

EXTRACTIVES: CHALLENGES AND OPPORTUNITIES FOR THE SOUTH IN THE ENERGY TRANSITION

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Abstract

While the transition to a sustainable energy system will rely on a combination of additional deployment of existing technologies, deployment of new technologies, and development of innovative technologies, all will require an abundant, secure, and sustainable supply of minerals. The International Energy Agency noted that lithium, nickel, cobalt, manganese, and graphite are crucial to battery performance, longevity, and energy density. Rare earth elements are essential for permanent magnets for wind turbines and EV motors. Electricity networks need a considerable amount of copper and aluminum, with copper being a cornerstone for all electricity-related technologies. And iron and steel are critical for the renewal and improvements of infrastructure.

Countries with abundant mineral resources have a significant economic and workforce development opportunity as they contribute to the energy transition, the Paris Agreement's objectives, and the UN's Sustainable Development Goals. And at the same time, the challenge is to make mining and processing of extractives a sustainable industry that meets the growing demand for minerals with lower environmental impacts (lower emissions, lower water use, less waste).

Latin America is an important producer of critical minerals (copper, lithium, cobalt, and nickel), considering its current production levels and participation in the global reserves of copper, lithium, cobalt, and nickel.

Chile, Peru, and Mexico hold approximately 38% of the world's copper reserves, with additional reserves found in Argentina, Brazil, Colombia, and Ecuador. Approximately 60% of the world's identified lithium deposits are found in Latin America, mainly in Bolivia, Argentina, and Chile, and some in Mexico, Peru, and Brazil. Latin America also has significant nickel reserves, where Brazil hosts 17% of the world's nickel reserves and Cobalt in Mexico and in small quantities in Brazil.³

This paper analyses the challenges and opportunities that LAC, a region with abundant natural resources, will have in supporting a sustainable energy transition, a role that goes beyond enhancing its energy matrix, the one with the lowest levels of CO₂ emission, and is in its protagonist to sustainably deliver the critical minerals and cleaner fuels that the world needs to sustain the energy transition.

The presence of regionally abundant natural resources – both minerals and opportunities for expanded deployment of renewable energy (solar and wind) technologies for energy and clean fuels generation - can be a driver to transform the LAC into a Natural Laboratory for the innovation of clean technologies and improved processes, which in combination can make extractives more sustainable. Through the

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deployment of innovative technologies and integration of workforce development efforts, the region can address the main challenges confronted by extractives in the region, including the conflict related to resource governance, the distribution of socioeconomic benefits, and the environmental impacts, CO2 emissions, waste and water use, consultation with affected communities. Examples of how some countries are confronting these issues are making extractives cleaner minerals sources to support the energy transition. Where, using science and the development of technologies, progress is made in giving greater added value to its natural resources, the country can climb in global supply chains and contribute to the objectives of the Paris Agreement and Sustainable Development of the UN.

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