


The Energy Sector – Energy Transition A Drastic Growth for Raw Materials Demand

Wind Turbines

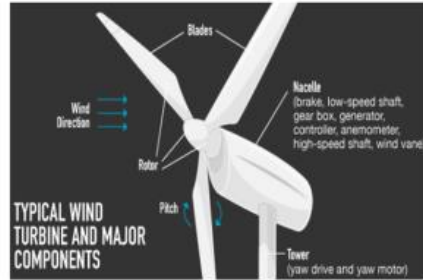
Wind turbines increasingly dot the American landscape, rising hundreds of feet in the air to capture electricity from the movement of the wind. Just like solar cells, wind turbines also rely on a few mineral commodities that have been designated as critical: aluminum and rare-earth elements.



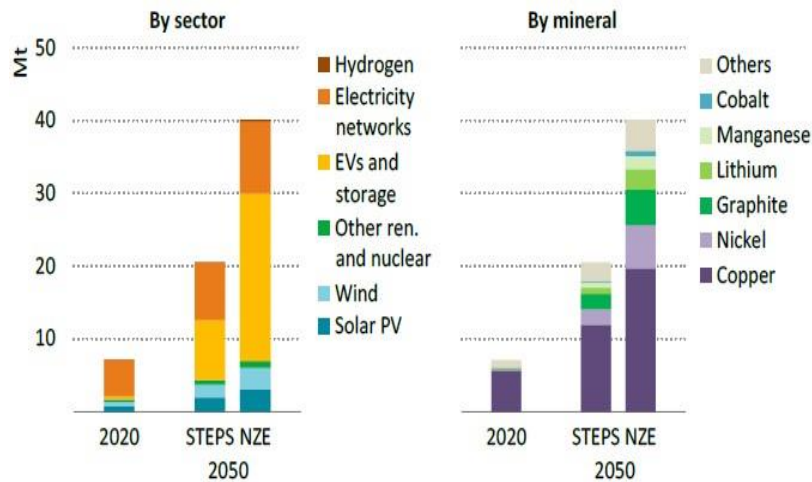
ALUMINUM
Aluminum plays a role in most parts of a wind turbine, particularly in the nacelle, where the transfer of wind power to electricity occurs. The United States was 50% reliant on foreign sources for aluminum in 2018.



RARE-EARTH ELEMENTS
Responsible for some of the most powerful and efficient magnets on the planet, rare-earth elements enable wind turbines to have smaller, lighter generators. Although the United States mined and exported rare-earth minerals in 2018, it relied on imports to meet its domestic demands for rare-earth compounds, metals, and manufactured products.

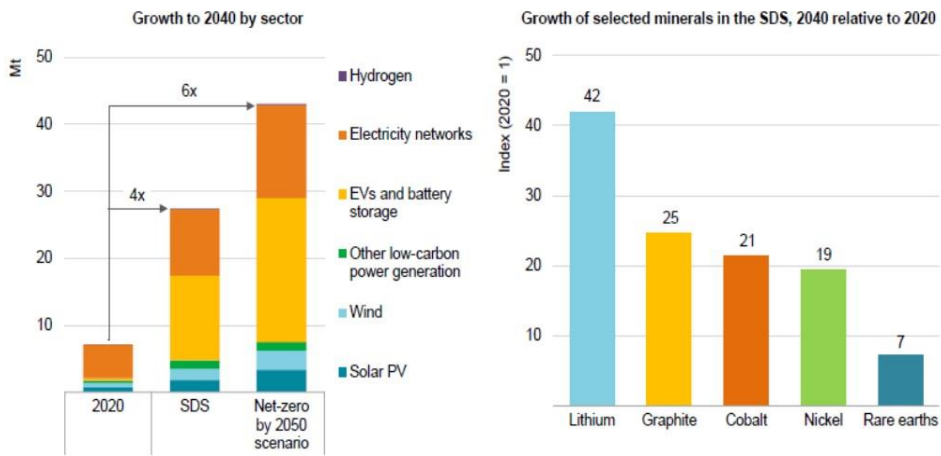


Mineral Requirements by Scenarios



More and more Materials are needed for Industry

Mineral demand for clean energy technologies by scenario



An important concentration of Countries for Extraction and Processing of Raw Materials

Indicative supply chains of oil and gas and selected clean energy technologies

