



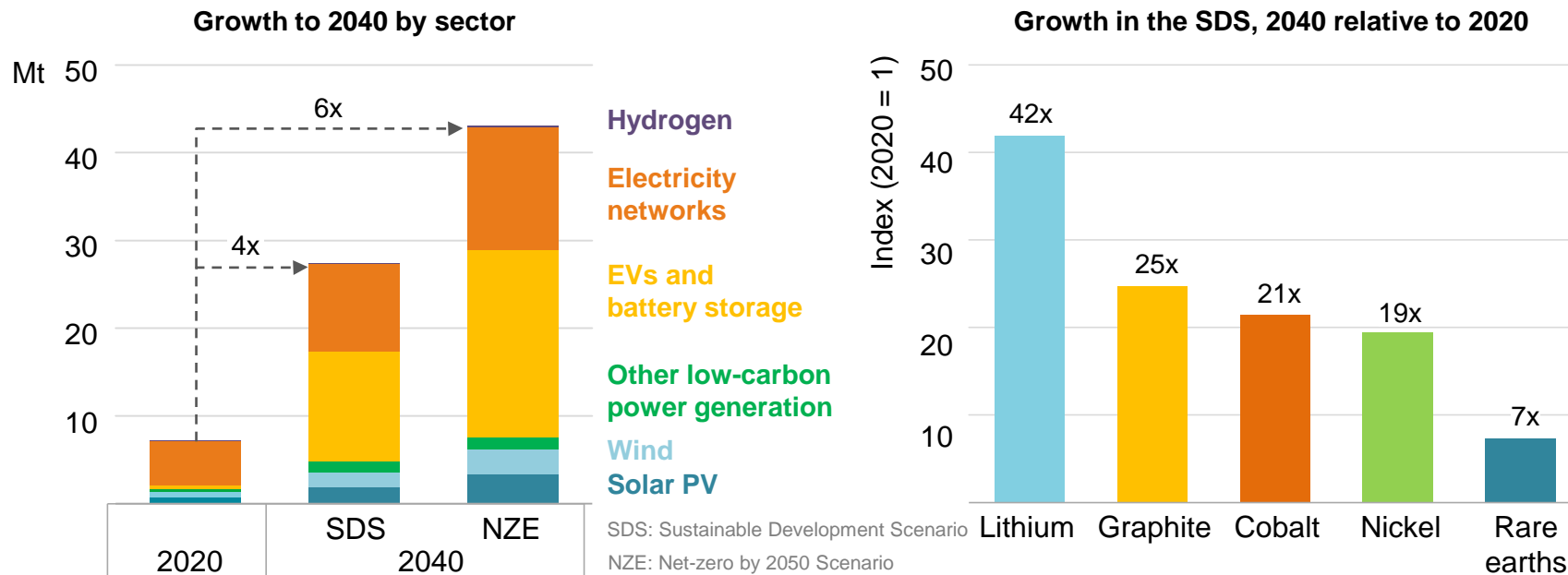
# The Role of Critical Minerals in Clean Energy Transitions

K.C. Michaels

27 July 2021 • Mining and Sustainability Forum of the Americas

# Meeting climate goals will turbo-charge demand for minerals

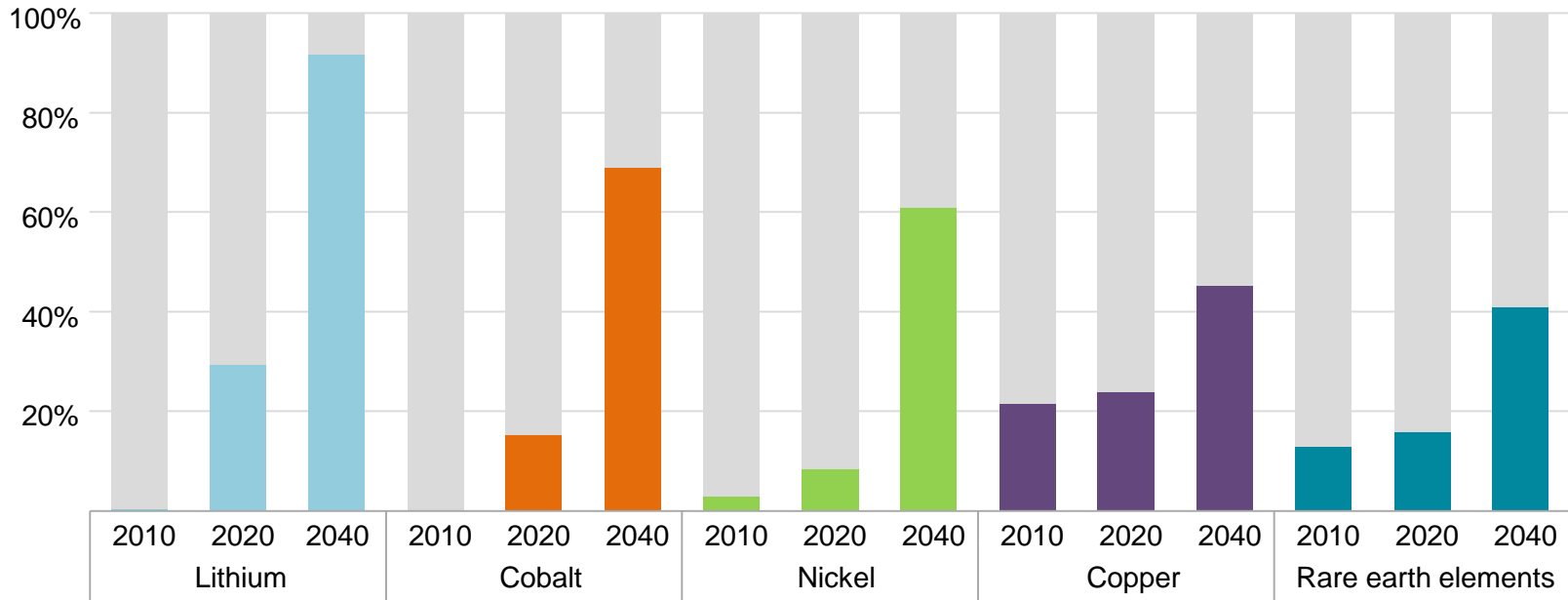
### Mineral demand for clean energy technologies by scenario



**Demand for critical minerals is set to soar over the next two decades as the world pursues net zero goals; overall requirements rise by as much as 6 times, but individual minerals, led by lithium, rise even faster**

# Clean energy in the driving seat for mineral demand growth

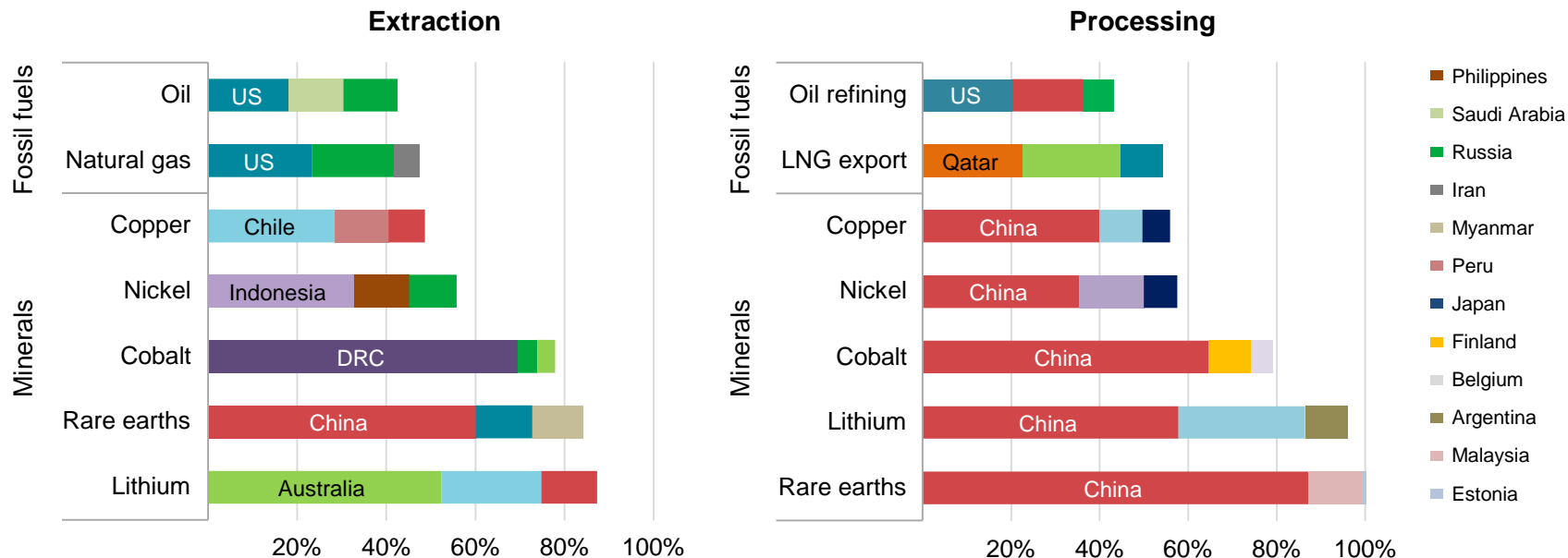
Share of clean energy technologies in total demand for selected minerals in the SDS



**As learning and economies of scale bring down other cost components, mineral inputs also account for an increasingly large share of the total cost of batteries and other key clean energy technologies**

# Many mineral supply chains lack diversity

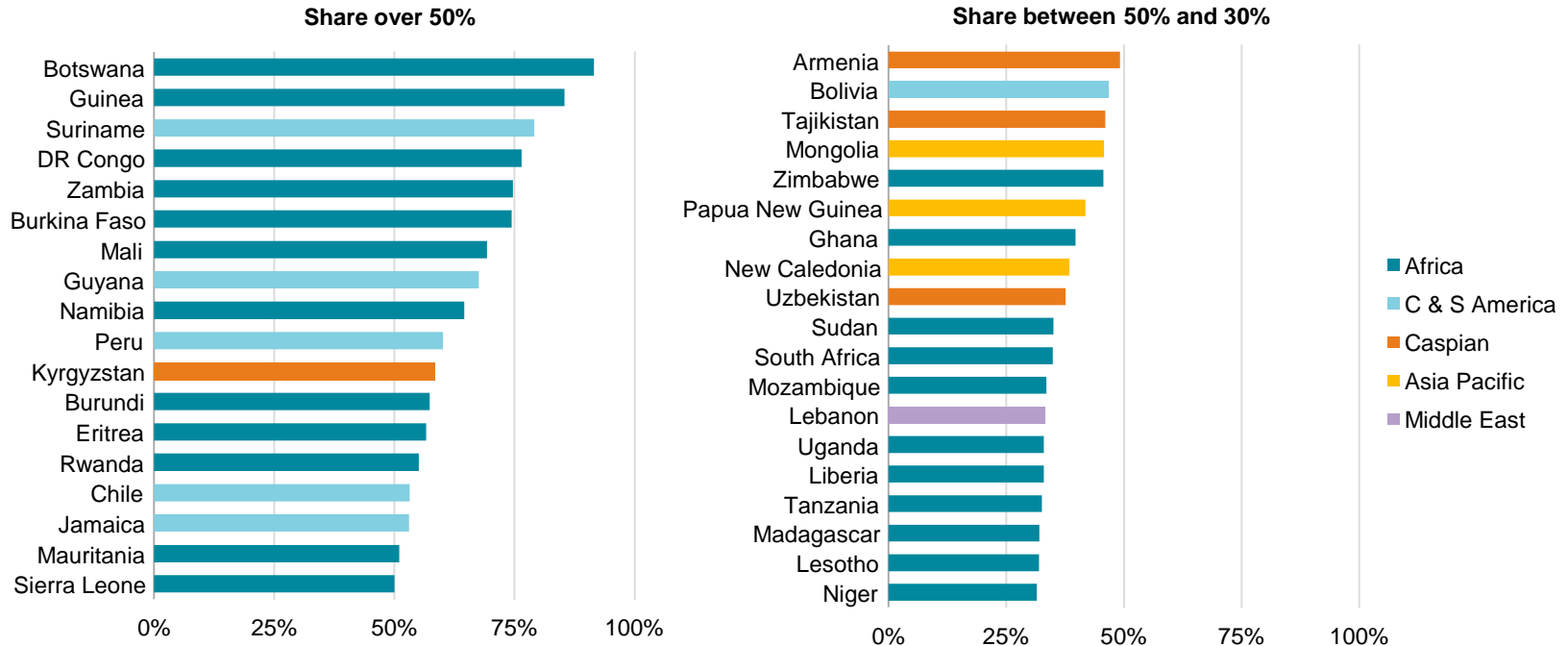
Share of top three producing countries in production of selected minerals and fossil fuels, 2019



**Production and processing of many minerals such as lithium, cobalt and some rare earth elements are geographically concentrated, with the top three producers accounting for more than 75% of supplies**

# Minerals represent a large share of the economy in many countries

Share of minerals and metals in total product exports for mineral producing countries, 2019



**Many mineral-producing countries rely heavily on revenue from mineral extraction, underscoring the need for transparent management of mineral wealth**

Building on the IEA's leadership role in energy security, these six key areas of action can ensure that critical minerals enable an accelerated transition to clean energy

- 1. Ensure adequate investment in diversified sources of supply**
- 2. Promote technology innovation at all points along the value chain**
- 3. Scale up recycling**
- 4. Enhance supply chain resilience and market transparency**
- 5. Mainstream higher environmental, social and governance standards**
- 6. Strengthen international collaboration between producers and consumers**

**iea**