

Bridging the gap between academia and industry for the next set of challenges in energy transition

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In the world of transition to clean-energy, and the rising demand for base-metals (Cu, Ni, Co, Li, Nb), are we ready to catch up with this demand and more importantly, safely, and sustainably achieve those goals? This demand for base-metals, markedly exceeding the discovery rate of new deposits, requires enormous technological developments in exploration success. With our core competencies, the important question is—how ready are we as geoscientists?

As a geoscientist, we are always interested in finding minerals, but we are in an urgency to completely change track because of the climate emergency. The societal/global need to reduce the dependency on fossil fuels is thought-provoking, but if that is to happen, we must find more energy sources. We need solar, wind and EV—collectively the energy transition. But all these transitions need magnets and batteries that need Nb-Co-Cu-Li batteries as the key base-metal. All sounds promising; but the problem is these metals often come from unsafe-mines from countries with politically and ethically challenging situations—so inevitably, the price goes high. So, what geological/technical solution is out there? AI or HI alone cannot solve the problem. Hence, the need to integrate and collaborate between the industry and academic sectors.

In this presentation, I wish to share a few innovative ideas collectively from my experience over the last 20 years (working in both worlds of academia and industry) to address the upcoming challenge to energy transition. Can our sedimentary geochemistry core competence be linked with tectonic-magmatic systems to look for base-metals and build towards a framework for identifying fertile regions for targeted mineral exploration? The future relies on collaboration and integration of multidisciplinary aspects of geosciences and bringing forward innovative ideas. Bridging the gap between the two worlds to best understand earth's history along with the luxury of industry-driven large datasets is perhaps the only way to a sustainable future.