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Guest Speaker & Chair on Renewable Policies

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Critical raw materials for the energy transition

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ABSTRACT

Growing evidence of the relative intensity in critical raw materials (CRM) of low-carbon technologies attracts attention in policy debate. Yet, integrated assessment models, currently used in policy and academic debate on climate change mitigation policies, rule out any role of CRM as inputs to specific equipment in the energy transition, hereafter dubbed green capital. This article presents a model of the energy transition, where climate policy's objective is to respect a carbon budget at least cost, with green capital either embedding scarce minerals, or based on an expensive backstop technology. We find that the smaller is the available stock of CRM, the lower welfare and the slower the fossil phase-out. We also show how abstracting from the scarcity of CRM may be severely misleading in designing climate policy. Finally, we highlight the potential role of recycling CRM in easing the energy transition. We find that the lower the cost of recycling, the slower the exhaustion of the CRM and the larger the energy consumption in the long-run.