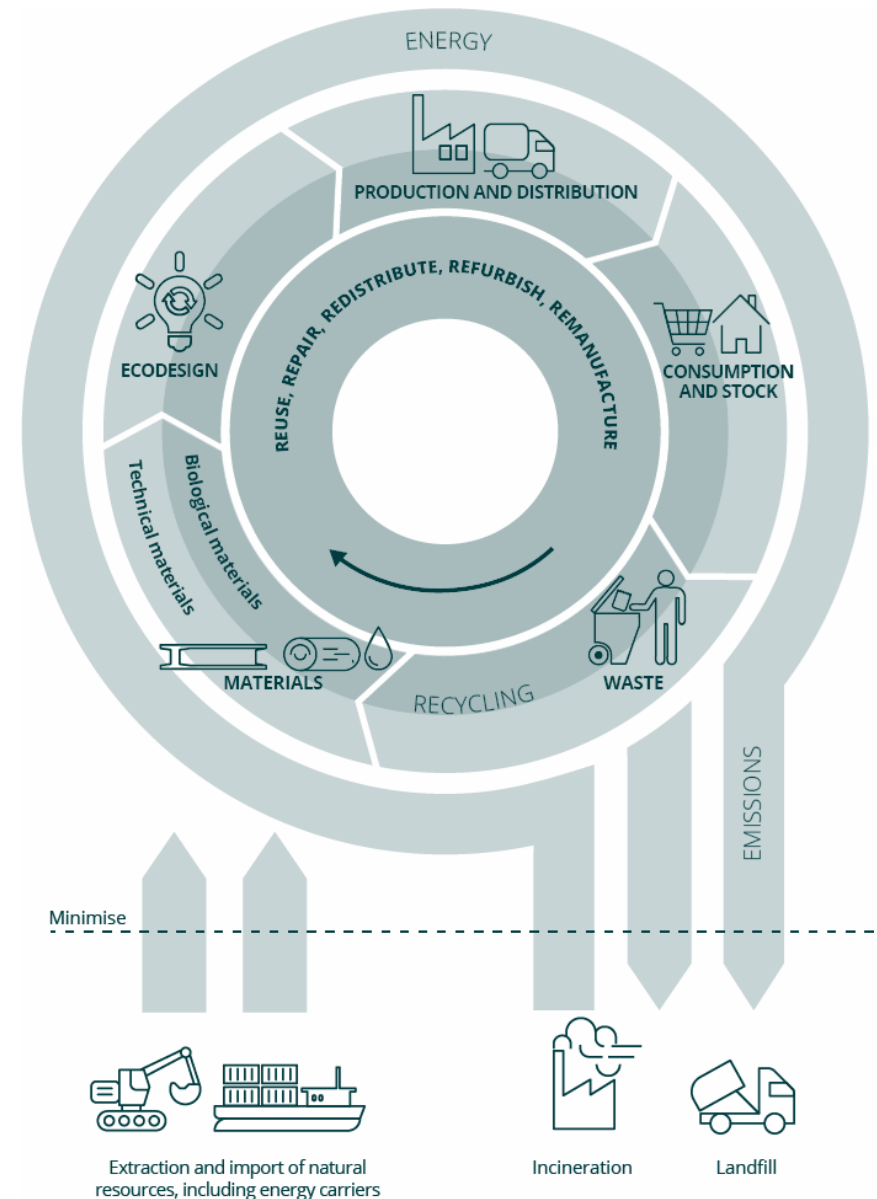
13.09.2023

Franziska Erbe

Defining the circular economy

“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.”

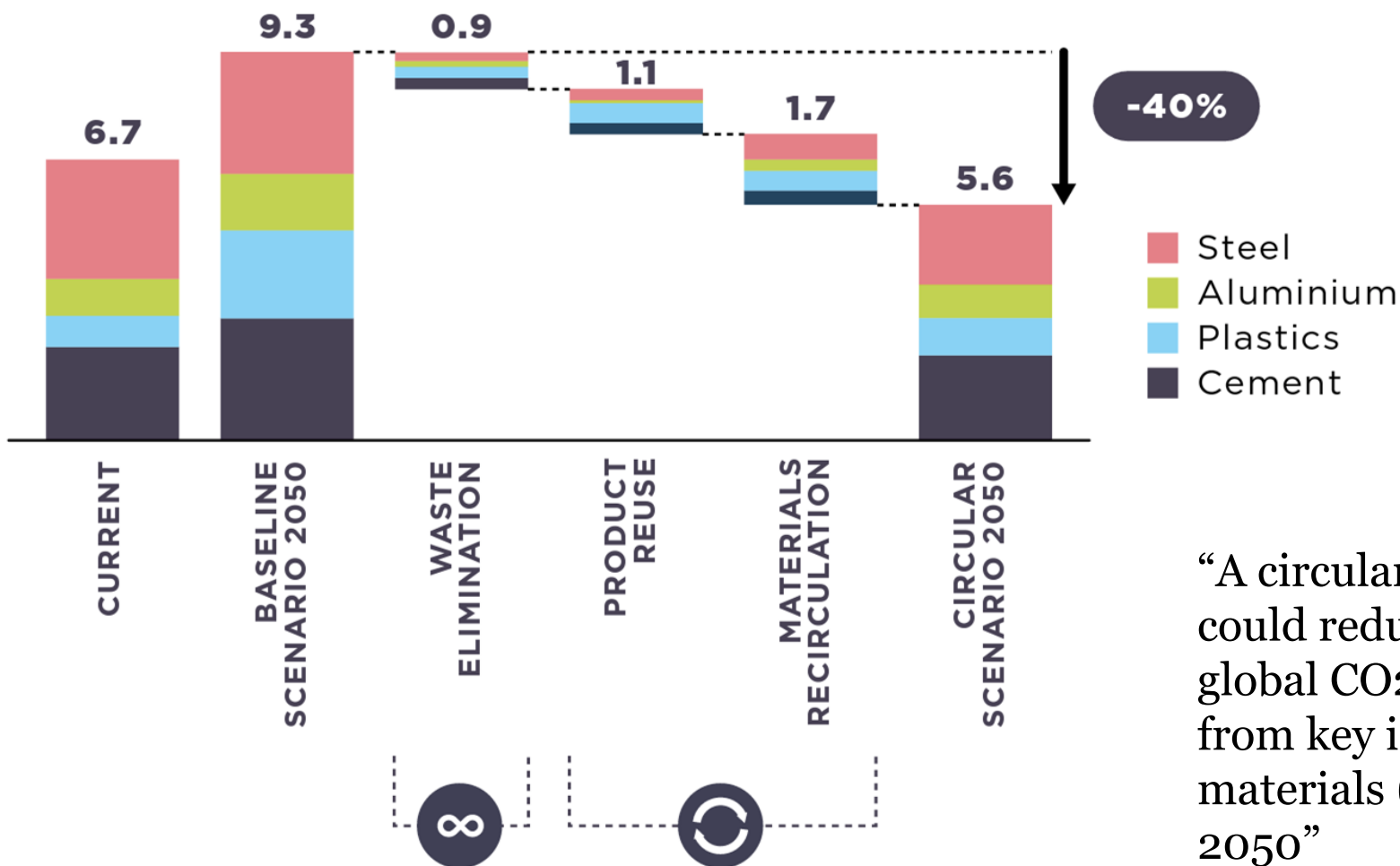


Source: EEA (2020),

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

A circular economy can contribute significantly to climate mitigation targets

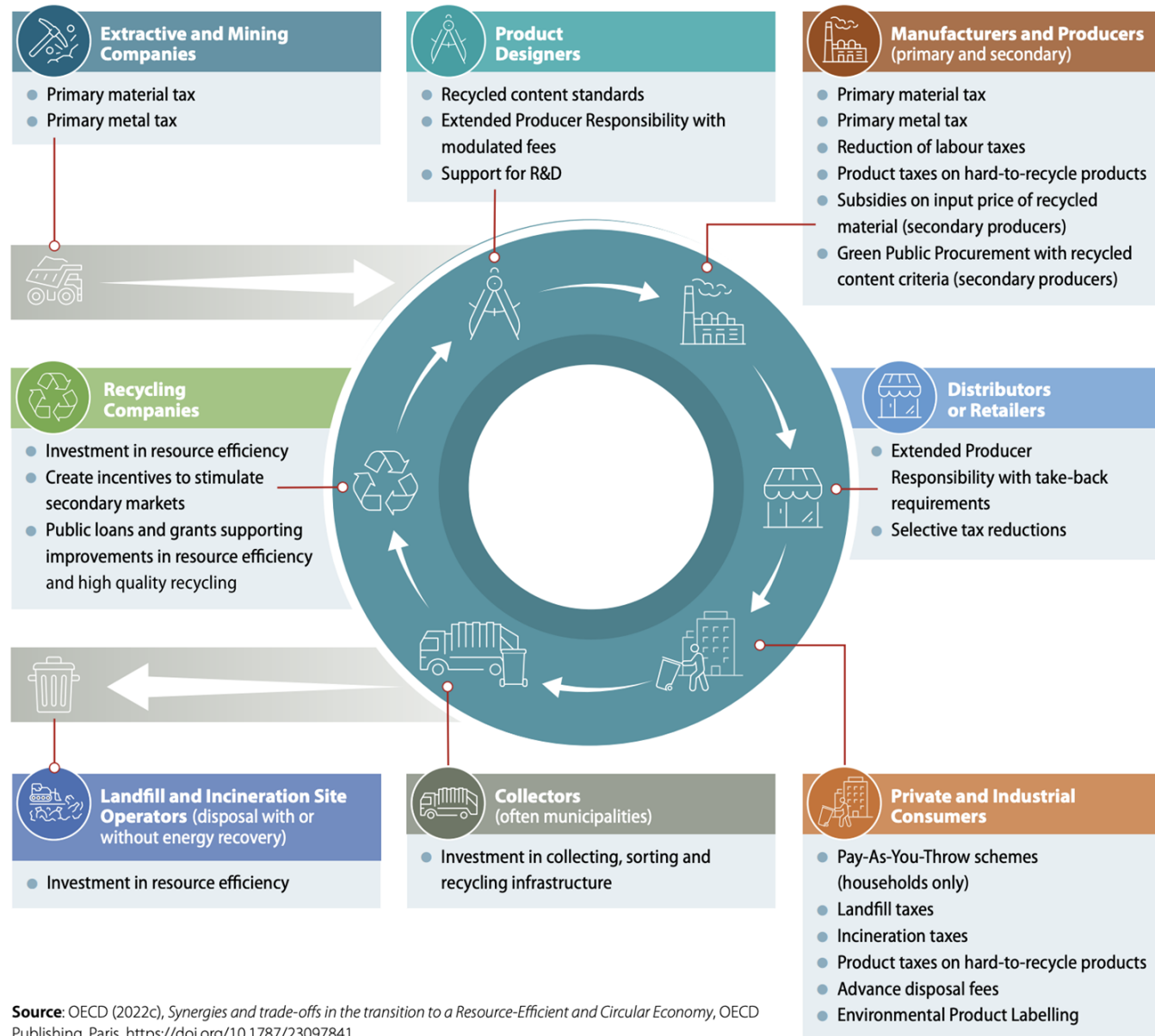
GLOBAL CO₂e EMISSIONS FROM FOUR KEY MATERIALS PRODUCTION
BILLION TONNES OF CO₂e PER YEAR



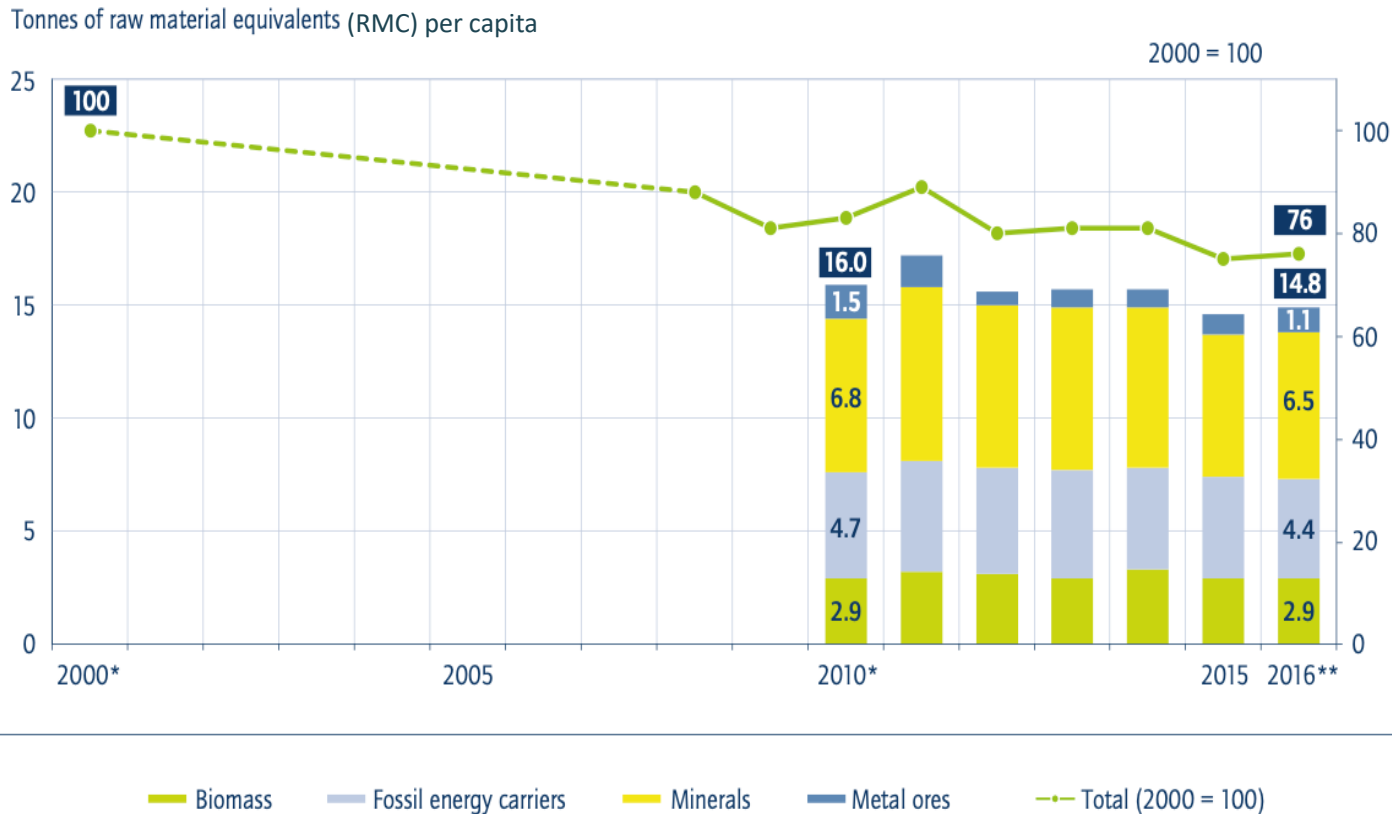
“A circular economy could reduce annual global CO₂ emissions from key industry materials (...) by 40% in 2050”

Policy integration along the value chain is needed to drive circularity

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>.



Key trends:

- Total use ca. 1.3 bn t (2019)
- Productivity rate 2.4%/a
- Circular use rate ca 13%
- Estimated antropogenic stock ca. 50 bn t (2010)

* Due to methodological reasons, absolute figures for raw material use can only be displayed for years 2010 and later. A presentation of figures starting in 2000 is possible only by means of an indexed value (2000 = 100).

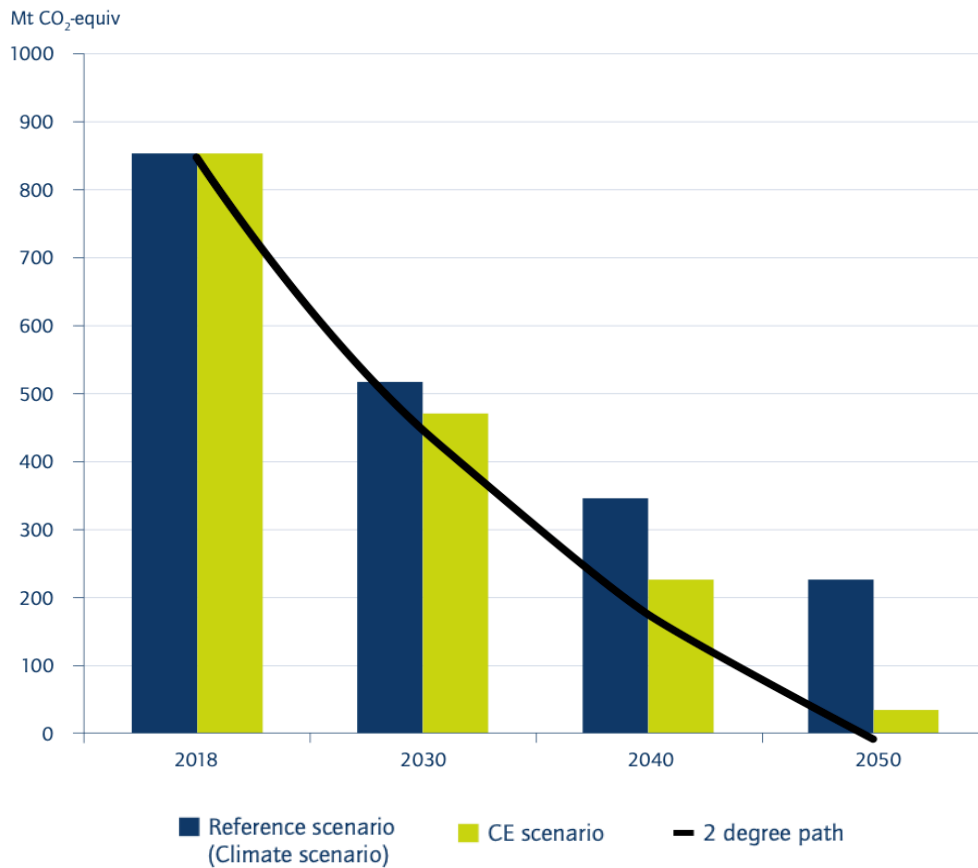
RMC = Raw Material Consumption

** 2016: preliminary data

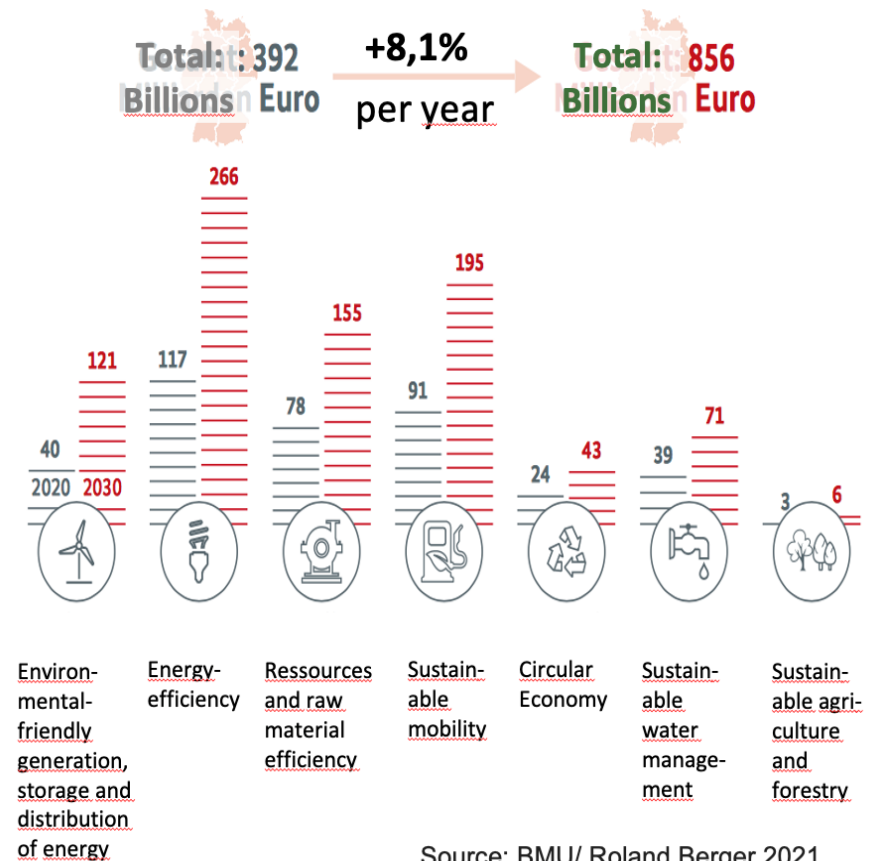
Source: Federal Statistical Office 2020, Umweltökonomische Gesamtrechnung. Aufkommen und Verwendung in Rohstoffäquivalenten. Berichtszeitraum 2000 bis 2016

Recognizing the climate/resource nexus improves climate scenarios AND creates competitive edge for German industry

Climate and CE scenarios



Growing Green Tech lead markets

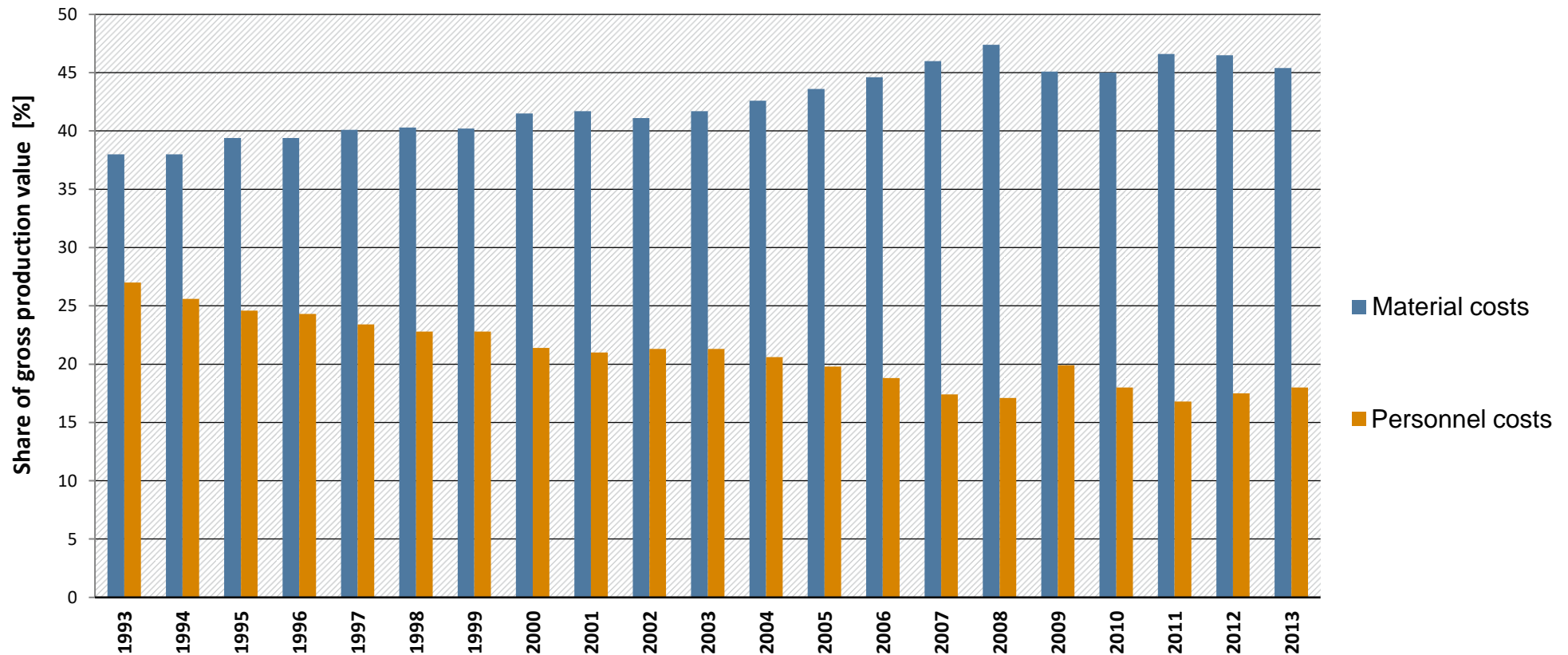


Source: Acatech(2021)

Material costs' share of gross production value in German industry has remained over 40%

Total material costs 2017:
ca. 917 bn € (43.2% of GPV)

Scenario analysis:
CE-strategies can save about **30%** until 2030 (300 bn € in 2030)



Source: DESTATIS, FS 4, Reihe 4.3. Kostenstruktur im Produzierenden Gewerbe 2013.

Material costs = raw materials and other externally procured preliminary products, auxiliary and operating materials including third-party components, energy and water, fuels, office and advertising material as well as non-capitalized low-value assets

Source: Umweltbundesamt 2016; Acatech 2021

ProgRes I-III is the base of German resource policy, a national CE strategy is being developed

ProgRes I-III

Combining ecological necessities with economic opportunities, innovation focus and social responsibility

Considering global responsibility as a key guide of national resource policy

Making economic and production practices in Germany less and less dependent on primary resources; developing and expanding the CE

Securing sustainable resource use for the long term by guiding society towards quality growth

Evaluation of the Wuppertal Institute (2019): “The key barriers for implementation are:

- Lack of economic incentives
- Complexity of challenges
- Inadequate political framework conditions“

CE Strategy

Areas of action

