

White paper on critical materials, green energy and geopolitics

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With its Green Deal, the European Union has set itself much-needed ambitious climate goals. But the energy crisis and geopolitical tensions are making these difficult to achieve. Seven researchers from the Leiden-

Delft-Erasmus Universities (LDE) alliance have written a white paper offering solutions.

The paper "Critical Materials, Green Energy and Geopolitics: A Complex Mix" describes the energy transition, a transition from fossil fuels to metals such as iron, copper, lithium and the rare earth metals required to produce the wind turbines, solar panels, electrolyzers and batteries that we need. These metals are critical to the energy transition, but the Netherlands, and the EU in general, currently import the bulk of these, making us dependent on other countries.

Input from the Institute of Environment Sciences

Two researchers from Leiden University helped write the [white paper](#): Rene Kleijn and Ester van der Voet, both from the Institute of Environmental Sciences (CML). The paper was Kleijn's initiative. He asked researchers from different disciplines to share their vision. Kleijn: "We discuss current access to these raw materials in the Netherlands and the EU, and how we can develop a strong, independent basis for the [energy transition](#)."

Van der Voet provided input on urban mining: recovering materials from your own country. "A country's energy system contains enormous amounts steel, copper and aluminum that can be reused when cables and pipes are replaced. This means you don't have to keep mining new materials. You also save a lot of energy because mines use huge machines to dig up massive amounts of stone for what is, in comparison, just a tiny bit of metal."

More information: White paper: Critical Materials, Green Energy and Geopolitics: A Complex Mix. [www.leiden-delft-erasmus.nl/en ... litics-a-complex-mix](http://www.leiden-delft-erasmus.nl/en...itics-a-complex-mix)

Provided by Leiden University

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