



Gold and climate change: the energy transition

John Mulligan, Director, Market Relations & Climate Change Lead

Supporting and developing the gold market

- Supporting the gold market
- Leading industry authority on gold for over 30 years
- Proven track record for enhancing market infrastructure, delivering robust data and insights, and developing solutions to expand global access to gold while strengthening responsible and sustainable business practices
- Deep relationships with the institutional investor ecosystem, central banks, sovereign wealth funds and industry participants



Data

SPDR Gold Shares (GLD®)

Launched first Gold-backed ETF in the US in partnership with State Street Global Advisors



Analytics

China Market Expansion

Played key role in evolution of the Shanghai Gold Exchange; currently working towards enabling insurance companies to invest in gold



Research

India Blueprint

Led steering committee comprised of financial institutions and industry and trade associations in the development of a blueprint for a proposed Gold Spot Exchange



Market knowledge

Responsible Gold Mining Principles

Worked with mining company members, developed a framework setting out expectations for consumers, investors and the downstream gold supply chain as to what constitutes responsible gold mining



Policies

Gold Valuation Framework

Developed an academically endorsed methodology to help investors understand how macroeconomic scenarios might impact gold demand, supply and long-term performance



Infrastructure

Gold & Climate Change

Implemented a programme of research and engagement to advance understanding of gold's climate impacts and the potential impact of climate-related risks on gold's performance as an investment asset

World Gold Council members

33 companies; 500+ projects; 100+ productive mines; operations in 45+ countries



Gold and climate change

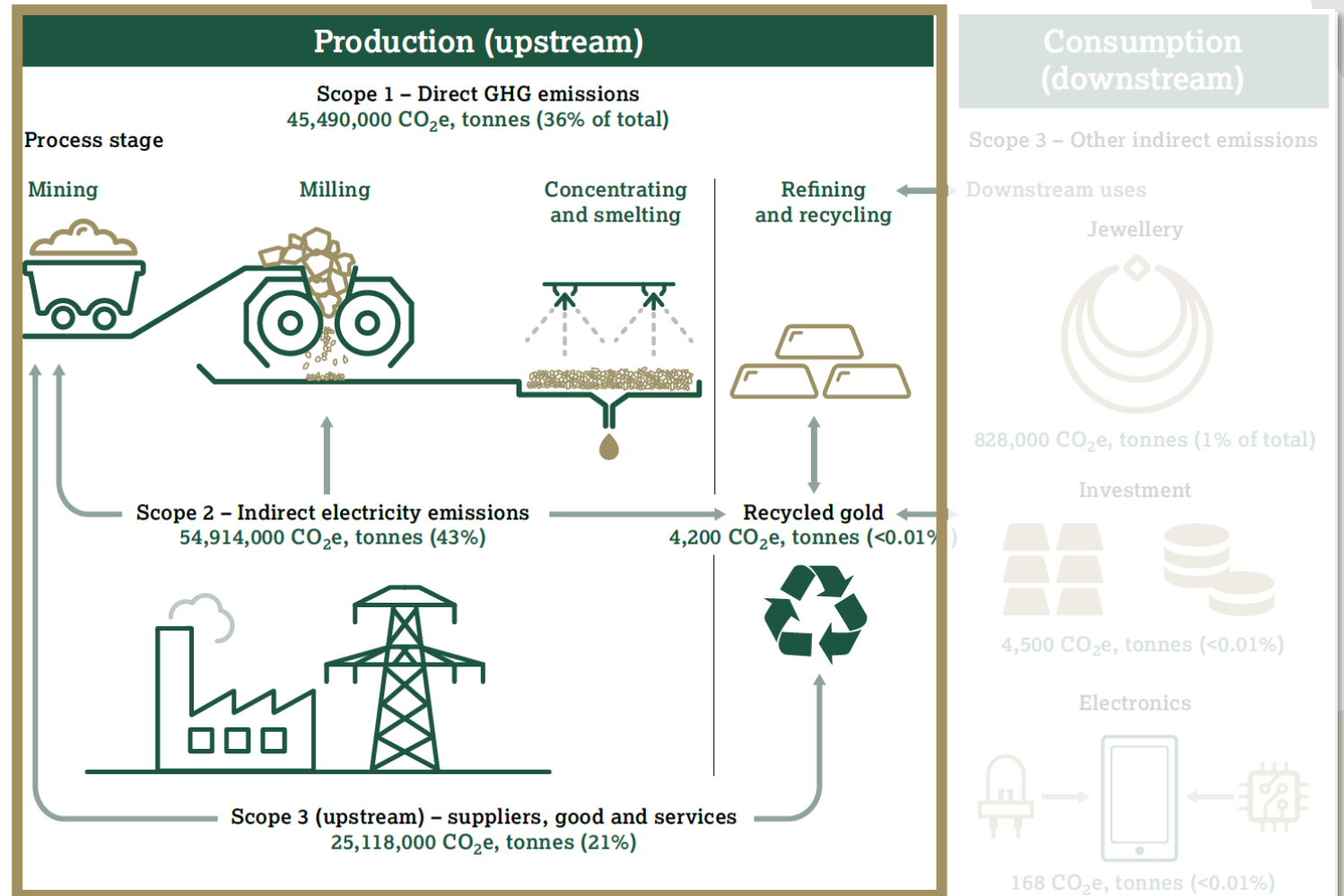
Our work to date

- Quantified **gold's carbon footprint**, including Scope 1, 2, and 3 emissions
- Highlighted **positive actions by gold mining and Member companies** to improve energy efficiency and reduce emissions
- Presented possible (future) **industrial/technological applications** for gold that might contribute to enhanced energy use and emissions reduction
- Outlined an **potential pathway to net zero for gold**, identified as increasingly accessible and cost-effective
- Identified the **practical steps** that gold miners are taking and can take to **decarbonise in line with Paris climate targets**
- Examined how gold might represent a **climate risk mitigation asset** (balancing climate-related risks in investment portfolios)

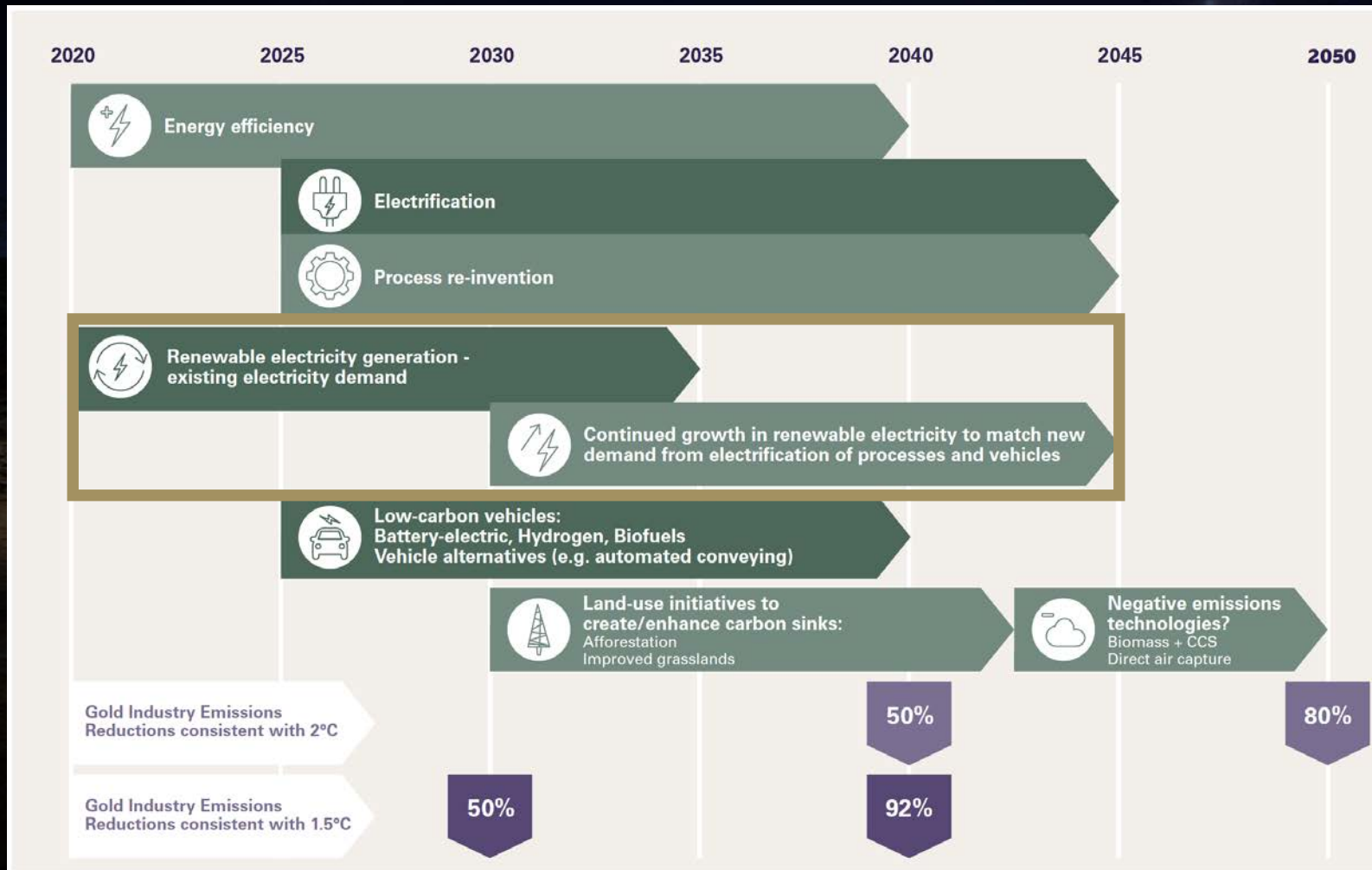


Gold's carbon footprint

- 99% of gold supply chain GHG emissions are from **gold mining**
- 80+% of gold mining emissions relate to **power consumption**:
 - fossil fuels used to generate electricity at mine sites
 - purchased electricity
- The **opportunity** is clear:
 - decarbonising mining power = decarbonisation of gold



Gold - the pathway to net zero

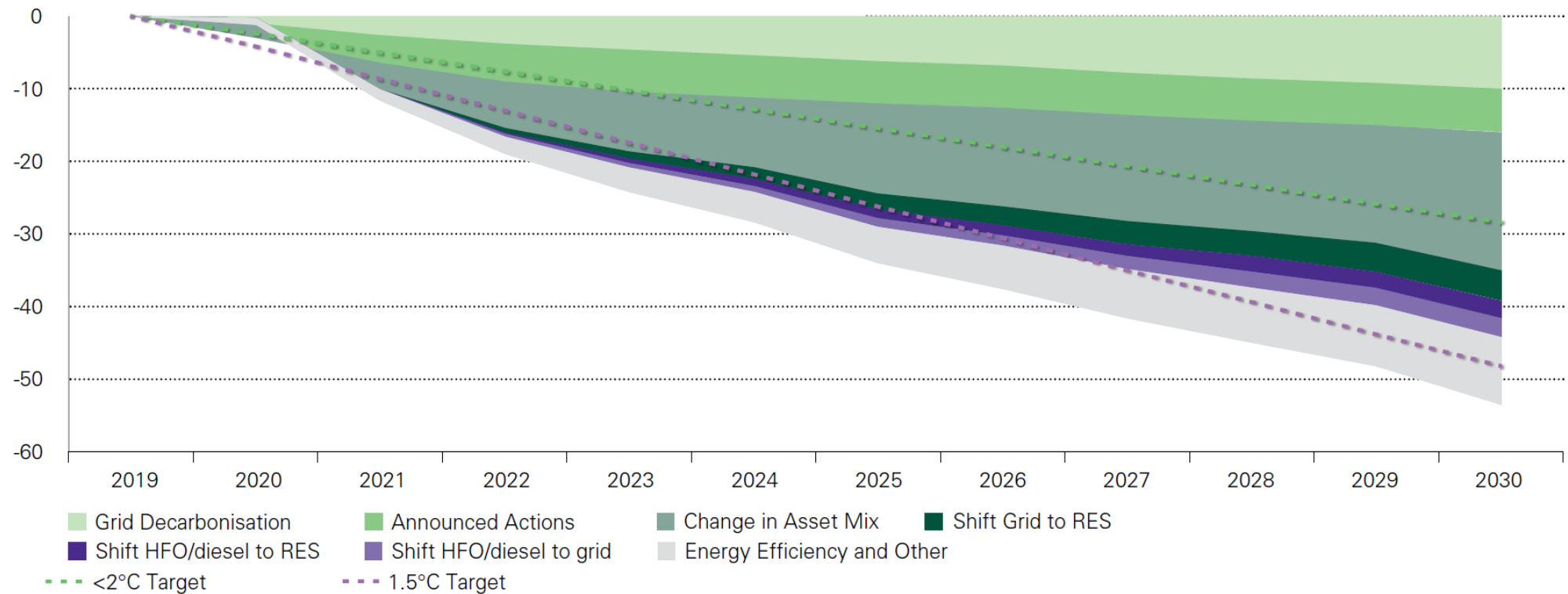


Gold - the pathway to net zero

Decarbonising power

Changes in gold mining power emissions and projected impacts on climate target alignment

Power emissions intensity (% , 2019)

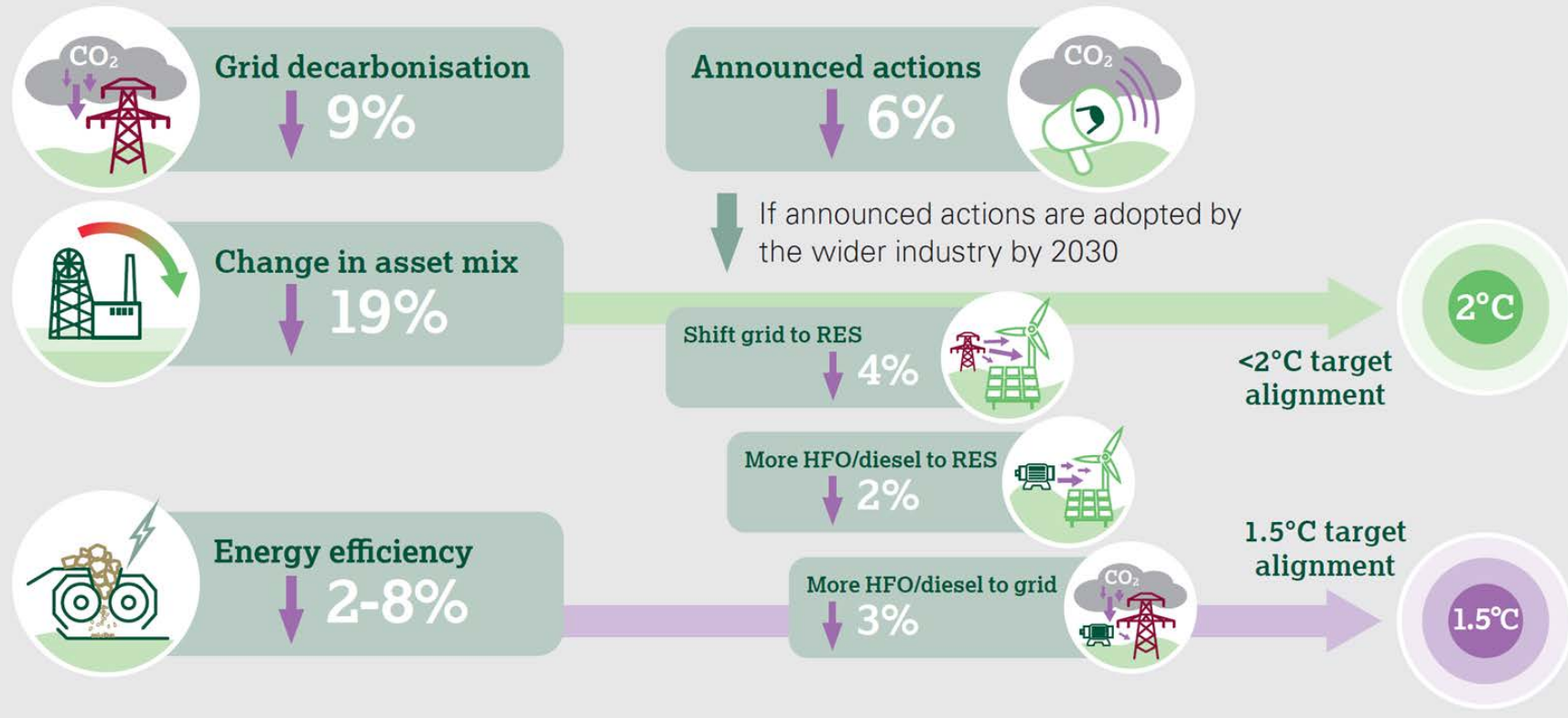


Source: Wood Mackenzie

Gold - the pathway to net zero

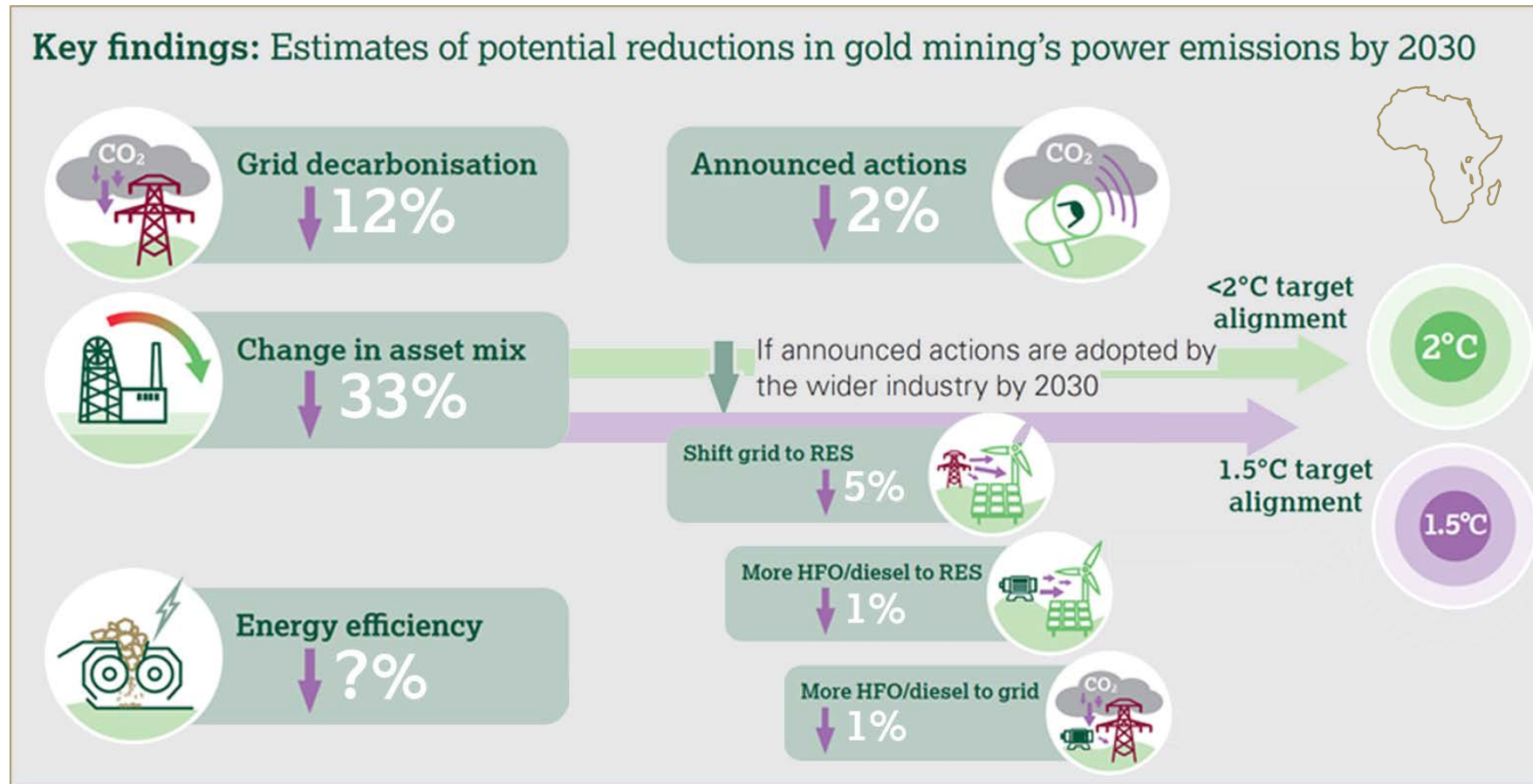
Decarbonising power

Key findings: Estimates of potential reductions in gold mining's power emissions by 2030



Gold - the pathway to net zero

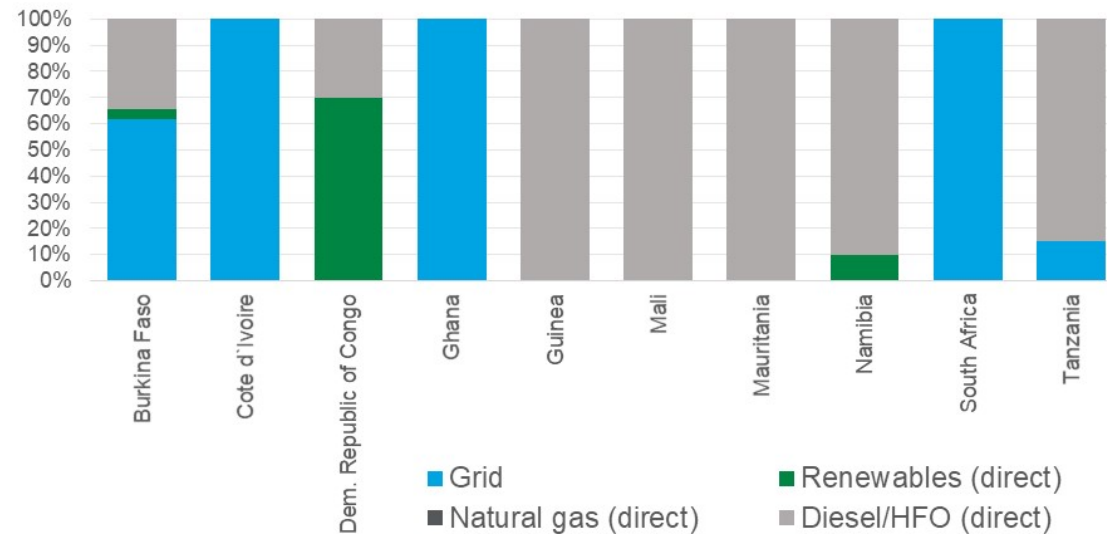
Decarbonising power in Africa



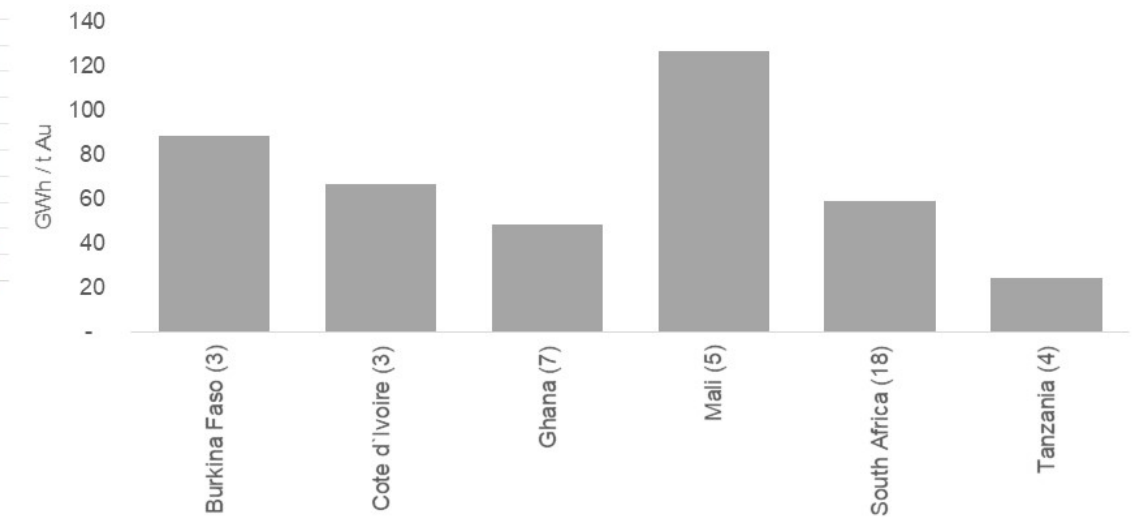
The energy landscape

In Africa – regional and local differences

Share of gold production by power source, 2019



Gold mine average energy intensity by country, 2019



Source: Wood Mackenzie; World Gold Council

Gold – decarbonisation and development impacts

“Energy is the golden thread that connects economic growth, social equity, and environmental sustainability.”

Ban Ki-moon, The Secretary-General of the United Nations, 2012



Thank you

Any questions?

For more information:

www.gold.org/research/gold-and-climate-change

www.gold.org/who-we-are/our-members/responsible-gold

www.gold.org