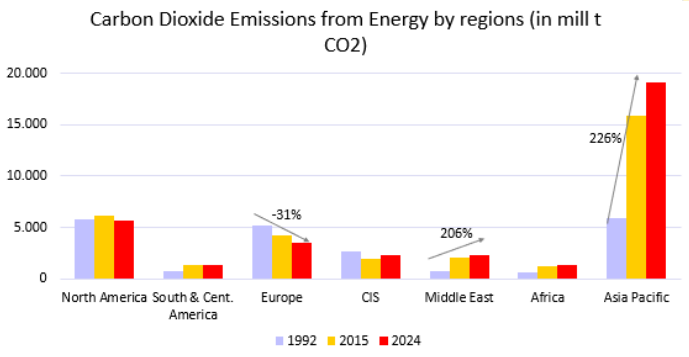
Energy market radar Germany

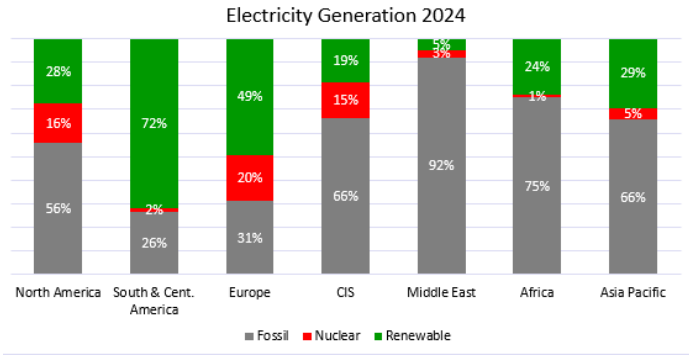
29.10.2025

KEY FACTS

- Global energy-related emissions have risen from 21.5 billion tons of CO_2 in 1992 to 35.5 billion tons in 2024, an increase of 65%. While emissions increased in most regions, Europe is the only region with a significant decline.
- Energy-related emissions are directly linked to power generation technologies. While South America & Europe are focusing on low-carbon technologies, Middle East, Africa, Asia/Pacific and CIS are heavily relying on generation fired by fossil fuels.
- In energy outlooks published by BP, Equinor, ExxonMobil and Shell, global primary energy consumption by 2050 only declines in scenarios in which climate targets are reached (-1.0 % on average); other scenarios see a slight growth.
- The share of renewables in global primary energy consumption in 2050 varies greatly between scenarios, from 25% to 68%
- Asia/Pacific and Africa dominate the production of key mineral resources that are important for the energy transition. China produces 12 of the 16 raw materials considered and is the largest producer of five different minerals.

CO_2 emissions and electricity generation by region



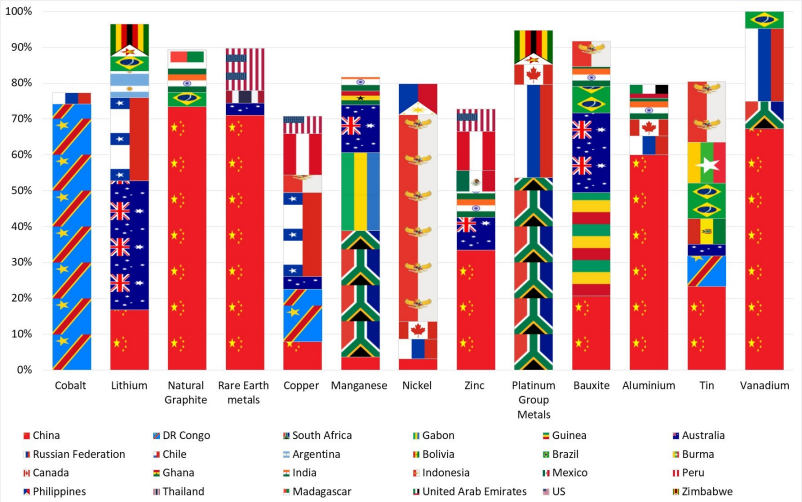


- Global energy-related emissions have risen from 21.5 billion tons of CO_2 in 1992 to 35.5 billion tons in 2024, an increase of 65%. With +226 % Asia/Pacific saw the largest increase, followed by the Middle East (+206%) and Africa (+110%).
- Europe is the only region with a significant decline in energy-related emissions. It has reduced its emissions from 5.15 to 3.52 bill. tons of CO_2. The largest contributors to this decline are the UK (-45%), Germany (-38%), Italy (-36%) and France (-34%).
- Energy-related emissions are directly linked to regional generation portfolios. With 92% of its electricity generated from fossil fuels, the Middle East has the highest share of CO_2-intensive generation. Fossil fuel-based electricity generation also dominates in Africa, Asia/Pacific and the CIS.
- By contrast, electricity in South America and Europe comes predominantly from carbon-free sources (renewable, nuclear). The high proportion of renewable energy in South America is mainly based on hydroelectric power plants (68%), while in Europe, renewable electricity is distributed more evenly between wind (approx. 37%), hydroelectric power (approx. 32%), solar (19%) and other renewables (12%).

Source: Energy Institute „Statistical Review of World Energy 2025“

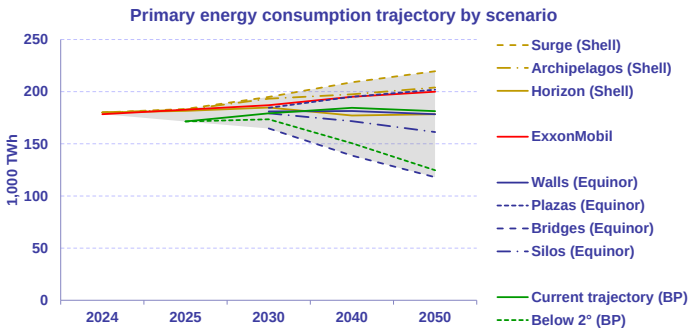
Countries’ market share for various types of minerals

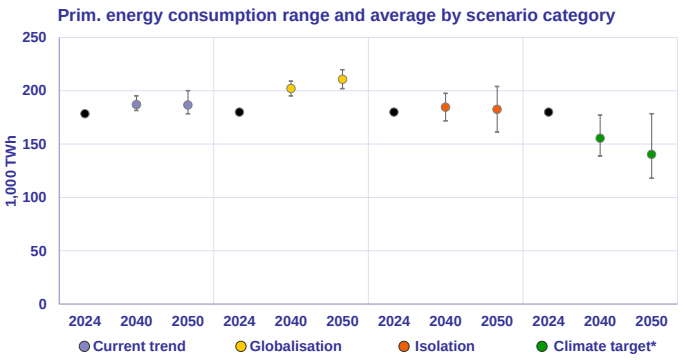
- Asia/Pacific and Africa dominate the production of key resources that are important for the energy transition. For cobalt, graphite, rare earth metals, nickel, aluminium and vanadium, the market share of the largest producing country ranges between 58% and 74%.
- China produces 12 of the 16 raw materials considered and is the largest producer of five minerals (graphite, rare earth metals, zinc, aluminium and vanadium).
- The Democratic Republic of Congo and South Africa hold a leading position among raw materials from Africa. However, Guinea, Gabon and Zimbabwe also have significant market shares for individual minerals.
- Also worth mentioning are the roles of Australia, which mines six of the minerals considered, of Chile in lithium and copper production and of Russia in platinum and vanadium production.



Source: Energy Institute „Statistical Review of World Energy 2025“

Global primary energy consumption by 2050 acc. to selected scenarios



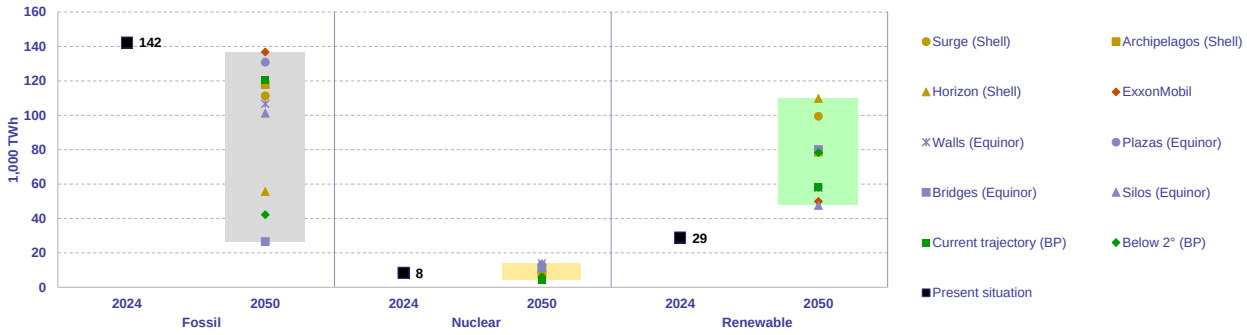


Source: The 2025 Energy Security Scenarios (Shell 2025), bp Energy Outlook (2025), Equinor Energy Perspectives (2025), ExxonMobil 2025 Global Outlook, Team Consult analysis

** <1.5° or <2° depending on scenario*

- Shell, Equinor, ExxonMobil and BP have published outlooks on the development of global primary energy consumption by 2050. Based on assumed drivers and objectives, four scenario categories can be differentiated:
  1. **Current trend scenarios:** ExxonMobil outlook, Current trajectory by BP, „Walls" by Equinor.
  2. **Globalisation:** „Surge" by Shell and „Plazas" by Equinor. Surge focuses more on emerging technologies driving the growing demand for energy, while Plazas foresees greater interconnectedness and global cooperation in the energy market.
  3. **Isolation:** „Archipelagos" by Shell and „Silos" by Equinor. In these scenarios countries primarily focus on energy and border security, which results in less global interaction in the energy market.
  4. **Climate targets**: <1.5° in „Bridges" scenario by Equinor and „Horizon" by Shell, and <2° in BP scenario.
- While in the current trend and isolation scenario categories the global primary energy consumption (average across scenarios) rises only minimally (< 0.2% p.a.), the globalisation scenarios see a rise in consumption by 0.6% p.a. between 2024 and 2050 on average.
- The average global primary energy consumption in the climate target scenario group falls by 1% p.a. from 2024 to 2050 on average.

Development of primary energy consumption by energy source category



Source: Shell, BP, Equinor, ExxonMobil outlooks, Team Consult analysis

- Consumption of fossil energies is expected to decline by 2050 in all scenarios. In the climate target scenario group fossil energy consumption is projected to be at 18-39% of the current level, while in the remaining three scenario categories the consumption of fossil energies by 2050 does not fall below 100,000 TWh (70 % of the current level).
- Nuclear energy is predicted to account for 6,000 to 13,000 TWh (2.5-9.6%) of primary energy consumption in 2050 in different scenarios.
- Renewable energies see the highest growth in all scenarios. The ExxonMobil outlook expects the lowest share of renewables in total primary energy consumption (25% in 2050). The three climate target scenarios predict the highest share of renewables at 62-68%.

Imprint

Editor: Team Consult G.P.E. GmbH, Robert-Koch-Platz 4, 10115 Berlin

Contact details: +49.30.400 556 0, info@teamconsult.net