IRENA
International Renewable Energy Agency

9 May 2023

Twenty-fifth meeting of the Council
Abu Dhabi, 23-24 May 2023

Background Note
High-level Panel Discussion

On the Road to COP28:
Renewables-based energy transitions and critical materials

1. Accelerating renewable energy deployment and electrifying key energy end-uses are essential strategies for mitigating climate change and fostering sustainable development. Over the past decade, renewable energy has become the most affordable option for electricity generation in most of the world. IRENA's latest data shows that the share of renewable energy in the global energy mix has continued to grow and, as of the end of 2022, renewables accounted for an estimated 32.8% of the world's total power capacity[1].

2. More recently, in the wake of supply chain disruptions and fossil fuel price volatility, there is a broader recognition that renewable energy is also less vulnerable to geopolitical shocks or energy security risks characteristic of fossil fuels. The unique ability of renewable energy to satisfy a wide range of energy policy priorities – from sustainability to security of supply – has helped make them the dominant form of newly installed power generation capacity, accounting for 83% of new capacity added globally in 2022.[2]

3. Annual additions of renewable power capacity, however, need to grow to 1000GW, around three times the current rate of deployment to meet the Paris Agreement's goal of limiting warming to 1.5°C[3]. Such a buildout of clean energy technology and infrastructure will require corresponding growth in the supplies of select minerals and metals, commonly referred to as "critical materials". The largest increase is expected from EV batteries and electricity grids. For instance, in 2022, nickel demand for renewable energy-related technologies represented less than 9%, but this share is projected to grow between 26% and 42% by 2030. Demand for cobalt for renewable energy-related technologies represented 33%, and the share is projected to grow between 53% and 87% over the same period.

[1] IRENA, *Renewable capacity statistics 2023*, 2023.
[2] Ibid.
3 IRENA, *World Energy Transitions Outlook 2023: 1.5°C Pathway: Preview*, 2023.

4. As a result, the relationship between renewables-based energy transitions and critical material supply chains is now frequently the focus of international dialogue and diplomacy, including the need to ensure benefits for commodity producers. At the request of its Members, IRENA is addressing this relationship through multiple lenses, including technological, policy, socioeconomics and geopolitical.

Objective of the session

The objective of the session is to share selected highlights from the upcoming report on the geopolitical of the critical materials, rooted in the latest WETO analysis. The High-Level Dialogue will then consider different aspects of the topic, as the global focus on the renewables-based energy transitions intensifies in preparation for COP28.

Guiding questions

- What does your country consider as the challenges and opportunities presented by the energy transition and critical materials?
- How can international cooperation support the development of critical materials' value chains toward more sustainable and equitable outcomes?
- What role do you envision IRENA will play in the process?

Associated Publications

- World Energy Transitions Outlook 2023: 1.5°C Pathway; Preview (2023)
- Renewable Capacity Statistics 2023 (2023)